DEVELOPMENT OF AN INTEGRATED RURAL HEALTH SERVICES AND PRIMARY HEALTH CARE SYSTEM IN LAMPANG, THAILAND

VOLUME II
LAMPANG HEALTH DEVELOPMENT PROJECT DOCUMENTARY SERIES

MINISTRY OF PUBLIC HEALTH THAILAND 1981
LAMPA NG HEALTH DEVELOPMENT PROJECT
DOCUMENTARY SERIES

VOLUME II

DEVELOPMENT OF AN INTEGRATED RURAL HEALTH SERVICES AND PRIMARY HEALTH CARE SYSTEM IN LAMPANG, THAILAND

Ministry of Public Health
Thailand
1981
Dr. Somboon Vachrotai inspired and directed the Lampang Health Development Project for six years in a devoted effort to extend integrated health care services to underserved rural villagers. During this period, the basic concepts of primary health care were broadly accepted by the Ministry of Public Health and other agencies and institutions of the Royal Thai Government concerned with social development. Many of the key features of the Lampang Health Development Project are now being implemented nationwide as a high priority of the National Economic and Social Development Policy and Plan.

Serving over thirty-four years in the Thai Ministry of Public Health, before his untimely death on 1 September 1980, at the age of 56, Dr. Somboon became a charismatic health leader and popular figure at home and abroad. Of his many achievements, he is most highly credited for championing the eradication of yaws in Thailand, directing and inspiring the laudable accomplishments of the National Family Planning Project, and conceptualizing and successfully implementing many innovative rural health care projects which have served as vanguards for progressive rural health development.

Dr. Somboon's concern for poor and underprivileged people, his humanitarian philosophy, his strong motivation and drive, his clear insight and perceptiveness, his tremendous sense of humor and jolly laughter, and his thoughtfulness for those around him are well known by all who knew and loved him. He had the gift of making fun out of work, of turning constraints and challenges to success, and of inculcating among his fellow workers a sense of belonging, a sense of participation, a sense of recognition, and a sense of responsibility. Practicing what he taught, he enjoyed giving encouragement to other health workers with a favorite expression:

Go and search for your people. Love them. Work with them.
Plan with them. Serve them. Begin with what they know.
And build on what they have.

As an active and popular participant in many international health efforts, Dr. Somboon's leadership and experience in evolving primary health care has carried to many other countries in Asia, the Pacific, the Americas and Africa. Many health professionals believe that the innovative development and implementation of the Lampang Health Development Project, including the successful introduction of a primary health care system with the capacity to reach and serve the majority of rural villagers in need, is his greatest legacy.
CONTENT OF THE LAMPANG HEALTH DEVELOPMENT PROJECT 
DOCUMENTARY SERIES

The documentary series comprises six volumes. Volume I summarizes the development, evaluation, conclusions and recommendations of the Project. Volume II describes the development of the Project, focussing on its key features, and Volume III presents the Project’s evaluation, results, conclusions and recommendations. The remaining three volumes present translations of materials used in developing community health volunteers and paraphysicians, key manpower of the Lampang rural health care system.

VOLUME I: SUMMARY FINAL REPORT, CONCLUSIONS AND RECOMMENDATIONS OF THE LAMPANG HEALTH DEVELOPMENT PROJECT (Monograph 12)

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Monograph 2 - Developing Community Health Volunteers and Primary Health Care
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Monograph 4 - Expanding the Community Health Role of the Provincial Hospital
Monograph 5 - Strengthening Management, Supervision, and Support for Rural Health Care
Monograph 6 - A System of Evaluation and Management Information for Rural Health Care

VOLUME III: EVALUATION OF THE LAMPANG INTEGRATED RURAL HEALTH SERVICES AND PRIMARY HEALTH CARE SYSTEM

Monograph 7 - Evaluating and Monitoring Integrated Rural Health Services: Lessons from the Lampang Experience
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Module 21 - Statistics
Module 22 - Epidemiology
Module 23 - Communicable Diseases Control
Module 24 - Health Education

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ACKNOWLEDGEMENT

The Lampang Health Development Project, a collaborative effort of the Royal Thai Government, the University of Hawaii, and the American Public Health Association, was supported partly by the Royal Thai Government and partly through the following contracts of the U.S. Agency for International Development:

- Contract AID/csd-3423 with the American Public Health Association;
- Contract AID/ca-C-1320 with the American Public Health Association; and
- Contract AID/493-9025-T with the University of Hawaii.

Additional support was provided by the following organizations:

- Asia Foundation
- United Nations International Children’s Emergency Fund
- United States International Communications Agency
- World Health Organization
FOREWORD

From 1974 to 1981 the Ministry of Public Health implemented the Lampang Health Development Project, a seven year effort to pioneer and research many approaches for integrating and expanding medical and health service coverage and for creating village-based primary health care services. During this period, I followed closely the reorganization of the provincial health administration, the integration of medical and health services, and the creation of the Department of Community Health in the Lampang Provincial Hospital with its outreach programs in rural health and medical care delivery. The major thrust of the health manpower development effort involved the training of three types of government health workers to serve as wechakorn paraphysicians in all subdistrict health centers and district hospitals, the training of thousands of villagers to serve as health volunteers and health communicators, and the training of hundreds of traditional birth attendants. The effort included the organization and orientation of village health committees, and stimulating contributions by the private sector and by the communities themselves. Beyond the increased demand for health services which resulted, I also noted with great interest evidence of village-based health activities supported by villagers in many localities: improvements in community water sources, installation and maintenance of handpumps for the newly improved and covered wells, nutritional surveillance, family planning supply distribution, and so on. The focus of the Lampang Project was primarily on the district, subdistrict and village levels.

In 1977 and 1978 the Ministry of Public Health drew upon the personnel and experience of the Lampang Project to help plan and conduct two national primary health care seminars. In March, 1979, the Cabinet of the Royal Thai Government approved primary health care as a National Health Development Policy. The Ministry drew heavily from the Lampang Project again in 1979 as it planned with the WHO and UNICEF a biregional primary health care workshop, participated by nine countries of the South East Asia and Western Pacific regions. The first workshop was conducted in 1980, and we are currently planning with WHO and UNICEF for the next biregional workshop. The aim of these national and inter-regional activities is to rapidly feedback to planners and health leaders the field experience that is accumulating in Lampang and in similar efforts. One result, at the Thai national level, is the adoption of primary health care program implementation as a high priority in the National Social and Economic Development Plan.

The lessons and experience coming from Lampang over the past seven years have been quite useful to the Ministry of Public Health in planning and implementing similar approaches for nationwide coverage. In a similar manner, the Lampang experience may be useful to others and this is one of the major aims of the documentary series that is presented herewith.

I wish to take this opportunity to express my gratitude and thanks to all institutions and agencies in Thailand and abroad that have contributed to the Lampang
effort. While all the organizations in Thailand that have made contributions are too numerous to list here, two deserve special recognition for their longstanding support: the Chiengmai University which provided two senior professionals to the Project who served as Chiefs of the Project’s Division of Personnel Development and Division of Research and Evaluation, and the National Institute of Development Administration which played a key role in the research and evaluation effort. Special acknowledgement and appreciation is expressed for the contributions of the University of Hawaii who provided technical and managerial assistance throughout the seven year period, the American Public Health Association for its five year role in project management and liaison, and the U.S. Agency for International Development which was the major source of outside funding. We also appreciate and acknowledge the special purpose contributions of the U.S. Information Service Agency, the Asia Foundation, the World Health Organization, and the U.N. Children’s Fund.

As Thailand enters the 1980’s, the greatest aim of the Ministry of Public Health is to extend basic health services and to achieve health for all Thai citizens, if possible, by the turn of the century. The success of this effort will depend on three major factors: the seriousness and commitment of the Royal Thai Government in implementing it’s new Health Development Policy, the seriousness of health workers at all levels in serving those in need, and the ability and willingness of health workers to teach and guide villagers in matters of health and development, helping them to help themselves. Through continued effort and collaboration, like that of the Lampang Health Development Project, we have good reason to be optimistic.

May, 1981

Dr. Sem Pringpuanggeo
Minister of Public Health
Royal Thai Government
PREFACE

The Lampang Health Development Project, originally called the “DEIDS/Thailand Project” to signify the development and evaluation of an integrated health care delivery system, was conceptualized, planned, implemented and evaluated by the Ministry of Public Health, Royal Thai Government, through shared commitment and collegial collaboration with the University of Hawaii and the American Public Health Association.

Health professionals and leaders from these institutions recognized that conventional approaches to health care delivery were not reaching those most in need - underserved rural villagers who comprised the majority of the population. Further, new approaches had to be conceptualized and tested in the context of Thailand’s health care system if basic health services were to become available to and utilized by rural villagers.

Project planners hypothesized that basic health services could be delivered more cost-effectively if integrated; that the demand for medical care services could be met, to a great extent, by upgrading existing health personnel to be clinically-competent paraprophysicians; and, that the need for health promotion and disease prevention services could be more broadly and effectively extended through community participation. This participation could be achieved by training community health volunteers - health post volunteers, traditional birth attendants and village health communicators as well as involving the private sector. Some elements of these approaches had been implemented in Thailand on a small (district-level) scale in earlier projects, but they had not been adequately evaluated. The Ministry of Public Health, already committed to the concept of integration of health promotion, disease prevention and medical care services, was ready to embark on a major effort to test this approach, and to find ways to broadly extend integrated basic health services to all rural villagers in Thailand.

Lampang Province in northern Thailand (see Figures 1 and 2) was selected as the project area because it had a population of over half a million people, fair communications, moderate economic status, minimal security and insurgency problems, and the endorsement of provincial authorities. While the overall and long-term goal of the Project was to improve the health status of the rural population of Lampang, the specific objectives of the Project were:

1. to expand health care coverage to at least two-thirds of the rural population, particularly women in their child-bearing years and preschool age children, with an emphasis on family planning, nutrition and other maternal and child health services;

2. to establish an integrated provincial health care services delivery system with the capacity to extend integrated medical, health promotion and
disease prevention services to every subdistrict health center, and to estab-
lish simple medical care, health promotion and disease prevention ser-
vices in every village through community participation and private sector
involvement; and,

(3) to establish an integrated provincial health care services delivery system
that is more cost-effective, meaning lower cost per service unit, the key
features of which could be replicated nationwide within the limitations of
resources available to the Royal Thai Government.

Given these objectives, Project planners and implementors developed a number
of innovations and modifications of the existing health system which constituted the
key features of the Project, as viewed in Figure 3 and as summarized below.

(1) Reorganization and Strengthening of the Provincial Health Service Infra-
structure by:

-- Integrating the curative, disease prevention, and health promotion ser-
vices by coordinating and administering them under a single provincial
health administration;
-- Establishing a Department of Community Health within the Provincial
Hospital, and
-- Improving management and supervisory practices, in part by developing
a practical management information system;

(2) Development of Community Health Paraphysicians (wechakorn) from
existing health service personnel to be deployed to every district hospital
and subdistrict health center;

(3) Development of Community Health Volunteers in every village, including
training of a village health volunteer (health post volunteer) in every vil-
lage, training of traditional birth attendants in every village where quali-
fied candidates could be identified, and training of village health commu-
nicators for every 10-15 households in every village; and,

(4) Stimulating other Community and Private Sector Involvement by estab-
lishing health committees in every village and at every administra-
tive level, and by eliciting the interest and support of other private sector
groups.

The Ministry of Public Health and other agencies of the Royal Thai Govern-
ment began planning nationwide programs that would carry these approaches and
key features, as modified, to the whole of the country during implementation of the

Several notable characteristics of Project development, planning and implemen-
tation had a bearing on the progress of the Project and on the acceptance of it's
approaches and key features:
The Lampang Health Development Project was viewed from the beginning as a Thai project: Project planners, Project implementors, and Project leaders decision-makers were predominantly Thai.

The Project was established and directed by the Thai Ministry of Public Health, the official RTG authority that would be responsible for nationwide implementation if the approaches and key features were found to be worthy of "replication".

Project and Ministry leaders developed and maintained a broad base of involvement of Ministry of Public Health personnel and other Royal Thai Government officials in all phases of Project development, planning, implementation, and evaluation.

The Project maintained a continuing dialogue on Project approaches and progress with both Thai and international health agencies by providing Project information through periodic progress reports, organizing annual reviews and by conducting special workshops and seminars for review and refinement of Project approaches and key features.

Project administrative, managerial, and technical assistance from the University of Hawaii and the American Public Health Association was characterized by a spirit of mutualism, a shared commitment, and a collegial collaboration. Technical assistance was not limited to one institution, but involved a number of international organizations, U.S. and Thai institutions and agencies. Project leaders recognized that the Project was dealing with a universal problem of how to achieve "health for all", and that this problem was best approached through broad collaboration and solid commitment, based on a spirit of mutualism and learning together.

This Lampang Health Development Project Documentary Series serves to comprehensively document the planning, implementation and evaluation processes, and to present the major findings and evaluation results of this seven-year effort. Volume 1 summarizes the Project's approaches and key features, evaluation and research findings, conclusions and recommendations. Volume II comprises six monographs which describe in detail the development and functioning of the Project's major approaches and components. Volume III comprises six monographs on evaluation findings, and discusses the Project results, conclusions and recommendations, based on the broad array of survey data, service statistics and other operational data that have been collected and analyzed. Volume IV presents the English language translations of Thai language materials used in developing and supporting community health volunteers -- health post volunteers, health communicators, and traditional birth attendants. Finally, Volumes V and VI comprise English language translations of the twenty-four Thai language training modules used in the development of wechakorn, community health paraphysicians.
It is the sincere wish of Ministry of Public Health and Lampang Project leaders, and of the authors, contributors, and editors of the Lampang Health Development Project Documentary Series, that readers of these materials will find the lessons learned and experience gained in Lampang useful in their own work.

Dr. Prakorb Tuchinda
Deputy Under-Secretary of State
for Public Health
Ministry of Public Health

July, 1981

Dr. Pirote Ningsanonda
Deputy Under-Secretary of State for Public Health
and
Project Director
Lampang Health Development Project
Figure 1  Location of Project Site in Thailand
Figure 2 Map of Lampang Province with Project Intervention Areas, Control Area #1, and Control Area #2 in Adjacent Lampoon Province.
Figure 3  Lampang Provincial Health System and the Inputs of the Lampang Health Development Project

Lampang Provincial Health System

Provincial Level
(Total Pop: 650,000)

- Provincial Health Office
- Provincial Hospital

Districts (12)
(Pop: 54,000)

- District Hospital
- District Hospital
- District Hospital

Subdistricts (75)
(Pop: 5,000)

- Subdistrict Health Center
- Midwifery Center
  (Subdistrict or village level)

Villages (592)
(Pop: 1,000)

- Traditional Midwives
- Health Post Volunteers
- Village Health Committees

Village Health Communicators
Village Child Nutrition Centers

Lampang Project Inputs

Development of Vertical Program:
- Health Education for 97,000 women

Community Participation

Private Sector Involvement
### ACRONYMS AND TERMS

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<tr>
<th>Acronym</th>
<th>Description</th>
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<tr>
<td>AID/W</td>
<td>Agency for International Development/Washington D.C.</td>
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<tr>
<td>APHA</td>
<td>American Public Health Association</td>
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<tr>
<td>BAHT OR $</td>
<td>Thai unit of currency (about 5 Cents, or U.S.$ = $20)</td>
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<tr>
<td>CBFPS</td>
<td>Community-Based Family Planning Services</td>
</tr>
<tr>
<td>CHD</td>
<td>Community Health Department (Provincial)</td>
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<tr>
<td>CHV</td>
<td>Community Health Volunteers (see HPV or VHV, VHC, and TBA)</td>
</tr>
<tr>
<td>CNC</td>
<td>Child Nutrition Center(s)</td>
</tr>
<tr>
<td>DEIDS</td>
<td>Development and Evaluation of an Integrated Health Delivery System (Project title during planning phase)</td>
</tr>
<tr>
<td>DISTRICT</td>
<td>A subdivision of a province (population of district about 50,000)</td>
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<tr>
<td>DOH</td>
<td>Department of Health (Ministry of Public Health)</td>
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<tr>
<td>FP</td>
<td>Family Planning</td>
</tr>
<tr>
<td>H/A</td>
<td>Height for age</td>
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<tr>
<td>HC</td>
<td>Health center</td>
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<tr>
<td>HPV</td>
<td>Health Post Volunteers (or, Village Health Volunteer)</td>
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<tr>
<td>H/W</td>
<td>Height for weight</td>
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<tr>
<td>ICED</td>
<td>International Council for Educational Development</td>
</tr>
<tr>
<td>LHDP</td>
<td>Lampang Health Development Project (Project title during implementation phase)</td>
</tr>
<tr>
<td>MCH</td>
<td>Maternal and child health</td>
</tr>
<tr>
<td>MEDEXX</td>
<td>Physician extender training program based in U.S.</td>
</tr>
<tr>
<td>MOPH</td>
<td>Ministry of Public Health, Thailand</td>
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<tr>
<td>NIDA</td>
<td>National Institute of Development Administration, Thailand</td>
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<tr>
<td>PHO</td>
<td>Provincial Health Officer (or Office)</td>
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<tr>
<td>PHC</td>
<td>Primary health care</td>
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<tr>
<td>RTG</td>
<td>Royal Thai Government</td>
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<td>SPH/UH</td>
<td>School of Public Health, University of Hawaii</td>
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<tr>
<td>TAMBON</td>
<td>A subdivision of a district, or subdistrict with a population of about 5,000</td>
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<tr>
<td>TBA</td>
<td>Traditional birth attendant, or traditional midwife</td>
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<tr>
<td>UHSPH</td>
<td>University of Hawaii's School of Public Health</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>USAID/T</td>
<td>United States Agency for International Development/Thailand</td>
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<tr>
<td>VHC</td>
<td>Village Health Communicator</td>
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<tr>
<td>VHV</td>
<td>Village Health Volunteer (or Health Post Volunteer)</td>
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<tr>
<td>W/A</td>
<td>Weight for age</td>
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<td>WECHAKORN</td>
<td>Community health paraphysician (trained by Lampang Project)</td>
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THE LAMPANG HEALTH DEVELOPMENT PROJECT:
NEW APPROACHES TO RURAL HEALTH CARE

Somboon Vachrotai
Pien Chiowanich
Choomnoom Promkulkao
Ronald G. Wilson
John A. Rogosch
Chaichana Suwanavejh

Monograph
Lampang Health Development Project Documentary Series
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5
CHAPTER 6

LESSONS FROM LAMPANG: AN I.C.E.D.*

COMMENTARY

The Lampang Setting and the Project's Strategy
Requirements for Expanding the Reach of the System
What Does It Take to Achieve "Community Participation"?
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*I.C.E.D. — International Council for Educational Development*
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7
ORIGIN AND DEVELOPMENT OF PROJECT

Health leaders in Thailand have long recognized the need to strengthen the government health care delivery system and extend basic health services to cover the majority of the Thai population, 85 percent of which resides in under-served rural areas. During the 1960s, the rural population grew at over 3 percent a year and suffered primarily from easily-diagnosed and simply-treated conditions, such as many communicable and infectious diseases common in Southeast Asia, diseases of pregnancy and childbirth, malnutrition, gastrointestinal problems, skin infections, and accidents. Scarcely 25 percent of the rural population had convenient access to government health facilities; and even where such facilities were available they were often not utilized. Only 15-17 percent of the rural population would seek health care from government facilities and personnel. Only 2-3 percent of the national budget was allocated for health services, and the limited numbers of trained medical and health personnel gravitated to Bangkok and other urban centers.

In the ten years before the Lampang Health Development Project, the Ministry of Public Health implemented several pilot projects aimed at strengthening the rural health services delivery system and extending basic health services that would be available, accessible, affordable, and acceptable to the rural population. The experience gained in two of these projects — the Pitsanuloke Project and the Saraphi Project — had a direct influence in planning the Lampang Project.

The first of these was implemented by the Ministry of Health in 1964-68 in Pitsanuloke Province (population about 500,000) to strengthen rural health services through the construction of rural health centers, recruitment of additional health personnel, and retraining of all existing rural health personnel. Subdistrict health workers were selected by local people to work on a voluntary basis, and they were eventually trained and hired as sanitarians to help staff the subdistrict level health centers. The major approaches of this effort were (1) strengthening rural health services facilitated by integration of health and medical services at the rural health centers, (2) extending rural health services by recruiting villagers to be new health workers, (3) establishing family folders and a revised record-keeping and reporting system, and (4) establishing a patient referral system between the rural health centers and the provincial hospital. Establishing regular supervision and a patient referral system were attempted, but these could not be maintained. The project was considered a partial success, but it lacked adequate evaluation for detailed analysis and planning purposes.
The Ministry of Public Health implemented the Saraphi Project in Chiang Mai Province in 1968-71 which tested a rural health services model that emphasized maternal and child health, family planning, nutrition, and communicable disease control services, and promoted the active participation of the community, including selection and training of village health volunteers and health communicators. A central district health center, five subdistrict health centers, and six midwifery centers were constructed and staffed by newly-recruited government health workers. The highlight of the project, however, was the selection and training of health post volunteers in three subdistricts and health communicators in another two subdistricts. Child nutrition centers were established through community participation; village health posts were established and staffed by village health volunteers; well-child clinics were strengthened in all service units; and a patient referral system was attempted between the village health post and the government health centers. The experience gained, although not adequately evaluated, suggested that village health post volunteers and health communicators could (1) effectively promote village level health services, (2) strengthen the referral of patients to appropriate facilities, and (3) encourage community participation in operating the child nutrition centers.

After these two earlier projects had ended, a number of the innovations they fostered were subsequently applied in modified form in other areas by the Ministry of Public Health and by the planners of the Lampang Project. In particular, the basic ideas for selecting and training village health volunteers and health communicators were borrowed by the Lampang Project from the Saraphi Project.

In 1970, a national survey on the utilization of health services in Thailand revealed that less than 20 percent of rural villagers, when ill, utilized government rural health services. Subsequent analyses of the national health services revealed that the major problems centered on the following: inadequate health service coverage, inadequate health service manpower production and distribution, inadequate health data, poor coordination between public and private health sectors, lack of communication between suppliers and consumers, lack of community organization, inadequate health service infrastructure, and poor administrative and management practices resulting in fragmentation of services, duplication of effort, and inefficient use of severely limited resources. Ministry of Public Health leaders were determined to find ways to solve these problems and to bring basic health services within easy reach of the majority of the rural population.

In 1971 the U.S. Agency for International Development in Washington (AID/W) contracted with the American Public Health Association (APHA) to develop and evaluate new approaches for integrated rural health care delivery systems for improved health, population, and nutrition services in the developing world. The AID/W-APHA contract called for "long-term (up to eight years) pilot, experimental work to be carried out in four representative less-developed country locations..."
a large population base (500,000 or more) in such a manner that general conclusions on accessibility, acceptability, and affordability can be drawn.”

In 1972, the APHA approached the Royal Thai Government and the University of Hawaii to elicit their interest in collaborating on a “DEIDS” (Development and Evaluation of an Integrated Health Delivery System) project for Thailand. In 1973, a joint team from AID/W, USAID/T, APHA, and University of Hawaii School of Public Health (UHSPH) reached agreement in principle with the Thai Ministry of Public Health to jointly plan a “DEIDS” project for Thailand, and the APHA and UHSPH recruited a health professional from Hawaii to work with the Ministry for six months to help plan the project. The plan for the “DEIDS/Thailand Project” was completed by late 1973 and was submitted, approved, and funded in 1974. Significantly, the Project Proposal stated that “after careful consideration with AID, it was decided that the planning/monitoring/evaluation system for the project should be expanded, beyond the original goal of measuring how many people are reached, to include planning and programming questions, and longer-run questions of cost-effectiveness and replicability... Since the design of high-coverage delivery system is unproven in Thailand, it must start with a reasonable hypothesis and let the program evolve from there through constant evaluation of services structure, utilization and cost.”

The “DEIDS/Thailand Project” was inaugurated in September 1974, when the Royal Thai Government (RTG) and the APHA signed the “Project Agreement” for development and evaluation of an integrated a health delivery system in Lamphang Province; and, in December 1974, the University of Hawaii signed a subcontract with the American Public Health Association to provide technical assistance to the RTG in support of the “DEIDS/Thailand Project”. The administrative and collaborative structure of the Project provided for “central funding” from AID/W (under the AID/W-APHA DEIDS Contract), a Project Agreement between APHA and the RTG to provide financial assistance, and a subcontract between the APHA and the UHSPH to provide technical assistance. The Project, approved by the Cabinet of the Royal Thai Government, was administered and implemented by the Ministry of Public Health and the Lampang Provincial Health Office. The Government’s role in planning the Project and its steadfast commitment to the goal and objectives of the Project are noteworthy.

The northern province of Lampang, with a 1974 population of over 600,000, was selected by the Ministry of Public Health to be the site for the “DEIDS/Thailand Project,” now better known as the “Lampang Health Development Project.” The criteria for selection were: (1) a population over 500,000, (2) fair communications to and within the province, (3) a noninsurgency area, (4) moderate economic status, and (5) endorsement by provincial officials.
Figure 1 traces the evolution in Thailand of the key concepts and basic elements for an integrated rural health services and primary health care system that were ultimately incorporated in the plan of the Lampang Health Development Project, and those (circled) which have been adopted (or adapted) for nationwide implementation.
FIGURE 1: DEVELOPMENT OF CONCEPTS AND BASIC ELEMENTS FOR INTEGRATED RURAL HEALTH SERVICES AND PRIMARY HEALTH CARE IN THAILAND (1964-1981)

PISANULOK PROJECT (1964-68)
1. Model Network of Peripheral Health Units with Integrated Medical-Health Services
2. Subdistrict Health Workers
3. Health Records/Reporting System
4. Patient Referral System (Health Centers to Provincial Hospital)

SARAPHI PROJECT (1968-71)
1. Village Health Volunteers & Health Communicators
2. Health Records/Reporting System
3. Patient Referral System (Village Health Posts to Health Center)
4. Community Participation (Child Nutrition Centers)

LAMPHANG HEALTH DEVELOPMENT PROJECT (1974-81)
1. Primary Health Workers:
   - Village Health Post Volunteers
   - Village Health Communicators
   - Traditional Birth Attendants
2. Community Health Paraphysicians:
   - "Wechakorn"
3. Community Participation and Private Sector Involvement
4. Reorganized Provincial Health System:
   - Integrated Medical-Health Services
   - Community Medicine Department in the Provincial Hospital
   - Health Information System
   - Management Practices

BASIC ELEMENTS FOR NATIONWIDE IMPLEMENTATION OF THE NATIONAL PRIMARY HEALTH CARE POLICY AND PLAN:
- PHC manpower development program
- Supervisory system
- Referral system
- Logistic support
- Information & management system
- Incentives & rewards
NATIONAL HEALTH CARE STRUCTURE

The Ministry of Public Health administers a major health care service system in Thailand, overseeing a widespread network of hospitals and rural health centers reaching to all provinces, to over half of the 570 districts of the country, to about 70 percent of the subdistricts, and to 3 percent of the villages. The Ministry of Public Health in Bangkok is organized as follows (see Figure 2):

1. The Office of the Under-Secretary of State for Public Health coordinates the work of five ministry departments and directly administers the provincial health care system.

2. The Department of Medical Services is responsible for specific hospitals in the Bangkok area and for special-function hospitals (including psychiatric care) in other parts of the country.

3. The Department of Health, with eight technical divisions, provides a variety of support for Ministry programs relating to the environment and population.

4. The Department of Communicable Disease Control coordinates all immunization and disease control programs.

5. The Department of Medical Sciences is responsible for laboratory research and services.

6. The Office of Food and Drug Control is the national unit responsible for ensuring the safe production and distribution of food and drug products in Thailand.

Besides these service functions, the Ministry also trains a large number of health workers to staff its network of health facilities. It provides preservice training for nurses, midwives, male sanitary health workers, nurse aides, and a variety of other auxiliary personnel. It also offers a wide array of refresher courses and other types of continuing education to its personnel.

Other more specialized and highly trained health personnel are produced outside of the Ministry. Physicians are trained by six medical schools, three of which are located in Bangkok. A large number of nurses, medical technologists, and other specialized personnel are also trained in university settings, such as the Faculty of Public Health of Mahidol University, which provides graduate training at the bachelor and master's level for all types of health personnel who qualify for university education.
FIGURE 2: ORGANIZATION OF THE MINISTRY OF PUBLIC HEALTH

OFFICE OF THE SECRETARY TO THE MINISTER

MINISTER OF PUBLIC HEALTH AND DEPUTY MINISTER

UNDER – SECRETARY OF STATE FOR PUBLIC HEALTH

OFFICE OF THE UNDER – SECRETARY OF STATE FOR PUBLIC HEALTH

DEPUTY UNDER SECRETARY (ADMINISTRATION)  DEPUTY UNDER SECRETARY (SUPERINTENDENT)  DEPUTY UNDER SECRETARY (PLANNING & EVALUATION)

DEPARTMENT OF MEDICAL SERVICES  DEPARTMENT OF HEALTH  RURAL ADMINISTRATION

DEPARTMENT OF COMMUNICABLE DISEASE CONTROL  DEPARTMENT OF MEDICAL SCIENCES  OFFICE OF FOOD & DRUG CONTROL

PROVINCIAL HEALTH OFFICER

- Provincial Health Office
- Provincial and District Hospitals
- Medical & Health Centers

DISTRICT HEALTH OFFICER

- District Health Office
- Health Centers
- Midwifery Centers
PROVINCIAL HEALTH ADMINISTRATION

The basic administrative unit in the country is the province, each of which has a provincial health organization headed by a Provincial Health Officer who is directly responsible to both the provincial governor and the Undersecretary of State in the Ministry of Public Health. Although the Provincial Health Officer is officially in charge of both the provincial hospital and the rural health center network, there has traditionally been a clear separation between the provincial hospital, which provides predominantly curative care, and the provincial health office, which is responsible for the network of rural health centers, providing some curative but mostly health promotion and disease prevention services. Provincial hospitals range in size from about 150 to 600 beds. The Provincial Health Office has responsibility for district hospitals (formerly called "first class medical and health centers"), subdistrict health centers, and midwifery centers. Figure 3 shows the provincial health care organization and its linkages to overall provincial administration. Figure 4 shows the available provincial health facilities and coverage in 1977.
FIGURE 3
NETWORK AND ADMINISTRATIVE RELATIONSHIP BETWEEN MINISTRY OF PUBLIC HEALTH AND MINISTRY OF INTERIOR, THAILAND (1978)

CENTRAL LEVEL:

MINISTRY OF PUBLIC HEALTH
OFFICE OF THE UNDER – SECRETARY

MINISTRY OF INTERIOR OFFICE OF THE UNDER – SECRETARY

PROVINCIAL LEVEL:

PROVINCIAL HEALTH OFFICE (Provincial Health Officer)

GOVERNOR’S OFFICE (Governor)

PROVINCIAL HOSPITAL

DISTRICT LEVEL:

DISTRICT HOSPITAL (M.D., Nurse, Sanitarian, Health Worker)

DISTRICT HEALTH OFFICE
District Health Office (Non-M.D.)

SUBDISTRICT LEVEL:

HEALTH CENTER
(Sanitarian, Midwife, Health Workers)

SUBDISTRICT (Kamnan or Tambon Headman)

VILLAGE LEVEL:

MIDWIFERY CENTER (Midwife)

VILLAGE (Village Headman)

Administrative Authority

Technical Authority
FIGURE 4
MINISTRY OF PUBLIC HEALTH FACILITIES
1977

Regional: 9 Regions

Provincial: 71 Provinces (300,000-1,000,000 Population)

District: 570 Districts (20,000-100,000 Population)

Subdistrict (Tambon): 5,229 Subdistricts (5,000-10,000 Population)

Village (Muban): 48,847 Villages (500-1,000 population)

Regional Hospitals

Provincial and Big District Hospitals

District Hospitals

Health Centers

Midwifery Centers

14 Hospitals

89 (includes above 14) (100% of Provincial Capitals)

288 (51% of Districts)
Staff: MD
Sanitarian
Midwife
Nurse
Health Worker

3,720 (71% of Subdistricts)
Staff: Midwife
Sanitarian/
Health Worker

1,456 (3% of Villages)
Staff: Midwife

CHAPTER 2

PROJECT STRATEGY AND APPROACHES IN THE LAMPANG SETTING

AREA BACKGROUND

Lampang is one of 16 provinces in the northern region of Thailand and is located centrally within the region. Lampang had an estimated population of about 636,000 in 1974 in an area of 12,518 square kilometers (4,890 square miles). The population growth since 1970 has averaged 1.8 percent per year. In 1974 the province had 11 districts, 75 subdistricts, and 574 villages. The provincial center, Lampang town, had an estimated population of 43,217.

Lampang is located on the rail lines between Bangkok and Chiang Mai and on the main highways linking Bangkok and Chiang Mai, Chiengrai and other major points in the northwest. The population is predominantly Buddhist and rural; the economy is largely agricultural. Rice is the main crop, along with other cash crops such as peanuts, pineapple, tobacco and sugar cane. Because of its location along communication arteries, agro-processing plants have also been established, including major canning facilities and sugar processing plants. Lampang also derives income from extractive industries, such as timber, wolfram, tin, fluorite, and lignite. In one district, a lode of lignite has been discovered, stimulating the development of a large power generating plant using lignite as fuel. There is also a variety of cottage industries producing wood carvings, decorative weapons, and pottery.

HEALTH FACILITIES

When the Lampang Project began field operations in late 1974 the provincial hospital had 300 beds, a staff of 14 physicians and 45 nurses, an average daily occupancy rate of 100 percent, and a daily out-patient load of from 360 to 500 patients. Three of the province’s 11 districts had district hospitals, and only two of these had a physician in attendance. Forty-three of the province’s 75 subdistricts had a health center, staffed by a sanitarian and a midwife. In addition, there were midwifery centers located in 43 of the province’s then 574 villages. Within the Provincial Health Office, there were also units for communicable disease control, venereal disease control, and epidemiology. There were also a malaria control unit, a leprosy control unit, a regional sanitation center, and a regional midwifery school located in the health service complex. In addition to government-sector health services, there were at least 20 private medical clinics in Lampang town (staffed mostly by hospital physicians in nonofficial hours), and two private hospitals of 25-50 beds each. In the rural villages, there were a variety of indigenous practitioners, such as herbalists, injectionists, traditional birth attendants, magical and spirit doctors.
The services provided by each type of government health facility mentioned above can be summarized as follows:

1. **Provincial Hospital**: Basically curative health services are available with the primary specialties and a few subspecialties represented. Patients requiring more sophisticated care are referred to the teaching hospitals in Chiang Mai or Bangkok. Male and female sterilization, as well as IUDs, birth control pills, and Depo-Provera injections are available in the hospital’s family planning unit.

2. **District Hospital**: Clinical care is provided for most acute illnesses, trauma episodes and minor surgery, along with short-term, acute inpatient care. It also provides the full range of maternal and child health and family planning services, including vasectomy, IUD insertion, pills, and Depo-Provera injection.

3. **Subdistrict Health Center**: Provides first aid and emergency treatment for minor illness and injury, pre- and post-natal care, deliveries, child and school health, nutrition center services, family planning services including pill and condom distribution, sanitation and environmental health (privies and clean water supply).

4. **Midwifery Center**: Offers pre- and post-natal care, deliveries, family planning services, including pill and condom distribution.

**PROJECT STRATEGY AND RATIONALE**

Given the limitations of budget, trained health manpower, health facilities and other resources needed for implementing and maintaining a viable and effective health delivery system, planners of the Lampang Project sought ways to expand health services that would be most cost-effective. They recognized that it would be far too expensive to build adequate facilities and train enough physicians, even if they were willing to reside and work in rural areas. Therefore, Lampang Project planners decided to retrain existing categories of health workers (nurses, midwives, and sanitarians) to provide a limited range of relevant medical services as intermediate medical-health care providers, or community health paraphysicians, called *wechakorn*². The limited number of available physicians could readily supervise the crops of *wechakorn* paraphysicians, and thereby significantly extend clinical care services to the subdistrict (population about 5,000) level. For more sophisticated clinical care by physicians, a strengthened patient referral system was planned to link all service facilities.

Project planners were convinced that an integrated system that provided a combination of relevant curative, disease prevention, and health promotion services – with special emphasis on nutrition, family planning, and maternal and child health services – would be more cost-effective than fragmented single-purpose services.
They also believed that integrated services would be more comprehensive, convenient, and acceptable to the consumers. Hence, the Lampang Project aimed at integration of previously separated health services and reorganization and strengthening of the health system infrastructure. It was expected that by strengthening management practices and by operating the health system through informed decision-making, based on a streamlined health information system, improved performance, efficiency, and effectiveness could be achieved.

The central strategy of the Project coincided with many of the concepts inherent in the "primary health care" approach advocated by the World Health Organization. The mobilization of all available private sector and community resources could vastly increase health services coverage of the population in need. Community organization and community participation in a greatly extended health system reaching village level would be essential. The concept of village health volunteers and health communicators, present in earlier projects, required further testing but seemed promising. It was felt that Lampang’s village health post volunteers could be supervised and guided by the wechakorn paraprophysicians and other health workers of the subdistrict health centers, and that the wechakorn would provide the first referral point for village health post volunteers. It was recognized that most rural deliveries are performed by traditional birth attendants. Thus, to build on indigenous patterns of health care, plans were made to train the traditional birth attendants in sterile technique and sanitary practices and to recognize complicated conditions requiring attention by more skilled medical personnel.

PROJECT GOALS AND OBJECTIVES

The ultimate goal of the Lampang Project was to improve the health status of the population of Lampang Province. The more specific objectives for reaching this goal were:

1. to expand health care coverage to at least two-thirds of the rural population, especially women in their child-bearing years and pre-school age children, with an emphasis on family planning, nutrition, and maternal and child health services;

2. to establish a model integrated provincial health services delivery system which extends integrated curative-preventive-promotive health services to every village through trained community health volunteers; and

3. to establish a provincial health care system that is cost-effective, meaning "lower-cost" per service unit, the key features of which could be replicated nationwide within limitations of Royal Thai Government resources.

To achieve these objectives the planners envisaged a vertically integrated, multi-tiered health care delivery system, illustrated diagrammatically in Figure 5. The sy-
tern as a whole was designed to expand both curative and preventive/promotive services in proportions appropriate to the level of service provision and to the health needs of the local population. It was also designed to make optimal use of scarce highly-trained health manpower and sophisticated facilities and equipment through an appropriate division of labor among the different tiers.

The bottom tier, comprising the subdistrict (tambon) health center personnel and affiliated village-level community health volunteers, would devote about three-quarters of their total effort to preventive/promotional work and the remaining quarter to handling simple medical problems (referring patients with more difficult problems to higher levels). The district hospital at the middle level and the provincial hospital at the top would devote the bulk of their effort to more sophisticated medical care services and in addition would provide important supervisory and support services to medical care, disease prevention and health promotion work at the subdistrict and village levels.

FIGURE 5. CONCEPTUAL FRAMEWORK OF PROJECT SHOWING APPROXIMATE DISTRIBUTION OF TYPES OF HEALTH SERVICES BY LEVEL AND TYPES OF SERVICE PROVIDERS

<table>
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<th>SERVICE PROVIDERS</th>
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<td>Provincial Hospital</td>
<td>CURATIVE SERVICES</td>
<td>Community Health Department in the Provincial Hospital</td>
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<tr>
<td>DISTRICT</td>
<td>District Hospital</td>
<td>CHP 75% HPV 25%</td>
<td>ADHO CHDMU</td>
</tr>
<tr>
<td>SUBDISTRICT</td>
<td>Health Center</td>
<td>CHP 50% CHDMU 50%</td>
<td>HPV/TBA VHC, CNCA &amp; CHDMU</td>
</tr>
<tr>
<td>VILLAGE</td>
<td>Health Post</td>
<td>CHP 25% HPV 75%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Midwifery Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CNC</td>
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KEY
- ADHO = Assistant District Health Officer
- CHDMU = Community Health Dept. Mobile Unit
- CHP = Community Health Paraphysician *(Wechakorn)*
- CNC = Child Nutrition Center
- CNCA = Child Nutrition Center Attendant
- HPV = Village Health Post Volunteer
- TBA = Traditional Birth Attendant
- VHC = Village Health Communicator

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KEY FEATURES OF PROJECT APPROACHES

The innovations and modifications of the existing provincial health system that constituted the Lampang Project’s key features include:

1. **Reorganization and strengthening of the provincial health service infrastructure by:**
   a. Integrating the medical, disease prevention, and health promotion services by coordinating and administering them under a single provincial health administration;
   b. Establishing a Department of Community Health within the Provincial Hospital; and
   c. Improving management and supervisory practices, in part by developing a practical health information system.

2. **Development of community health paraphysicians (wechakorn).**
   This is to overcome the lack of skilled curative services available at the periphery. Ninety-two wechakorn, recruited from among nurses, midwives, sanitarians, and nurse aides were trained for one year in the provincial and district hospitals, after which the majority returned to assignments in subdistrict health centers and midwifery centers.

3. **Development of three types of community health volunteers.**
   This is to provide many basic health services at the village level. At least one “health post volunteer” (HPV) and, where available, one “traditional birth attendant” (TBA) were trained and now provide services in all villages of the province, making basic health care services and nonprescription drugs available to every villager in the province. To assist the health post volunteers, groups of “health communicators” were trained, one for about 10-15 households, to provide advice, referral, and health information to every household.

4. **Stimulating community and private sector involvement.**
   Community support was actively sought through the formation of “village health committees”, whose function is to select the volunteers and to provide local support to them once the volunteers are in place. Efforts were made to involve private organizations and health care providers (such as druggists, private clinics, Rotary club and Lions Clubs) and others with important roles in village health care and development.

Figure 3 in the preface of this volume provides a summary picture of how the new inputs of the Lampang Project have modified and supplemented the previously existing provincial health system with a view to extending, expanding and improving rural health services.
The Project design had three experimental areas, implemented sequentially, and two control areas, one district within Lampang Province and one district outside of Lampang in the adjacent province of Lampoon. The were three sequentially-phased experimental areas were designated E₁, E₂, and E₃, corresponding to the districts listed below. E₁ was a single district, E₂ comprised seven districts, and E₃ had four districts. Mae Tah district was the control district (C₁) within Lampang Province (which was the last district for implementation of Project interventions), and another control district (C₂) was Mae Tha in Lampoon Province adjacent to Lampang. Figure 6 shows these three intervention areas and the two control areas.

Project implementation occurred in three stages: the first stage (October 1974 to October 1976) covered one district (E₁), Hang Chat; stage two (October 1976-78) covered the seven districts of the southern part of the province (E₂) – Muang, Mae Moh, Ko Kha, Serm Ngam, Sob Prab, Mae Prik, Thern; and the third phase extended the project to all remaining districts (E₃) – Wang Nua Jae Hom, Ngao, and Mae Tah (C₁). E₁ contained about 7 percent of the province’s population, and E₂ and E₃ contained about 60 percent and 33 percent, respectively.

* Mae Tah Control Area (C₁) was added to the third intervention area in 1978-1979
FIGURE 6 - GEOGRAPHICAL PHASING OF PROJECT IMPLEMENTATION

Wang Neua

Chae Hom

Ngao

Mae Tha Lampoon Province

Hang Chat

Ko Kha

Serm Ngam

Sob Prab

Mae Tah

Muang

Mae Moh

Mae Prak

Thern

Mae Moh Intervention Area (1974-1976)

干预区域 (1976-1978)

干预区域 (1978-1979)

C1 内部省份控制区域

C2 外部省份控制区域

E1 E2 E3
CHAPTER 3

ORGANIZATION, PERSONNEL, AND MANAGEMENT

PROJECT ORGANIZATION

To describe the Lampang Project organization is a complex task because Project personnel included existing staff members from the provincial health organization, professionals assigned from other units within the Ministry of Public Health and other government agencies, as well as other technical and administrative staff hired specifically for the Project. Project field operations—delivery of services, training, supervision, management—were carried out by resident provincial health staff. Those who came to the Project from the outside acted as planners and stimulators, helping to introduce and evaluate the new approaches that were the heart of the Lampang Project. In the final analysis, it is the provincial health organization that must deliver health services to the population of Lampang. The Lampang Project aimed to make this process more pervasive, more efficient, more integrated, more community-oriented, and more affordable.

One activity which was not normally a responsibility of the provincial health organization (and one for which it is not equipped) was project evaluation. Evaluation activities were carried out by special evaluation staff with necessary coordinating support from the province. Project evaluation staff assisted the provincial health staff in strengthening its own information and analysis systems.

The Lampang Project was organized into a number of components to assist in Project implementation at the provincial level and to coordinate support from the central ministry in Bangkok. Figure 7 outlines the general Project organization and staff. The First Project Director was, at different times, the Director General of two of the five departments within the Ministry (Department of Health and Department of Communicable Diseases Control). The Second Project Director Appointed by the MOPH, was the Deputy Under-Secretary of the MOPH. The Project Director took responsibility for coordinating all support with the various agencies both inside and outside the Ministry of Public Health, and he established a Project Director's office within the Ministry of Public Health. In Lampang Province, the Project Field Director oversaw Project operations at the provincial level, and all Project division chiefs reported to him. Because the heart of Project operations was improved coverage and delivery of health services within the province, it was recognized from the outset that the Field Director must also be a senior provincial health official. Consequently, the Project’s Field Directors have been the Provincial Health Officer or the Deputy Provincial Health Officer.
FIGURE 7: LAMPANG PROJECT ORGANIZATION AND KEY PERSONNEL

Ministry of Public Health

Project Director

University of Hawaii Resident Staff

Provincial Health Office

Field Director

* Field Director
* Deputy Field Director
* Hospital-Based Health Planner
* 3 Field Coordinators

Planning & Programming Division

Personnel Development Division

Evaluation & Research Division

Administrative Services Division

* Chief
* Asst. Chief
* 2 Supervision Coordinators
****1 Records/Reports Analyst

* Chief
* Asst. Chief
* 4 Tech. Instructors
****3 Asst. Tech. Instructors

* Chief
**** Sr. Statistician
**** 2 Jr. Statisticians
**** 12 Data Collectors
**** 8 Data Coders
**** 2 Field Supervisors
* 1 Field Mgr.
* 1 Records Analyst
**** 1 Computer Programmer
**** 1 Research Associate

* Regular MOPH or Lampang Provincial Health Personnel
** Special assignment personnel from RTG agencies (including MOPH) and institutions.
*** U.S. Personnel (University of Hawaii) ***
**** Hired from private sector.
Under the Field Director were four Project Divisions: the Planning and Programming Division, the Personnel Development Division, the Evaluation and Research Division, and the Administrative Services Division.

The Planning and Programming Division had responsibility for assisting the provincial health staff in planning and implementing the various modifications and innovative approaches in the Project. The small staff of five professionals have assisted health staff at all levels of the province in recruiting the wechakorn paraphysicians, in organizing the village committees, in selecting village health volunteers, in stimulating participation from private sector groups, and in organizing programs of special emphasis, such as nutritional surveillance and services and expanded family planning services. In short, the Planning and Programming Division was responsible for assistance in planning all activities related to service delivery. In the latter stage of the Project, the functions of the division were incorporated into those of the Provincial Health Office, and the Project division was no longer needed.

The Personnel Development Division, with a staff of training specialists, had responsibility for planning and implementing all training and orientation required to implement the various Project approaches. This included the design and development of the wechakorn paraphysician curriculum, organizing the training schedule in cooperation with the Provincial Hospital and other health facilities, and preparing all related training materials. It also included developing a two-week training curriculum and field training programs for the health post volunteers and traditional midwives, and the two-day training sessions for the health communicators. In addition, the Division organized orientation programs for the various service and supervisory personnel at the provincial level; it also implemented a training-for-trainers program for those provincial staff who carry the burden of field training. The Personnel Development Division prepared all teaching materials and aids needed for each of the training programs, and drew on a wide range of experience available at other training institutions for assistance.

The Evaluation and Research Division had responsibility for monitoring Project progress and for measuring its impact on service delivery and on the health status of the target population. Because the demands of the evaluation process were unique and outside the normal range of provincial health service activity (and will not be continued at the end of the Project), the Evaluation and Research Division has carried out its activities with its own personnel. Given its wide range of activities, the Evaluation and Research Division had the largest staff of all Project Divisions.

The Division of Administrative Services was set up to administer financial and administrative services. It prepared the Project budget, oversaw Project expenditures controlled fiscal and administrative procedures, and prepared all required financial reports.
Working with the Project divisions, a technical assistance staff of three (reduced to two in 1978) faculty members of the School of Public Health, University of Hawaii, served as integral members of the Project staff, providing technical consultation in the areas of planning and management, manpower development, evaluation and research. They also assisted in coordinating activities with international agencies. The American Public Health Association monitored and managed the Project during the period 1974-1979, and the University of Hawaii monitored and managed the Project during the final period 1979-1981.

In addition to the Project staff and UHSPH technical assistance staff resident in Lampang, division chiefs drew on outside consultants for special technical needs when required. The Evaluation and Research Division and the Personnel Development Division in particular have used outside consultants in carrying out their operations. Most of these consultants came from institutions within Thailand. Occasionally, consultants from abroad were also invited.

ORGANIZATIONAL CHANGE AND INTEGRATION

Although the Ministry of Public Health had nominally brought together the hospital and rural health services under one administrative unit, the Provincial Health Office, an effective system of cooperation and coordination at the provincial level had not yet been fully developed.

The Lampang Project sought to establish a closer alignment between the hospital's medical services and the preventive/promotive services of the rural health facilities. This process was considered essential, since the Provincial Health Office and Hospital were viewed as the nucleus for medical and health care services delivery in the province, providing leadership in training and technical support, as well as directing and coordinating service delivery. As part of the design for reorganization, a Department of Community Health – Thailand's first department of this type in a provincial hospital – was established to provide a link between the hospital and rural health centers.

The Community Health Department's Mobile Health Clinic Program provided an interesting example of how the activities of the Provincial Hospital and rural health care infrastructure have become integrated under the Lampang Project. This particular activity grew out of a nationwide mobile vasectomy program organized by the Ministry of Public Health's National Family Planning Project to meet an evident large demand among rural males for vasectomies. Responsibility for operating a mobile unit in Lampang Province was accepted by the new Community Health Department of the Provincial Hospital.

Initially the Lampang mobile clinic sessions were confined to vasectomies, but
as a result of heavy villager response and requests for other types of services they were expanded to provide out-patient medical care, immunizations, nutrition education and food supplements.

The training and supervision of the *wechakorn* paraphysicians has also served to improve the links between the Provincial Hospital, district hospitals, and the subdistrict health centers. Most of the one-year training period was spent in the Provincial Hospital, first in the didactic classroom phase, and then in the clinical preceptorship rotations. During the training period, the *wechakorn* trainees developed a strong relationship with their physician instructors and preceptors.

Introducing the *wechakorn* into the Provincial Hospital, the district hospitals, and the rural health centers broadened and strengthened the pattern of health care at each of these facilities. In the Provincial Hospital, nurse *wechakorn* have been utilized in screening patients in the Out-Patient Department, relieving the burden placed on the few physicians normally responsible for these services. *Wechakorn* have assisted in the provision of medical care in the wards, and in providing night call services. In district hospitals, one or two *wechakorn* are assigned to assist the physician, if available, or to substitute for a physician if not available. Seventy to seventy-five percent of the *wechakorn*, however, returned to health centers at the subdistrict level, where there is no physician.

**IMPORTANT ROLE OF WECHAKORN PARAPHYSICIANS**

The deployment of *wechakorn* to subdistrict health centers brought the most dramatic change in health care at the subdistrict level. Rural villagers previously utilized the subdistrict health center minimally, knowing that a full range of clinical services could be found only at the district or Provincial Hospital. With the deployment of the *wechakorn* to the subdistrict level, illness care and other health services, including expanded family planning services, became available, conveniently near the village.

*Wechakorn* paraphysician candidates were selected from existing health services personnel--nurses, midwives, sanitarians, and nurses aides--and given an intensive year of competency-based training that equipped them to deal with most common medical and health problems, as well as to recognize those more complex conditions requiring the attention of a physician. Although *wechakorn* continued to fulfill their former responsibilities after they completed training and returned to their assignments, the one year of competency based training broadened and strengthened their role and responsibilities at their respective facilities. Their training enabled them to diagnose and treat a wide range of the common health problems and illnesses found in the rural areas, using antibiotics and other modern medicines generally provided by physicians. Preventive and promotive service activities, formerly their main work, were also expanded, including insertion of IUDs and providing injections of...
Depo-Provera, and organizing of community-based nutritional surveillance and service programs.

Another responsibility that was added to the role of the wechakorn and other subdistrict health center workers was supervision and technical support for community health volunteers. At least one health post volunteer was trained for each village to provide many primary health care services to his fellow villagers. For each HPV, there are approximately ten health communicators in a village. There is one trained traditional birth attendant in approximately every two villages. The training and deployment of these three types of community health volunteers was one of the Project’s major thrusts in strengthening health care coverage in the rural areas and in enabling the villagers to help themselves.

The important task of maintaining the morale and motivation of the volunteers and of providing adequate technical and logistical support belongs to the subdistrict health center staff—the midwife, the sanitarian, and the wechakorn. In an average subdistrict, the health center has responsibility for 5 to 10 health post volunteers, 50 to 100 health communicators, and about 5 traditional midwives. Each health post volunteer must be visited, at a minimum, once a month to gather information on the volunteer’s activities, to assist in solving any problems that may have come up, and to facilitate the resupply of household drugs. Although village volunteers are a promising path to improve health care at the village level and facilitate better use of scarce health manpower resources, their required supervision and support adds new burdens for government health workers.

The primary health care network of village volunteers is, on the one hand, an extension of the government health care system, but on the other hand is a community-based, independent system organized to blend as smoothly as possible with the values, traditions, and life-style of rural villagers. There are important reasons for this approach. Not only is the government currently unable to bring health services to every village (and cannot do so in the near future), but it appears that it is not absolutely necessary for government health workers to reach every village. Recognizing that villagers in Thailand have a long history of reliance on their own ingenuity and resources without outside assistance, it seems reasonable that, given some stimulation, direction, training, simple medical supplies, and encouragement, villagers can build on indigenous self-reliance in meeting many of their primary health needs.

COMMUNITY SUPPORT AND COORDINATING BODIES

To establish and maintain such a network of village health care required a foundation of community support and participation and the sympathetic cooperation of governmental and other organizations at all levels. Thus, in the early planning stages, Project staff proposed that several types of committees be formed, or, if
already existing, be oriented to generate support at all key levels. These included: (1) Village Health Committees, (2) Subdistrict Councils, (3) District Advisory Committees, and (4) a Provincial Coordinating Committee.

The Village Health Committee was one of the most important of the community groups. In each village, the former health committee, originally established to improve sanitation and water supply, was reorganized or a new committee formed. Usually the village committee includes the village headman and other influential members of the village. A first step in the community social preparation process was establishing the village health committee as a means to provide initial orientation about the objectives and approaches of the Project, to learn of the community's health concerns, and to elicit their support and active participation. Subdistrict health center workers, in cooperation with Project staff, visited every village to help organize the committees.

Once the committees were established, their first task was to identify and select the village health volunteers for their area. In the very early stages of the Project a sociometric survey method was used to identify the volunteers, but, though effective, it was felt to be too time-consuming and costly for large-scale use. When given a specific task, such as volunteer selection, the village committees were eager and cooperative. However, once the volunteers were trained and returned to the village, the committee's continuing role has not been well-defined. Committee members in more recently intervened areas have been trained as health communicators, thus obviating the selection of a separate group of villagers to carry out this function. This provided committee members with a clearer role and drew more directly on their special influence in the community.

Subdistrict (tambon) Councils are a normal coordinating group established by the Government for the purpose of local administration. A Subdistrict Council is made up of heads of government units at the subdistrict level, as well as influential citizens from the communities. Subdistrict Councils were oriented by the Project and have been instrumental in coordinating support from other government sectors.

District Advisory Committees, normally made up of the local district officer and all heads of government units, were crucial in the introduction, acceptance, and effective implementation of the Project in each district. Since all health workers fall under the authority of the district officer, his clearance was required before the Project could move into any given area. Under his leadership and support the District Advisory Committee served as an important mechanism for securing cooperation for the Project from all relevant government units. For example, the district officer and district facilities were involved in training community health volunteers and in providing assistance for specific activities, such as in nutrition improvement programs, by involving other key government units, including agriculture, community development, and education.
The Provincial Coordinating Committee, headed by the governor and composed of all the heads of provincial government agencies (including the provincial health officer) and district officers, has been a mechanism to inform all government units of the Project's approaches and activities, as well as to seek advice in dealing with any problems that may arise in implementing new approaches and activities. All provincial governors assigned to Lampang during the Project's period of operations have been strongly supportive, and the Provincial Coordinating Committee has been a means for the governor to express and extend his support.

Community Health Volunteers: The clearest expression of community support is the participation of community health volunteers themselves. They receive minimal compensation and yet contribute their time, and space in their households, to serve their neighbors. Their contribution must be both recognized and nourished by the government health services.

Experience from the Lampang Project has indicated that the key elements in maintaining the volunteer contribution are regular supervision and encouragement by local government health workers and timely maintenance of the health post volunteers' supply of household medicines. Where these two elements have lapsed, volunteer morale and performance have declined.

Local Practitioners: Finally, in the interest of mobilizing all available health resources, the Project sought to involve private sector groups and individuals to the extent possible. Traditional birth attendants were trained and utilized in every village where they were active. A number of the health post volunteers had previously been herbal practitioners, injectionists, or malaria program volunteers. Many druggists – both in the village and urban areas – not only sell medicine but also provide advice on diagnosis and treatment to their customers. The Project secured the cooperation of many of the druggists in providing monthly reports to the Provincial Health Office on certain specified illnesses they have treated, and also in reporting the levels of certain drug sales. In return, the Project provided short training sessions for the druggists in appropriate prescription of the medicines they sell.

Private Organizations: One Thai private sector organization, Community Based Family Planning Services (CBFPS), established a network of village volunteers in many parts of the country, who primarily distribute contraceptives (oral pills and condoms), but who also provide antiparasite medications and some health and development services. CBFPS has paid particular attention to developing an effective management system, based on a paid district coordinator who works closely with the local district health officer, and a simple, rapid feedback reporting system. Their success in management prompted the Project to invite CBFPS to implement its approach in one district of Lampang Province for comparison of its results with those in other areas of Lampang. The Rotary Club and the Lions Club in Lampang also
cooperated with the Lampang Provincial Health Office, and made substantial contribu-
tions for some programs, as in the case of nutrition.

ADVISORY COMMITTEES

In order to orient and publicize the approaches and methodologies of the
Lampang Project and to gain support in problem solving and resource assistance,
several advisory committees were established within the Ministry of Public Health
and in other sectors of the government. Although the committees generally did not
play a major role in project operations, they did provide an important forum for
keeping people informed and enlisting support.

The first of these committees was the Lampang Project Policy Committee,
composed of high-level government policy-makers and planners from a variety of
relevant ministries and agencies. The Policy Committee, chaired by the Under-
Secretary of State for Public Health, reviewed current Project progress and
constraints about twice yearly, and provided advice and assistance in facilitating
Project operations. Members of the Policy Committee included representatives of
the National Economic and Social Development Board, Department of Technical
Economic Cooperation, Civil Service Commission, Bureau of the Budget, Ministry
of Interior, Ministry of Public Health, Bureau of State Universities, and various
faculties of medicine and public health.

Another high-level advisory committee was the Lampang Project Executive
Committee, composed of representatives from various departments and divisions
within the Ministry of Public Health. This committee, chaired by the Project Direc-
tor (Director-General, Department of Health) provided technical advice and support
to Project staff in resolving issues that can be handled within the Ministry of Public
Health. It was also a mechanism for keeping various units within the Ministry
informed of project progress.

At the provincial level, the Provincial Coordinating Committee, chaired by the
Governor of Lampang Province and including the heads of all government depart-
ments in the province as well as all district officers coordinated support at the pro-
vincial level and was a vehicle for keeping all provincial units posted on the progress
of the project. Similarly, in each district a District Advisory Committee, chaired by
the District Officer and participated in by heads of all district government units,
performed advisory and coordinating functions at that level.

MANAGEMENT, INFORMATION AND SUPERVISION

Former Management Problems

When the Lampang Project began operations, it had to grapple with and seek to
overcome the problems of inadequate management practices and a cumbersome information system within the provincial health organization. From the provincial to the district level, and from the district level to the subdistrict health center level, supportive supervision – routine visits for problem-solving, on-the-job training, and feedback on performance – were infrequent and inadequate. Moreover, the provincial information system – which included more than forty individual reports and records – was an unnecessary burden at all facility levels and generated a huge amount of data which, even if up-to-date and accurate, seldom reached decision points in a timely or useable form. As a result, reliable information on performance of facilities and personnel was seldom available for management decision-making. Moreover, the flow of information had been generally in one direction only, with little feedback to the units which generated and needed the information. Project staff initiated a variety of measures to remedy these existing management and information deficiencies, and these measures are discussed in detail in Monograph 5.

New Management Problems

Sevel features of the Project created new management burdens and information needs. For example, creation of a new tier of health workers – the community health volunteers – added a new management burden to the subdistrict health center staff. Health center workers were required to provide supervisory and logistical support to, and gather information on, a cadre who were not formerly under their responsibility.

Further, at the subdistrict level, the addition of wechakorn paraphysicians introduced new demands for technical supervision and management. Midwives and sanitarians at the health center level were formerly supervised and supported by senior sanitarians and midwives from the district and provincial levels. But the wechakorn, with their new medical care skills, clearly required a different type of technical support than formerly provided. Specifically, they needed technical guidance and continuing education from skilled physicians such as the doctor at the district hospital, or physicians who trained them in the Provincial Hospital, or at a minimum– from an experienced and skilled wechakorn.

The health center normally stocked a limited range of drugs, medical supplies and equipment, but to practice their new clinical skills, wechakorn required a broader range of drugs, medical supplies, and equipment. This placed new demands on the district and provincial logistics system. The wechakorn’s expanded role in clinical care also required improvements in the medical referral system from the subdistrict health center to the district hospital, and from the district hospital to the Provincial Hospital.

Each subdistrict health center staff had to assume the new responsibility of overseeing the activities of six to eight health post volunteers, two to three traditional midwives and, indirectly, 50-80 health communicators in the area. A number of subdistricts, however, do not have health centers and hence, health centers in an
adjacent subdistrict must assume responsibility for two subdistricts. To make the work more manageable, two or three health center workers have divided responsibility for supervision geographically, so that each may visit regularly only two or three volunteers. Health staff are expected to visit the volunteers at least once a month, when they review the health post volunteer’s log book and prepare a volunteer performance summary extracted from the daily log book.

The logistical mechanism for supplying the health post volunteers with household drugs had to be changed during the course of the Project. Initially, health post volunteers were given a supply of the drugs from the health center which they could sell at a slight profit, using the returns to purchase resupplies. The local health worker was assigned the task of collecting the money and coordinating orders for resupplies through the Provincial Health Office, which in turn ordered supplies from the Government Pharmaceutical Organization. After the first year, it became apparent that the government drug supply network was less effective than expected; health workers found it inconvenient to collect the funds and deliver the drugs, particularly when volunteers often did not have money available to repay the initial credit. At the same time, health workers did not always visit volunteers frequently enough partly because of seasonal communication difficulties or other, more pressing, activities. The resulting lack of medical supplies was detrimental to the HPV’s credibility, morale and performance.

To improve the supply network, the Project established an agreement with one of the major pharmaceutical suppliers in Lampang to order the household drugs directly from the Government Pharmaceutical Organization and take responsibility for resupplying the volunteers through local drug outlets at the subdistrict level. This arrangement relieved the subdistrict health workers of the burden of money collection and supply but imposed an inconvenience on the health post volunteer. He had to come to the subdistrict to pick up his drug resupply. Since transactions are on a strictly cash basis, this can be an obstacle to regular resupplies being purchased.

With experience, managerial solutions continued to evolve. The Project added a district coordinator to assist the District Health Officer. One of his major responsibilities was to support community health volunteers.

Support for wechakorn in the district and Provincial Hospital presented only minimal problems since the wechakorn work in close proximity to their physician supervisors and can consult with them and receive in-service training regularly. However, for wechakorn located in the more distant subdistrict health centers, technical support is a crucial need but is sometimes difficult to provide. In districts that had physicians at the district hospital, clinical conferences were held when the health center workers came to the district for the monthly staff meeting. It has
been less feasible for the district hospital physicians to travel around to the subdistrict health centers to provide on-the-job supervision and instruction, in part because of constant demands on them at the district hospital and also because the district hospital has no officially-defined role for supervising subdistrict health center activities. There has been a clear need – and an expressed request from the wechakorn themselves – for individualized, extended technical supervision at their work sites, but this has been difficult to arrange on a regular basis.

Supplies and equipment needed by the wechakorn at their health centers was a problem for the first group of wechakorn because, as former midwives and sanitarians, they had not been authorized to order antibiotics or to insert IUDs, for example. Although there had been an orientation for provincial senior staff concerning the role of wechakorn, when the first group completed training there was still some confusion about what they were authorized to do. For example, a few provincial staff members questioned supplying the wechakorn at the health centers with new lines of drugs and equipment. This problem was, for the most part, resolved as a result of continued discussion and a clear demonstration of competence by the wechakorn.

Streamlining the Information System

In order to facilitate the management process and the monitoring of Project progress, the Project and provincial staffs worked together in an attempt to streamline and lighten the burden of the existing information system and to make it more useful and effective.

Since village health volunteers were not previously part of the provincial health care system, a new system of reporting on their activities had to be established. Given the fact that volunteers were not government employees, only minimal demands for reporting could be made on them. The solution adopted was for each health post volunteer to be trained to keep a daily log of service contacts, which included information on the contact's name, age, sex, reason for the contact, treatment prescribed, and payment for any drugs dispensed.

The health worker from the local subdistrict health center would visit the volunteer each month and abstract data from the daily log for use in a monthly volunteer activity reporting sheet, which was then compiled for each district. The monthly district report summarized the total number of service contacts for illness care, total family planning acceptors and contacts, the number of family planning supplies distributed, and the amount of money collected for drug sales. The volunteer reports were then sent to the Provincial Health Office (and to the Lampang Project Evaluation and Research Division) for routine monitoring. The Evaluation and Research Division periodically analysed and summarized volunteer performance and distributed a report to the Provincial Health Office and related Project divisions.
The Lampang Project made efforts to streamline the routine reporting system by deleting items that were of marginal use, but there was considerable resistance to these attempts both at the Provincial Health Office and at the Ministry of Public Health levels. The Programming and Planning Division, along with the Evaluation and Research Division, routinely reviewed the monthly reports coming in from the various rural health facilities, and extracted data that were relevant to routine monitoring. These data, which summarized performance of the various health facilities by category of activity (e.g., family planning, maternal child health, nutrition, and illness care) were distributed to Project and provincial health managers. The burden of reporting on peripheral health staff was, therefore, not reduced substantially, but specific information items from these reports were selected to make relevant information easily accessible to Project and provincial staff for management purposes.

In addition to information from routine reporting mechanisms, the Evaluation and Research Division, as part of its overall project assessment and evaluation function, carried out a number of surveys which provided baseline information on health status and health service utilization. These data were useful in identifying the level of health status and health service problems, in pinpointing their location, and in identifying where program emphasis should be placed. For example, one important result of baseline surveys was the recognition that the nutrition problem in Lampang Province is more serious than had been assumed earlier. The Community Health and Nutrition Survey detected high levels of mild and moderate malnutrition and also identified the areas of greatest prevalence and severity.
CHAPTER 4

HEALTH MANPOWER DEVELOPMENT IN LAMPANG, 1974-1979

Under the overall planning and supervision of the Lampang Project’s Personnel Development Division, pre-service, in-service, and refresher training was provided for a variety of provincial health personnel and community health volunteers, as summarized in Table 1.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Health Manpower Development of Lampang Project, and Number of Provincial Health Personnel in Rural Health Facilities, 1974 &amp; 1979</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline 1974</td>
</tr>
<tr>
<td>1. Lampang Manpower:</td>
<td></td>
</tr>
<tr>
<td>Wechakorn (Paraphysicians)</td>
<td>0</td>
</tr>
<tr>
<td>Health Post Volunteers</td>
<td>0</td>
</tr>
<tr>
<td>Health Communicators</td>
<td>0</td>
</tr>
<tr>
<td>Traditional Birth Attendants Trained</td>
<td>0</td>
</tr>
<tr>
<td>Trainers trained</td>
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</tr>
<tr>
<td>Service Personnel Oriented</td>
<td>0</td>
</tr>
<tr>
<td>Administrators/Supervisors oriented</td>
<td>0</td>
</tr>
<tr>
<td>11. Provincial Health Manpower in Rural Health Facilities:</td>
<td></td>
</tr>
<tr>
<td>Physicians</td>
<td>2</td>
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<tr>
<td>Nurses</td>
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<td>Nurses Aides</td>
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<tr>
<td>Midwives</td>
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</tr>
<tr>
<td>Sanitarians</td>
<td>51</td>
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</table>
COMMUNITY HEALTH PARAPHYSICIANS (WECHAKORN)

A major effort of the Lampang Project was the training of wechakorn paraphysicians because of their strategic importance in the rural health service structure of the Project. Their basic role is: (a) to greatly expand the availability of medical care, disease prevention, and health promotion services in rural areas; (b) to reduce the burden on physicians in the district and provincial hospitals of handling simple medical problems so that the physicians can concentrate on more serious and complicated cases; and (c) to be the principal link between the community health volunteers and village health committees and the higher echelons of the extended health care system.

As noted earlier, the wechakorn candidates already had a certain amount of training and experience in the health field, usually as sanitarian health workers, nurses, or nurse-aides. The wechakorn's training was designed to equip him/her to take a strong leadership role among the subdistrict health center team, and to establish a relationship with the community health volunteers that is crucial to providing effective health care coverage in the area. After completion of the one-year training course, the wechakorn is able to:

1. Provide medical care for patients suffering from common, easily treated illnesses and injuries;
2. Recognize medical problems beyond his or her capability, and to refer these patients or to consult physicians, as necessary;
3. Supervise the subdistrict health center team members;
4. Administer the subdistrict health center problems, or assist in clinical and administrative work in the district hospital;
5. Promote and guide community health development programs; and
6. Supervise and follow-up village health post volunteers.

The training approach used for wechakorn was problem-oriented and the methods were competency-based. The methods of training wechakorn were adapted from the MEDEX model, which originated in the United States during the late 1960's. The short, one-year duration required that theoretical and classroom material be minimized and practical clinical experience be maximized. Emphasis was on "learning by doing", under close supervision by physician preceptors.

The training and deployment of wechakorn is one of the most outstanding features of the Lampang Project approach and is a major factor in the increasing utilization of health services at the periphery of the health care system.

Fourteen wechakorn from remote rural health centers, as a pilot study, were trained for six weeks and are now delivering primary dental care services, in addition to medical and other health services which they now deliver. In many parts of
Lampang, wechakorn have assumed a role of leadership and technical guidance to health post volunteers and other health workers in providing and coordinating local health programs, such as nutritional surveillance, operating child nutrition centers, conducting family planning programs, and promoting vasectomy in areas scheduled to be visited by the Provincial Hospital’s Rural Mobile Clinic.

VILLAGE HEALTH POST VOLUNTEERS

The health post volunteer is the focal point for primary health care services in each village. One volunteer was chosen in each village, or more than one in large villages that are widely dispersed. The people selected as health post volunteers are generally mature (over 30), established members of the community, who are most often farmers or small shopkeepers. They are unlikely to migrate and attrition has been minimal. Although the volunteers were expected to be able to read and write, this requirement was flexible.

The village health post volunteer was trained to:

1. Provide simple first aid and illness care to his fellow villagers, using non-prescription “household” drugs provided by the government;
2. Refer more complicated cases to the subdistrict health center, or to the district hospital, if necessary.
3. Support community nutritional surveillance and nutrition improvement programs;
4. Advise villagers about family planning and distribute pills and condoms;
5. Inform mothers and children about services provided by local health facilities;
6. Support and supervise the health communicators in the village;
7. Coordinate government activities with local villagers; and
8. Promote community participation in community development.

The training course for groups of 20 to 30 health post volunteers lasted ten working days, or two weeks. Through a series of lectures, discussions, demonstrations, and practical activities, trainees were given instruction in the recognition and care of minor diseases; in recognizing which types of people should be referred to other health facilities for care; in recording births, deaths, and migration; in making the daily log; and in supervision and community motivation. Training was usually arranged at district hospitals.

Training was carried out by health workers and other government officials in the respective areas, assisted by provincial and Project training staff. The materials used were prepared by the Lampang Project training staff of the Personnel Development Division, and at the end of training each volunteer was given a Health Post Volunteer Manual to be kept in his/her home for easy reference.
The health post volunteer was provided with an initial supply of household drugs on credit, at a discount. He/she sells the drugs at a slight profit, then pays back the cost of the consignment to purchase a new supply. Thus the health post volunteers gain a small amount of income from selling drugs, but it is usually quite nominal. In addition, they and their families receive free medical care at the health center, district hospital, and Provincial Hospital.

At least once a month, the wechakorn or his/her health team members visit the volunteer to help solve problems, to provide technical and logistics support, and to gather information from the daily logbook for inclusion in the Tambon health center's monthly report. One day of on-the-job refresher training is provided each year for health post volunteers, health communicators, traditional birth attendants, the village committee, and other local health personnel so that problems can be dealt with jointly.

The training of health post volunteers is one of the outstanding features of the Lampang approach. Although project planners initially felt that one health post volunteer per village would be adequate to provide or coordinate provision of basic health services, the concept was quickly accepted and in the past few years the Project has responded to requests of local officials and village health committees to train more than one HPV per village. The result is that 918 HPVs were trained, substantially surpassing the original target of 625.

It was interesting to note during the early phase of introducing HPVs in Hang Chat that shortly after HPVs were trained there was a surge of activity and provision of health services by health post volunteers. This was followed by a decline, leveling, and then a gradual increase in HPV activity. Special studies and recent observations indicate that the level of HPV activity and performance is closely related to the level of supervision, technical guidance, and support provided to the HPV by local health workers. Where supply problems exist, activity of HPV declines and problems of morale are observed. In areas where the wechakorn has a close relationship with health post volunteers and when guidance and support are provided regularly, the health post volunteers are most active. The key problem observed in the Lampang Project concerns finding the best ways to provide regular guidance and support to health post volunteers, a major problem which is still receiving the attention of provincial health leaders. The level of involvement of health post volunteers in developing community organization and initiating health and community development activities is another notable observation.

In keeping with basic concepts of primary health care, the Lampang Project trained some 40 health post volunteers in agricultural extension work. These health post volunteers returned to their sites and promoted or demonstrated home gardens, and fowl and pig raising, in addition to providing some basic health services.
VILLAGE HEALTH COMMUNICATORS

Health communicators are the second type of village health volunteer developed by the Lampang Project. One health communicator was chosen for about 10-15 households, making a total of about 10-15 communicators for each village. Their role has been to promote the services of the local health post volunteer and the subdistrict health center. They also receive and disseminate health information among the households assigned to them, under the overall technical guidance and support of the health post volunteer.

The health communicator candidates were selected by the village committee and sent in groups of 50-75 to a training site near their home, eg., temple, school.

Teaching was done through small group discussions and talks, supplemented with handouts, posters, models, and slides.

The health communicators were generally younger than the health post volunteers and thus tended to be more transient in their services. While the project had originally set a target of 6,100 health communicators, based on the ratio of one health communicator per 10 households, this target was revised when the ratio was changed to one health communicator per 15 households. Health communicators have been productively utilized during health promotion programs and other local activities, such as in helping to organize fellow villagers for nutritional surveillance and mobile health and vasectomy services. The CBFPS staff which conducted the health post volunteer system in Ngao District did not train health communicators; for research purposes, no health communicators were trained for Mae Tah District (the former C1 control district within Lampang Province). Thus, the provincial health office can monitor field activity and compare program effectiveness and health system performance in areas with and without health communicators.

Project and provincial health personnel feel that the role of the village health committee could be expanded and more local health activities organized by the village health committees if more attention were given to training and providing technical guidance to village health committees and tambon council members. Indeed, they could, themselves, act as “health communicators”, working closely with the village health post volunteer and with local health workers.

TRADITIONAL BIRTH ATTENDANTS

Traditional birth attendants, or “granny” midwives, still deliver a majority of the children born in rural areas and attend to pre- and postnatal care. Because they are usually older and closely involved in family affairs, they have great influence in the village. Traditional midwives who were not over 60 years of age were selected in
every village where one was present. In some areas well-served by government health facilities, the number of traditional midwives has been decreasing, with the result that generally only one midwife could be identified and recruited to serve about two villages. The traditional midwives were trained in groups of about 25 at the Lam-pang Regional Midwifery School for a period of two weeks. During the course of the training, carried out by Project and Midwifery School staff, the trainees learned to:

1. give advice to mothers and children in using health services from local facilities;
2. detect abnormal pregnancies and refer them to health centers or to the district or provincial hospital;
3. do normal deliveries using aseptic techniques;
4. advise mothers and children about good nutrition;
5. give minor medical care using household medicines;
6. encourage villagers to practice family planning; and
7. report births to the health post volunteer or village headman.

Since the traditional midwives were usually illiterate, the midwifery school training was adapted to their special needs. The general content was presented in an informal setting by demonstrations and observations, and by lectures making use of role playing, models, pictures, movies and slides. The trainers were all local women who speak the local dialect.

Traditional midwives are entitled to free medical care at the local health center, district hospital, and Provincial Hospital. They are normally supervised by the government midwives in the subdistrict health centers and receive refresher training once a year.

ADMINISTRATORS AND SUPERVISORS

Administrators and supervisors from the Provincial Health Office and the Provincial Hospital, including physicians, chief nurses, dentists, pharmacists, and district health officers and supervisors of the Provincial Health Office received one week of orientation training to:

-- understand the Project goals and approaches;
-- orient them to the operation of integrated health services and how it relates to them;
-- orient them to the importance of their own roles and of others on the health team.

The training was completed in five half-day sessions to minimize the time that senior staff were absent from their responsibilities.
SERVICE PERSONNEL

All staff who provide services at the Provincial Hospital and district hospitals, health centers, and midwifery centers were given one week of training to orient them to the Project’s goal and methods and to demonstrate how the Project approaches would affect them in their individual jobs. Most of the people who received the training were nurses, laboratory technicians, dental hygienists, sanitary health workers, midwives, and practical nurses. On-the-job training was provided in addition to routine supervision.

TRAINING OF TRAINERS

A one-week training program was organized for all key provincial health staff who assist in training community health volunteers and in orienting service personnel. Trainer trainees learned classroom teaching methods, curriculum and lesson plan preparation, use of teaching and audiovisual aids, and organization of training programs. The course was held at a teacher training college in a nearby province and was run by the college staff and Project staff. The content of the training was as follows:

-- Orientation
-- Principles of Teaching
-- Psychology in Rural Health Development
-- Sociology and Human Relations
-- Public Speaking
-- Technology of Teaching
-- Good Community Teacher
-- Role of Mass Communication in Public Health Work
-- Teamwork of Group Process
-- Organization of Training Programs
-- Practice for Teaching
-- Evaluation for Training Programs

Some classes were also trained by personnel from the Chiang Mai University. A “Teaching Method Manual” prepared by the Personnel Development Division was given to local health personnel who were involved in training of health communicators. The Project also adopted the “Training of Trainers” model of the MOPH for one class.

TRAINING OF DRUGGISTS

Since about 50% of the sick seek medical care from drug stores, the druggists in Lampang were trained by the Project to promote close cooperation, and safe provision and coordination of medical care services. The druggists are the first category
of illness care providers that the patient contacts and from which he receives advice when ill. The content of the three-day training course was developed by staff of the Project, the Lampang Provincial Health Office and the Food and Drug Administration. The content included local health delivery system, health promotion of people (MCH, FP, and immunization), simple medical care for common illness, personal hygiene, environmental sanitation, communicable disease control, and the laws and regulations governing prescription and non-prescription drugs. There were about 20 persons in a class and the group discussion method was primarily used.
CHAPTER 5

HEALTH FACILITIES DEVELOPMENT, 1974-1979

Before the project became operational in 1974, the population of Lampang Province was considerably underserved by government health services, more than in Thailand as a whole. As Table 2 indicates, a much smaller percentage of Lampang's districts and subdistricts had health centers, and the ratio of available doctors, nurses and hospital beds to the population was much lower than the national average.

Table 2
Geographical Coverage by Government Health Facilities and Service Personnel to Population Ratios in Thailand and in Lampang Province, 1973

<table>
<thead>
<tr>
<th>Health Facilities and Personnel</th>
<th>Thailand (1973)</th>
<th>Lampang (1973)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Centers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Districts covered</td>
<td>45%</td>
<td>33%</td>
</tr>
<tr>
<td>Subdistricts covered</td>
<td>57%</td>
<td>35%</td>
</tr>
<tr>
<td>Villages covered</td>
<td>4%</td>
<td>6%</td>
</tr>
<tr>
<td>Hospital Beds</td>
<td>91/100,000</td>
<td>48/100,000</td>
</tr>
<tr>
<td>Personnel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physicians</td>
<td>9/100,000</td>
<td>4/100,000</td>
</tr>
<tr>
<td>Nurses</td>
<td>20/100,000</td>
<td>9/100,000</td>
</tr>
<tr>
<td>Midwives</td>
<td>9/100,000</td>
<td>10/100,000</td>
</tr>
<tr>
<td>Sanitarians</td>
<td>7/100,000</td>
<td>5/100,000</td>
</tr>
</tbody>
</table>

Source: Ministry of Public Health, Thailand.

EXPANSION OF THE HEALTH DELIVERY SYSTEM

The picture has changed dramatically. Health service facilities and personnel in Lampang Province have expanded greatly. Table 3 and Figures 8&9 provide an overview of substantial improvements in the availability of health service facilities that have occurred in Lampang Province in the past five years. These inputs come primarily from Ministry of Public Health budgetary allocations, or from the private sector (e.g., child nutrition centers), not from funds of the Lampang Project itself. The overall Ministry target is to have one district hospital in each district, and one health center for each tambon. Five new district hospitals were constructed, and 34
new health centers were established. Many new health centers were created by upgrading midwifery centers, which accounts for the decrease in the number of midwifery centers noted in Table 3.

Of equal importance to the construction of district hospital and subdistrict (tambon) health centers, it should be noted, is the addition of a wechakorn at each of these facilities to provide a broader range of integrated medical and health services and to strengthen the health team at each facility.

When the problem of malnutrition was recognized, a new emphasis was placed on nutritional surveillance and on community nutrition improvement programs, including the development of 89 new child nutrition centers (from the baseline number of only 11). The initial eleven child nutrition centers were located at the tambon level health center. The new nutrition centers are located at the village level, and most are operated by a specially trained villager. Capital costs for developing the community-based child nutrition centers were provided, in part, by private sector organizations (i.e., Rotary Club, Lions Club). Operating costs are provided through local subscriptions from families served and by the Provincial Health Office. The development of community-based child nutrition centers, nutritional surveillance, and treatment programs for severely malnourished children is currently being emphasized.

While village health posts are not considered health facilities of the Ministry (i.e., the Government), their development and utilization should be viewed as an instrumental part of the overall Lampang health system and, for this reason, 918 new village health posts are included in Table 3, an average of three health posts for every two villages.

GEOGRAPHICAL AND POPULATION COVERAGE, 1974-1979

Figures 9 and 10 provide a visual overview of health service units that were available in 1974 which included only 11 child nutrition centers, 31 midwifery centers, 36 tambon level health centers, 2 district hospitals and the Provincial Hospital. In contrast, Figure 10 provides a visual overview of the distribution of health service units that were available in 1979, including 100 child nutrition centers (82 child nutrition centers at the village level), 30 midwifery centers, 70 tambon level health centers, 7 district hospitals, and the Provincial Hospital with its new Community Health Department and mobile unit. Because of the importance of wechakorn in relation to the functions and the effectiveness of these facilities, the locations of wechakorn are also noted in Figure 9.

Of equal importance, not shown in Figure 9, is the addition of 918 village health posts and the network of community health volunteers that operates at the
village level, including 918 health post volunteers, 346 traditional birth attendants, and 5,359 village health communicators.

Table 3
Health Facilities Development in Lampang Province, 1974-1979

<table>
<thead>
<tr>
<th></th>
<th>1974</th>
<th>1979</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village Health Posts</td>
<td>0</td>
<td>918</td>
<td>Many villages with widely dispersed populations have more than one HPV, as requested by health committees or government officials.</td>
</tr>
<tr>
<td>Child Nutrition Centers</td>
<td>11</td>
<td>100</td>
<td>Many CNC developed through private sector support.</td>
</tr>
<tr>
<td>Midwifery Centers</td>
<td>31</td>
<td>30</td>
<td>Many MC upgraded to health center.</td>
</tr>
<tr>
<td>Health Centers</td>
<td>36</td>
<td>70</td>
<td>8 Wechakorn assigned to 7 district hospitals.</td>
</tr>
<tr>
<td>District Hospitals</td>
<td>2</td>
<td>7</td>
<td>Provincial Hospital becoming Regional (referral) Hospital. Wechakorn assigned to OPD, Community Health Department or other hospital unit.</td>
</tr>
<tr>
<td>Provincial Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Number beds</td>
<td>309</td>
<td>561</td>
<td></td>
</tr>
<tr>
<td>- Number physicians</td>
<td>'14</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>- Number Wechakorn</td>
<td>0</td>
<td>14</td>
<td>Rural Mobile Clinic operates 2-3 times monthly.</td>
</tr>
<tr>
<td>- Community Health</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>- Rural Mobile Clinic</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Table 4 summarizes the changes in geographical and population coverage with available basic health services that has occurred between 1974 and 1979 in the Province of Lampang.
Figure 8  MAP OF LAMPANG PROVINCE
SHOWING NUMBER OF HEALTH
SERVICE UNITS IN 1974

Government Health Facilities  Number

- Provincial Health Office  1
+ Provincial Hospital  1
★ District Hospital  2
★ Subdistrict Health Center  36
+ Midwifery Center  31
• Child Nutrition Center  11
MAP OF LAMPANG PROVINCE
SHOWING DISTRIBUTION OF
RURAL HEALTH SERVICE
UNITS IN 1979

Wechakorn Distribution
72 in Subdistrict Health Centers
and Midwifery Centers
5 in District Hospitals
14 in Provincial Hospital
1 in Midwifery Training Center
92 total number Wechakorn serving
in Lampang Province

Government Health Facilities

<table>
<thead>
<tr>
<th>Facility</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provincial Health Office</td>
<td>1</td>
</tr>
<tr>
<td>Provincial Hospital with C.H.D</td>
<td>1</td>
</tr>
<tr>
<td>District Hospital</td>
<td>7</td>
</tr>
<tr>
<td>Subdistrict Health Center</td>
<td>70</td>
</tr>
<tr>
<td>Midwifery Center</td>
<td>30</td>
</tr>
<tr>
<td>Child Nutrition Center</td>
<td>100</td>
</tr>
<tr>
<td>Village Health Posts</td>
<td>918</td>
</tr>
</tbody>
</table>

Figure 9

0° N
© Wechakorn

+ Wechakorn

72 in Subdistrict Health Centers
and Midwifery Centers
5 in District Hospitals
14 in Provincial Hospital
1 in Midwifery Training Center
92 total number Wechakorn serving
in Lampang Province

Provincial Health Office 1
Provincial Hospital with C.H.D 1
District Hospital 7
Subdistrict Health Center 70
Midwifery Center 30
Child Nutrition Center 100
Village Health Posts (not shown) 918
### Table 4
Summary of Geographical Coverage by Lampang Rural Health Facilities and Personnel, 1974-1979

<table>
<thead>
<tr>
<th></th>
<th>1974</th>
<th>1979</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Districts</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Number of Subdistricts</td>
<td>75</td>
<td>78</td>
</tr>
<tr>
<td>Number of Villages</td>
<td>574</td>
<td>592</td>
</tr>
</tbody>
</table>

**District Level Coverage:**
- Proportion of districts with hospital: 27% to 67%
- Proportion of district hospitals with *wechakorn*: 0% to 71%

**Subdistrict Level Coverage:**
- Proportion of subdistricts with health centers: 57% to 90%
- Proportion of health centers with *wechakorn*: 0% to 100%

**Village Level Coverage:**
- Proportion of villages with CNC: 0% to 17%
- Proportion of villages with trained TBA: 0% to 59%
- Proportion of villages with health post: 0% to 100%

The availability of district hospital services, provided by physicians and *wechakorn* with assistance of nurse, nurse assistants, sanitarian, and a dentist on rotation from the Provincial Hospital, has increased from 25% to 67% of all districts in five years (including Muang District, served by the Provincial Hospital).

The coverage of subdistricts with a health center, staffed by a *wechakorn*, nurse assistant, midwife, and or sanitarian, has increased from 57% to 90%. Nearly all subdistrict health centers now have a *wechakorn* assigned on a full time basis.

The addition of 82 new village child nutrition centers at the village level, from 1974 to 1979, increased the availability of CNC services at the village level to 14%, and this trend has increased since 1979 with even greater momentum through increasing involvement of the private sector.

The major portion of the increase in availability of services at the village level is through the development of health posts, which now cover all villages in Lampang Province.

As a result of these substantial increases in health facilities and health manpower for Lampang's rural areas, the availability of health services to the rural population can be estimated to have increased to nearly 100%.
The Lampang Health Development Project has been of special interest to ICED because it represents one of the earliest attempts by any developing country government to apply systematically and on a sizeable scale the basic concept and principles of the "primary health care approach", that has been popularized in recent years by WHO and UNICEF and was endorsed by the Alma Ata International Conference on Primary Health Care in 1978.

Most well-informed public health experts seem to agree that this unconventional approach makes good sense and is probably the only feasible and affordable strategy for coping with the serious and long neglected health needs of the rural families making up the great majority of the developing world's total population. The big question today about this "primary health care" concept, however, is not whether it is sound in principle but how to put it into practice in the real world. Any serious effort to do so immediately raises a host of difficult questions to which there are as yet few experience-based answers. Many policy makers and planners, well disposed toward the general idea of a primary health care system, are still looking for practical guidance on such questions as these:

How does one actually go about "integrating" the essential components of a primary health care system--such as curative medical services, environmental sanitation, family planning, nutrition for young children, pre- and post-natal care for mothers -- especially when these fragmented services are already in the hands of different specialized bureaucracies that are anxious to preserve their autonomy and to keep "going-it-alone"?

How does one recruit, train and deploy new cadre of paraprofessional health workers, competent to provide the above combination of services on a mass scale, close to where the people live, and willing to work in a rural environment at incomes far below those of urban-based medical doctors? Also, how does one persuade the old-line medical profession to accept and support this "heretical" notion of allowing paraprofessionals, and even less trained village health workers, to perform some of the tasks traditionally reserved to full-fledged physicians?

Granted that mobilizing community resources and participation is essential to getting the primary health care job done, how can government agencies go about generating such broad-based community participation?

How much is an effective rural primary health care system actually going to cost? Where is the money coming from? And can a poor country actually afford it?
What steps can be taken to insure that the poorest families in any community participate and benefit equally in this new type of health system?

The Lampang Project cannot be expected, of course, to provide full and final answers to all these questions. But it can shed valuable light on some of them – light that can be helpful not only to Thailand but to other countries faced with similar rural health needs and problems. The authors of these monographs give us a revealing picture – viewed from the inside – of how the Project evolved from its initial planning phase in 1973 through its years of operation to 1981. Their account is both descriptive and analytical. They expose some difficult problem encountered along the way and indicate some of the efforts made to overcome them. Particularly important, they give their own assessment of both the achievements and the shortcomings of the Project. Further, they present some conclusions on the costs and feasibility of replicating the main features of the Project elsewhere in Thailand.

ICED views the Lampang Project in an international perspective, through the eyes of an outside observer and in the light of ICED’s other case studies of innovative rural programs in a variety of developing countries. Its purpose is not to praise or criticize or to pass any overall judgement on the Lampang Project. Rather, its purpose is to call the attention of others who may be interested in developing rural primary health care systems to some of the significant implications of the Lampang experience that may have relevance for many countries.

It should be emphasized that the comments below are intended as a contribution to an on-going dialogue, not as an exposition of revealed truths.

THE LAMPANG SETTING AND THE PROJECT’S STRATEGY

Before turning to specific issues it is important to provide a brief sketch of the rural health situation in Thailand that the leaders of the Lampang Project set out to improve. As will be seen, it has many similarities to other developing countries.

Though it is common to speak of any nation’s “health delivery system” as if it were a single, unified mechanism, the reality is that most low income agrarian countries have three quite distinct and separate health systems: (1) a rapidly evolving modern urban health system (private and government) patterned along Western lines; (2) a thinly-spread government rural health system that bears little resemblance to the urban one; and (3) a private rural health system composed largely of various types of indigenous health providers. This was the situation in Thailand when the planners of the Lampang Project first put pen to paper in 1973.

The urban health system was based on a network of nearly 100 government-supported modern hospitals and closely allied private clinics that spread out from
Bangkok (the hub of the system) to all provincial capitals. The vast majority of the nation's medical doctors and nurses — most of them trained in Thailand's six university medical schools — were attached to this system. For many years Thailand had worked hard to build this impressive urban health system and could be justly proud of it. But it presented two serious problems. First, it was so preoccupied with curing illnesses that it paid little attention to preventing them, or to promoting the basic essentials for good health that could curb the rapidly growing insatiable demand for curative care. Second, it preempted the lion's share of the national health budget and health resources (perhaps as much as 90 percent), yet served and benefitted only a small segment of the national population (probably no more than 10 to 15 percent).

The government rural health system took the leavings and was quite something else. In theory it was responsible for providing health services to the 85 percent of the population living in rural areas, but in fact its capacity for doing so was grossly inadequate — as illustrated by the situation in Lampang Province when the Project began in 1974.

The Lampang Provincial Hospital in 1974 — at the lowest echelon of the modern urban health system — had 309 beds, an outpatient department, and a staff of 16 physicians and 45 nurses to serve, in principle, a population of over 600,000 people, largely rural.

Also in Lampang town — though not organically connected with the Provincial Hospital and under the jurisdiction of a different department in the national Ministry of Public Health — was a Public Health Office that headed up the rural health system. Structurally it was a three-tier system and in principle it included: (1) a “district hospital” (formerly called a “first-class health center”) at the district-level, with one doctor and a few beds for emergencies; (2) a smaller rural “health center” in each subdistrict that concentrated largely on maternity cases and selected preventive health measures; and (3) a few village level midwifery centers.

The system was much smaller in reality, however, than in theory. Only one quarter of the districts (3 out of 12) had a district hospital with an attending physician the whole rural health system below the provincial served capital). Only one-half of the subdistricts (43 out of 75) had a rural health center, staffed by a sanitarian and midwife. Only 31 of the province’s 574 villages could boast a midwifery center. Thus, at best, no more than one of every four or five rural families in the province could be said to be “covered” by this rural health system even theoretically. But in fact a community survey in 1974 revealed that only 15 to 17 percent of the rural people in Lampang Province actually made use of the system’s facilities — presumably because the system did not offer the kind and quality of services (especially curative services) the people wanted.
The third health system mentioned earlier – the private rural health system – also existed in Lampang. Its precise dimensions are unknown, partly because it is scarcely visible to the naked eye of Western-trained health statisticians and also because most “modern” medical specialists tend to disparage its “unscientific and unsanitary practices.” There is little doubt, however, that its various “health providers” – including traditional midwives, herbalists, injectionists, and magical and spirit doctors – were more numerous and served far more rural people in Lampang Province than the entire staff of the official health system. A great many rural people – especially the poorest – placed great stock in them and in fact had no real access to any other sort of health care service.

Faced with these hard facts, the Lampang Project planners set a basic goal of overhauling and strengthening the official rural health system so that five years hence it would be providing needed and desired health care services – including curative as well as preventive and promotive services – to at least two-thirds of the rural residents, with special emphasis on the two most vulnerable groups: women in their child-bearing years and preschool age children. To pursue this goal they adopted a multi-pronged strategy aimed at the following objectives:

1. The reorganization of the existing provincial (government) health system, including integration of curative, preventive, and promotive health services within and between the provincial hospital and the rural health care facilities.

2. The upgrading of existing government health workers and, especially important, the creation of a new cadre of clinically trained paraprophysicians (wechakorn, in Thai) who would be competent to handle common illnesses and other basic health services at the subdistrict health centers, within easy reach of the villages.

3. The creation of a vital community base for the system, including in each village a local health committee and several trained volunteers who would provide a variety of health services to their neighbors, link their community closely to the system as a whole, and make possible a new process of “upward planning, downward support.”

4. Improvement of the efficiency of the whole system, primarily by improving its management through an internal, multi-directional system of information flow that would enable managers at all levels to monitor the system’s performance and to make better-informed decisions.

With strong backing from the national Ministry of Public Health and with assistance from the U.S. Agency for International Development – channelled through two professional organizations, the American Public Health Association and the University of Hawaii’s School of Public Health – the leaders of the Project have endeavored over seven years to implement this multi-pronged strategy. They learned as they went, tried to stay flexible, and seized various “targets of opportunity” that
arose -- such as the mobile vasectomy unit operated by the Provincial Hospital. Like "public health" pioneers everywhere, their philosophy and view of health was much broader than that of the curative centered, urban-oriented medical profession; hence one of their inevitable problems was to win the cooperation and practical participation of hospital-based physicians in building a stronger and more balanced rural system.

REQUIREMENTS FOR EXPANDING THE REACH OF THE SYSTEM

A rural health system's progress must be judged by three different criteria: (1) the expansion of its geographic and population "coverage," i.e., the proportion of the population that theoretically has physical access to it; (2) improvements in the range, quality and cost factors of the health services it offers; and (3) the actual utilization of these services by its potential clientele.

The Lampang provincial rural health system has made significant progress, judged by all three of these criteria, during the Project's operation. It is important to recognize, however, that not all of this progress is attributable solely to the Project. Even before the Project had been conceived, the Royal Thai Government had committed itself to a nationwide expansion of rural health facilities and personnel, and this expansion, as implemented in Lampang Province, happily coincided with the Project's special efforts during the first four years of its operation. Thus, for example, between 1974 and the end of 1980 the number of district hospitals rose from two to seven (each with its own doctor), and the subdistrict health centers increased from 44 to 71. There was a corresponding large increase in the usual complement of government nurses, nurse aides, sanitarians, and midwives (see Table 1). Had it not been for this sizeable expansion program, funded outside the Project budget by the Government's "regular" provincial health budget, there could not have been this dramatic increase in the geographic/population "coverage" of the system.

On the other hand, had it not been for the innovative features of the Project, this expansion would have followed the conventional pattern and simply reproduced the old system on a larger scale, with all its serious shortcomings. As it was, however, the Project seems to have contributed significantly in terms of the second and third of the above three criteria. It helped to broaden the scope and improve the quality of the system's services, and to increase the utilization of its capacity. The Project's greatest contribution in these respects, it would appear, came from training and deploying the new cadre of parapphysicians (wechakorn) who for the first time, made it possible for the rural health centers to provide substantial curative services (which the villagers were most eager to have, as well as to strengthen their preventive/promotive health services (including family planning).
It should be noted, however, and this point is relevant to many other situations, that it will never be possible to measure the Project's specific contribution with any degree of quantitative precision. This is because the changes that are occurring in the rural health services in Lampang Province and in the health status of its population are the result of a combination of causal factors – of which the Project is only one – and their respective contributions cannot be neatly disentangled and measured separately. Indeed, it will be exceedingly difficult even to measure with any significant degree of accuracy the combined impact of all these forces – this because follow-up surveys, despite their theoretical attractiveness, have an exasperating habit of not being really comparable to the original baseline surveys, and the “control areas” against which changes in the “implementation areas” are to be judged, have an equally exasperating habit of not remaining “uncontaminated.”

Concerning cost implications of implementing large-scale primary health care and integrated rural health delivery systems, it is undoubtedly the least expensive way to do the job and it probably can be afforded by any country willing to give it a high enough priority. The point we wish to underscore is that no one should have any illusions that a good rural health system can be bought “on the cheap.” It is not simply a matter of adding one more stage at the bottom of the existing system by persuading each community to join the system and to bear the extra costs. It is a matter of greatly strengthening the entire infrastructure of the system above the community level so that it can properly support community self-help health activities and provide important health services that are beyond the capacity of individual villages.

WHAT DOES IT TAKE TO ACHIEVE “COMMUNITY PARTICIPATION”?

The Lampang Project planners believed – along with many others – that an effective and affordable rural primary health care system requires a strong community base. Thus they provided for replacing the conventional “top-down” approach to delivering health services with what could be termed a new system of “upward planning, downward support.” This implied that each community would not only have its own volunteer health workers and local services but a health committee that would diagnose the community’s health problems and needs, set its own priorities, make its own plans, mobilize its own resources for implementing these plans, and seek such outside assistance as would be necessary to supplement local resources and efforts. In turn, the obligation of the health system above the village level would be to respond to these locally defined plans and needs with appropriate support.

This seems a very rational and appealing concept. But as the Lampang experience confirms, it is a very difficult one to apply in real life – villages and villagers being what they are, government agencies and agents being what they are, and both being unaccustomed to such a partnership. The evidence in the case study tells us
that this vital aspect of the Lampang strategy, though by no means a failure, has fallen disappointingly short of the initial hopes and expectations. But this should come as no surprise to anyone familiar with numerous other attempts to generate “community participation” (not only in the health field). Almost invariably such attempts have either failed outright or have required much greater and more sustained effort than anticipated (particularly by the well intentioned – but inadequately informed – urban people who initially design them).

The authors of the previous chapters attribute the underperformance of the village health committees and volunteers to several factors: insufficient encouragement and support by the health center staff; lack of a sufficiently clear definition of the functions of the local committees and health communicators; the breakdown of the government logistical system for resupplying household medicines to the health post volunteers; and the fact that some volunteers, pressed for time by their regular work and other obligations, could not make themselves available at hours most convenient to their “clients.” The village health volunteers have requested more training, particularly on first aid and dealing with emergencies, and a broader job description.

These explanations all ring true. But one wonders whether the problem is not more deeply rooted, perhaps even in the planning process itself and in some erroneous underlying assumptions. One such assumption seems to have been that two weeks of compact, pre-packaged initial training, followed by only one day a year of “refresher training,” would suffice to give the health post volunteers all they would require to carry out, largely on their own, the crucial roles and responsibilities envisaged for them in the plan. A correlative assumption was that it would be sufficient, in order to keep the volunteers actively and effectively tied in with the “system,” to be visited only once a month by a rural health center staff member, who would review their daily log book and give them such advice, assistance and supervision as they might require. A third apparent assumption was that the village health committee (which is typically only one of several such local committees inspired by various government agencies with different objectives and priorities in mind) would embark more or less spontaneously on a new and undefined health planning process and would give clear direction and active support to the work of the volunteers.

In retrospect, these assumptions were clearly flawed. They obviously expected too much of the villagers, particularly in light of the relatively meagre support the provincial health system was prepared to give them. We do not know the facts in this case, but we do know that history teaches that community development planners often get the cart before the horse. They decide on their plan in absentia without first getting to know the villages and the villagers in question well enough, and without seeking and listening to their advice. Villagers, after all, have a great deal of practical local wisdom, or they would not have survived this long in the face of so many adversities. They may be illiterate and they may seem quite unsophisticated
to the educated urbanite, but they are no fools. If an out-sider urges them to take on new time-consuming functions and responsibilities to improve their own lot and it seems at the time to make sense to them, they will usually be willing to give it a try, particularly if they are assured of receiving such outside support as they may require. But then if the out-side support falters or proves inadequate, and if they are left on their own for long stretches without seeing or hearing from their new "partners," it is hardly surprising if their initial enthusiasm wanes and their own efforts slacken.

ICED has examined a few cases where voluntary organizations eventually achieved a fairly effective working relationship with community health workers. But in no case was it easy; it required a great deal of persistent and patient effort over many months, including weekly visitations to the villages and close supervision and continuous on-the-job training of the local health workers by professional members of the central health staff. It also requires establishing a real sense of mutual trust and respect and giving the local workers a sense of being a valued member of a professional team -- not simply a local errand boy. Obviously it is much more difficult for a large and necessarily bureaucratized government health service to act with the flexibility and spirit of a voluntary organization. But this does not alter the fact that these are basic requisites for getting an effective community-based health system going.

All of this is not to deny that the Lampang Project has made a good start toward establishing a strong and viable community base. Given all the constraints and difficult logistical problems, it seems to have done remarkably well. But it is still only a start, and to bring this effort to full fruition will clearly require a more intensive effort. We suspect that, among other things, it will require re-examination and revision of the initial assumptions implicit in the original plan; expanded provisions for continuous on-the-job training for village volunteers and committees, taking various forms; more frequent and helpful visitations to the villages by the wechakorn and other health center staff; a new effort to develop workable local planning methods with the help of village committees; and not least of all, a new concerted educational effort directed at the villagers at large (as distinct from spasmodic and relatively superficial "information" efforts) that will give them a fresh perspective and appreciation of their own life and environmental circumstances and lead them by their own logic and choice to adopt improved family and community health practices.

The purpose of the above remarks, however, is not to give unneeded advice to the Lampang Project. It is rather to call the attention of outside readers of this report to a very basic truth that has been once again confirmed by the Lampang experience: to develop strong community participation is not only an essential requirement for a viable primary health care system but it is also a much more complicated affair than is often assumed.
GENERAL CONCLUSIONS

These comments have attempted to illustrate some of the important principles and lessons that can be derived from the experience of the Lampang Health Development Project of potential value to others seeking to develop a wide-reaching and affordable rural primary health care system. Three important general conclusions emerge from this discussion:

First, to build a workable and affordable primary health care system that will serve the great majority of needy rural families is a considerably more complicated, time-consuming and expensive undertaking than is generally realized by those who have not actually tried to do it. Nevertheless it has to be done, because this is undoubtedly the most effective and feasible way — probably the only way — to meet the crucial and long neglected basic health needs of rural people. Whether it will be done is largely a question of each individual country’s political priorities, and of the willingness of both the medical profession and the public health profession to cooperate fully in the effort.

Second, securing the genuine and extensive participation — not simply the token or half-hearted participation — of rural communities at the base of such a system is especially complicated, yet absolutely essential to its success. This invariably requires strong and steady technical and other kinds of support and encouragement from a substantially strengthened and reorganized health infrastructure above the village level.

Third, to plan and build and manage a primary health care system successfully, it is vitally important to keep viewing it as: a system of highly interdependent and mutually supporting parts and to the surrounding social-economic-cultural milieu if the whole system is to function effectively. Regardless of how well any particular innovative feature may work in the context of a demonstration project, it cannot be expected to work equally well if plucked out separately and transplanted from the demonstration "system" to a quite different context — unless great care is taken to adapt it properly to all the other components of the receiving system.

These few general conclusions by no means exhaust all the important lessons that can be drawn from the Lampang experience. We suggest to our readers that as they examine the subsequent monographs they try to discover on their own what the Lampang Project has to teach us all about such other important matters as: (1) improving the management and efficiency of a primary health care system; (2) the realistic problems of integrating a medically-dominated urban hospital system with a rural system seriously deficient in curative services; (3) the importance of evaluation, but also the serious limitations of expensive, sophisticated methodologies for measuring quantitative changes and impacts, which may in the end not answer some of the most important qualitative operational questions of prime concern to policy
makers; (4) the most appropriate -- and the least appropriate -- kinds of help that external assistance agencies can render in this field, and the best ways of rendering it; and (5) perhaps most important of all, practical ways to insure that the poorest segment of rural communities enjoy equal access to and equal benefits from a primary health care system.

No one project, of course, can be expected to shed more than partial light on any of these basic issues. But because such relatively large and systematic government run projects of rural primary health care are still few and far between, we must be especially grateful for such light as the Lampang Project affords.

REFERENCES AND NOTES


2. *Wechakorn, The Thai term for physician extender or paraphysician, coined by Lampang Project leaders, was derived from wech, meaning medicine or medical care, and korn, meaning provider or practitioner.

3. MEDEX is a mid-level health worker training program, inaugurated at the University of Washington in the 1960s to retrain medical corpsmen for physician-supervised private and group practices in the United States. The program was later developed in several other universities, including the University of Hawaii which introduced the program internationally for the first time in Micronesia (Trust Territory of the Pacific Islands) during the early 1970s. See Monograph 3 for a more complete discussion of the developmental relationship between MEDEX and the wechakorn training program in Thailand.

4. This commentary was written by Philip H. Combs, Director of the Project on Helping the Rural Poor, International Council for Educational Development (ICED).
DEVELOPING COMMUNITY HEALTH VOLUNTEERS
AND
PRIMARY HEALTH CARE

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INTRODUCTION

The Lampang Health Development Project was primarily designed "to develop and demonstrate a low-cost, multi-purpose delivery system in Lampang Province which, as a minimum, provides family planning services integrated for consumer acceptance with maternal, child, and other basic health services and nutrition, used by two-thirds of the women of reproductive age and children under six at a cost which does not exceed resources available to the Province, to thoroughly test the system for replicability, and to gain useful experience which can be applied to the establishment of low-cost integrated systems elsewhere in Thailand and in other countries".¹ This statement, written in the early 1970's, guided Project planners to establish the Project in the health sector, to implement the Project by building on the existing provincial health care services delivery system, and to measure the outcome in terms of the availability, accessibility, and acceptability of health services, their costs and cost-effectiveness, and, to the extent possible, their impact on the health of the population served.

"Community involvement is essential in planning and implementing community-based health programs. The failure of community health efforts is due to: (1) inadequate matching of the perceptions of health needs and priorities between villagers and health services staff as a result of inadequate communications and the lack of a continuing dialogue, (2) inadequate organization of the community for extensive and lasting interventions, (3) inadequate mobilization of community manpower and financial resources, and/or (4) inadequate or inappropriate technical assistance from the government health service to the village-based health organization for proper health interventions with lasting effects."²

One major component of the Lampang Health Development Project was the development of village health committees and a network of community health volunteers who were drawn from the community and supported by it. These volunteers include health post volunteers, health communicators, and traditional midwives. Village health committees and a network of volunteers were envisioned to provide a local organizational base of health care in every village, linked to the government rural health care system for technical guidance and logistical support. This approach was based on the notion that through a village-level network of health volunteers, the government's ability to serve the needs of the rural population could be greatly extended and services could be expanded at a moderate cost.

As project implementation began in 1974, international health specialists were greatly interested in new concepts for health development which were termed "primary health care". It was coincidental that many of the elements of the Lampang Health Development Project such as community participation, community health workers, private sector involvement and community-based health and
development activities, were similar to elements of the primary health care approach proposed by leaders of the World Health Organization. Because of these similarities, the Lampang Project quickly became identified as a "primary health care" project.

All elements of the newly-formulated primary health care approach were not included within the original design of the Lampang Project. But Project leaders sought to develop and test some key primary health care features to the extent possible within the context of the Project. This was possible because of the flexibility that was built into the Project: "There will be no initially fixed predetermined definition of skills or training because to do so would vitiate the experimental and developmental nature of the Project. Unless flexibility is possible an acceptable low-cost system will be difficult to develop. Since the design of a high-coverage delivery system is unproven in Thailand, we must start with a reasonable hypothesis and let the program evolve from there through constant evaluation of original service structure, utilization and cost." It is important to note that building such flexibility into a project provides opportunities to test innovations, to attempt new approaches, and to refine project design and methods, based on the experience gained from ongoing assessment of actual field demonstration.

Although the Project's primary health care elements are not as broad in scope as the concepts now being articulated by the World Health Organization, the Lampang approach is an operating prototype which may provide useful experiences and lessons to others who are planning and implementing primary health care programs. The Project’s key features and innovations that are now recognized to be elements of primary health care are community participation, community health workers, traditional practitioner involvement, private sector involvement, and community-based health and development activities. The purpose of this monograph, then, is to describe the development and evolution of these Project features so that others can build upon the Lampang experience in designing and implementing appropriate primary health care programs for their own areas.
"...in most countries health development as a part of rural development is possible if one goes about it in acceptable ways. These ways include the quick evolution of a village-based development organization and a primary health care system designed for that country coupled with a parallel national effort... It is possible that the world is now at a stage when it should no longer cause surprise that something can be done and that simple primary health care works. Health by the people may have come of age."

In the decade before the beginning of the Lampang Health Development Project, health leaders acknowledged that no more than 15-20% of the rural Thai population had reasonable access to government health services. Furthermore, it had become exceedingly clear that the government health services system did not, and would not, have the resources, facilities, or manpower to extend basic health services to every village or even every subdistrict using a conventional approach. Yet, the people most in need of basic health services resided in rural villages and suffered from health problems that were, for the most part, easily recognized and simply treated, and/or preventable.

Project planners realized that significant improvements in rural health care would require mobilization of local human resources through a massive community health manpower development program based on concepts of self-help and helping others to help themselves. Indigenous practitioners, such as traditional birth attendants, would be invited to participate, and village health committees would be established. The Project would "begin with what they know, and build on what they have." Concepts of self-help and helping others to help themselves were already operating in rural village life: such concepts, together with local values, beliefs, and traditions, provided a highly relevant framework for building basic Project strategy and approaches.

Thailand is a predominantly Buddhist society, with more than 95 percent of its people following the teachings of Lord Buddha. Buddhism emphasizes that each individual, alone, is responsible for his fate, or condition in life. Thus, to follow a meritorious path will be rewarded in future reincarnations by a higher level of existence. This philosophy finds parallels in the daily activities of village life. Villagers must rely on their own ingenuity and, when assistance is needed, on their relatives, friends and neighbors. In agricultural activities, friends and relatives help one another sow the fields, transplant the young rice stalks, and harvest the paddy.
Construction of homes, irrigation canals, and repair of the temple and other community centers are often undertaken by local villagers. Outsiders are not expected to help with these projects, and assistance is not usually sought. This approach to life continues when villagers become ill. They may first seek help from friends and relatives, or they may go to trusted traditional healers or “specialized” practitioners who provide a wide range of services.

**INDIGENOUS VILLAGE PRACTITIONERS**

The most common types of indigenous village practitioners are herbalists, spirit doctors, injectionists, local drug sellers, and traditional midwives. They are described briefly here.

**Herbalists** have a wide range of herbal medications for a variety of common ailments, maintaining a long tradition of herbal practice that originated in India and China. Some have undergone extensive periods of formal education and their credibility is beyond doubt in the community. Those who have undergone formal training are issued licenses by the Thai Ministry of Public Health (MOPH).

**Spirit doctors** (magical healers) or incantationists use occult methods casting out spirits through incantations and “blowing ceremonies”. Many of these practitioners have had great success with patients whose ailments are primarily psychogenic.

**Injectionists**, a more recent arrival in the village, are distinguished from other types of traditional practitioners by using injectible antibiotics and other modern medicines. Most have not received formal medical education or training, but have gained their knowledge while working in health centers, hospitals, and other modern medical facilities, or while they were military medical corpsmen. Injectionists are very popular because they live in villages, are willing to make home visits, and provide effective modern medicines.

**Local drug sellers** in smaller communities and the drugstore attendants in the larger towns offer a range of both modern and traditional medicines, sold at a profit but provided with free medical advice. Many also provide injections, which may be more expensive, but which are commonly believed to be more effective. Villagers seek medical care consultation from drug sellers as a first choice more than from any other source.

**Traditional birth attendants (TBA's)**, or traditional midwives, assist in deliveries and perform the rituals associated with childbirth. They are usually elderly women who serve their friends when needed, or they may establish a regular practice if they enjoy a good reputation. Since the early 1950’s, Thailand’s Ministry of Public
Health has successfully trained traditional birth attendants to practice aseptic delivery and to provide health education in an effort to reduce the incidence of death and illness associated with child-bearing. According to a 1976 survey, traditional midwives attended 60-70% of all births in the country. There are about 17,000 practicing traditional midwives in Thailand, or an average of one for every two or three villages. They are highly respected, influential persons who may also perform abortions, advise on traditional methods of birth control, and provide some traditional medicines. In the Potharam Project (1965) they were responsible for motivating 5% of family planning acceptors, and in more recent projects (1973) they were shown to effectively motivate at least 2 to 3% of all family planning acceptors in their areas. 5

The availability and acceptability of indigenous providers is a result of their compatibility with local culture, traditions, and social values. Government health services, to be similarly acceptable, must also be compatible with local culture, traditions, and social values.

The Lampang approach, then, built on the existing role and “traditional wisdom” of these indigenous midwives (traditional birth attendants), providing them with more modern knowledge and improving their skills. The Project also appealed to community leaders to identify other indigenous practitioners and respected community members to be trained for new roles in their own communities.

COMMUNITY PARTICIPATION AND HEALTH VOLUNTEERS

The concept of community participation in health programs was not new in Thailand. In 1960, the Ministry of Public Health launched a successful nationwide sanitation campaign using local resources. The Village Health and Sanitation Project was originally designed to reduce the high incidence of water-borne and waste-borne diseases. But the program accomplished more than merely constructing hundreds of thousands of latrines and sanitary wells throughout the nation. It helped to stimulate community participation by establishing Village Sanitation Committees. Using local resources and initiative, these committees attacked the environmental sanitation problems in their communities. The cooperation between villagers and government health workers laid the foundation for many of the community health and development projects which have subsequently been undertaken to improve conditions in the rural areas.

As described in the preceding monograph, the first village health volunteers were trained in the Saraphi Project from 1968-71, and were found to be effective in developing local health programs through community participation. Building on this experience and employing more recent primary health care concepts, the Lampang Project drew on locally available resources—primarily manpower, the most available
village resource -- as a central strategy of the Project. The basic hypothesis was that if local health volunteers were mobilized and trained to provide basic health services, there would be a great increase in coverage of the population with basic health services, an increased acceptance of these services because of the general acceptability of local health care providers and respected local leaders who would participate, and increased cost-effectiveness of the overall health system because of the low cost of mobilizing local volunteer manpower.

Three types of community health volunteers were planned:

1. Health post volunteers -- 1 for every village
   (or village health volunteers) (or 2 for larger villages)
2. Health communicators -- 1 for every 10-15 households
3. Traditional midwives -- 1 for every 1-3 villages, as available

The community health volunteer network provides the essential interface and link between the village communities and the rural health service infrastructure. The rural health service infrastructure comprises, primarily, district hospitals, subdistrict health centers and midwifery centers, staffed by government midwives and sanitary health workers, and a few nurses and doctors (district level).

The training of cadres of community health volunteers represents the greatest impetus for extending primary health care coverage to every village in the province. This strategy is based upon the notion that rural communities have untapped energy and resources which can be marshalled to build community self-reliance in health, as well as to utilize appropriate health technology consistent with the values, traditions, and lifestyles of the people. Since the volunteers come from the villages in which they serve, there is no need to bridge the social or communication gap which so often exists between government health care providers and rural villagers who consult them. Volunteers serve as a source of comfort in time of illness and encourage the introduction of new ideas that promote health.

Project leaders believed strongly that two more elements were crucial for the network of community health volunteer (TBAs, health post volunteers, and village health communicators) to perform effectively: (1) functional linkages with the government health care system for referrals, technical guidance, and when needed, materials and logistics support, and (2) organized community effort through the role of village health committees. The training and deployment of wechakorn to every subdistrict health center and district hospital, and the motivation of other health center personnel are the most important elements of the Lampang approach for establishing viable longterm support for community health volunteers, health committees, and primary health care activities at the village level.
CHAPTER 2
SOCIAL PREPARATION AND ORGANIZATION

'A firm national policy of primary health care for the under-privileged will involve a virtual revolution in most health service systems.....Fundamental changes of this kind in health care in the developing countries will require correspondingly far-reaching changes in the organizational structure and management of the health services.....The entire health service will have to be mobilized to strengthen and assist the primary health workers by providing them with training, supervision, referral facilities, and logistic support, including a simplified national health technology appropriate to their needs”6

The establishment of a primary health care system involving substantial community participation was predicated on four important, and sometimes difficult, processes:

(1) Social preparation, organization and development of infrastructure at the community level, and at all levels of the health care system, as well as other governmental sectors involved in supporting and coordinating the primary health care system.

(2) Training and deployment of manpower for improved community health manpower performance, and effectiveness and efficiency of the overall health care system.

(3) Demystification of medical and health knowledge to make this information accessible in a usable form to rural health workers and to individuals and families with varying education; and, to the extent possible, integration of useful traditional and modern medical and health practices, and establishment of effective referrals and other functional linkages between traditional and modern health care providers.

(4) Decentralization of responsibility (and, to the extent feasible, authority) towards greater self-reliance and self-determination at the periphery of the health system and, particularly, at the community level.

This Chapter focuses on social preparation, organization, and development of infrastructure. Chapter 3 covers training and deployment of community manpower, which necessarily includes the demystification of medical and health information. Finally, Chapter 5 presents the decentralization of responsibility through the development of village health committees and community participation.

The first aim of social preparation and organization is to create a receptive framework and a responsiveness within the governmental health service system and other governmental sectors involved with health, social and, community develop-
The second aim is to create an appropriate social organization at the community level for a viable and effective primary health care system to evolve, based on effective collaboration between communities and government.

In the Lampang Project, social preparation and organization was easy to conceptualize, more difficult to plan, and sometimes, seemingly impossible to implement fully. The process began early in the planning phase, continued throughout the implementation phase, and, at some levels, is still occurring. To the extent that innovation was required, diffusion required time and constant reinforcement to overcome the inertia of human factors, such as attitudes, habits and behaviors, social norms and practices.

Social preparation and organization occurred at several levels and at different times in Lampang. The major levels of social preparation and organization, and the general sequence in implementation were:

1. Ministry of Public Health and central government
2. Provincial government
3. Provincial Health Office and Provincial Hospital
4. District health offices and district hospitals
5. Subdistrict health centers and subdistrict councils
6. Village communities

MINISTRY OF PUBLIC HEALTH AND CENTRAL GOVERNMENT

In the two years of planning before implementation of the Lampang Project the Ministry of Public Health underwent a major reorganization. The central objective of MOPH reorganization was to integrate health promotion, disease prevention, and medical care and rehabilitation services and to bring the administration under a single authority at the central Ministry level (specifically, the Office of the Under-Secretary) and at the provincial level, under the Provincial Health Officer. This was a fortuitous event, as the aim of the Project was to establish an integrated provincial health care system. Planning and early implementation of the Project, therefore, went hand-in-hand with and followed implementation of the Ministry plan. Project planning at the central level involved a broad base of representatives from the Office of the Under-Secretary, Division of Planning, Division of Epidemiology, Division of Training, and the Department of Health, including the divisions of nutrition, family health, and health education. This broad participation in the planning phase laid the groundwork for further Ministry involvement in Project implementation and, later, acceptance of proven Project key features for national implementation.

After the Project was planned and accepted by the Ministry of Public Health and the Cabinet, the infrastructure for intersectoral cooperation was provided by the Lampang Project Policy Committee. This committee was established to
advise the Ministry of Public Health and Project staff on matters concerning implementa­tion of the Project. The chairman of the committee was the Under-Secretary of State for Public Health and the members included representatives of the National Social and Economic Development Board, the Department of Technical and Economic Cooperation, the Bureau of the Budget, the Civil Service Commission, the National Institute of Development Administration, the Bureau of State Universities, and the Ministry of Public Health. The establishment of the Lampang Project Policy Committee facilitated implementation of the Project and acceptance of its key features and innovations.

During implementation of the Lampang Project, Ministry of Public Health and other central government support was needed (1) to disengage the province from recording and reporting regulations before an attempt could be made to revise and streamline the system of recording/reporting, (2) to provide official Civil Service Commission and Bureau of the Budget recognition of the new community health paraphysicians (wechakorn) and to increase the income of those wechakorn who were deployed to rural health centers and midwifery centers, (3) to strengthen the supply system and increase logistic efficiency, and (4) to permit village health post volunteers to receive supplies through the private sector when regular government supplies were not available.

PROVINCIAL GOVERNMENT ADMINISTRATION

During the planning and implementation phases, MOPH and Project personnel oriented the Provincial Governor and the Provincial Health Officer to the objectives, strategies, key features and planned innovations of the Project to secure their support and official endorsement. Later, in the implementation phase, a Provincial Advisory Committee was established by the Provincial Governor to provide the infrastructure for orienting and securing support from all governmental sectors concerned with health and social and economic development, including education, agriculture, and community development. Sanctions from the Provincial Governor and administration were needed for the cooperation, support, and involvement of provincial and district level government personnel, particularly for social preparation and organization at the district and subdistrict levels. Personnel from sectors other than health also participated in the social preparation and organizational phases at the village level, particularly in the training of community health volunteers.

PROVINCIAL HEALTH OFFICE AND PROVINCIAL HOSPITAL

Provincial Health Office support of the Project was essential because the Project was being implemented through the provincial health administration, the Project serving only as a technical arm of and advisory staff to the Provincial Health Office.
The reorganization of the Provincial Health Office in the Planning and early implementation phase was a major effort of the Project. The result of this reorganization conducted for purposes of Project implementation is depicted in Figure 1. During the late implementation phase and final evaluation phase, the replicable functions of the Project were turned over to the Provincial Health Office.

The process of social preparation and organization at the Provincial Health Office and Provincial Hospital level involved the orientation and training of 72 administrators and supervisors, and the orientation and training of 235 service personnel. This orientation and training was completed during the first two years of Project implementation and was an important initial factor in the attempt to win the cooperation and support of key personnel of the Midwifery School, the Provincial Hospital and, of course, the Provincial Health Office. But the initial orientation and training, alone, proved to be inadequate and indicated need for reinforcement. The initial orientation was least effective with some of the Provincial Hospital personnel whose orientation was strongly curative and hospital-based. (Remember, this Project orientation took place shortly after MOPH reorganization.) Many Provincial Hospital personnel were not released for, or chose not to attend, the orientation and training sessions organized by Project and Provincial Health personnel.

With the Lampang Project serving as a technical advisory group for the Provincial Health Office, a substantial effort was made during the first two years of Project implementation to reorganize the provincial health administration, providing additional opportunity and time needed for social preparation at this crucial level. Exemplifying the close working relationship between the Lampang Project staff and the Provincial Health staff, the Provincial Health Office and the Project were functionally organized as indicated in Figure 1. This relationship existed until the end of the first five years of Project implementation when the replicable (routine) Project functions were accepted by the Provincial Health Office.

DISTRICT OFFICES, DISTRICT HEALTH OFFICES AND DISTRICT HOSPITALS

Before the important process of social preparation and organization could be undertaken at the subdistrict and village levels, the Project and Provincial Health personnel had to first orient and secure the support of the district officer, the district health officer, and the district hospital personnel in each district. This was done on a district-by-district basis, in advance of planned approaches at the subdistrict and village levels.
## Figure 1

**Lampang Project and Provincial Health Office Organization, Responsibilities and Activities**

<table>
<thead>
<tr>
<th>LAMPANG HEALTH DEVELOPMENT PROJECT</th>
<th>LAMPANG PROVINCIAL HEALTH OFFICE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Administrative Service Division</strong></td>
<td><strong>Planning and Programming Division</strong></td>
</tr>
<tr>
<td>Planning and Programming Division *</td>
<td>Personnel Development Division *</td>
</tr>
<tr>
<td>Personnel Development Division *</td>
<td>Research and Evaluation Division</td>
</tr>
<tr>
<td>Research and Evaluation Division</td>
<td>Provincial Hospital &amp; Midwifery School *</td>
</tr>
<tr>
<td>Provincial Hospital &amp; Midwifery School *</td>
<td><strong>Administrative Service</strong></td>
</tr>
<tr>
<td><strong>Financial and Administrative Support</strong></td>
<td><strong>Planning and Evaluation</strong></td>
</tr>
<tr>
<td>Plan of operations formulation</td>
<td>Planning and requesting support from the Ministry</td>
</tr>
<tr>
<td>Manpower planning</td>
<td>Training needs assessment</td>
</tr>
<tr>
<td>Job description development</td>
<td>Selection of personnel to be trained</td>
</tr>
<tr>
<td>Program design</td>
<td>Pre-service training personnel</td>
</tr>
<tr>
<td>Pre-service training</td>
<td>Program planning</td>
</tr>
<tr>
<td>M.I.S. design</td>
<td>Program monitoring</td>
</tr>
<tr>
<td>Training of health workers</td>
<td>Replacement of personnel trained</td>
</tr>
<tr>
<td>- Training needs assessment</td>
<td>Training needs assessment</td>
</tr>
<tr>
<td>- Curriculum development</td>
<td>- Selection of personnel to be trained</td>
</tr>
<tr>
<td>- Training of trainers</td>
<td>Pre-service training</td>
</tr>
<tr>
<td>- Orientation for service personnel</td>
<td>Supervision</td>
</tr>
<tr>
<td>- Training of <em>wechakorn</em></td>
<td>Establishment of information center and library</td>
</tr>
<tr>
<td>- Training of health volunteers</td>
<td>Record keeping and reporting</td>
</tr>
<tr>
<td>- Evaluation of training program</td>
<td>- Information dissemination</td>
</tr>
<tr>
<td>- Instrument design</td>
<td>Epidemiological support</td>
</tr>
<tr>
<td>- Data collection</td>
<td>- Support of health volunteers' activities</td>
</tr>
<tr>
<td>- Analysis of data</td>
<td>- Establishment of private sector and community participation</td>
</tr>
<tr>
<td>- Report writing</td>
<td>- Health volunteer selection</td>
</tr>
<tr>
<td>- Problem identification</td>
<td>- Support of health volunteers' activities</td>
</tr>
<tr>
<td>- Evaluation planning</td>
<td>- Establishment of information center and library</td>
</tr>
<tr>
<td>- Technical training</td>
<td>- Establishment of private sector and community participation</td>
</tr>
<tr>
<td>- Continuing education</td>
<td>- Health volunteer selection</td>
</tr>
<tr>
<td>- Continuing education</td>
<td>- Support of health volunteers' activities</td>
</tr>
</tbody>
</table>

* The training of new types of health workers - *wechakorn* and community health volunteers was planned and implemented by the Lampang Project and coordinated by the Provincial Health Office; later, the responsibilities of the training of new types of health workers were transferred to the Provincial Health Office.
District advisory committees were established. These were headed by the district officer and included other government officials concerned with local administration and development activities. The cooperation of the district officer was necessary to introduce and operate the Project in the area, and his expressed support facilitated the process of gaining support at the subdistrict level. This was particularly important when other government sectors began to cooperate in local health and community development activities, such as when agricultural extension workers trained health post volunteers.

In the Thai system of administration, the district administrative level is seen as the most appropriate level for coordination, supervision, and support of rural health workers. The official authorities with responsibility for health are the district officer and the district health officer. Yet, in general, the most experienced and technically capable health and medical personnel at the district level are located in the district hospital, which is supervised by the Provincial Health Office. A series of district health services management workshops were organized by the Project to create the basis for improved coordination and management of district and subdistrict health services. The workshops were planned and conducted by staff from the Project, the Ministry of Public Health, and the National Institute of Development Administration. The workshops utilized a case-study, problem-solving approach, and also integrated Buddhist concepts, philosophy, and techniques, including the practice of meditation as an integral method of the workshop. This approach is thought to be highly effective. Ministry of Public Health leaders are planning similar district management workshops for improved health services management.

**SUBDISTRICT HEALTH CENTERS AND SUBDISTRICT COUNCILS**

Strengthening the provision of integrated medical and health services at the subdistrict level received a great deal of attention from the beginning of Project planning throughout the entire implementation phase. The one year of training for selected health center personnel as wechakorn paraphysicians provided substantial opportunities to reinforce the basic principles of integrated health services and primary health care. In addition, wechakorn training emphasizes village health organization and the roles of village health committees and the community health volunteers to whom wechakorn would provide technical guidance, encouragement, and logistic and referral support.

The subdistrict council is usually composed of the local governmental personnel from health, education, agriculture and sometimes community development sectors, the subdistrict headman, and all village headmen. To the extent possible, health center staff participate in village health activities and they serve as technical resources persons to, or members of, the subdistrict council. The council is an appropriate administrative body for local coordination of community and health.
development, particularly where cooperation between various units is required. During the early phase of Project implementation, the government attempted to redistribute national revenue to the rural areas and to accelerate rural development by providing government funds and resources directly to the subdistrict councils for use in local development programs, chosen by the councils. The Project had already begun social preparation and the organization process at the subdistrict level and subdistrict councils were oriented and their support was secured. The program had great potential for application in health development, as well as other community development programs.

VILLAGE HEALTH COMMITTEES

The process of social preparation at the village level began when Project, provincial and local health personnel approached the local government official and the village headmen to explain the objectives, strategy, approach and methods of the Project, and to request their support and cooperation. Many villages already had a village health committee organized in earlier years under the Village Health and Sanitation Project, while a few had volunteers who had worked with the National Malaria Eradication Project. These villagers were prepared and willing to participate as members of a village health committee for purposes of revitalizing village health activities. Where there had been no village health committee, the village headman took the responsibility to select one. The village health committee’s first function was to identify (and, in most villages, to select) community health volunteer candidates who would be trained in the two-day village health communicator training program and/or the two-week health post volunteer training program. Traditional birth attendants (traditional midwives) were also identified and, if qualified for training, invited to the special two-week training course which was organized at the Midwifery Training Center in the provincial capital.

In some areas the Project simplified the process of village level social preparation, organization and participation by training village health committee members themselves to serve as village health communicators.
CHAPTER 3

COMMUNITY HEALTH MANPOWER DEVELOPMENT:
TRAINING AND DEPLOYMENT

"For health manpower development there has been a reorientation of the training concept toward primary health care workers. The emphasis of primary health care in Thailand is reflected in a variety of efforts aimed at involving local residents in restoring and maintaining their own health status within the framework of rural development. The Ministry of Public Health has realized that there are untapped manpower resources existing in the village -- people who can serve local communities as village health communicators and village health volunteers...In 1977, the Ministry of Public Health launched the Primary Health Care Program...In March, the Cabinet approved the principle of primary health care as a National Health Development Policy...." 7

Expansion of a village-level health care capability was a major objective of the Lampang Project as it began operations in late 1974. To achieve this objective, a network of village health volunteers was designed as a vehicle to bring simple medical care and medicines, family planning motivation, information and supplies, appropriate maternal and child health and nutrition services, and a source of health information gathering and dissemination to each of Lampang Province's 574 villages. The volunteer network had to be self-reliant, yet effectively linked to the existing government rural health network and other local development units through referrals, support and technical guidance.

COMMUNITY HEALTH VOLUNTEER TRAINING AND ROLES

Health Post Volunteers (HPV, VHV)

Health post volunteers were trained by local health personnel, other government officials, and training staff of the Lampang Project's Division of Personnel Development. The two-week training was conducted in the local area, usually at the district hospital, or a health center, for groups of twenty to thirty trainees.

The training objectives were in accord with the planned role and expected activity of the health post volunteer. At the completion of ten full days of training, health post volunteers were expected to be able to:

(1) Provide simple first-aid illness care, using safe "household" medicines (including anti-malaria medicines) provided by the government for such conditions as fever, cough, gastroenteritis, diarrhea, headache, conjuncti-
activities, ear infection, intestinal worms and parasites, common skin diseases, minor accidents, minor burns, bites and stings, fainting, nosebleeds, and water accidents;

(2) Provide health promotion and disease prevention information concerning maternal and child health, family planning, nutrition, and sanitation;

(3) Support community nutritional surveillance and promote and support nutrition care for affected families;

(4) Provide family planning information and condoms and birth control pill resupplies (under the supervision of the local health center or government midwifery center staff);

(5) Recognize serious illness cases and refer them to the appropriate health facility, usually the local health center (for examination and treatment by wechakorn);

(6) Support and supervise the work of health communicators in his village;

(7) Record health post activities in the health post log, including contacts with health communicators and village health activities;

(8) Help coordinate government health activities in his area, and motivate villagers to undertake local health activities.

Training methods included lectures, demonstrations and some audiovisuals. The training curriculum is summarized, as follows.

1. Introduction to the government health system and orientation to the Lampang Project strategy;

2. Orientation to the role of the village health post volunteer, in relation to the roles of other community health volunteers (health communicators and traditional midwives) and to health center wechakorn and other government health workers;

3. Cooperation between health post volunteers, child nutrition center attendants, and village health committees;

4. Human relations;

5. Provision and collection of health information in the village;

6. Conducting technical information;

7. Nutrition technical information;

8. Sanitation technical information;

9. Family planning technical information;

10. Maternal and child health technical information;

11. Primary medical care for URI, gastroenteritis, diarrhea, headache, intestinal worms and parasites, bites and stings, bleeding, water accidents, trauma, fever (including malaria), eye and ear infections, and skin diseases;

12. Use of household medicines;

13. Recognition of serious illnesses and injuries, referrals to health center, and follow-up;

14. Distribution of resupplies of medicines for tuberculosis and leprosy;
Recognition and referral of some communicable diseases;
Health education, with particular reference to MCH, FP, nutrition and sanitation;
Recording and reporting deaths, births, and migration of villagers (only in one pilot district);
Oral hygiene;
Community water supply and sanitation programs;
Community development programs;
Supervision of village health communicators;
Taking blood smears for malaria examinations;
Health information, communication, record-keeping.

Traditional Birth Attendants

Training objectives of the training program for traditional midwives at the Regional Midwifery School in Lampang are summarized here. At the end of training each traditional midwife should be able to:

1. Conduct normal deliveries using aseptic technique;
2. Identify patients with abnormal pregnancies, difficult labor, and complications of delivery, and to refer these patients to the appropriate health facility;
3. Record births and report them to the village health post volunteer and to the village headman;
4. Provide advice to mothers and children in using appropriate health care services of the health post, midwifery center, nutrition center, and health center;
5. Provide advice to mothers and children about good nutrition, and be able to recognize the signs and implications of poor nutrition;
6. Encourage and promote family planning practices; and,
7. Distribute condoms and resupplies of birth control pills (if the midwife so desires).

The training program lasted two weeks (ten work days). The traditional birth attendants were trained by the professional staff of the Lampang Midwifery School who also train the government health service midwives, as well as provincial health staff. The training curriculum was the following:

<table>
<thead>
<tr>
<th>Event</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to participants</td>
<td>1/2 hour</td>
</tr>
<tr>
<td>Pre-test (question and answer method)</td>
<td>1 hour</td>
</tr>
<tr>
<td>Introduction to Lampang Project</td>
<td>1 hour</td>
</tr>
<tr>
<td>Maternal and child health</td>
<td>25 hours</td>
</tr>
<tr>
<td>Family planning</td>
<td>4 hours</td>
</tr>
<tr>
<td>Household medicines</td>
<td>1 hour</td>
</tr>
<tr>
<td>Recording of births</td>
<td>1 hour</td>
</tr>
<tr>
<td>Integrated health services in the district and role of the traditional birth attendants</td>
<td>2 hours</td>
</tr>
</tbody>
</table>
Sterile technique 3 hours
Nutrition for mothers and children 3 hours
Patient referral system 1 hour
Introduction to Child Nutrition Centers 1 hour
Post-test (question and answer method) 1 hour
Observation at antenatal clinic, well baby clinic and obstetric ward at Lampang Provincial Hospital 9 hours

Each of the 352 traditional midwives trained by the Lampang Project is supervised by the government midwife, who is stationed at the midwifery center closest to her, or by the wechakorn, nurse, or midwife stationed at the local subdistrict health center.

**Village Health Communicators**

Village Health Communicators communicate with their fellow villagers about health, and collect health-related information. They were trained in groups of 50-100 in a two-day course, conducted by local health officials and other government officials, at a local school or temple. At the completion of training, each village health communicator was expected to be able to:

1. Advise fellow villagers where to receive appropriate health care services and facilitate referrals to the village health post and/or the nearby health centers;
2. Receive and disseminate health information among the members of households in their area;
3. Assist and cooperate with the village health post volunteer, village health committee, and rural health workers in the promotion and implementation of village health activities, such as nutritional surveillance weighing program, malaria control, vasectomy motivation, FP promotion, and so forth; and,
4. Report to the health post volunteer any births, deaths, or migrations in or out of their respective household areas.

The training curriculum included the following topics.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Lampang Project</td>
<td>1/2 hour</td>
</tr>
<tr>
<td>Functions of a health communicator</td>
<td>1/2 hour</td>
</tr>
<tr>
<td>Nutrition</td>
<td>1 hour</td>
</tr>
<tr>
<td>Maternal and child health</td>
<td>1 hour</td>
</tr>
<tr>
<td>Family planning</td>
<td>1 hour</td>
</tr>
<tr>
<td>Observation of the occurrences of common communicable diseases</td>
<td>1 hour</td>
</tr>
<tr>
<td>Local health service system</td>
<td>1 hour</td>
</tr>
<tr>
<td>Household medicine</td>
<td>1 hour</td>
</tr>
<tr>
<td>Human relations</td>
<td>1 hour</td>
</tr>
</tbody>
</table>
Receiving and disseminating health information

in a village 1 hour
Sanitation 1 hour
Child Nutrition Centers 1 hour
Cooperation with the Ministry of Interior 1 hour

Each village health communicator was oriented to work directly under the supervision of the village health post volunteer. Being popular local residents and "good communicators", they are employed primarily for health promotional purposes. Covering 10-15 households each, they can readily spread information and influence their friends and neighbors to accept health services, such as when the mobile unit comes to their area, when the nutritional surveillance team comes to their area, or when the sanitation workers come to discuss water supply improvement. They are a potentially strong force for rapid and effective communication of health activities and health promotion when they are properly guided, supervised and motivated.

Summary Profile of Community Health Volunteers

An overview of the development of the three types of community health volunteers is presented in Table 1.

Except for the traditional birth attendants, the volunteers trained are predominantly male. Two thirds of the communicators and over 80% of the health post volunteers are men. Most earn their living from agriculture, and few have more than four years of education.

The predominance of male health post volunteers caught the attention of a number of observers, because many volunteer activities (particularly family planning, maternal and child health and child nutrition) are often considered to be more natural interests of village women. In Thailand, however, the delivery of such health services -- even family planning and MCH services -- by male health workers or volunteers is much less sensitive than in many other countries. The reason that most volunteers are male is related to the selection process: the members of village health committees who choose the health post volunteers are almost exclusively male and they tend to choose men more often than women. When women are chosen, it is not uncommon to find that they are the wife, daughter or other female relative of one of the committee members. Although, selection was considerably streamlined by utilizing village health committees, it might be useful in the future to consider ways to increase the selection of women.

Table 2 summarizes the background of all volunteers trained in programs organized by the Lampang Project, but reflects more than the actual number of volunteers working in the field, because the table includes training of new volunteers for replacing those who resigned. In addition, 45 health post volunteers (but no communicators) were trained in Ngao District by the Community-Based Family Planning Services organization, and they are not included in Table 2.
### Table 1
Summary of Community Health Volunteers Training in Lampang

<table>
<thead>
<tr>
<th></th>
<th>Health Post Volunteers</th>
<th>Traditional Birth Attendants</th>
<th>Health Communicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Main Job</strong></td>
<td>Provide primary health care services</td>
<td>Perform normal deliveries and assist MCH</td>
<td>Provide health, FP, nutrition information</td>
</tr>
<tr>
<td><strong>2. Background</strong></td>
<td>Local, literate residents</td>
<td>Practicing TBA</td>
<td>Local resident, volunteer village committee member</td>
</tr>
<tr>
<td><strong>3. Selection Method</strong></td>
<td>Village health committee</td>
<td>Local health officials and village health committee</td>
<td>Sociometry for few, village health committee for most</td>
</tr>
<tr>
<td><strong>4. Training:</strong></td>
<td>Duration 10 days (60 hrs.)</td>
<td>10 days (54 hrs.)</td>
<td>2 days (12 hrs.)</td>
</tr>
<tr>
<td></td>
<td>Place District hospital</td>
<td>Midwifery School</td>
<td>School or temple in village</td>
</tr>
<tr>
<td></td>
<td>Curriculum</td>
<td>MCH 4%</td>
<td>69%</td>
</tr>
<tr>
<td></td>
<td>Nutrition</td>
<td>4%</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>FP</td>
<td>4%</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Prevention &amp; Promotion</td>
<td>12%</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Supportive Treatment</td>
<td>11%</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>Medical Treatment</td>
<td>65%</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>Trainers</td>
<td>District hospital and subdistrict health staff</td>
<td>Provincial and midwifery school staff</td>
</tr>
<tr>
<td></td>
<td>Special Training</td>
<td>Agriculture</td>
<td></td>
</tr>
<tr>
<td><strong>5. Service Area</strong></td>
<td>1-2 for each village</td>
<td>Less than 1 per village</td>
<td>1 for 10-20 households</td>
</tr>
<tr>
<td><strong>6. Logistics:</strong></td>
<td>Supervision</td>
<td>Local health officials</td>
<td>Local health officials</td>
</tr>
<tr>
<td></td>
<td>Support</td>
<td>- Village committee local health officials &amp; district coordinator</td>
<td>- Local health officials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Rotating fund for medicines</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- FP pills and supplies given free to a few TBA's</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Free medical care</td>
<td>Free medical care</td>
</tr>
<tr>
<td></td>
<td>Incentive</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Trained</td>
<td>873</td>
<td>352</td>
</tr>
</tbody>
</table>

Source: Lampang Health Development Project, Personnel Development Div. records, 1974-1975
### Table 2
Profile of Community Health Volunteer Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Health Post Volunteers</th>
<th>Traditional Midwives</th>
<th>Health Community Volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>873</td>
<td>100%</td>
<td>352</td>
</tr>
<tr>
<td>Male</td>
<td>711</td>
<td>81%</td>
<td>1</td>
</tr>
<tr>
<td>Female</td>
<td>162</td>
<td>19%</td>
<td>351</td>
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<table>
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<th><strong>Age</strong></th>
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<tr>
<td>Under 20 years</td>
<td>14</td>
<td>2%</td>
<td>0</td>
<td>0</td>
<td>308</td>
<td>6%</td>
</tr>
<tr>
<td>20-29</td>
<td>245</td>
<td>28%</td>
<td>10</td>
<td>3%</td>
<td>1,557</td>
<td>29%</td>
</tr>
<tr>
<td>30-39</td>
<td>309</td>
<td>35%</td>
<td>46</td>
<td>13%</td>
<td>1,702</td>
<td>32%</td>
</tr>
<tr>
<td>40 and over</td>
<td>305</td>
<td>35%</td>
<td>296</td>
<td>84%</td>
<td>1,792</td>
<td>33%</td>
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<th><strong>Education</strong></th>
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<tbody>
<tr>
<td>None</td>
<td>11</td>
<td>1%</td>
<td>154</td>
<td>44%</td>
<td>104</td>
<td>2%</td>
</tr>
<tr>
<td>1-4 years</td>
<td>733</td>
<td>84%</td>
<td>193</td>
<td>55%</td>
<td>4,442</td>
<td>83%</td>
</tr>
<tr>
<td>5-7 years</td>
<td>65</td>
<td>7%</td>
<td>5</td>
<td>1%</td>
<td>575</td>
<td>11%</td>
</tr>
<tr>
<td>8 or more years</td>
<td>56</td>
<td>6%</td>
<td>0</td>
<td>0</td>
<td>172</td>
<td>3%</td>
</tr>
<tr>
<td>Other/Unknown</td>
<td>8</td>
<td>1%</td>
<td>0</td>
<td>0</td>
<td>66</td>
<td>1%</td>
</tr>
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<table>
<thead>
<tr>
<th><strong>Occupation</strong></th>
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<tbody>
<tr>
<td>Agriculture</td>
<td>747</td>
<td>86%</td>
<td>317</td>
<td>90%</td>
<td>4,474</td>
<td>83%</td>
</tr>
<tr>
<td>Trade</td>
<td>85</td>
<td>10%</td>
<td>8</td>
<td>2%</td>
<td>408</td>
<td>8%</td>
</tr>
<tr>
<td>Agriculture+Trade</td>
<td>5</td>
<td>Under 1%</td>
<td>1</td>
<td>Under 1%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>32</td>
<td>4%</td>
<td>25</td>
<td>7%</td>
<td>459</td>
<td>9%</td>
</tr>
<tr>
<td>Unknown</td>
<td>4</td>
<td>Under 1%</td>
<td>1</td>
<td>Under 1%</td>
<td>18</td>
<td>Under 1%</td>
</tr>
</tbody>
</table>

Source: Personnel Development Division, Lampang Project, 1974-1979

*Does not include 45 HPVs trained by CBFPS in Ngao District.*
COMMUNITY HEALTH VOLUNTEER DEPLOYMENT

Upon completion of training, each HPV returned to his or her village and established a small area at home which serves as a consultation area when neighbors come for help. This consultation area usually has a bed for patients to be examined and treated by the HPV. It also has a small medicine cabinet to store simple nonprescription medicines which the HPV sells to his patients. Some of the more successful volunteers see as many as two hundred patients each month. The medicines are provided to the HPV through a revolving fund, and the volunteer sells medicines as inexpensively as possible, but with an allowance for a small profit.

After completing each patient contact, the HPV records an entry into his daily log of patient contacts. This record assists the local health worker to supervise the HPV by seeing whether the latter has given the proper treatment for the diagnosed ailment. In addition, the log allows the health worker to know which health problems are most prevalent in the community, as well as which of the HPV's supplies must be replaced. By helping his neighbors in times of need, the HPV establishes his credibility which facilitates the introduction of preventive and promotive health care in his community. This is a critical concept in the deployment of health post volunteers.

Family Planning and Nutrition Roles

Two programs which benefit from the services of CHV are those related to family planning and nutritional surveillance. The HPVs help to extend family planning services to fellow villagers by discussing the advantages of small families, spacing, and the usefulness of sterilization for those individuals who have decided that they do not want any additional children. Initially, HPVs only suggested that interested neighbors visit the nearest local health facility to discuss an appropriate family planning method; but HPVs now are supplied with condoms and oral pills, and provide follow-up services.

The Community Health Department of the Lampang Provincial Hospital, with assistance from the National Family Planning Project and the Lampang Project, began a rural Mobile Vasectomy Clinic program designed to help reduce the high fertility in the province. In the first nine months of operation, more than eight hundred individuals received vasectomies. To a large extent, the success of this program can be directly attributed to the efforts of HPVs. Before the mobile clinic arrives in their community, volunteers meet with local government health workers and health communications personnel of the Lampang Project to discuss how to promote this activity. The volunteers were informed about the advantages and
disadvantages of this procedure, as well as the nature of the vasectomy operation. They could then go out into their communities and intelligently discuss the vasectomy operation with their neighbors who might be appropriate candidates for the procedure. This direct interpersonal communication, between volunteers and friends and relatives, is one of the most effective forms of communication and influence in Thailand.

The Nutrition Surveillance Program also benefitted from the efforts of the HPVs. After conducting the Community Health and Nutrition Survey, the widespread problem of malnutrition, primarily protein-calorie malnutrition became apparent. In Hang Chat District, over forty percent of the surveyed children demonstrated undernutrition (as measured by weight-for-age) or other nutritional deficiencies. When this figure is applied to the entire province, it indicates that approximately 30,000 children in Lampang Province are undernourished.

By utilizing the large corps of health post volunteers, the provincial health care delivery system has the capacity to operate a nutrition surveillance program. In some areas, health post volunteers have gradually taken on greater responsibilities in this surveillance. To ensure that they contribute to the nutritional surveillance monitoring system, the provincial health organization initiated a refresher nutrition education program. Local health workers meet with health post volunteers to discuss the nutritional problems specific to their communities. Volunteers are trained to weigh all preschool children in their village using a simple, accurate, but inexpensive market scale, called a Chinese beam scale. The results of these examinations are subsequently recorded on a “Road to Health” type growth chart (developed by Lampang Project personnel) to determine the child’s nutritional status. With support from the local health workers, the health post volunteers follow the progress of second and third degree malnourished children. This is accomplished by health post volunteers’ helping to distribute food supplements and educate families to choose locally-available nutritious foods for their children. The use of health post volunteers not only increases the villagers’ awareness of this problem, it has also demonstrated that volunteers, in cooperation with responsive government health workers, are capable of establishing an effective nutritional surveillance program, using minimal outside resources.

In some areas, however, the surveillance and nutrition improvement program has not been adequately maintained because of inadequate supervision, support or coordination from government health workers. As designed, the system still relies primarily on inputs from government health services – and, without the essential government health service inputs, the program’s impetus waned. In areas where wechakorn and other health workers are well-motivated, supervised and supported, nutrition surveillance and service provision through village health post volunteers has been and continues to be effectively maintained.
In an effort to attack the malnutrition problem through increased production of locally available foods, agricultural extension training for health post volunteers was planned and conducted by staff from the Lampang Project, the Northern Agricultural Development Office and the Regional Community Development Office. The program’s objectives were to provide health post volunteers with additional skills needed to improve local agriculture, education and community development activities. Health post volunteers were trained in basic agricultural methods needed for developing local demonstration gardens at schools, temples, health posts, or other community centers; poultry, pig, and fish raising projects; and similar activities to improve the availability and accessibility of basic food-stuffs for local consumption and/or for generating more income. A total of 40 health post volunteers were trained in this pilot project.

VARIATIONS IN CHV DEPLOYMENT AND SERVICE AREAS

When Project training operations were concluded in 1979, the ratio of each type of community health volunteer to population covered, on average, was as follows:

- 1 health post volunteer: 685 villagers (or 1-2 HPV per village)
- 1 traditional midwife: 1,628 villagers (or 1 TBA per 1-3 villages)
- 1 health communicator: 106 villagers (or 1 VHC per 17-20 households)

As Project implementation evolved, however, variations in volunteer numbers, service areas, and ratios to villages and village populations occurred. Such variations resulted from several factors, among which were: the need for more than one volunteer in large villages with dispersed populations; unavailability of traditional midwives in a number of villages; having a private sector agency train volunteers in one district; and Project staff interest in testing the notion that HPVs could also serve as health communicators.

In two districts (Mae Tah and Ngao) no health communicators were trained, as part of the effort to test the impact of various volunteer to population ratios. In Mae Tah District, although the Project trained no health communicators, health post volunteers, chosen by the subdistrict council, assumed this role. In Ngao District, Project leaders turned volunteer training and support of volunteers over to the private sector organization, Community-Based Family Planning Services (CBFPS), to permit comparison of performance between private and government-supported village volunteers. CBFPS only places its volunteers in villages where no government health facilities are located, resulting in volunteers assigned to 45 of Ngao’s 51 villages. Moreover, CBFPS does not use health communicator-type volunteers, and therefore none were trained in Ngao District. However, traditional birth attendants were trained in both Ngao and Mae Tah Districts under the Lampang Project.
Table 3 provides a breakdown, by district, of the number of community health volunteers working under the Lampang system, along with the various ratios of volunteers to villages and villagers in their service areas.

### Table 3
Active Community Health Volunteers, and Their Ratios to Villages and Population, by District, 1979

<table>
<thead>
<tr>
<th>District</th>
<th>Implementation Area</th>
<th>Health Post Volunteers</th>
<th>Traditional Birth Attendants</th>
<th>Village Health Communicators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number of HPV</td>
<td>HPVs/ Village</td>
<td>Pop/ HPV</td>
</tr>
<tr>
<td>Hang Chat</td>
<td>E₁</td>
<td>75</td>
<td>1.2</td>
<td>507</td>
</tr>
<tr>
<td>Muang</td>
<td>E₂</td>
<td>141</td>
<td>1.4</td>
<td>970</td>
</tr>
<tr>
<td>Mae Moh</td>
<td>E₂</td>
<td>29</td>
<td>1.3</td>
<td>692</td>
</tr>
<tr>
<td>Koh Kha</td>
<td>E₂</td>
<td>69</td>
<td>1.4</td>
<td>716</td>
</tr>
<tr>
<td>Serm Mgam</td>
<td>E₂</td>
<td>36</td>
<td>1.2</td>
<td>685</td>
</tr>
<tr>
<td>Sob Prab</td>
<td>E₂</td>
<td>34</td>
<td>1.3</td>
<td>619</td>
</tr>
<tr>
<td>Thern</td>
<td>E₂</td>
<td>87</td>
<td>1.6</td>
<td>571</td>
</tr>
<tr>
<td>Mae Prik</td>
<td>E₂</td>
<td>21</td>
<td>1.1</td>
<td>655</td>
</tr>
<tr>
<td>Mae Tah</td>
<td>C₁</td>
<td>124</td>
<td>1.9</td>
<td>487</td>
</tr>
<tr>
<td>Wang Neua</td>
<td>E₃</td>
<td>58</td>
<td>1.6</td>
<td>642</td>
</tr>
<tr>
<td>Jae Hom</td>
<td>E₃</td>
<td>104</td>
<td>1.6</td>
<td>619</td>
</tr>
<tr>
<td>Ngao</td>
<td>E₃</td>
<td>45</td>
<td>0.9</td>
<td>997</td>
</tr>
</tbody>
</table>

For all Districts | 823 | 1.4 | 685 | 346 | 0.6 | 1,628 | 5,340 | 9.0 | 106 |

Source: Lampang Health Development Project and Provincial Health records

Note: Population base was derived from provincial population estimates (excluding the population of the provincial capital town) for 1978.

There are between one and two health post volunteers per village, and, on the average, about one volunteer for slightly less than 700 people, or about 140 households. But within individual villages, the number of population per volunteer varies from under 500 to about 1,000. There are about 9 health communicators per village, or one for every 106 people, or for every 17 to 20 families. However, this is an average of all districts, with a range of no health communicators in two districts to as many as 19 per village in one district. There is slightly more than one trained traditional birth attendant for every two villages, and overall, an average of one for every 1,628 people. However, since married women of child-bearing age are the groups normally served by the indigenous midwives, the estimated number of target women per trained traditional midwife is 215, or 13.2% of the population.
INCENTIVES FOR VOLUNTEERS

During the training period, each volunteer trainee was given a daily stipend to cover the cost of travel and food. A small part of the stipend was also deducted to pay for a shirt with a distinctive emblem and trim to identify him or her as a HPV, TBA or health communicator.

On completion of training, the health post volunteer also had the possibility of receiving a small amount of income from the sale of household drugs and from small donations for distributing oral contraceptives at the village level.

An annual prize was awarded to the province's outstanding health post volunteer, health communicator, and traditional midwife. The prizes awarded first were breeding pigs and chickens, but when several of the animals died after an awards ceremony, the prizes were changed to radios and bicycles.

On completing training, all volunteers were entitled to free medical care at provincial government health facilities – health centers, district and provincial hospitals. To facilitate these services, each volunteer was issued an identity card to present when seeking care. Implementation of the free care policy is an important factor in maintaining volunteer motivation. After some instances of being refused treatment, or of being dealt with in an unreceptive manner, some volunteers considered ending their village health work, and a few actually resigned. The provincial health staff have made efforts to keep informed of such problems as they arise, and to try to resolve them quickly to avoid a broader negative effect.

A recently-announced nationwide Ministry of Public Health policy to provide only a 25% discount for volunteer medical care, eliminating the previous free care incentive, may have serious repercussions in light of the experience in Lampang. If volunteers' expectations of benefits provided as partial compensation for their service are not fulfilled, a motivation problem could emerge.
"Primary health care will strongly rely on existing organizations set up in the villages, attempt to include traditional medicine and practices when relevant, use community resources to approach and solve health problems of villagers, mainly through a network of village health volunteers and health communicators.... The objective at the end of the Fourth Five-Year Plan (1981) is to involve 22,400 villages in 68 provinces, covering 18,462,000 people or about 50% of the country’s rural population.....to meet the immediate need of supporting primary health care, strengthening the intermediate level of the health system and improving its management have been under development."  

Assessing the performance of the three types of community health volunteers trained under the Lampang Project was a complicated task that required the use and synthesis of volunteer service statistics, provincial health service statistics, community and other survey data, and general observations and impressions of those involved with volunteer activities. All of these data and the information were linked to give a the composite picture of the volunteer role and contribution to basic health care at the village level.

However, the amount and quality of information available for each of the three volunteer groups was not uniform. The most substantive and detailed information was for health post volunteer performance, whereas information on traditional midwives and health communicators was more sketchy and impressionistic. Nevertheless, the amount of information available was perhaps roughly proportional to the respective roles and scopes of work of the three types of volunteers, which made possible a reasonable assessment of their performance.

The main source of information on volunteer activities came from the monthly volunteer performance summary derived from the health post volunteer log books. Each month this information was assembled and a monthly report was prepared by each district health office which was then forwarded to the Provincial Health Office. The Lampang Project’s Evaluation and Research Division consolidated reports for each district reporting. The information included in the report was:

- Number of volunteers by type
- Number of HPV’s reporting
- Number of HPV’s with no activity
- Villages where HPV’s did not report
- Total HPV contacts
- HPV medical care contacts
- Medical referrals by HPVs
- Family planning contacts by HPVs
- Oral contraceptive cycles distributed by HPVs
- Condoms distributed by HPVs
- Amount of money received by HPVs for medicine sold
- Number of deliveries by TBAs
- Number of prenatal contacts by TBAs
- Number of postnatal contacts by TBAs
- Number of contacts by health communicators

Other, less routine information came from
-- Lampang Project Community Health Surveys
-- Lampang Project Administrative Analysis Surveys
-- Provincial Health Service Statistics

HEALTH POST VOLUNTEERS

In monitoring the performance of health post volunteers, there were two major groups of activities: those that were performed and reported *routinely*, and those that were more *occasional* and did not appear in routine reports. The former group of routine activities, noted in the health post volunteer’s daily log book and reported by district each month, included medical care contacts, family planning contacts, oral contraceptive cycles and referrals. Non-routine activities, such as health education contacts, family planning motivation contacts, and participation in community health projects, including nutrition surveillance, oral rehydration, and water supply were not identified quantitatively in any report. Such activities were assessed more qualitatively.

Table 4 provides an overall summary of health post volunteer activities derived from their monthly reports. The table reflects the phased geographical implementation, beginning with one district, and gradually adding new districts.
Table 4
Selected Health Post Volunteer
Performance Data, 1975-1979a

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Districts</th>
<th>No. of HPV’s</th>
<th>Total No. HPV Contacts</th>
<th>Av. No. Contacts /HPV/Annum</th>
<th>Average No. Med. Care Contacts/HPV/Annum</th>
<th>Av. No. Referrals /HPV/Annum</th>
<th>Av. No. FP Contacts/HPV/Annum</th>
<th>Av. No. Pill Cycles Distributed /HPV/Annum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>1</td>
<td>72</td>
<td>9,833</td>
<td>137</td>
<td>56</td>
<td>1.3</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>1976</td>
<td>1</td>
<td>75</td>
<td>14,623</td>
<td>190</td>
<td>65</td>
<td>4.0</td>
<td>22</td>
<td>28</td>
</tr>
<tr>
<td>1977</td>
<td>4</td>
<td>270</td>
<td>34,125</td>
<td>128</td>
<td>89</td>
<td>3.5</td>
<td>14</td>
<td>23</td>
</tr>
<tr>
<td>1978</td>
<td>8</td>
<td>490</td>
<td>95,089</td>
<td>194</td>
<td>137</td>
<td>4.2</td>
<td>33</td>
<td>62</td>
</tr>
<tr>
<td>1979</td>
<td>9b</td>
<td>618</td>
<td>199,059</td>
<td>322</td>
<td>196</td>
<td>5.0</td>
<td>130</td>
<td>143</td>
</tr>
</tbody>
</table>

a Note that these data underestimate the actual performance of the volunteers by 13-16%. See explanation in text.
b 9 of 12 districts included. No reports available for Mae Tah, the C1 control area, and for Serm Ngam. Also, CBFPS volunteers in Ngao district are not included.

Source: Monthly Health Post Volunteer Reports, Lampang Provincial Health Office, and Division of Evaluation and Research, Lampang Project.

Table 4 shows clearly that the overall volume of HPV services and the volume of services provided per HPV generally increased. Although there was an overall dip in total contacts per volunteer in 1977, there was a strong upsurge in the final two years. The sharpest increase in volunteer activity was for family planning. Family planning performance by health post volunteers had been modest through the first three years of the Project, but in 1978 and 1979, after increased emphasis, oral contraceptive distribution by the health post volunteers expanded dramatically. Figure 2 more graphically portrays the pattern of volunteer performance over the five years of Project field operations.
Figure 2

Average Number of Medical Care and Family Planning Service Contacts Per Health Post Volunteer Per Annum 1975-1979

(1) = Medical Care Contacts/HPV.
(2) = FP Contacts/HPV.

However, Table 4 and Figure 2 do not permit the tracking of performance trends of volunteer groups who began service at different points in time over several years. Figure 3, therefore, traces the performance of volunteers in each phased operational area: $E_1$ volunteers who began in 1975, $E_2$ volunteers who began in 1977, and $E_3$ volunteers who only began in 1979.
Figure 3
Average Number of Medical Care and Family Planning Contacts Per Health Post Volunteer Per Annum, by Operational Area, 1975-1979

- $E_1$ (1 district, began 1975)
- $E_2$ (7 districts, began 1977)
- $E_3$ (2 districts, began 1979)
Figure 3 suggests that with each succeeding group, the time required to reach a relatively high level of performance became shorter and shorter. Also, when separating the performance data by area, the overall dip in the volunteer performance in the 1977 period disappears.

It should also be pointed out that the table and graph presented above are derived from reported volunteer performance data. However, there is some evidence that the volunteer monthly activity reports significantly underestimate actual volunteer performance. In a number of districts, over the several years of Project operations, a proportion of the volunteer activities has gone unreported, either because the local health worker did not visit the volunteer to record activities, or because the summary of volunteer activities for a given village or subdistrict was not included in the district summary sent into the Province. Spot checks of volunteer daily activity logs, and general observations suggest that there have been a fair amount of volunteer activities that were not included in the monthly reports. In 1979, based on the overall rate of under-reporting, it was estimated that over 15% of total service contacts, 16% of total medical care contacts, almost 14% of family planning contacts and over 13% of total pill cycles distributed were not included in the reported data. Therefore, it should be kept in mind that the data presented in the previous and following tables somewhat underestimate the actual performance of the volunteers.

Medical Care Activities

Table 5 summarizes the simple medical care and first aid activities of health post volunteers in 1979, when all Project field components had become fully operational.

Although there is considerable variation between the districts, overall, HPV's saw 196 villagers each year, or slightly more than 16 each month. In 1979, volunteers referred about 2.5 percent of all medical care contacts, but this also varied greatly between districts. The relatively low referral rate suggests that most of the people who came to the health post volunteer for care had relatively minor ailments.
Table 5

Health Post Volunteer Performance in Provision of Medical Care Services in 9 Districts, 1979^a^  

<table>
<thead>
<tr>
<th>District</th>
<th>Experimental Area</th>
<th>No. HPV's</th>
<th>% Reporting</th>
<th>Med. Care Contacts /HPV</th>
<th>Est. Med. Care Contacts/1000 Population</th>
<th>% of Cases Referred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hang Chat</td>
<td>E₁</td>
<td>75</td>
<td>94.6</td>
<td>206</td>
<td>363</td>
<td>0.8</td>
</tr>
<tr>
<td>Muang</td>
<td>E₂</td>
<td>141</td>
<td>96.6</td>
<td>125</td>
<td>133</td>
<td>1.2</td>
</tr>
<tr>
<td>Mae Moh</td>
<td>E₂</td>
<td>29</td>
<td>91.5</td>
<td>162</td>
<td>244</td>
<td>1.5</td>
</tr>
<tr>
<td>Koh Kha</td>
<td>E₂</td>
<td>69</td>
<td>84.5</td>
<td>328</td>
<td>459</td>
<td>0.4</td>
</tr>
<tr>
<td>Sob Prab</td>
<td>E₂</td>
<td>34</td>
<td>62.0</td>
<td>221</td>
<td>357</td>
<td>2.6</td>
</tr>
<tr>
<td>Thern</td>
<td>E₂</td>
<td>87</td>
<td>91.7</td>
<td>120</td>
<td>196</td>
<td>1.0</td>
</tr>
<tr>
<td>Mae Prik</td>
<td>E₂</td>
<td>21</td>
<td>98.4</td>
<td>155</td>
<td>249</td>
<td>0.7</td>
</tr>
<tr>
<td>Wang Neua</td>
<td>E₃</td>
<td>58</td>
<td>90.1</td>
<td>232</td>
<td>362</td>
<td>9.5</td>
</tr>
<tr>
<td>Jae Hom</td>
<td>E₃</td>
<td>104</td>
<td>64.8</td>
<td>248</td>
<td>400</td>
<td>3.9</td>
</tr>
</tbody>
</table>

Total       |                  | 618       |             |                         |                                        |                    |
Average per District | 69        | 196       | 279       | 2.5                     |                                        |                    |

^a^ Three districts excluded: CBFPS volunteers in Ngao District do not report medical care activities, and no activity reports available for the control district, Mae Tah, or for Serm Ngam District.

^b^ Population estimated from provincial population estimates in 1978.

To get some idea of what proportion of the population receive medical care from the volunteers, Table 5 also presents the rate of volunteer medical care contacts per thousand population in each district. Although there is considerable variation between districts, the overall rate was 279 medical care contacts per 1,000 population. These data do not, however, give a clear measure of the relative magnitude of the volunteer contribution. Table 6 shows the proportion of medical care services provided by health post volunteers in comparison with rural health facilities and the Provincial Hospital.

Although the quality and content of the specific services provided are not the same, Table 6 does reflect the relative frequency of interaction of the volunteers in comparison with other providers. In 1979, health post volunteers accounted for over 28% of all medical care contacts.
Figure 4
Medical Care Service Contacts of HPVs in
Relation to the Total District-Level Government Medical Service
Contacts, in E₁ and E₂, by Year, 1974-1979

When medical care contacts in rural areas alone are considered, the health post volunteer contribution is greater, accounting for almost 45% of all contacts provided at the district level and below. Figure 4 shows the pattern of volunteer medical care contacts in comparison with rural government contacts between 1975 and 1979.
Table 6

Proportion of Medical Care Service Contacts Provided by Health Post Volunteers and by Government Health Facilities, 1979

<table>
<thead>
<tr>
<th>Provider</th>
<th>Total Provincial Medical Care Service Contacts</th>
<th>Total Rural (District Level and below) Medical care services contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Health post volunteers</td>
<td>81,787</td>
<td>28.3%</td>
</tr>
<tr>
<td>Rural health facilities a</td>
<td>101,652</td>
<td>35.2%</td>
</tr>
<tr>
<td>Provincial hospital</td>
<td>105,444</td>
<td>36.5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>288,883</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

a Rural health facilities = district hospital + subdistrict health centers + midwifery centers

Source: Monthly reports on Health Post Volunteers, Lampang Provincial Health Office and Division of Evaluation and Research, Lampang Project

The Project Community Health Survey of the rural population in the E1 and E2 areas provides an additional data source to estimate the utilization of health post volunteer-provided medical care services. The Community Health Survey asked of those who had been sick in the previous two weeks where they went for medical care. Of first sources of care chosen, the health post volunteer was chosen by 5-6 percent of people who had been ill. However, this was for only a two-week period. The survey data appear to show the HPV role in medical care to be less important than Table 6 and Figure 4 suggest. However, Table 6 and Figure 4 describe the volunteer proportion of only government sponsored medical care services, whereas the survey data include use of all sources of medical care. Since more than half of all medical care contacts are at non-government sources, the volunteer proportion in the survey data appears relatively small. When volunteer provided services are expressed as a proportion of all government-sponsored services, the volunteer proportion is much larger.

Family Planning

Family planning activities in most of the districts began relatively slowly, becoming a major activity only in the latter stages of field operations. Distribution of oral contraceptives, unlike household drug distribution, required closer inter-cooperation between the health post volunteer and rural health center or midwifery
cer er health workers. Volunteers receive their oral contraceptives free from the health center worker, but they have to account for each cycle distributed in order to receive resupplies. However, the cycle distributed by the volunteers are credited to the health center’s performance, and thus, sharing the responsibility for pill distribution is of direct benefit to the health center. The volunteer, in turn, benefits because there is no cash flow problem which troubles household drug distribution, yet the volunteer can still collect a small fee from each pill user for the convenience of village-level distribution. Table 7 summarizes health post volunteer family planning activities in 1979.

Table 7

Summary of Annual Family Planning Activities by HPV’s, 1979

<table>
<thead>
<tr>
<th>District</th>
<th>Experimental Area</th>
<th>No. of HPV’s</th>
<th>FP User Contacts/HPV</th>
<th>FP Pill Cycles/HPV</th>
<th>FP User Contacts/1000 Target Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hang Chat</td>
<td>E₁</td>
<td>75</td>
<td>158</td>
<td>179</td>
<td>2,114</td>
</tr>
<tr>
<td>Muang</td>
<td>E₂</td>
<td>141</td>
<td>67</td>
<td>86</td>
<td>538</td>
</tr>
<tr>
<td>Mae Moh</td>
<td>E₂</td>
<td>29</td>
<td>149</td>
<td>166</td>
<td>1,690</td>
</tr>
<tr>
<td>Koh Kha</td>
<td>E₂</td>
<td>69</td>
<td>151</td>
<td>157</td>
<td>1,601</td>
</tr>
<tr>
<td>Sob Prab</td>
<td>E₂</td>
<td>34</td>
<td>166</td>
<td>168</td>
<td>2,034</td>
</tr>
<tr>
<td>Thern</td>
<td>E₂</td>
<td>87</td>
<td>119</td>
<td>136</td>
<td>1,389</td>
</tr>
<tr>
<td>Mae Prik</td>
<td>E₂</td>
<td>21</td>
<td>64</td>
<td>72</td>
<td>773</td>
</tr>
<tr>
<td>Wang Neua</td>
<td>E₃</td>
<td>58</td>
<td>293</td>
<td>302</td>
<td>3,463</td>
</tr>
<tr>
<td>Jae Hom</td>
<td>E₃</td>
<td>104</td>
<td>100</td>
<td>107</td>
<td>1,234</td>
</tr>
<tr>
<td>Average for districts</td>
<td></td>
<td>69 b</td>
<td>130</td>
<td>143</td>
<td>1,366</td>
</tr>
<tr>
<td>Ngao District (CBFPS)</td>
<td></td>
<td>45</td>
<td>49</td>
<td>49</td>
<td>358</td>
</tr>
</tbody>
</table>

a Target population is married women, aged 15-44, estimated from Community Health Survey results in 9 districts, where this group comprised 13.2% of the total population.

b Mae Tah District, the control area, and Serm Ngam District not included.

Table 7 shows that each volunteer had an average of 130 user contacts and distributed 143 pill cycles in 1979. In other words, each volunteer, on the average, provided a full year’s supply of pills to about 12 women.

Table 7 also separates Ngao District CBFPS volunteer family planning services from the other districts, in order to compare performance of these two volunteer...
groups. The performance of CBFPS volunteers in Ngao District is below the performance of health post volunteers in every other district for which data are available, both in terms of user contacts and pill cycles distributed. This, however, is quite unusual within the CBFPS program, and analysis of data in neighboring Chiengrai Province shows the contribution by CBFPS volunteers to be at comparable levels to that found in most districts of Lampang Province.

To gain some estimate of the magnitude of volunteer family planning activity, volunteer performance data were compared with family planning service data for all relevant districts in the province, as was done with medical care activities. This task is facilitated by the availability of detailed National Family Planning Project service statistics for each province. Table 8 summarizes volunteer family planning activities as a part of overall government family planning activity in each district.

<table>
<thead>
<tr>
<th>District</th>
<th>Experimental Area</th>
<th>Total FP Pillow Contacts in District</th>
<th>Total FP Pillow Cycles Distribution in District</th>
<th>Pill User Contacts by HPVs (Number</th>
<th>Percent)</th>
<th>Pill Cycles Distributed by HPVs (Number</th>
<th>Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hang Chat</td>
<td>E₁</td>
<td>17,649</td>
<td>29,486</td>
<td>11,850</td>
<td>67.1</td>
<td>13,446</td>
<td>45.6</td>
</tr>
<tr>
<td>Muang</td>
<td>E₂</td>
<td>15,235</td>
<td>47,071</td>
<td>9,451</td>
<td>62.0</td>
<td>12,107</td>
<td>25.7</td>
</tr>
<tr>
<td>Mae Moh</td>
<td>E₂</td>
<td>6,033</td>
<td>7,460</td>
<td>4,321</td>
<td>71.6</td>
<td>4,810</td>
<td>64.6</td>
</tr>
<tr>
<td>Koh Kha</td>
<td>E₂</td>
<td>23,920</td>
<td>30,135</td>
<td>10,441</td>
<td>43.6</td>
<td>10,810</td>
<td>35.9</td>
</tr>
<tr>
<td>Sob Prab</td>
<td>E₂</td>
<td>6,575</td>
<td>7,758</td>
<td>5,658</td>
<td>86.1</td>
<td>5,699</td>
<td>73.5</td>
</tr>
<tr>
<td>Thern</td>
<td>E₂</td>
<td>12,725</td>
<td>18,039</td>
<td>9,729</td>
<td>76.3</td>
<td>11,487</td>
<td>63.6</td>
</tr>
<tr>
<td>Mae Prik</td>
<td>E₂</td>
<td>2,936</td>
<td>6,054</td>
<td>1,336</td>
<td>45.5</td>
<td>1,516</td>
<td>25.0</td>
</tr>
<tr>
<td>Wang Neua</td>
<td>E₃</td>
<td>23,924</td>
<td>31,398</td>
<td>17,010</td>
<td>71.1</td>
<td>17,571</td>
<td>56.0</td>
</tr>
<tr>
<td>Jae Horn</td>
<td>E₃</td>
<td>18,392</td>
<td>36,779</td>
<td>10,404</td>
<td>56.6</td>
<td>11,164</td>
<td>30.4</td>
</tr>
<tr>
<td>Total for 9 districts</td>
<td></td>
<td>127,409</td>
<td>214,180</td>
<td>80,200</td>
<td>62.9</td>
<td>88,610</td>
<td>41.4</td>
</tr>
<tr>
<td>Ngao District (CBFPS)</td>
<td></td>
<td>10,374</td>
<td>27,353</td>
<td>2,213</td>
<td>21.3</td>
<td>2,213</td>
<td>8.1</td>
</tr>
</tbody>
</table>

Note: This table excludes family planning user contacts of the Provincial Hospital.

Resource: National Family Planning Program reports for nine districts, HPV monthly reports, and CBFPS reports.
It should be noted that only family planning user contacts recorded at district hospitals, subdistrict health centers, and midwifery centers were included. The family planning user contacts at the Provincial Hospital were excluded so that the volunteer's proportion of user contacts and pill distribution at the peripheral level could be estimated. In 1979, 41% of all pill cycles were distributed by health post volunteers, while 63% of total birth control pill user contacts were provided by HPVs. The reason for the discrepancy between these two figures is that family planning pill users are usually given two or three pill cycles when they come to a health or midwifery center, whereas the normal practice for the health post volunteer is to distribute only one cycle per visit. Consequently, the resultant number of user contacts with HPVs is higher. In Ngao District, CBFPS volunteers accounted for 21% of the total user contacts, and slightly over 8% of total pill cycles distributed.

The data in Table 8 reflect the proportion of total government pill services that are attributable to health post volunteers. However, as with medical care, this only indirectly reflects the proportion of women who are actually being served by health post volunteers. The Community Health Survey provides some evidence of the level of pill use by women in the districts sampled. In 1979, 34% of the women using oral contraceptives in the E1 district said they received their pill supply from health post volunteers, and in the seven E2 districts, 21% of the current pill users said they received their supply from health post volunteers.

**Volunteer Income**

Health post volunteers receive a small profit from the household drugs they sell. They normally purchase their drugs wholesale at a 30-35% discount, and then sell the drugs at market prices. Since the prices of the drugs are generally very low, the volunteer gains only a small profit. Health post volunteers who distribute oral contraceptives generally request a one to three baht (U.S. 10-15 cents) donation for the convenience of the village level distribution. The funds generated by oral contraceptive distribution do not appear in the volunteer's monthly report, so that his actual income is somewhat underestimated. It seems quite clear that the monthly income generated by drug sales is generally very low. Table 9 summarizes volunteer income over the period 1975 to 1979.

In 1979, the annual income for health post volunteers was 270 baht, or slightly more than 21 baht (U.S.$1.05) per month. These are gross income figures, not net profit, which would be much smaller. Comparing the average income for health post volunteers in Project districts with the income for CBFPS volunteers in Ngao District, the annual income of CBFPS volunteers for oral contraceptives sales in 1979 was 298 baht per volunteer, or about 25 baht per month. These are also gross income figures, and the actual income to the volunteer is considerably smaller than this amount, as under the CBFPS plan, volunteers get about $1 per pill cycle. The income figures for Ngao include income from sale of both oral contraceptives and household drugs, the latter being considerably smaller than the former.
Table 9
Health Post Volunteer Annual Income from Household Drug Sales in 8 Districts, 1975-1979
(All figures in Thai Baht)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Income</td>
<td>Total HPV's</td>
<td>Average</td>
<td>Income/HPV</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>$16,356</td>
<td>72</td>
<td></td>
<td>Thai $227</td>
<td>$227</td>
</tr>
<tr>
<td></td>
<td>$18,050</td>
<td>75</td>
<td></td>
<td>$241</td>
<td>$112</td>
</tr>
<tr>
<td></td>
<td>$28,762</td>
<td>270</td>
<td></td>
<td>$112</td>
<td>$68</td>
</tr>
<tr>
<td></td>
<td>$80,175</td>
<td>490</td>
<td></td>
<td>$168</td>
<td>$8.40</td>
</tr>
<tr>
<td></td>
<td>$149,585</td>
<td>582</td>
<td></td>
<td>$257</td>
<td>$12.85</td>
</tr>
<tr>
<td>Ngao District</td>
<td>Average Income/HPV's CBFPS Volunteers</td>
<td>$298c</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thai $11.35</td>
<td>$12.05</td>
<td></td>
<td>$5.60</td>
<td>$8.40</td>
</tr>
<tr>
<td></td>
<td>U.S. $5.60</td>
<td>$8.40</td>
<td></td>
<td>$12.85</td>
<td></td>
</tr>
</tbody>
</table>

a One Baht equals U.S. 5 cents, or $20/£1.

b Includes all districts, except Serm Ngam, Mae Tah and Ngac.
c Includes both income from household drug and oral contraceptive sales.

Health Post Volunteer Attrition

Attrition of health post volunteers has been relatively modest over the course of Project operations. Table 10 summarizes volunteer attrition over the period 1975-1979.

Table 10
Health Post Volunteer Attrition 1975-1979

<table>
<thead>
<tr>
<th>Length of Volunteer Service</th>
<th>Number of Districts Trained</th>
<th>Number HPVs Actually Working 12/79</th>
<th>% Attrition</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 years</td>
<td>1 (E1)</td>
<td>89</td>
<td>75</td>
</tr>
<tr>
<td>3 years</td>
<td>3 (E2)</td>
<td>255</td>
<td>206</td>
</tr>
<tr>
<td>2 years</td>
<td>4 (E2)</td>
<td>243</td>
<td>211</td>
</tr>
<tr>
<td>1 year</td>
<td>2 (E3)</td>
<td>162</td>
<td>162</td>
</tr>
<tr>
<td>Overall for 5 years</td>
<td>10</td>
<td>749</td>
<td>618</td>
</tr>
</tbody>
</table>

Source: Provincial Health Office and Lampang Project records

Normally, attrition increases with length of service. Therefore, Table 10 classifies the volunteer groups by their number of years of service. In no area did attrition of volunteer groups reached 20%, and the overall attrition for all volunteers trained during the five years is 17.5%. Experience in working with health post
volunteers indicates that attrition can be kept to a minimum if local health center workers are diligent in providing encouragement, technical guidance and support to the volunteers under their responsibility. In areas where district and health center level workers have taken an active interest and provided regular guidance and support, attrition has been minimal.

Other factors have contributed to the attrition. In some specific areas, large numbers of semi-skilled and skilled laborers have moved to other areas -- including the Middle East -- to seek employment. Some of those departing have been volunteers. As mentioned earlier, some volunteers disappointed with the handling of the free medical care program for volunteers have felt strongly enough to resign from volunteer service.

Volunteers' Link to the Government Peripheral Health Care Network

From the beginning of the Lampang Project, the volunteer network, though considered an autonomous system, has been viewed as a low-cost extension of the government health delivery system. Though operating with relative independence in their villages, the volunteers (particularly, the health post volunteers) have been directly linked to the government rural health facilities by supply, technical guidance, and information gathering mechanisms. The health post volunteer is initially advanced a consignment of household drugs, but must regularly be resupplied, either from the local health worker, or from the private-sector drug agent authorized by the Provincial Health Office. Secondly, the sharing of the health center responsibility for oral contraceptive distribution with the health post volunteers has clearly been a mutually-beneficial linkage mechanism. Volunteers receive the pills free, but gain a small income from their distribution. Sharing responsibility for the distribution relieves some of the health center workload, yet the health or midwifery center still receives credit for pill cycles that volunteers distribute. Finally, to stimulate volunteer participation in community health programs, to deal with technical issues that may arise, and to gather information on routine volunteer activity requires regular visits by government health workers, either the wechkorn, sanitary health worker or midwife in the local health facility. These regular contacts are an important vehicle for nurturing the link between the volunteers and the government health network, and are crucial in maintaining volunteer performance and sense of belonging to the health care effort. Where volunteer performance has lagged, or where attrition has increased, the most frequent underlying cause is a lapse in the linkage between the volunteers and the peripheral health workers.

Overall, the linkage mechanism has been maintained at an active level, and volunteer performance has, with some exceptions, maintained momentum, and dropouts have been kept to a modest level. One indication of the strength of the linkage, from the volunteer perspective, is provided by the Project's Administrative Analysis Survey of health post volunteers. In the survey sample, 17% of all health post volunteers in both the E1 and E2 districts were interviewed concerning their
activities and their perceptions on a variety of issues. When asked how frequently they had been visited by local health workers, less than 1% of the volunteers said they had never been visited, and 77% had been visited at least 10 times. More than 50% of volunteers had been visited over 20 times. Given that most of the volunteers interviewed had been working two years at least, the frequency of visits is relatively high. When the volunteers were asked what person visited them most frequently, 45% mentioned the wechakorn and almost 86% of all visits had been made by either the wechakorn, the local government midwife, or the sanitarian health worker -- the three types of health workers who staff rural health centers and midwifery centers. In the last year of Project field operations, a district health coordinator was established in each district to directly support volunteers. Slightly over 6% of the volunteers said that they had ever been visited by the health volunteer coordinator, but it seems apparent that the majority of the support provided to the government health system is by the local health center workers.

When asked which person the health post volunteer goes to see most often for consultation, over 90% of the volunteers who had ever gone for consultation indicated they had gone to either the wechakorn, the male sanitarian health worker, or the midwife at the health center or midwifery center. About 14% of the volunteers said they had never gone for consultation.

TRADITIONAL BIRTH ATTENDANTS

One of the objectives of the Lampang Project has been to increase accessibility and to improve coverage and the quality of prenatal, delivery, and postnatal care. To increase coverage and quality meant stimulating a larger proportion of the target group to receive services at government facilities, such as the Provincial Hospital, district hospitals, rural health centers and midwifery centers, and also to improve the quality and capability of available traditional birth attendants. Recognizing that in many areas the role of the traditional birth attendant is declining and is being replaced by more modern maternal care personnel, the Project did not attempt to increase the proportion of deliveries and other maternal services provided by trained traditional midwives. Rather, traditional midwives were recognized to still be an important source of maternal care. It was the Project's aim to upgrade the maternal health skills of TBAs, to train them to recognize complications before they become serious, and to link them to a referral network in which problems beyond the TBAs' capabilities could be dealt with properly.

Although the data available to assess the traditional midwife's role in the Lampang Project are somewhat ambiguous, the Community Health Survey does confirm the expected trend: a declining, yet still significant, role in delivery care.
Table 3 showed that traditional midwives were selected and trained in about 60% of the villages of the Province. In many villages, there was no longer a TBA serving the population, and in some, the midwife available was considered too old to send to training. But a large majority of available traditional midwives who were still active were sent for Project training. Services provided by the trained traditional midwives were entered into the reporting system established for health volunteers. Each month, government midwives or other staff from the local health center and midwifery center assemble the information on the number of births attended and prenatal and postnatal contacts provided by the traditional midwife in her area. These are entered into the monthly summary of volunteer activities. However, unlike the health post volunteers, many of the traditional midwives are illiterate, and do not keep a routine log of their activities. Consequently, reporting of traditional midwife activities appears to be less reliable than for the health post volunteers, and many areas have provided incomplete data on deliveries. Using information that is available, and combining it with service statistics from other government health facilities, a general pattern of the traditional midwife’s contribution to maternal care services can be described. These are summarized in Table 11, which shows the total number of services provided by all government-supported providers, and the proportion of those maternal care services that have been provided by traditional birth attendants and by government health workers.

Given a birth rate that has been declining slowly for the past several years, the data for both E_1 and E_2 suggest that government-supported providers are increasing coverage of the target population, especially for delivery and prenatal care services. However, the role of the various providers differed between the E_1 and E_2 areas. In the E_1 area, the proportion of deliveries credited to traditional birth attendants decreased by almost one-third over three years (1977-1979), whereas the proportion of deliveries credited to district-level health facilities nearly doubled. At the same time, the proportion of deliveries done by the Provincial Hospital decreased 5%. Most of the decrease in TBA and Provincial Hospital deliveries appears to have corresponded with an increase in district hospital and health center deliveries.

During the same period, in the E_2 area the proportion of deliveries by traditional birth attendants increased more than threefold, although the ultimate level was still only about 10% of all deliveries. The proportion of all deliveries credited to staff of rural health facilities changed relatively little, increasing less than 3%. However, although the role of the hospital declined somewhat in the three years for which statistics are available, the overwhelming majority of E_2 deliveries, unlike E_1, were credited to the Provincial Hospital.

Prenatal services generally followed the same pattern as deliveries in both E_1 and E_2, except that the proportion of total prenatal visits credited to the traditional birth attendant increased over 300% in the E_1 area, and the proportion of prenatal contacts credited to rural health facilities almost doubled in the E_2 area.
Table 11
Maternal Care Services Delivered by Trained
Traditional Birth Attendants, Rural Health Personnel, and Provincial
Hospital Personnel in Areas E1 and E2 by Year, 1976-1979

<table>
<thead>
<tr>
<th>Type and Source of Service</th>
<th>Services by Year and Area</th>
<th>E1</th>
<th>E2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deliveries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total No. Served by govt.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>supported services</td>
<td>712</td>
<td>753</td>
<td>756</td>
</tr>
<tr>
<td>% by TBA</td>
<td>33.6</td>
<td>27.1</td>
<td>15.7</td>
</tr>
<tr>
<td>% by rural health personnel</td>
<td>24.7</td>
<td>25.5</td>
<td>46.6</td>
</tr>
<tr>
<td>% by Provincial Hospital</td>
<td>41.7</td>
<td>35.5</td>
<td>37.7</td>
</tr>
<tr>
<td>Prenatal Care</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total No. contacts at</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>govt. supported sources</td>
<td>1,920</td>
<td>2,372</td>
<td>2,749</td>
</tr>
<tr>
<td>% by TBA</td>
<td>5.4</td>
<td>13.4</td>
<td>10.5</td>
</tr>
<tr>
<td>% by rural health personnel</td>
<td>39.0</td>
<td>44.1</td>
<td>41.4</td>
</tr>
<tr>
<td>% by Provincial Hospital</td>
<td>60.4</td>
<td>42.5</td>
<td>48.1</td>
</tr>
<tr>
<td>Postnatal Care</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total No. contacts at</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>govt. supported sources</td>
<td>441</td>
<td>611</td>
<td>832</td>
</tr>
<tr>
<td>% by TBA</td>
<td>25.9</td>
<td>48.8</td>
<td>56.3</td>
</tr>
<tr>
<td>% by rural health personnel</td>
<td>74.1</td>
<td>41.4</td>
<td>43.7</td>
</tr>
</tbody>
</table>

Data concerning postnatal contacts were not available for the Provincial Hospital, and therefore Table 11 only compares contributions of TBAs with those of rural health workers. But with postnatal contacts, a different pattern emerged in both the E1 and E2 areas: the traditional birth attendants appeared to have assumed a greatly increased level of responsibility for postnatal contacts, whereas the proportion of contacts credited to rural health facilities declined. From 1977 to 1978, the propor-

Table 13
Nutritional Status of Children Under Age 2
and Under Age 6 and Service Coverage, 1979

<table>
<thead>
<tr>
<th>Children</th>
<th>Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under Age 2</td>
<td>Under Age 6</td>
</tr>
</tbody>
</table>

Division of Nutrition, MOPH, and is supervised primarily by local health workers.

Child Nutrition Centers serve as a central place for nutrition and health education for both children and mothers, for children to learn good personal hygiene, for stimulation for normal growth and development, and for recreation and play. Centers are often located adjacent to village health posts, convenient for the provision of medical care, immunizations and other services when local health workers visit. Most of all, they serve to create and sustain awareness of nutrition problems, and the need for community action to solve them. At some centers, demonstration gardens have been developed, and in a few, fish ponds, and poultry and pig raising projects have been started.
tion of postnatal contacts credited to the traditional birth attendants increased 300% to include 72% of the total postnatal contacts recorded in E1 and increased more than seven times, to 69% of the contacts in the E2 area. At the same time, the proportion of service contacts credited to the rural facilities declined by about one-third in E1, and almost two-thirds in the E2 area.

This pattern may be explained in part by the fact that to deliver in the provincial Hospital normally requires at least one prenatal visit to the hospital. No prenatal visit is, of course, required if a traditional midwife is doing the delivery. On the other hand, it has been observed that postnatal visits are seldom made by mothers if their newborn child appears normal, so that unless there were problems, visits to the Provincial Hospital would be much less likely. However, given the emphasis placed on TBA postnatal visits during their training, and because they are accessible to the newly-delivered mother, the likelihood of postnatal contacts with traditional midwives tends to be higher.

The data in Table 11 must be reviewed with some care, due to the differential quality of the data. Data on deliveries and prenatal visits at the Provincial Hospital are quite reliable, but those from the peripheral facilities, and particularly the traditional midwives, are incomplete due to a high degree of underreporting. Moreover, the total number of births, roughly estimated by the total number of deliveries recorded, would appear to be relatively accurate in the E1 area, but underestimated by between 15% and 50% in the E2 area. Since a large proportion of the unreported births are those delivered by TBAs, their role, consequently, is reflected in its actual importance in Table 11.

An estimate of the contribution of traditional midwives from the consumer perspective is provided by data from the Community Health Survey. All ever-married women of child-bearing age who had children were asked where their most recent child was born, and who delivered it, if the child had been born within the previous two years. Table 12 summarizes the survey results, showing the baseline, pre-intervention responses, and the mothers’ responses in the post-intervention year, 1979. The E1 and E2 areas are also compared with the C1 control area.

The data from the Community Health Survey show a dramatically different pattern from the service data in Table 11, although the overall trends seem to be in the same direction -- at least for deliveries.
Table 12
Delivery Attendants and Place of Delivery
in E₁, C₂ and E₂ in 1975-1977 (Baseline)
and in 1979 (Follow-Up) Community Health Surveys

<table>
<thead>
<tr>
<th>Area</th>
<th>Year of Survey</th>
<th>Baseline</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year</td>
<td>E₁</td>
<td>E₂</td>
<td>C₁</td>
<td>E₁</td>
<td>E₂</td>
<td>C₁</td>
<td></td>
</tr>
<tr>
<td>Delivery Attendants</td>
<td>n=282</td>
<td>n=474</td>
<td>n=235</td>
<td>n=101</td>
<td>n=148</td>
<td>n=73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Traditional Midwife</td>
<td>39.4</td>
<td>42.8</td>
<td>52.7</td>
<td>33.7</td>
<td>30.1</td>
<td>37.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Nurse or Govt. Midwife</td>
<td>34.4</td>
<td>34.8</td>
<td>28.9</td>
<td>49.5</td>
<td>35.7</td>
<td>39.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Physician</td>
<td>9.6</td>
<td>7.0</td>
<td>3.0</td>
<td>5.0</td>
<td>12.6</td>
<td>2.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Other/Not Known</td>
<td>17.4</td>
<td>15.4</td>
<td>15.3</td>
<td>9.9</td>
<td>21.6</td>
<td>15.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Place of Delivery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Home</td>
<td>63.8</td>
<td>58.9</td>
<td>70.2</td>
<td>43.6</td>
<td>49.7</td>
<td>49.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Hospital</td>
<td>33.0</td>
<td>37.5</td>
<td>29.0</td>
<td>32.7</td>
<td>44.8</td>
<td>49.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Health Centers or District Hospital</td>
<td>1.1</td>
<td>1.9</td>
<td>0.4</td>
<td>22.8</td>
<td>3.5</td>
<td>1.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Other</td>
<td>2.1</td>
<td>1.7</td>
<td>0.4</td>
<td>1.0</td>
<td>2.1</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a No TBAs trained in C₁

The data in Tables 11 and 12 are not exactly comparable, as the Community Survey data do not cover chronological years as the service statistics data do. Community Survey data refer to the most recent delivery of the women interviewed, which could have occurred in a period up to the previous two years, and the numbers of women are relatively small. The survey data suggest a much more important role for the midwife is delivery care, particularly in the E₁ area. In all areas, the role of the midwife is declining, but even in the follow-up survey year, traditional midwives attended about one-third of deliveries in E₁ and E₂, and 44% in the control area.

A large and slightly increasing proportion of the deliveries are credited to government nurses and midwives, but these health workers could cover deliveries at the mother's home, at the rural health facilities, or in the Provincial Hospital. Both parts of Table 12 must be considered together -- the source of delivery care, and the place of delivery. In the baseline years in all areas, 60% of deliveries were still done at home, and this declined to 44-50% in 1979. On the other hand, the proportion delivering at the Provincial Hospital remained unchanged in the E₁ area, but in-
increased considerably in other areas by 1979. Few women mentioned having delivered in health centers, or district hospitals, except in the E1 follow-up survey, but this may be accounted for by the fact that although health center midwives perform numerous deliveries, they are usually done at the mother's home, not at the health or midwifery center. In the E1 area, a new district hospital was built, and a large number of women took advantage of delivery care at the district hospital after it opened.

The data concerning traditional birth attendant prenatal and postnatal care contacts shown in Table 11 are in sharp contrast to the results of the Community Health Survey. In both baseline and follow-up rounds of the survey, in the E1, E2, and C1 areas, virtually no women indicated that they had received either prenatal or postnatal care from a traditional midwife. These results are particularly surprising in light of the normal practice of traditional midwives, who attend the delivery and frequently remain to perform certain rites associated with childbirth, who often help out in the household and return to dispose of the umbilicus several days after delivery. It may be for this reason that survey respondents considered follow-up visits as part of the delivery process, and did not distinguish them when asked about postnatal visits.

It is clear that the role of the traditional midwife in maternal health care, is still a significant one, and investment in training to improve the quality of maternal care they provide is therefore worthwhile. Overall, the contribution of the traditional midwife is still a major one in terms of total delivery care provided, although the precise magnitude, given these various data, is somewhat unclear. Adapting to their declining role, many traditional midwives who received training enthusiastically support family planning, and are important sources of motivation for new acceptors. With emphasis on family planning built into the two week training course at the regional midwifery school, the trained traditional midwives returned to their villages with an enhanced capability to motivate women in the important post-partum period, when the TBAs are in close contact with the newly-delivered mother. Providing the traditional midwife with training in nutrition is also a means to stimulate change in knowledge and traditional practices of mothers with regard to child feeding.

HEALTH COMMUNICATORS

There is little routine, concrete data available to assess the role and performance of the health communicators. Health communicators gather and disseminate health information, and these interpersonal contacts are difficult to enumerate and report. Moreover, the communicators do not carry out such activities on a routine basis. They are more likely to act when some specific activity has been organized. On occasion, community health activities have been organized which have used
health communicators: when publicizing and motivating acceptors for the mobile vasectomy clinics, the health communicators have made important contributions, along with the health post volunteers in their villages. Communicators have also helped with the nutrition surveillance program, with a safe household water supply activity, and they are participating in a new diarrheal disease control/oral rehydration therapy program.

Unlike health post volunteers and traditional midwives, whose performance can be assessed by monthly reports, the health communicators show little measurable output on a routine basis, and cause many to question whether the investment in their training is justifiable. But such a question must be turned around and rephrased. Having built a network of trained information disseminators/facilitators, have health staff at the provincial and rural health center levels stimulated the organization of community health programs and sought the involvement of health post volunteers and health communicators adequately to fully utilize their potential. The point of this question is that it is unrealistic - given the brief training programs for volunteers, given the fact that they are volunteers, and given current levels of community awareness and development - to expect health volunteers to spontaneously initiate activity at the village level. The major responsibility for initiating community-based programs lies more directly with the local health center workers, with overall impetus and backing by the provincial health staff. It has been shown clearly that the volunteers can contribute a great deal to the organization and implementation of community-based programs, particularly ones of high priority. When community-based health programs are continually encouraged and technically supported, both health post volunteers and health communicators increase their activity, ability, and sense of involvement in community health affairs. This in turn, encourages greater self-reliance, community recognition of the importance of village health programs, and strengthened community participation.

COMMUNITY-BASED FAMILY PLANNING SERVICES (CBFPS) VOLUNTEERS

Because the role, training and management of CBFPS volunteers located in Ngao is distinct from those of the Project-trained health post volunteers, a separate commentary on their performance is required.

The data presented in the earlier part of this chapter (Table 7 and Table 8) suggests that the performance of Community-Based Family Planning Services volunteers in Ngao has, in general, not been on a par with that of the Project-trained health post volunteers. The average number of family planning contacts, the number of pill cycles distributed, and the overall proportion of total pill distribution for the CBFPS volunteers has been less than for volunteers in other districts. The main focus of CBFPS volunteers has been oral contraceptive sales, and although there have also been modest household drugs sales, they have been decreasing, and the
CBFPS volunteer contribution to village level medical care has been minimal. There has been generally little involvement of CBFPS volunteers in other community health programs, they have not linked well to nearby government health facilities, and their role has been somewhat narrower than that of the Project-trained health post volunteers. However, in other provinces when CBFPS volunteers have participated in projects that combine pill distribution with agriculture and other economic incentive components, they have been more successful.

The work of the CBFPS volunteers in Ngao merits careful review. There are a number of lessons that are useful for continued development of approaches to village volunteer health care. The role of the CBFPS volunteer is somewhat more limited than that of the health post volunteer. The role of the CBFPS volunteer, at least in the one district of Lampang Province where they operate, is primarily oral contraceptive distribution. This provides the main source of income, and although household drugs are also sold, oral contraceptive distribution is the activity that is emphasized. Involvement in simple medical care and first aid, and other community health activities, are not emphasized as they are in the training of the health post volunteers. With only two days of training, the CBFPS volunteers have little opportunity to really learn any substantive skills, aside from familiarization with the type of contraceptive pills they will sell, and with the system of CBFPS reporting and management. Although CBFPS staff agreed to broaden their volunteer's role and their approach to reporting to bring it more in line with the HPV system, in practice, CBFPS primarily maintain their own, independent management and reporting approaches.

About 60% of the CBFPS volunteers were already shopkeepers, and adding oral contraceptives was merely expanding their sales line. Following CBFPS policy, volunteers were not placed in villages already having a government health facility, assuming that most people would go to the health center where pills are free, rather than to the volunteer, where pills must be bought. However, the role of shopkeeper is a useful one, because the shops are often a gathering place for villagers.

The network of supervision and support for volunteers is still one of the most outstanding features of the CBFPS approach. The local district supervisor is carefully selected, and is usually a highly-motivated person, who is adequately rewarded, but carefully monitored by the CBFPS organization. The supervisor visits all volunteers every month, takes supplies to them, gathers the information on their job performance and deals with any problems that arise. This eliminates all inconvenience to the volunteer in obtaining supplies and writing routine reports. Perhaps most importantly, this system assures that the volunteer receives regular morale-boosting visits.

It is clear that the CBFPS system is well-managed, and effectively and conveniently brings oral contraceptive distribution to the village level. However, there
are several factors that may limit performance when compared with an effectively-operating health post volunteer system.

First, CBFPS volunteers sell their oral contraceptive cycles for between 5 and 9 baht per cycle (U.S.$ 0.25 - 0.45) with the volunteer receiving one baht ($ 0.05). Health post volunteers, on the other hand, get their cycles free from the local health center, and usually get a donation of from one to three baht ($ 0.05 - 0.15) for each cycle, and no payment is required if the family is quite poor. This effectively makes the health post volunteer pill cycles cheaper and, therefore, more accessible to very poor acceptors.

Next, the distribution of oral contraceptives in the health post volunteer system is an important basis for cooperation between the volunteer network and the local health center or midwifery center. Volunteers get their pill cycles free from the local health center, and distribute them for a small charge to the villagers. This relieves the health center of some of the work of pill distribution, and in fact, makes distribution much more convenient for villagers, yet the local health center still receives credit for the pills that volunteers distribute. This is unlike the CBFPS system whose activities are reported separately from the local health center, and which, in a sense, competes with the government rural health facilities.

Finally, the health post volunteers trained by the Lampang Project, with wider array of services to offer, may be in more frequent contact with the village population than are CBFPS volunteers in Ngao District. The potential for health interventions, aside from family planning, is greater when HPVs are stimulated by rural health center workers.
"Primary health care is the key to attain the social goal of health for all by the year 2000....Primary health care itself has four fundamental concepts: the community itself must take the principal role in health care activities; health is not a separate entity; health is an integral part of the development of the people at both the community level and the national level; and health care must be equitably spread. It is always possible to design the health care delivery system which provides the essential health care that the people need, provided the people themselves, both in the rural areas and the urban areas, actively participate in it." 9

ESTABLISHING VILLAGE HEALTH COMMITTEES AND THEIR ROLES

After social preparation of the government sector, (from the provincial to the subdistrict level) Lampang Project and provincial health staff, approached village headmen and other community leaders to orient them to the Project goals. The staff wanted to elicit their interest in and support for the operational objectives, and strategies of a broadly extended health care system that would depend upon a firm “grass-roots” foundation - the village community. Without the support of the village headman and community leaders, there could be no effective mobilization of community health manpower, nor could stimulation and coordination of village-level health activity occur. Village leaders demonstrated a ready willingness to join hands with the government health service system in a broad-based effort to build a primary health care infrastructure at the community level. This included creation of village health committees, selection of village health communicators and village health post volunteers, and identification of traditional midwives in their areas.

Village health committee members were identified by the village headmen. Some villagers were already or had previously been involved in health care, such as indigenous practitioners of various types and former volunteers in the earlier village health and sanitation program, malaria eradication program, or local health programs that called for village participants.

Village Health Committee Selection Of Village Health Communicators And Health Post Volunteers

The first task of the village health committee in most areas was the selection...
of village health communicators and village health post volunteers. As mentioned earlier, selecting health communicators by the sociometric survey method was time-consuming and costly, requiring that health workers conduct a survey to identify those village members who were already focal points of local communication. Those selected by sociometry were not necessarily more influential or more appropriate than those health communicators selected by the village health committee. When Project staff compared the two methods, sociometric versus village health selection, there was little difference in the apparent appropriateness of those selected. Therefore, the sociometric method was abandoned in favor of village health committee selection in the interest of saving cost and personnel time.

**Village Health Committee Members as Village Health Communicators**

After observing the performance of village health post volunteers and village health communicators for about three years, it was noted that in general, health post volunteers were quite active but that the village health communicators were much less active. Many doubts were raised about the relative effectiveness and the substantial cost of training large numbers of village health communicators. Although the cost of training an individual health communicator is not great, the cost of training thousands (and, for the nation, hundreds of thousands) of communicators is substantial. When viewed from the national level, this was a significant question for Ministry of Public Health planners of primary health care programs. Project leaders then decided to vary the approach for mobilizing and utilizing health communicators. In one district, Jae Hom (E3), fewer communicators were chosen per village than in other areas. In this district, an average of slightly more than four health communicators were trained in each village, in comparison to an average of over ten per village in other districts. In Mae Tah District, a different approach was used. A greater number of health post volunteers per village were chosen by subdistrict council members giving a more favorable population: HPV ratio (487, compared to other areas with well over 600 pop.:HPV). An average of almost two HPV's were chosen in each village, as compared with an average of 1.4 HPV's in other areas. No communicators were chosen, but instead, the health post volunteers were given the additional responsibility. The subdistrict council members were also asked to provide support there to stimulate community participation. As mentioned earlier, no communicators were trained in Ngao District where CBFPS operated.

**General Role of Village Committees**

Village health committees have taken responsibility for stimulating and organizing local health activities, especially for priority programs such as water supply and sanitation, communicable disease control, maternal and child health education, family planning, and nutrition. Village health committees may be well-motivated and resourceful in their own right, but they frequently express a need for technical guidance from health officials and health workers. When technical guidance of health workers is combined with traditional wisdom of villagers towards a common objective, such as a permanent source of clean potable water for each cluster of
households, implementation of the high priority program can be rapidly implemented and maintained.

By establishing village health committees, the Lampang Project has endeavored to establish a beneficial partnership between government health service personnel and rural inhabitants to mobilize local resources and promote community self-reliance. Many committee leaders have begun to take an active role in organizing local health activities, as well as persuading neighbors to take advantage of appropriate services offered at nearby health facilities.

A major lesson learned in the Lampang experience is that village health committee members, village health volunteers and communicators need and want technical guidance in order to know what to do and how to do it. Their attitude is good, but they require technical guidance and support to be effective. Health planners and provincial health managers must give this priority attention if the primary health care approach and the greatly expanded provincial health programs are to be effective. The village health committees and village volunteers are excellent motivators; this has been demonstrated in Lampang's mobile vasectomy and integrated health services program, in some community nutrition activities, and in the village water supply improvement activity. The major requirement for cooperation and coordination between the government health services and the primary health care structure is establishing mechanisms for information transfer through regular, frequent, and supportive contact between government health workers, village-level HPVs, health committees, and subdistrict councils. A strengthened system of communication and information transfer has been provided through monthly meetings, visits, follow-up training, and other mechanisms. By strengthening communication and information transfer mechanisms, extension and expansion of integrated family planning, nutrition, maternal and child health, and other high-priority health programs has been facilitated. Increased community involvement and cooperation in health programs has been observed.

AN EXAMPLE OF COMMUNITY PARTICIPATION: THE VILLAGE WATER SUPPLY PROGRAM

In the Lampang Project's pilot district, Hang Chat, a village-based water supply and sanitation program evolved based on (1) participation of village health committees and village health volunteers, (2) an appropriate technology – a polyvinylchloride (PVC) handpump, (3) technical guidance from local health workers, and (4) periodic water-quality monitoring by provincial health personnel. The program is converting 1,100 existing shallow wells into safe water sources in the 61 villages of Hang Chat District, including installation of 220 demonstration PVC handpumps through village participation. After a well improvement and pump installation demonstration has been made by government sanitarian health workers, villagers
then carry out the same process on other unprotected wells. In each village, the first demonstration PVC pump is provided by the province, but all other preparations are done by the village people. Village health committees and village health volunteers have been oriented and trained in well improvement and simple PVC handpump operation and maintenance.

Villagers contribute labor and necessary materials, including the well cover, wooden post, and handle of the handpump; the village health volunteer provides preventive maintenance of the handpump. One demonstration PVC handpump, which can be produced locally with materials costing about $50, is provided by the Provincial Health Office for each demonstration well. Materials needed for repairs and for construction of additional PVC handpumps are available in local markets.

The PVC (polyvinylchloride) handpump has distinct advantages over more costly metal handpumps. Metal handpumps increase the iron content of the water, and they require repair by sanitarian health workers because the necessary tools are generally not available in the village. If metal parts require replacement, they are more costly and difficult to find. In the past, metal pumps that broke down remained unused until government sanitarian health workers came to repair them. An unrepaid handpump then became an obstacle to water use, and they were frequently removed and discarded. The PVC handpump is very appropriate for use with shallow wells. It is of a simple design, made of materials locally available, can be easily installed, maintained and repaired. And it is cheap, costing only a fraction of the cost for a metal pump.

Community Preparation for the Water Supply Program

Community preparation ensures that the villagers understand how to begin implementation, how to install the handpump, how to maintain it, and how to repair it when necessary. Community preparation consists of the following steps.

1. Meet with the officials at the provincial, district and subdistrict levels who would be involved with implementing the water supply program to explain its objectives and methods.
2. Provide community health education concerning safe water supply, sanitary privies and general sanitation.
3. Meet with the village headman, local officials, and other leaders to explain the activity and request their support.
4. Meet with the village health committee, health post volunteer health communicators, and others who would be involved to explain the activity and to secure their active involvement.
5. Arrange a training course for the subdistrict council members, the village health committee, the village health post volunteer (s), and health communicators to develop their understanding and capability to install, maintain and repair the handpump. This training includes observation of installed pumps in other demonstration sites.
(6) Provide supervision and assistance during installation of the first demonstration handpump, and train a villager (e.g. the village health post volunteer, member of the village health committee, or others) as an operator and repairman.

**Figure 5**

Diagram of the Implementation Process for Installation, Repair, and Maintenance of PVC Handpumps in a Village

- Government Health Worker (from local health center)
- Village Administrative Committee
- Health Post Volunteer(s)
- Health Communicators
- Other Village Volunteer Workers
- Choose Demonstration Points
- Well improvement, step-by-step - 15 minutes
- PVC handpump components - 15 minutes
- PVC handpump installation, including practice - 45 minutes
- PVC handpump repair - 30 minutes
- Conclusion/summarize number and location of other wells needing handpumps installed by community - 15 minutes.

Training the Subdistrict Council members and the village health volunteers requires about three hours. Groups of 140 were trained, each for three hours. In five days over 700 villagers and subdistrict council members were trained. The training methods consisted of lecture, discussion, demonstration, diagrams, and practice. The training course included the following components:

1. Role of the village health committee, health post volunteers, and health communicators in a local safe water supply activity - 15 minutes.
2. Safe water supply: Why wells are improved - 30 minutes
4. PVC handpump components - 15 minutes
5. PVC handpump installation, including practice - 45 minutes
6. PVC handpump repair - 30 minutes
7. Conclusion/summarize number and location of other wells needing handpumps installed by community - 15 minutes.

The specific roles of the village health committee, and village health volunteers in this program are the following:

1. The village health committee and volunteers assure that the villagers clearly understand the objectives and methods of implementing the program, the value of having clean water, the importance of a covered
well, and the ease of installation and maintenance (by the villagers themselves) of the PVC handpump.

(2) Survey all wells for which pumps will be installed, and inform the owners of the wells about the condition of their well, providing encouragement for improvement when needed.

(3) List the names and addresses of all well owners who will have a PVC handpump installed, and send this to the local subdistrict health center or midwifery center.

(4) Meet with all owners of wells to plan which one will be used for the demonstration site, and which others are to be improved by the villagers after the demonstration handpump is installed with supervision of health workers.

(5) Cooperate with the local health worker who assists in installation and monitoring.

(6) Encourage other pump installations and add chlorine powder to uncovered wells before installation.

(7) Assist in preventive maintenance of the handpump and in repairs, if needed, informing the local health worker if any problems develop.

Health post volunteers, health communicators, or other designees of the village health committee, use a simple calendar of daily, weekly, monthly, and quarterly tasks, including sanitary inspection activities. Village volunteers are provided technical guidance and other technical assistance, as necessary, by the subdistrict health center staff—usually a sanitarian, a midwife, and/or a wechakorn (community health paraphysician). The subdistrict health workers are supervised and assisted by the staff of the district health office, Provincial Health Office, and the Northern Regional Sanitation Office.

Each improved well can serve up to 250 people. The village health post volunteer or the appointed member of the village visits the well daily to ensure it is functioning properly. A member of the village health committee visits the well weekly, and assists in making improvements or repairs if necessary. If the repair cannot be made, the subdistrict health worker is consulted and, if necessary, he assists in the repair.

Evaluation of this program includes regular examination of water quality, monitoring of reports of patients with diarrhea or other intestinal disturbances, and reports of the occurrence of pump breakdown and repair.

In summary, the primary functions of well improvement, handpump installation, maintenance and repair are in the hands of the villagers themselves. They call upon the local health worker only when technical problems develop, or when he comes to check water quality as part of his routine work. The results to date are very encouraging.
AN EXAMPLE OF COMMUNITY PARTICIPATION:
VILLAGE NUTRITION IMPROVEMENT PROGRAMS

Nutritional Surveillance and Treatment

When the widespread problem of malnutrition was recognized, efforts were made to find ways to mobilize community health volunteers, village health committees and other community members for community nutrition improvement. In the first intervention area, E1 (Hang Chat), and, later in other areas, nutritional surveillance has been implemented. Village health post volunteers and village health communicators are used in surveillance to motivate mothers to bring their children, to help to weigh children and measurements on "road-to-health" charts developed in Lampang, to help to teach the use of nutritional supplements, to assist in providing immunizations, medical care and family health services for both children and adults during the nutrition surveillance activity. Children found to have third degree malnutrition were then followed by the health post volunteer, under supervision of wechakorn in the nearby health center, and frequent weighings and nutritional supplementation were continued until improvement occurred. Severely affected families received home visits by the health post volunteer and/or wechakorn to determine factors leading to the problem, and health and nutrition education was provided. Unfortunately, the magnitude of the problem was beyond the capacity of the government health service system to support using conventional approaches: essential nutritional supplements were frequently inadequate because of the logistical problems of bringing supplements from Bangkok. Support from the government health service system for nutritional surveillance and for treatment and rehabilitation, in terms of supervision, logistics and other support continues to be less than adequate for a health problem as widespread as malnutrition. New approaches were needed.

Village-Based Child Nutrition Centers (CNC)

Recognizing the problem of malnutrition, the Provincial Health Office began to emphasize the construction and operation of village-based Child Nutrition Centers, utilizing a system of matching funds with donations made by the communities. Contributions made by the communities were matched with provincial health funds or with contributions made by private sector and service organizations for the construction of village-based Child Nutrition Centers. The community provides manpower and some materials for construction. The center operates like a day care center of nursery school where children play and are educated during the day while parents are working in the fields elsewhere. Participating children, aged 2½ to 6 years, receive nutritious high-protein snacks in the mid-morning and afternoon, and they have a well-balanced lunch. At some CNCs, children bring their own rice and other foods from home. Where the centers operate well, the CNC provides protein-vitamin-mineral rich side dishes to eat with their rice. Donations or monthly fees are requested to pay for the cost of operations, which includes a small stipend for the community resident who operates the center. That person is trained by staff of the
Division of Nutrition, MOPH, and is supervised primarily by local health workers.

Child Nutrition Centers serve as a central place for nutrition and health education for both children and mothers, for children to learn good personal hygiene, for stimulation for normal growth and development, and for recreation and play. Centers are often located adjacent to village health posts, convenient for the provision of medical care, immunizations and other services when local health workers visit. Most of all, they serve to create and sustain awareness of nutrition problems, and the need for community action to solve them. At some centers, demonstration gardens have been developed, and in a few, fish ponds, and poultry and pig raising projects have been started.

Table 13

Nutritional Status of Children Under Age 2 and Under Age 6 and Service Coverage, 1979

<table>
<thead>
<tr>
<th></th>
<th>Children Under Age 2</th>
<th>Children Under Age 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated number of children in target groups</td>
<td>12,993</td>
<td>48,301</td>
</tr>
<tr>
<td>Number Undernourished (1^0, 2^0, \text{and } 3^0)</td>
<td>4,418</td>
<td>37,288</td>
</tr>
<tr>
<td>% Undernourished</td>
<td>34%</td>
<td>77.2%</td>
</tr>
<tr>
<td>Estimated Number moderately and seriously undernourished (2^0 \text{ and } 3^0)</td>
<td>607</td>
<td>12,123</td>
</tr>
<tr>
<td>% Moderately and seriously undernourished (2^0 \text{ and } 3^0)</td>
<td>4.7%</td>
<td>25.1%</td>
</tr>
<tr>
<td>Estimated Number of children in Child Nutrition Centers</td>
<td>0 (c)</td>
<td>6,646</td>
</tr>
<tr>
<td>% of all children in Child Nutrition Centers</td>
<td>0</td>
<td>13.8%</td>
</tr>
</tbody>
</table>

a Estimated from Community Health Survey data and district population figures.

b Estimated from rates found in Nutrition Component of Community Health Survey, using nutritional standards based on Thai norms.

c Child Nutrition Centers generally do not accept children under 30 months of age.
Village based Child Nutrition Centers have been constructed primarily through community participation and contributions matched by provincial health and private sector donations. By 1980, there were 172 Child Nutrition Centers in Lampang, many more in the process of construction, and even more planned. The 172 centers at the village level are located in 29% of all villages in Lampang Province. Over 6,500 preschool age children are enrolled. But this is only a fraction of over 37,000 children affected by malnutrition in Lampang. Moreover, children under two years of age, those who are most seriously under-nourished and those who are poorest, frequently do not enroll in the CNC program. Table 13 summarizes the extent of the problem, and the coverage achieved by 1979.

In the Project's pilot district, Hang Chat (E₁), 19.5% of the estimated number of preschool age children are enrolled in Child Nutrition Centers, but the fact remains that more than 80% of children who could benefit from nutrition services are still unreached. (See Table 14.) A beginning has been made, but there is much more work to be done. The promising response from communities to date gives reason for optimism in facing a widespread health problem that appears to be beyond the resources of the government health service system alone. Community participation to maintain community nutrition improvement programs, using locally available resources, is essential.

Table 14

Child Nutrition Center Services Utilization in E₁ and C₁, 1974-1979

<table>
<thead>
<tr>
<th></th>
<th>E₁</th>
<th>C₁</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Centers</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>Number of children under age 6 registered in Child Nutrition Centers</td>
<td>216</td>
<td>823</td>
</tr>
<tr>
<td>Number of children under age 6 in district</td>
<td>5,009</td>
<td>4,215</td>
</tr>
<tr>
<td>Proportion of estimated total number children under age 6 who are receiving Child Nutrition Center services</td>
<td>4.2%</td>
<td>19.5%</td>
</tr>
</tbody>
</table>

Source: Provincial Health Office records

Village Food Texturizer Program

In the past year, the Lampang Project has introduced a new approach for the local preparation of nutritional supplements that can be operated at the village level,
using locally available raw food materials. The “village food texturizer” is a hand-operated device which has already been applied with good results in Korea, and is promoted by such international nutrition assistance organizations as the Meals For Millions/Freedom From Hunger Foundation. The first texturizer was introduced in 1979, and has been used to experiment with production of various protein-rich texturized food products. These products have been field-tested at Child Nutrition Centers in Lampang with excellent acceptance by children. In 1981, another ten texturizers were deployed to Child Nutrition Centers after they were constructed locally. This and other new approaches need to be studied, particularly for intensive health education and nutrition education, aimed at providing the knowledge transfer for villagers to manage their own health and nutrition problems.

With the primary health manpower and health services infrastructure in Lampang now complete, many health professionals have encouraged the MOPH to make a major effort to focus on the appropriate health technology needed for the village health committees, community health volunteers, and other community participants to reach their full potential in serving their fellow villagers’ health and development needs.

Further efforts are also needed to develop new, simplified planning methods, appropriate for application by village health committees and volunteers, as well as strengthened communication between government health workers and village health volunteers.

“If health interventions are to be accepted and carried out, or assisted, by villagers, then it is critical for villagers to be involved in the planning and formulation of these interventions from the earliest stages. This infers that health planning begin at the village level, and this infers that new processes and methods be employed to make village level health planning a reality. An appropriate health planning technology is critically needed.” 10
"Taking together all the types of private health services — traditional, self-care, or modern — although they are not socially organized, encompasses actually the greater part of all health services rendered to the people of Thailand. Thus, in the total health care system of Thailand — whether quantified by volume of services or expenditures for them — the private sector is larger than the aggregate of all organized programs, governmental or voluntary." 11

In Thailand, the private sector accounts for the major part of health care services, and private expenditures on health are estimated to exceed government expenditures by more than a three to one margin. At the same time, the Thai Government has an overwhelming monopoly on the highly-trained modern health care providers. Over 90% of physicians, nurses, trained midwives and sanitarians, all medical schools and most other health training facilities, and a majority of hospitals are in the government sector. In rural areas, however, a wide array of private practitioners operated long before government services were established, and continue to be the major source of care for villagers when they are ill.

Private sector providers have tended to maintain a distance from the government, and emphasize the difference in their services: private sector services are often cheaper (in the case of drug sellers in drugstores), or more convenient (physicians in private clinics and hospitals), require less waiting time, and may give consumers more personalized attention. These advantages even apply to many physicians who work in the government system and operate private clinics during non-official hours.

Most of the private sector services are medical care, or curative services. In rural areas, the government services have been focused largely on disease prevention and health promotion which are valued less by villagers, who normally seek care only when ill. Consequently, government rural health facilities have been underutilized, while private sector practitioners have thrived. Recognizing the importance of the private sector, project planners felt that every effort should be made to develop ties between the private sector and the integrated health delivery system which the Project sought to build.

In the rural areas, private traditional and modern practitioners generally have little association with government providers and serve a majority of the village population. The many herbalists, injectionists, local druggists, midwives, spiritualists and others are usually closer to the villagers geographically, linguistically and socially than are most government providers. Their services are often cheaper, more per-
sonalized, and they are usually willing to make home visits.

Given the private sector providers’ autonomous, well-entrenched role, Project leaders sought ways to convince them of the advantages of cooperating with the provincial service network. Actively seeking the voluntary cooperation of private sector providers was, in many ways, a new approach. This was particularly true for druggists, whose relationship with the provincial health services is regulatory, and sometimes antagonistic. But the mutually-beneficial nature of cooperation toward common ends was emphasized.

TRADITIONAL MIDWIVES

The involvement of traditional midwives has already been discussed, and represents one of the more successful efforts to involve the private sector in the Lampang Project, and in government health services throughout Thailand. The traditional midwife training program in Lampang was not unique, as similar programs had been implemented over ten years earlier. What is unique is the role that traditional midwives play as part of a village-level primary health care team. The traditional midwives are functionally linked to the government health care system through the government midwife at the nearby midwifery center or health center, or through the health post volunteer-wechakorn relationship. Traditional midwives in Lampang have proven willing to receive more training, to provide improved prenatal/delivery/postpartum care, and to work in a cooperative fashion with the health post volunteer and the local government health services personnel. They have also played a role in family planning promotion and service delivery, health and nutrition education, and other maternal and child health services. Their role has been significant and should be continued.

HERBALISTS AND OTHER INDIGENOUS PRACTITIONERS

Some herbalists, injectionists, and other indigenous practitioners volunteered and were selected to serve as village health post volunteers or village health communicators. This was facilitated through selection conducted by the village health committee. The local providers were welcomed by Project and provincial health personnel. Besides those selected as health post volunteers and health communicators, a number of other indigenous health care providers (primarily herbalists) were identified and trained in a special pilot program. The objectives of the program were to improve their skills in diagnosing and treating uncomplicated problems, to recognize more complicated or serious problems that were beyond their capabilities, to promote their cooperation in referring such complicated or serious cases to the appropriate government health care facility for treatment, and to stimulate their support and cooperation in promoting local health activities.
DRUG SELLERS AND DRUGGISTS

Drug sellers and druggists, most of whom are not pharmacists, are the principle source of medical care services in Thailand. They are found in all provincial and major towns, central district and subdistrict villages. Even in villages, there is usually a shop that sells medicine, along with other household supplies. They provide both modern and traditional medicines, and offer advice freely to promote sales. They are highly accepted by consumers because they offer services that are available and accessible, no waiting time is required, and they generally can provide medicine at an affordable cost: if one medicine is too expensive, they have another one to offer at a lower cost. Many provide more costly injections, which most people believe will be more effective.

The Lampang Project staff, together with officials of the Ministry of Public Health, the Food and Drug Administration, and the Government Pharmaceutical Organization, developed guidelines for five roles that private drugstores could play in the context of the Lampang Health Development Project. These include the following:

1. Provision of curative services for simple illnesses;
2. Referral of patients with difficult diagnostic or serious medical problems to the appropriate government health care facility;
3. Provision of family planning services, with particular reference to resupplies of birth control pills, and condoms;
4. Health education for specific communicable diseases, and reporting for disease control purposes; and,
5. Advertisement and promotion of government drugs which are generally cheaper than imported, commercial drugs.

Druggists supported the guidelines, and Lampang Project and provincial health personnel agreed to provide training to 120 interested drugstore personnel.

The training program was organized and conducted for four groups of drugstore sales persons, thirty persons per group. The training program curriculum included these topics.

1. Primary medical care, first aid, and dangerous drugs;
2. Maternal and child health care;
3. Communicable diseases control;
4. Immunizations;
5. Food and drug regulations and laws governing the selling and accounting of drugs; and,
6. Community health services, and community and private sector involvement in primary health care.
The druggists who participated in the training program were asked to cooperate with the government health care system by sending to the Provincial Health Office two types of reports: (1) a daily log reporting service contacts by symptoms and drugs dispensed, and (2) a communicable disease illness report form, including symptoms, drugs dispensed and the name and address, for each patient. This reporting mechanism did not work well, however, possibly because the objectives of the government health services system and the objectives of the drugstores are not the same. Druggists are primarily in business to promote sales and make profits, while government health services are public health oriented with an interest in improving service delivery to and raising the health status of the population served.

The most important role that druggists have played in the Lampang system is the provision of drugs and other supplies to health post volunteers who experienced earlier supply problems with the government health and medical supply logistical system. With 873 health post volunteers now operating in Lampang, the logistics of support and supply has been a constant problem. In an attempt to improve on the governmental supply system, the Project turned to the private sector drugstores to supply volunteers. The drugstores sell household drugs to volunteers at the same price that the government sells drugs. (This is generally lower than the normal drugstore price.) In this way, health post volunteers make a small profit when providing medical/health services to their fellow villagers. The drugstore supply system for health post volunteers and the cooperative arrangement with the Provincial Health Office has been relatively successful, although volunteers find it somewhat inconvenient to travel to town to pick up their supplies and to operate on a strictly cash basis.

These are the major conclusions of this effort to train druggists and drug sellers, and to win their cooperation in the Lampang health care system:

(1) Druggists like to receive training, and they are very appreciative when training is provided by the government.

(2) Druggists have a good attitude and are willing to work in collaboration with the government health system, particularly when the arrangement for collaboration is mutually benefiting.

(3) Druggists have a good attitude and can provide support for and cooperation with the government health care system, particularly when it serves to improve their sales and profits, as in the provision of medical care, and related services. They are less cooperative when additional effort is required, as in the inconvenient tasks of completing forms and sending them to the Provincial Health Office.

(4) Druggists are able and often willing to provide crucial support and resupply services for health post volunteers. This is considered to be an important support that should be pursued.
The Lampang Project has also appealed to a number of local service organizations to help extend and expand the integrated health care delivery system in Lampang. For example, when the problem of extensive malnutrition was recognized early in the Project implementation phase, the provincial health office launched a broad effort to increase the number of facilities serving children in rural areas. Child Nutrition Centers at subdistrict level health centers and midwifery centers, however, were not reaching the children most in need. Village communities had already demonstrated a ready willingness to contribute their time, materials and money towards the construction and operation of village-based Child Nutrition Centers when the Provincial Health Office offered a matching funds arrangement to them. But Provincial Health Office funds were limited and could not keep pace with the need and increasing demand for such services.

Private sector service organizations in Lampang were asked to provide support and matching funds to poorer rural communities in a joint effort to raise adequate resources for the construction of village-based Child Nutrition Centers. The response from a number of organizations, particularly the Rotary Club and the Lions Club in Lampang, was impressive. *It was primarily because of the contributions of private sector service organizations and village communities that the Lampang Provincial Health Office was able to promote the construction of 172 Child Nutrition Centers in the past five years.* The Provincial Health Office is continuing this program with strong support, mostly through private sector service organization contributions matched with village contributions. The centers are operated primarily by villagers who are community health volunteers or members of their village health committee.

Community-Based Family Planning Services (CBFPS) is another major private sector service organization which collaborated with the Project on a pilot basis to improve the management of and support for village-based community health volunteers. CBFPS is a pioneer group in contraceptive distribution and village development programs. As mentioned earlier, CBFPS accepted responsibility for training and supporting village volunteers in one of Lampang’s 12 districts. Project leaders, impressed by the CBFPS approach to volunteer support and management of community-based contraceptive distribution programs in over 100 districts, decided to ask CBFPS to cooperate with the Project in confronting the observed volunteer management and supply problems. After several meetings and planning sessions, agreement was reached for CBFPS to implement their system in Ngao, to expand their usual family planning services to include other health services similar to those provided by health post volunteers, and to encourage referrals and other links with the provincial health care system. Systems of reporting, supervision, and other support were developed. CBFPS staff selected and trained village health volunteers in Ngao District, and selected and trained a paid supervisor, who is directly responsible to the CBFPS organization.
The purpose of the CBFPS involvement in Lampang was to compare the CBFPS system of training, motivation, management and support for village health volunteers with that established in other districts by the Lampang Project. CBFPS staff who trained and supervised volunteers were encouraged to broaden their range of services from single-purpose family planning services to a broader range of health services. It was planned that the successful components of the CBFPS approach to volunteer support could then be adapted for application throughout Lampang in an effort to solve the observed supervision, support and management problems. The involvement of CBFPS, therefore, was primarily to test alternative approaches to volunteer management and problem-solving, rather than to generate private sector support to supplement provincial health resources, as in the case of Rotary Club and Lions Club participation in the construction of village child nutrition centers.

It is surprising that CBFPS volunteers in Lampang have not equalled the performance of CBFPS volunteers in other provinces, such as Chiangrai Province, adjacent to Lampang. The reasons for this result are not completely clear, but several factors may provide clues.

First, in other provinces, CBFPS has linked its village contraceptive distribution program to other community-development activities, such as raising livestock and parasite control, which have generated community interest. However, in Lampang, CBFPS did not undertake such activities.

Secondly, CBFPS staff have independently built their own program and linkages to the government health services in other districts and provinces. In Lampang, however, CBFPS worked more in the role of an agent of the Lampang Project, training and supporting the village volunteers. The Project, at the same time, oriented district and subdistrict health staff to its own approaches, trained wecharakorn, and built its own set of program priorities. Consequently, CBFPS did not have complete freedom to operate as it does elsewhere.

CBFPS has built and nurtured a reputation as an independent, yet complementary, private sector alternative to conventional rural family planning services. It has not placed volunteers in areas where the MOPH is training village health volunteers to avoid possible duplication or complications. It may be that working within another project, as in Lampang, CBFPS has, in effect, not been able to fully develop the structure and program that has proved so effective in other areas.
“Community involvement is essential in planning and implementing community-based health programs. The failure of community health efforts is due to: (1) inadequate matching of the perceptions of health needs and priorities between villagers and health services staff as a result of inadequate communications and the lack of a continuing dialogue, (2) inadequate organization of the community for extensive and lasting interventions, (3) inadequate mobilization of community manpower and financial resources, and/or (4) inadequate or inappropriate technical assistance from the government health service to the village-based health organization for proper health interventions with lasting effects.” 12

Although planning and organization of the Lampang Health Development Project preceded the articulation and broad acceptance of the concepts of primary health care and the associated global movement towards “Health For All By The Year 2000”, many of the approaches applied and tested in Lampang had basic elements in common with the concepts of primary health care. The experiences and lessons from Lampang may provide a basis to realistically assess what is needed to implement and maintain a primary health care program in the context of a governmental health care system in a developing country with limited resources. The Lampang experience has identified planning, management, and support needs that are crucial if the primary health care and health for all movements are to progress beyond the concept stage.

It is of great importance to lay out in concrete terms what it takes to practically operate a primary health care network: to clearly identify the technical, managerial and material needs required to maintain it, and to demonstrate in what ways such a network can contribute to health care and to the improved health status of the rural population.

With global acceptance of the concepts of primary health care well established, the time has come for sharing the accumulated experience in evolving primary health care schemes. This is particularly important when recognizing that many nations are planning and implementing national primary health care programs straightaway with out developing and refining the prototype programs through demonstration or operational research projects. More important than documenting the achievements of the Project, a primary aim of this monograph is to document
clearly areas for special attention to facilitate planning, launching, monitoring and managing, supporting and maintaining primary health care programs. This section primarily addresses those who are embarking on similar endeavors, both within and outside of Thailand.

This chapter highlights major observations and lessons learned in the process of developing Lampang’s primary health care system and identifies problem areas and draws attention to priority areas of need for sustained effort if the prospects for community health volunteers and primary health care are to remain bright.

LESSONS FROM THE LAMPANG PROJECT

Broad-Based MOPH and Intersectoral Government Agency Involvement

It was important to develop and maintain broad-based, high-level MOPH and intersectoral government involvement in planning and in implementing the primary health care program, and in reorganizing and strengthening governmental systems to improve its capacity to logistically support and technically guide wechakorn and community health volunteers in every village.

Recognizing this at an early point, MOPH and Lampang Project leaders established the Lampang Health Development Project Policy Committee, a multi-agency governmental advisory group, chaired by the Under-Secretary of State for Public Health. A number of potential problems in implementation anticipated by Project leaders were resolved by actions of the Policy Committee and the agencies represented on it. Similarly, problems that occur in maintaining the system and in coordinating expansion of the system throughout Thailand will require the attention of a multi-agency, high-level government advisory and coordinating group.

Early Social Preparation at all Levels

The importance of the role of the Ministry of Public Health and of related governmental agencies roles in establishing, supporting and maintaining viable primary health care programs cannot be overstated. Developing full commitment and support for the program at all levels of government is needed early in order to efficiently implement reorganization of the health care system and to effectively develop strengthened systems of management and logistics.

But securing full commitment and support from high-level government leaders and from highly trained health professionals can be difficult if they have a strong orientation to modern, sophisticated medical and health care models, and if they view the unconventional approaches and simplified techniques of the primary health care program as substandard when compared with the modern technology to which they have become accustomed. Their early involvement in planning and implementation of the program provides valuable time and opportunity for developing better
understanding and for encouraging their support and commitment through frequent communications, consultations, reviews and assessment of progress, and problem identification and problem-solving.

The same principle applies to highly-educated and well-trained physicians who may insist on maintaining only the highest standards of medical care to which they were oriented during their own education and training. Adequate time and effort must be made available to win their acceptance and support early in the planning and implementation of the program. Social preparation and organization of the governmental agencies and personnel involved in primary health care programs is best undertaken early in the planning phase and their involvement maintained as the program evolves during the implementation phase.

In the final analysis, it is the provincial health office and the local government health office and the local government health workers who will directly provide the support and guidance needed most by primary health workers and volunteers. Therefore, it is crucial that their orientation and active involvement begin early, that their commitment be secured, and that their roles be clearly understood. The health care system and other related governmental services can then be more easily reorganized and the management and logistics systems strengthened adequately to provide the needed technical guidance and logistical support which, for the most part, can be anticipated.

At the district, subdistrict and village levels, orientation of local health workers, government officials, subdistrict councils and community leaders should begin well in advance of developing the village-based primary health care organization and involve planning and early implementation of the necessary support mechanisms. This process must carefully avoid raising unrealistic expectations, and clearly specify the various roles of community health volunteers, village health committees, subdistrict councils, government health workers and local officials. This level comprises the interface of government workers with community leaders and villagers – and this is the crucial link in the partnership between government and villager. This link, therefore, must always be viewed as the key link in the operations of the primary health care program. To strengthen the link, the process of social preparation at this level should blend immediately into follow-up technical guidance for actions planned – establishing the village health committee, identification of candidates to be community health volunteers, selecton of community health volunteers, diagnosing local health problems, and so on. As in any partnership, a sense of mutualism and respect should characterize the relationship. Expectations raised and promises made in this process should be carefully and consistently met, or be jointly revised if they cannot be met.

Strengthening Linkages to Government Rural Health Facilities

The primary health care network of community health volunteers and village
health committees was viewed, from early planning stages, as an extension, not an integral part of, the government rural health care delivery network. Such an approach places the burden of responsibility for program initiation, logistical and technical support directly on the peripheral government health workers. Initially, all workers, though oriented to the approach, did not understand clearly the role and utility of health post volunteers. But as the volunteer role evolved, the linkage between the volunteers and the rural health care worker was strengthened. The Project's results concerning oral contraceptive distribution is a good example of the effectiveness of this linkage.

Such linkages must be continually nurtured through regular visits, monitoring and performance, and continued initiation of community health activities in which the volunteers can take a substantive role. *If the linkage between the village volunteers and the rural health workers is continually reinforced, attrition rates of volunteers can be kept at a very moderate and manageable level.*

**Training and Maintaining Community Health Volunteers**

There is an inverse relationship between the duration of training and the need for technical guidance and supervision for achieving and maintaining high performance of community health volunteers. *If training is short, technical guidance and supervision must begin early, be maintained on a regular basis, and always be helpful and positive in its methods.* If health workers or volunteers are to work more independently (as in the case of some wechakorn paraphysicians), the training must be longer and more comprehensive to provide needed knowledge and skills, and to develop sound judgement. Most primary health worker training programs tend to be short, as in Lampang, and the need for supervision and technical guidance must be met, along with adequate follow-up training, and constant encouragement and stimulation of health workers. Adequate technical guidance for community health volunteers and village health committees as well as supervision of wechakorn paraphysicians and other government health workers, can be promoted by training and supervision of supervisors.

Before planning the training program and developing the curricula, attention should be given to identifying major health problems, setting priorities of health programs, specifying the methods and techniques to be implemented, and clearly delineating the specific role that will be played by various categories of community health volunteers and government health workers. For each category of trainee, the training program should specify precisely the methods, techniques and services needed to conduct local health programs of high priority. *When their respective roles are clearly understood in the context of priority programs, and when they are adequately trained to competently provide the needed services, volunteers will develop a clear sense of participation and will perform well, if logistically supported.*

Three to five years after training community health volunteers, attrition gradually approached 20% of the initial number trained. Recruitment and training of
new community health volunteers in Lampang was conducted annually. Continuation of this training will be needed, either on an annual basis or at least once every 2-3 years.

Nearly all community health volunteers and wechakorn in Lampang have consistently expressed a strong interest in follow-up training, at least once a year to improve their knowledge and skills, and to learn new techniques and methods. Beyond the direct benefit of follow-up training for improving needed skills and knowledge and for promoting expansion of priority programs, the follow-up training can effectively promote an esprit de corps, an exchange of experience, and a sense of belonging, participation, and pride in their work that will promote and facilitate improved performance.

Community Health Volunteer Performance

Community health volunteers have clearly made an important contribution to rural health care in Lampang. Health post volunteers, in particular, have accounted for an important expansion of health services and simple medical care capability at the village level and have provided an important link to government health personnel at local health centers.

The volunteer contribution has expanded simple medical care contacts by 25-50% at the health system’s rural periphery. The frequency of these contacts with the village population has helped to establish the health post volunteers’ credibility in the villages, an important entree for further expansion of community health work.

The contribution of health post volunteers to family planning is even more important. HPVs now account for a majority of the family planning contacts and about 40% of all government provided oral contraceptive pills distributed in the rural areas. This makes contraceptive use by village women much more convenient, and it also provided a concrete, mutually beneficial, and continuing link between the health post volunteers and the rural health centers.

Responsiveness of the Government System to Increased Demand

Like the approach being implemented nationally, the Lampang approach to primary health care began with planning from the top down. The approach was conceived at the ministry level, and articulated and put into operation by professionals at the provincial level. Inherent in planning was the need for downward support, supervision and stimulation. Large groups of community health volunteers were trained and sent back to their homes to begin work. But as the primary health care network was set in motion, positive responses of the community and increasing volunteer activity generated substantial upward pressure on the government system for increasing and ensuring continuity of downward support. Breakdowns in supply and technical support showed that some upper-level personnel
have not anticipated the potential of the volunteer contribution, and were not always ready or able to respond adequately. *The overall experience has shown that when a village-level primary health care network is set in motion it will inevitably lead to substantially increased demands on the health care system, which must be prepared to provide adequate and timely support, supervision, encouragement, frequent technical guidance and dependable logistics to maintain volunteer activity and increase service coverage.*

**Cost Implications of Community Health Volunteers**

Comparing the cost of oral contraceptive distribution between the health center and the volunteer indicates that village-level distribution is both more convenient for the user and more cost-effective. The low cost contribution of village health volunteers must be kept in mind when governments plan programs to attack other health problems that are widespread. For example, the immensity of the nutrition problem in Thailand is one that government providers find difficult to deal with on the broad scope that is required. But fully utilizing the volunteer network in an attack on the widespread problem of malnutrition in the rural areas can greatly enhance the potential of the system to deal with this problem more effectively.

**Private Sector Providers and Service Organizations**

Private sector providers, such as druggists, indigenous healers, and physicians have generally maintained themselves somewhat separately as an alternative to the government health services. National and provincial government health leaders must recognize the importance and magnitude of the role of private sector providers who contribute to health care at all levels. Private sector providers must be made aware that government personnel view their contribution positively, and see it as a basis for seeking their cooperation on a program-specific basis. Although it may be difficult to use them on a regular basis, the private sector providers have responded favorably to activities that fall within their perceived role and which contributed to their image in the community.

*Service organizations have played an important contributing role in programs that require resource inputs beyond the ability of the government.* Service organizations can provide monetary and material support which can stimulate community contributions of additional materials, money, and -- more important -- manpower to keep the program operating at the local level. Like private sector providers, service organizations are quite responsive to assisting special programs that fall within their perceived service role and which contribute to their image in the community.

**FUTURE PROSPECTS**

The future prospects of community health volunteers and of primary health care programs depend to a great degree on the responsiveness of the government,
particularly the provincial health office and health workers, in meeting the perceived support needs of community health volunteers and the health services needs of their village clientele.

The Lampang experience clearly gives reason for optimism if these needs are met responsively by government officials and health workers who are responsible for meeting them. The Lampang system is a significant beginning in the process of developing and refining primary health care schemes, but substantial effort is still needed to effect further development of community-based health programs and the support systems that are needed to maintain them. Evolving solutions to problems is an ongoing process that involves continual assessment, dialogue, and refinement. Progress in Lampang has come step-by-step: the first steps have been taken with promising results, and the next steps that need to be taken are now seen more clearly.

The experience in Lampang has shown that to effectively establish and maintain a primary health care and integrated rural health service system, several areas of need must receive priority attention, and commitment from those responsible. With the strong similarities of the national primary health program, these areas of need are likely to be relevant for the larger national program. These areas of need are summarized below, and many will be address in more detail in subsequent monographs.

Local Health Planning and Programming

Established methods of health planning and programming practiced at the national level and, to a much lesser degree, at the provincial level are not practical for community-level or district-level planning and programming. Simplified methods for community, subdistrict and district level health and development planning and programming are needed.

The Lampang system permits field testing simplified health and development planning and programming methods and approaches. Subdistrict councils are appropriate bodies for coordinating multisectoral inputs of any adopted plan and, therefore, should be involved in the planning process. The village health committees play a substantial role in implementing local health programs, a role that will more likely be assumed with enthusiasm if they have participated in the planning process. Yet, the most technically capable personnel for providing assistance in this area are located at the provincial and MOPH levels.

It would be highly desirable for the Ministry of Public Health (and, perhaps, other government sectors involved with community health and development) to develop and field test simplified health planning and programming methods which can be applied by community health volunteers, village committees, and subdistrict councils, and which can be integrally linked to a strengthened system of district and provincial health planning and programming. Once the methods are developed, field
tested, and refined, a national program could be launched in all provinces to train provincial level trainers who would then train and work closely with health officers and personnel at the district level and with health workers at the subdistrict level to implement the program, through subdistrict councils, for all villages with a primary health care network established. This process would provide a solid basis of information for provincial and national level health planning and programming. Equally important, it would broaden the role of the subdistrict council, the village health committees, and the community health volunteers and promote a sense of participation and belonging, and a sense of responsibility and recognition.

Selection of Community Health Volunteers

Three methods of selecting community health volunteers were used in Lampang: sociometric surveys, village committee selection, and subdistrict council selection. For selecting health communicators, the sociometric survey method was used first; though reasonably effective, the government health workers responsible for doing the survey found it time-consuming, slowing the process of selecting health communicators. Because salaried government health workers were involved, and because it was time consuming this method required substantial government costs. As a result of this experience in the first months of project implementation, the sociometric survey was replaced with selection by village health committees. This smoothed the selection process, reduced costs to the government, and also provided an opportunity for village committee participation in the initial steps of developing the primary health care network.

In Lampang, selection of health post volunteers was predominantly done by village health committees, but in Mae Tah District, subdistrict councils made the selections after a brief orientation. Both methods showed equally promising results. Both methods provide community involvement in initiating the village-based primary health care network. When broader participation in planning—to include sectors other than health—at the subdistrict level is sought, then involvement of the subdistrict council has added benefits.

It would be useful to study further the results and experiences gained in the various health communicator selection methods used in other areas of Thailand for comparison with those used in Lampang. The sociometric method has been used widely for selecting health communicators in provinces where the national primary health care program is now being implemented and this broad experience should offer useful lessons to compare with Lampang. The ultimate aim is to develop the selection approach most cost-effective and convenient for the field implementors, most effective in identifying volunteer candidates with good potential, and most appropriate for initial stimulation of community participation in establishing the village health care network.
Provision of Follow-up Training and New Community Health Volunteer Training

Attrition of health post volunteers in Lampang approached 20% in the first five years of service. Most of this attrition occurred in the first two years (when the problem of supplies was greatest) and, as it occurred, new volunteers were selected and trained. New volunteer training programs are needed every year or two in order to maintain coverage.

Community health volunteers express clearly that they would like additional training at least once a year if possible. Follow-up training was provided in Lampang for agricultural extension, local food production, and other nutrition-related activities. In addition, follow up orientations were provided for family planning, including the vasectomy activity, with good results. In a similar way, it would be highly desirable for the provincial health office to organize refresher training once or twice a year, perhaps conducted district-by-district or subdistrict-by-subdistrict, for the purpose of promoting current high-priority programs, improving health planning and to promote the esprit de corps and performance of volunteers. Follow-up training, adequate support, frequent contact and encouragement are felt to be the main factors in promoting performance and holding down the attrition of community health volunteers.

Local Financing of Primary Health Care

Developing methods of local financing of primary health care programs was not included in the design of the Lampang Project, however, the problems of receiving adequate levels of supply and support through government channels became obvious and led to an acute recognition of the need to develop alternative mechanisms of support, such as local financing. Promising results have been achieved in the area of local financing of village-based Child Nutrition Centers and village-based water supply and handpump maintenance programs. Local financing mechanisms can save substantial government costs but, more important, local financing mechanisms put more responsibility in the hands of village health committees and community health volunteers and, again, promote increased levels of performance, self-reliance, and determination.

Different systems of local health financing need to be attempted and assessed in an effort to find those that are most practical. One practical type of local health financing that has been successfully implemented in Thailand is the village revolving fund for such local programs as environmental health improvement, including construction of water-seal privies, construction and maintenance of water pumps and well covers, construction and maintenance of rainwater storage tanks. Also, village health cooperatives for local financing of needed health services, drugs and supplies are being implemented in other areas. Village nutrition and agricultural cooperatives could be tested for improving local agricultural production, emphasizing new crops such as soybeans, green beans, and peanuts. These raw food products can be used in village nutrition improvement programs to provide nutritious and tasty foods for undernourished village children.
It is emphasized that the particular type of local financing mechanism is best determined locally (i.e., not a uniform approach for all localities in the country), according to the level of development of the area, the level of organization of the people in the area, and the type of local activity that is to be financed locally. Very poor areas may not have adequate resources for local financing schemes and services should be provided free, consistent with the current policy of the MOPH. The more developed areas with a higher degree of social organization are more appropriate for launching health cooperatives. Transitional areas may find revolving funds and other variations of local financing more appropriate. These decisions are local decisions to be made by those who will be responsible for implementation and those who will participate in the local financing program.

The results to date in Lampang and in other provinces are promising enough to warrant continued effort in developing appropriate local financing mechanisms for these and other primary health care activities.

Provincial Health Support Systems for Community Health Volunteers

The Lampang Project has dealt with many of the problems of support that developed in the early implementation phase, but this is an area that continues to need priority attention from provincial authorities. The need for strengthened support systems is certain to be felt, and should be anticipated, wherever large-scale primary health care programs are developed. The essential point here is that the need for strengthened systems of supply, referral, information, supervision and technical guidance must be anticipated early and these support systems strengthened in advance of the training and deployment of large cadres of primary health workers, particularly when they are unpaid volunteers.

In Lampang, improvements in medical care services delivery depended on strengthening the referral system and on development of wechakorn parachysicians. With only five years for implementation, and with the enthusiasm of Project staff, most training programs of the Project were launched at about the same time. Consequently, the first cadres of community health volunteers were trained (in two weeks or less) and deployed long before the wechakorn completed their one-year training course and were deployed to subdistrict health centers to provide the strengthened system of patient referral and technical support, leaving the community health volunteers with inadequate technical support initially.

As mentioned earlier, the problem of supply logistics was not adequately anticipated at the central and provincial levels, resulting in diminished community health volunteer performance initially and, potentially compromising their newly established relationship with the government. Although the use of private sector druggists as suppliers has eased the problem, it has not yet been entirely solved in Lampang, and it is a crucial area for continued vigilance and responsiveness on the part of the government health system.
Improved technical guidance and supervisory mechanisms are still needed. Lampang Project leaders feel that additional incentives for supervisory health workers may help greatly to ensure that supervision and technical guidance can be provided on a regular and consistent basis. The solution has been somewhat elusive, but the need for technical guidance, supervision and support at the village and subdistrict level is exceedingly clear. Additional MOPH and PHO effort is encouraged for testing further various incentives, and for improving routine mechanisms for meeting the essential need for technical guidance at village and subdistrict levels.

Improving Communication for the PHC-Government Health Service Partnership

The ultimate impact of any health or development program involving a partnership between government health services and village volunteers resides in the ability to communicate adequately, to match perceptions and share common objectives and to improve personal and community hygiene practices. Social scientists point out that communication between villagers and government officials has been difficult to effectively develop partly because of the socioeconomic and educational differences between villagers and government officials. However, opening and maintaining regular channels and mechanisms of communication is essential to the process of matching perceptions, identifying priority program areas, setting common objectives, and sharing responsibility in a partnership effort for improved rural health care.

In Lampang, the major channel of communication that was opened and strengthened was between the health center staff (including wechakorn paraphysicians), and the village-based health post volunteer. Channels were also opened between the village health committee, subdistrict council, and district health office, but to a lesser extent.

Improved communications are needed, particularly as this relates to health education, health information, and the transfer of an appropriate health technology at the village level. Meeting the needs mentioned above is predicated on communication channels being open at the interface of the government health care system and the newly implemented primary health care network, and then being optimally maintained on a regular basis and in a spirit of mutualism. When this is achieved on a national scale, the optimism and promise that surround the primary health care approach can be fully realized.

“Behavioral patterns involving food selection and preparation, patterns of water use and waste disposal, defecation practices, infant and child feeding practices, contraceptive practices, personal hygiene, and other personal and social patterns of behavior may be most effectively changed through existing village communications patterns coming into symbiotic relationship with an effective government health communications system -- a rare event, indeed, but one which has magic and power once it is achieved.”

13
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DEVELOPING COMMUNITY HEALTH PARAPHYSICIANS
(WECHAKORN)

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INTRODUCTION

The purpose of this monograph is to describe the development and impact of Lampang's wechakorn paraphysicians. This includes: the historical events that have influenced current thinking about the use of non-physician practitioners and their training; the development of the wechakorn curriculum and training program methods; the process and results of training; the performance of wechakorn in their field assignments, and the continuing support and supervision requirements essential to sustaining that performance.

Since early in this century, development and use of non-physician practitioners has been an important, and sometimes controversial, part of discussions concerning the nature and organization of national health services. But as the health care system has evolved, mid-level health workers have been the backbone of government health care delivery in rural Thailand. These mid-level health workers are government midwives and sanitarians, some nurses, and various special-purpose workers. To further improve and expand the capability of these workers, the Thai Government has recently introduced several types of innovative training programs: in 1974, the Lampang Project's wechakorn paraphysician training program which aims at filling manpower gaps at rural health centers and district hospitals; in 1977, a nurse practitioner training program aimed at filling manpower gaps at district hospitals and provincial hospitals; and in 1978, a government midwife and sanitarian health worker training program in clinical care aimed at filling manpower gaps at health centers. There are lessons to be shared, from each of these programs which can lead to training approaches most beneficial to meeting the nation's health needs.

Health manpower planning in the Lampang Health Development Project was an attempt to readjust the province's personnel mix to provide better overall coverage for meeting the service demand and health needs of the rural population in a systematic way. As in most developing nations, Thailand's most highly-skilled providers — physicians, nurses, dentists, pharmacists — and the best-equipped health care facilities are concentrated in Bangkok and provincial capitals. Rural villagers have long been underserved, in terms of the availability of facilities, medical and health care personnel, and in terms of the appropriate health information and range of services required to meet the population's health needs. Lampang Project staff realistically analyzed the predominant community health needs through village profiles, health manpower needs, the government health care system, it's health technology, and it's resource limitations. They concluded that emphasis in manpower development should be directed at:

(1) Expanding the scope and improving the quality services available at the subdistrict health centers and district hospitals by training a corps of community health paraphysicians (called wechakorn in Thai).
Extending the infrastructure of the health delivery system to reach every village by training three types of community health volunteers and mobilizing village health communities which together constituted a "primary health care" network linked to the government health service system.

These manpower development programs were developed as interdependent components of an overall health care system covering the entire population and linked by program activities, and by logistical, managerial and technical support. Taken together with the other key features of the Project, they served to revitalize the provincial health care delivery system, to promote the integration of medical and health care services, and to meet the demand for medical and health care services at the most appropriate and cost-effective levels.

The existing health workers who were retrained as wechakorn and the new cadres of community health volunteers (HPV, TBA, VHC) have helped to fill the former large gaps in both quality of rural health services and coverage of the population with needed services. As a result, the provision of new skills and service capabilities at the village, subdistrict and district levels has led to increased service output at the formerly underserved periphery of the health care system.

The development of wechakorn paraprophysicians and their deployment to every rural health center and district hospital in the Province was one of the central strategies of the Lampang Project for extending integrated health and for promoting disease prevention and medical care services to those most in need at the periphery of the health care system.

With over 80% of the entire Thai population living in rural areas where few physicians and other highly-skilled health care providers are available to serve, Thai health leaders have strived in the past two decades to extend the health service infrastructure by constructing and staffing health facilities at the provincial, district, subdistrict and village levels. In 1976, however, when the Lampang Project was in the early phase of implementation, the government health care system was still serving less than 20% of those in need of services. The health facilities coverage was quite inadequate for meeting both service demand and the health needs of the rural population as seen in the following summary:

- 51% (288/570) of all districts had a district hospital or medical/health center
- 45% (255/570) of all districts had a district hospital or medical/health center with a physician to provide curative services
- 71% (3,720/5,229) of all subdistricts had a health center
- 3% (1,456/48,847) of all villages had a midwifery center

Even in areas where health facilities were available, they were often underutilized because of the absence of needed curative services, or for other reasons.
The Lampang Health Development Project objective was to develop a low-cost health care delivery system that could reach and serve over two-thirds of the provincial population in greatest need (women and children) at a cost affordable to the Royal Thai Government. A major emphasis of the Project's approach, therefore, was health manpower development, primarily development of paraphysicians for all rural health facilities and development of community health volunteers for all villages.

The paraphysicians and other health workers at health centers are key government health personnel in that they stimulate and provide technical support for the community health volunteers. The *wechakorn* is a major point in a referral system that extends from every village to subdistrict health centers, district hospitals and to the Provincial Hospital. The relationship between the community health volunteers and the paraphysicians and other health personnel at health centers and midwifery centers is the basis for the crucial functional link that is needed for a "partnership for progress" between villagers and the government health care system. For this reason, the Lampang Project has given a great deal of attention to the development of *wechakorns* (paraphysicians), to their deployment and support, to their job performance, and to their effect on the utilization of health services.

Recognizing the worth of *wechakorn* paraphysicians in the Lampang integrated health care system, project leaders and staff have made a strong effort to fully document the experience gained in Lampang through a series of monographs (Volumes I-III) and by translating and printing the twenty-four problem-oriented modules used in the *wechakorn* competency-based training program (Volumes V and VI).

Lampang Project staff hope that these materials will make a useful contribution to health manpower planning, to implementation of similar training programs, and to supervision and support of those trainees who will be deployed to rural areas to meet the predominant medical and health needs of rural populations.
"There is ... a growing body of evidence which suggests that the modernizing contributions of the professions have been less than expected or hoped for, in part because of the apparent inappropriateness of much professional training and the allegiance of many professionals in the developing world to role models derived from the experience of professionals in the advanced, industrialized nations of the West."

Traditional practitioners, herbalists, spiritualists and other indigenous healers have been present in and serving Thai society for centuries. Scientific medicine was first introduced in the early nineteenth century by American medical missionaries who influenced Thai leaders and laid the groundwork for acceptance and adoption of modern medicine in Thai society. The most influential American medical missionary was Dr. Dan Beach Bradley, who came to Thailand in 1835 and introduced surgery, asepsis, and vaccination for smallpox, before his death in 1873. Following the great cholera epidemic of 1882, the first hospital, Siriraj Hospital, was opened in 1888, and the first medical school was opened there a year later in 1889.

Prince Mahidol of Songkhla, the "Father of Modern Thai Medicine", was born during the great cholera epidemic of 1882 to the reform King Chulalongkorn The Great (Rama V) and his first queen. Prince Mahidol had a strong influence on the modernization of medical education and health care in Thailand. King Chulalongkorn (Rama V), with an enlightened, progressive outlook, sent many of his children abroad for study. On their return, they were given major responsibilities for organizing new governmental departments as part of the reform and modernization process. Prince Mahidol was interested in medicine and public health, and chose to study at Harvard University's School of Medicine. Prince Mahidol received both an MPH and an MD degree from Harvard University before returning to Thailand to practice medicine in the McCormick (missionary) Hospital in Chiang Mai. Later, he became a senior patron of the Siriraj Medical School. With his unique education and training in public health and medicine, and with his work experience close to the rural people during his Chiang Mai service, Prince Mahidol was widely regarded as the leading authority in Thailand to help redirect and modernize Thai medical education and health practices.

In 1922, Prince Mahidol negotiated the first agreement with the Rockefeller Foundation for assistance in modernizing medical education and in reorganizing the medical curriculum and faculty at Siriraj Medical School. The influence that the Rockefeller Foundation exerted in the subsequent ten years had far-reaching effects,
helping to shape the evolution of medical and health care in Thailand to the present time. The policy of the Rockefeller Foundation was to promote the highest standard of modern medical education and excellence in medical practice. Dr. Richard Pearce, the Rockefeller Representative in Thailand in 1922, stated that the Rockefeller Foundation "should be concerned financially or otherwise only with a high-grade school for the preparation of properly qualified physicians receiving a degree." However, by 1923, the Rockefeller Foundation became aware of Thai skepticism concerning upgrading the medical school "on the ground that a lower type of training for large numbers is needed to supply a sufficient number of practitioners for the medical needs of Siam." Prince Sakol, then Assistant Director-General of the Department of Public Health, was very pessimistic about upgrading the country's only medical school to produce small numbers of highly-qualified medical practitioners who would primarily serve the elite in the capital city. Prince Sakol favored a school to also train sanitary inspectors and other lower level health workers, leading to a "large number of reasonably competent men for a state medical and public health service combined." The Rockefeller response was to emphasize the need for well-trained doctors, working through small hospitals in accessible towns, as the means to "sell" modern medicine to the people of the country.

A sociologist from Harvard University, Dr. Carle Zimmerman, after conducting a social and economic research project in Thailand in 1930-31, perceptively summarized the shortcomings of Thai health care as then organized, along with changes needed to resolve them: "The Siamese country people cannot participate in the benefits of Western or 'scientific' medicine... unless a new system of distribution of medical treatment is evolved. It is not suggested that the present system is wrong. It is just not sufficient... Siam needs all the good doctors it can get. But in addition, something else is needed -- a country system..." Zimmerman's concept of a country system involved shortening the period of training, emphasizing the treatment of simple diseases, and developing a system of supervision and referral.

Dr. John Grant, a Rockefeller professor at the Peking Union Medical college, visited Thailand in 1933 and, noting that fifty percent of medical school graduates go immediately into public health, agreed with the recommendation of medical missionaries in Thailand at the time for shortened medical courses and production of larger numbers of more appropriately trained medical and health personnel.

In 1935, a course for "doctor's assistants", as would be the literal translation from Thai, was started with its proponents arguing "if you can't wear silk, wear cotton." In 1936, a governmental act was adopted that licensed "second class practitioners in the modern art of healing".

When World War II began in 1941, Thai leaders became acutely aware of the shortage of medical practitioners for rural areas and for the armed forces. The effect
of the Rockefeller foundation influence in Thailand was that the output of physicians during the 1920’s and 1930’s was reduced markedly. The production of physicians was raised to 50 and later to 100 per year. An army program for training medical doctors in a shortned four-year course was developed in Lopburi Province, but it ended when the war was over. During the same pre-war and war period, medical assistants or “junior doctors” were trained for rural areas by the directors of municipal and provincial hospitals and were assigned to work in the larger districts.

In the years following World War II the “junior doctors” played important roles in provision of medical and health services in rural areas, most notably in the malaria eradication campaign which effected substantial reductions in morbidity and mortality from malaria. During the 1950’s and 1960’s, many midwives, nurses, sanitarians, and health workers in leprosy control, tuberculosis control, malaria control, and yaws eradication among others, trained to staff the growing network of rural health facilities and to conduct special purpose programs. The training of these workers was predominantly in health promotion and disease prevention with less emphasis on medical care, which remained in the hands of doctors.

In the early 1970’s, a period of rapid social reform led to an awareness among intellectuals, professionals, government officials and the public that medical and health care services had to be provided more equitably for the less privileged rural people. However, rural health workers were still not adequately trained to provide basic medical care services, widely recognized to be a primary demand of rural people, and most physicians were reluctant to serve in rural districts. Although the training and numbers of physicians had improved substantially, doctors gravitated to Bangkok and large provincial centers. There was, therefore, a clear need for training mid-level medical and health care providers who could be posted in rural district and subdistrict health facilities. This was the environment in which MOPH leaders began to plan the Lampang Project.

One of the first questions addressed concerning the development of mid-level medical and health care providers, or community health paraphysicians, under the Lampang Project was whether such a worker should be recruited and trained as a new type of health care provider, or whether he or she should be chosen from among existing rural health workers, whose skills could be upgraded by a new task-oriented medical and community health training curriculum. A two-year dialogue followed among leaders of the Ministry of Public Health, the Civil Service Commission, the National Medical Council, the Bureau of the Budget, and other related Thai agencies.

The development of “barefoot doctors” in China, feldshers in Russia, medical assistants in Africa and Asia, and medex in the United States and Micronesia were studied prior to planning the Lampang program for developing mid-level medical and health care providers. The MEDEX Program had originated in a developed country.
like the United States (where most Thai physicians pursued post-graduate training following World War II) and had been successfully implemented outside the U.S. in Micronesia. The term “medex” was chosen temporarily to help win acceptance by the Thai medical community.

During the planning phase of the Lampang Project, the Director of the MEDEX Program at the University of Hawaii, consulted with the Ministry of Public Health, and oriented national health leaders to the MEDEX approach. This approach included emphasis on the need for competency-based training methods, the importance of physician involvement in planning, in initiating and operating the training program, and in maintaining technical supervision and support for the “medex” after deployment. In 1974, The Chief of the Lampang Project’s Division of Personnel Development, the Project Field Director and a representative of the MOPH visited MEDEX Programs in Hawaii, Seattle, and Micronesia, and returned to Thailand to plan the details of the Lampang training program. In 1974, the former Associate Director of the MEDEX/Micronesia Training Program was recruited to serve as the University of Hawaii Chief-of-Party for technical assistance to the Lampang Project. In 1975, as the Project began full operations, other Project training staff visited Hawaii for further orientation in the MEDEX approach. Consultants from the University of Hawaii’s Health Manpower (MEDEX) Development Staff also came to Lampang to assist in the preparatory phase.

The training materials used in Lampang were written by Thai physicians and other health professionals in Lampang and at Chiang Mai University. They were then reviewed by many eminent Thai professionals and professors at various medical schools and the Ministry of Public Health. Before the training program began, the Project Director proposed that the term “medex” be discarded in favor of the Thai term “wechakorn”, derived from “wecha” meaning medicine or medical care, and “korn” meaning provider of practitioner. Given the initial positive response to the basic “medex” concepts it remained to operationalize the approach in ways acceptable to consumers and to physicians, nurses and other health colleagues, and to develop further the training methods and materials, skill emphasis, and the support mechanisms for wechakorn to meet the dominant medical and health needs in Lampang. The following chapters will track these developments.
"As treatment of many prevalent diseases and provision of many medical and health services do not require sophisticated or specialized capability, and because of the reluctance of physicians — especially specialized physicians — to work in rural areas, a concept of using paraphysicians to provide integrated medical and health services to the people in rural areas was initiated."

WECHAKORN PARAPHYSICIAN ROLE

The general role of wechakorn paraphysicians is to provide integrated health promotion, disease prevention, and curative services for the rural population, under remote or direct supervision of physicians. Wechakorn are assigned to work in midwifery centers at the village level in rural health centers at the subdistrict level, in district hospitals at the district level, and in addition, a few are assigned to the Provincial Hospital and (since 1980) to the Provincial Health Office.

Wechakorn were chosen from existing categories of health workers — specifically, nurses, midwives, nurse aides and sanitarian health workers — who had already received training in many aspects of health promotion and disease prevention. Therefore, the training of wechakorn emphasized curative skills and services. The training approach was problem-oriented, and the methods of training were competency-based. This means that training emphasized the specific tasks to be performed in the wechakorn role, and the specific knowledge and skills needed to equip the trainees to deal with a clearly prescribed range of problems eliminating as much theoretical and nonessential material as practical.

Identification of specific role and training requirements followed a logical process. The first step was to identify, define, and prioritize the full range of local health problems. This was done by conducting an analysis of health service records from all levels of service units in the Province. After the first groups of health post volunteers were deployed, analysis of their records gave further evidence of the preponderant health problems at the village level. The second important approach was to review the job descriptions, tasks, and performance of existing health workers at health units where wechakorn would be deployed. The third step was to define the new role of the wechakorn at each of the service units where they would be deployed, and then to determine the exact job description. This was done in consultation with provincial doctors. The health problems of the communities and the job
description for wechakorn was a major basis for the curriculum development and the staff orientation that was needed for the training of wechakorn.

After completing these three steps, project and provincial health staff concluded that in Lampang the role of the wechakorn paraphysician is to:

1. Provide medical care for patients suffering from common illnesses and injuries, under the (sometimes remote) supervision of a physician;
2. Provide first-aid and supportive care for serious or complicated cases, and refer these patients to a physician at the District Hospital or Provincial Hospital;
3. Supervise the health center personnel in providing health promotion services, disease prevention services, and basic medical care services;
4. Supervise and guide the work of village health post volunteers;
5. Administer health center work (as health center team leader) and assist in clinical and administrative work of the district and Provincial Hospitals; and,
6. Promote and guide community health development programs, such as nutritional surveillance and community nutrition improvement programs.

DEVELOPMENT OF TRAINING STAFF

Wechakorn training was organized and directed by the Personnel Development Division of the Lampang Project, staffed by three physicians and other technical, clerical and administrative staff. The Division chief was responsible for the overall planning and the operations of training activities. The Assistant chief was responsible for coordinating all training inputs from the Provincial Hospital, and for supervising the hospital-based preceptorship phase of the training program. One senior instructor was a general medical practitioner responsible for routine classroom activities. Each of these two physicians were oriented to competency-based training and other aspects of the MEDEX Program at the University of Hawaii. The administrator and other technical staff were responsible for maintaining essential records, arranging training materials, and assisting in assessment and evaluation activities. Collectively, the experience of the professional staff covered the fields of public health and preventive medicine, obstetrics and gynecology, general medicine, and administration.

Medical staff of the Provincial Hospital and district hospitals were recruited as classroom instructors, preceptors and clinical supervisors. Instructors from the Ministry of Public Health and the Faculty of Medicine, Chiang Mai University were repeatedly oriented to the role of Wechakorn and the MEDEX approach, particularly in curriculum development, and in the relationship between wechakorn and physicians in the Lampang health care delivery system.
Preceptors and clinical supervisors were selected from the Provincial Hospital and district hospitals where the preceptorship phase of training was conducted. Most preceptors were physicians, but some preceptors, specifically for obstetrics-gynecology and family planning services were very experienced nurses. Most of the preceptorship training was conducted in the outpatient departments of the Provincial Hospital. Among the preceptors and clinical supervisors, there was wide variation in formal teaching experience, as well as in the depth of interest in teaching wechakorn.

**CURRICULUM DEVELOPMENT**

The wechakorn curriculum development followed the concept of competency-based training which focused on building medical judgment and technical skills, rather than on teaching a broad range of unnecessary factual knowledge. The main purpose of the wechakorn training program was to fill the practical knowledge and skill gaps, particularly in curative care, in wechakorn paraphysicians, most of whom were formerly rural health center workers. This knowledge/skills gap, referred to as the "job discrepancy" is the difference between the desired job skills and the existing job skills. The training program was thus designed to eliminate this job discrepancy.

The steps in curriculum development were as follows:

1. **Identification of Local Health Problems.** To identify the common diseases and health problems of villagers, patient service records of health post volunteers, outpatient records of a health center a district hospital, Lampang Provincial Hospital and Chiang Mai University Hospital were analyzed. (See Appendix I). This information was then used as a framework for organizing the curriculum and training content.

2. **Review of the Present Jobs of the Trainees.** The existing jobs of the nurses, midwives, sanitarian health workers and nurse-aides were reviewed to determine their respective knowledge/skill discrepancies. For example, most nurses provide general nursing care in the hospital, and little or no preventive/promotive care, whereas the health center midwives and sanitarian health worker provide mostly promotive preventive care and little curative care.

3. **Definition of the Wechakorn Role.** Based on job analysis, recommendations, and the agreement of health experts and local health authorities, the role of the wechakorn was defined. The job discrepancy was generally identified as a lack of curative skills, and it was agreed that wechakorn should have the capability to manage about 80% of the cases of common local illnesses.
(4) Development of the Training Program. After identifying the job discrepancy, behavioral objectives and learning experiences were established, and a system for monitoring the training process and evaluating results was developed. Learning materials, audiovisual aids and teaching plans were prepared. Training hospitals were selected, and instructors and preceptors were recruited and oriented. Periodical reviews of the training program resulted in some subsequent modifications.

Following this process, it was determined that wechakorn would need to be able to recognize the following common problems:

(1) Common Infectious Disease Problems
   - Amoebic dysentery
   - Conjunctivitis
   - Chickenpox
   - Encephalitis/meningitis
   - Gastroenteritis
   - Influenza
   - Intestinal parasitic diseases
   - Malaria
   - Non-specific urethritis
   - Pneumonia
   - Pulmonary tuberculosis
   - Tetanus
   - Trichomoniasis
   - Upper respiratory infection
   - Venereal diseases
   - Bacillary dysentery
   - Cholera
   - Diphtheria
   - Fungal infection
   - Hemorrhagic fever
   - Leprosy
   - Measles
   - Mumps
   - Ophtalmia neonatorum
   - Pediculosis
   - Poliomyelitis
   - Typhoid fever
   - Tetanus neonatorum
   - Tinea
   - Tonsillitis
   - Viral hepatitis
   - Whooping cough
   - Bronchitis
   - Pneumonia

(2) Problems of the Respiratory System
   - Bronchial asthma
   - Upper respiratory infection
   - Whooping cough

(3) Problems of the Digestive System
   - Appendicitis
   - Flatulence
   - Hernia
   - Peptic Ulcer
   - Constipation
   - Gastritis
   - Intestinal obstruction
   - Hemorrhoids

(4) Problems of the Circulatory System
   - Congestive heart failure
   - Heart diseases
   - Hypertension

(5) Problems of the Genito-Urinary System
   - Cervical polyps
   - Condiloma acuminata
   - Cervicitis
   - Cystitis
- Dysmenorrhea
- Leukorrhea
- Renal and Bladder Stone
- Urethral stricture
- Vaginitis

(6) Problems of the Musculoskeletal System and Skin Diseases
- Abscesses
- Arthritis
- Cellulitis
- Diaper rash
- Sebaceous cyst
- Pediculosis
- Tinea

(7) Problems of the Ear, Eyes, Nose, Throat (EENT) and Nervous System
- Allergic rhinitis
- Blepharitis
- Cataract
- Drug addiction
- Foreign bodies in nose, eyes, or ears
- Glaucoma
- Mastoiditis
- Nasal polyps
- Pharyngitis
- Pterygium
- Sinusitis

(8) Problems of the Endocrine System and Nutritional Diseases
- Angular stomatitis
- Diabetes mellitus
- Marasmus
- Toxic goiter

(9) Blood Problems
- Iron deficiency anemia
- Nutritional anemia

(10) Ill-Defined Problems
- Abdominal pain
- Bloody urination
- Fever
- Edema

- Pelvic inflammatory diseases
- Urinary tract infection
- Acne vulgaris
- Atopic dermatitis
- Contact dermatitis
- Eczema
- Osteomyelitis
- Scabies
- Alcoholism
- Bell's palsy
- Corneal ulcer
- Epistaxis
- Laryngitis
- Neurosis
- Otitis media
- Psychosis
- Stye
- Trachoma
- Beriberi
- Kwashiorkor
- Simple goiter
- Vitamin A deficiency
- Thalassemias
- Various other anemias
- Jaundice
- Anemia
- Headache
- Vomiting
(11) Accident, Poisoning and Violence Problems
- Anaphylaxis
- Drug poisoning
- Drowning
- Fainting
- Injury of the head and neck
- Injury of the abdomen
- Insecticide poisoning
- Shock
- Snake bite
- Burns
- Dog bite
- Electrocrution
- Fractures
- Injury of the chest
- Injury of the spine
- Pneumohemothorax
- Sprains and strains

(12) Obstetrics Problems
- Antepartum hemorrhage
- Abnormal labor
- CPD
- Obstructed labor
- Pregnancy with previous caesarean section
- Premature rupture of membranes
- Postpartum hemorrhage
- Toxemia of pregnancy
- Abortion
- Abruptio placentae
- Ectopic pregnancy
- Prolonged labor
- Polyhydramnios
- Twin pregnancy
- Uterine inertia

(13) Tumour Problems
- Breast tumor
- Cervical and uterine tumor

(14) Problem Prevention and Health
Promotion Services
- Antenatal care
- Postnatal care
- Nutritional surveillance
- Family planning
- Well-baby clinic

In addition to proper recognition of these common problems, heavy emphasis was laid on helping the wechakorn paraphysician recognize his own limitations in managing these problems. Wechakorn learned when to properly refer a patient to the physician, at a better-equipped health facility, such as the district hospital or Provincial Hospital.

The next step, then, was to specify the general and the specific skills needed for wechakorn paraphysicians to perform their job properly. The general skills and the specific skills of wechakorn in Lampang have been identified, as follows below.

Wechakorn. General Instructional Objectives:
(1) Able to take a patient history, do a physical examination and record the findings:
(2) Able to do the following laboratory examinations: albumin and sugar in urine, fecal examination for common parasitic eggs, blood film for malaria
and hemoglobin level.

(3) Able to manage the following:

(a) **Can cure the following diseases:**
- Diseases of poor sanitation: amebic dysentery, bacillary diarrhea, food poisoning, typhoid fever in febrile hepatitis, ascariasis, enterobiasis and taeniasis
- Common infectious diseases: common cold, influenza, malaria, trachoma, mumps, measles, chicken pox, tinea, scabies, pediculosis, athlete's foot, viral hepatitis and gonorrhea
- Common diseases such as URI, bronchitis, otitis media, conjunctivitis, rhinitis, gingivitis, flatulence, malnutrition, fever, headache, simple goitre
- Minor injuries: wounds, burns, stings and bites
- Common ill-defined conditions: fever, headache, jaundice, edema, hematuria, and abdominal pain.

(b) **Can treat and refer or follow-up cases with the following diseases:**
- Pulmonary tuberculosis, bronchial asthma, whooping cough, tetanus, diptheria, poliomyelitis, hemorrhagic fever, cerebral malaria, convulsions, severe malnutrition, jaundice, cholera, typhoid fever, gastritis, peptic ulcer, common renal or blood diseases, hypertension, diabetes, toxic goitre, encephalitis, cystitis, epilepsy, puerperal fever, foreign body in EENT, leprosy, severe burns, poisoning, snake and dog bites, drowning, toxemia of pregnancy, bladder and kidney stones, gunshot wounds, stab wounds, fractures, glaucoma, hemorrhoids, epistaxis and leukorrhea

(c) **Can recognize, give first aid and immediately refer the following problems:**
- Heart disease, cancer, appendicitis, intestinal obstruction, gut perforation, peritonitis, strangulated hernia, abortion, fractures of neck and long bones, shock, injuries of chest, abdomen, head and eyes, and unconsciousness

(4) Can do public health practices as follows: Office administration, supervision, patient referral, community health survey, nutritional assessment and follow-up program, school health, immunization program, community health education, home visits, community health resource planning, primary health care and health planning, and community development.

**Specific Wechakorn Skills:**

- Maintenance of adequate airway
- Intravenous fluid infusion
- Soap suds enema
- Control of wound bleeding
- Oxygen monitoring
- Urine catheterization
- Blood drawing
- Subcutaneous injection
- Intramuscular injection
- Intravenous injection
- Tepid sponges/alcohol sponges
- Gastric lavage
- Cardiopulmonary resuscitation
- Eye irrigation
- Removal of foreign body in the eyes, ears, nose, throat
- Wound dressing
- Anterior nasal packing
- Vagina examination
- Incision and drainage of abscess
- Pap smear
- Secondary perineal wound suturing
- Examination of the newborn
- First aid immobilization and transportation of fractures
- Use of microscope
- First aid immobilization and transportation of neck and spinal cord injuries
- IUD insertion and examination
- Determination of the lie of presentation of the fetus
- Normal delivery performance
- Use of growth chart
- Malarial parasite identification (thick and thin film smear)
- Urine examination for sugar and albumin
- Stool examination for parasite eggs
- Adhesive test for thread worms

Training Material Development

Following the behavioral objectives, the teaching materials and audiovisual aids were developed. Before preparing the training materials, the staff of the Lampang Project’s Personnel Development Division had been oriented to the methods of developing modules for the MEDEX training programs in the United States. These methods were considered and adapted as the Lampang trainers developed their own training materials. A modified modular approach was used in the preparation of learning and teaching materials for the Wechakorn Training Program. Instructors, preceptors, specialists and the physicians from the Provincial Hospital participated in drafting modules used in training the first class, and they also participated in lectures during the didactic phase. Later, content of the modules was reviewed and improved by specialists from Chiang Mai University’s Faculty of Medicine and other institutions, based on analysis of additional information available, and feedback from trainees. The University of Hawaii provided sample prototype teaching modules, assisted in preparation of lesson plans, provided teaching slides, and helped prepare a system of monitoring.

The twenty-four Wechakorn Training Modules, written by the Thai staff, include:

Module 1 Introduction to Comprehensive Health Care
<table>
<thead>
<tr>
<th>Module</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Medical Terminology</td>
</tr>
<tr>
<td>3</td>
<td>Anatomy and Physiology</td>
</tr>
<tr>
<td>4</td>
<td>Medical History-Taking</td>
</tr>
<tr>
<td>5</td>
<td>Physical Examination</td>
</tr>
<tr>
<td>6</td>
<td>Laboratory Examination</td>
</tr>
<tr>
<td>7</td>
<td>Formulary: Essential Drugs for <em>Wechakorn</em></td>
</tr>
<tr>
<td>8</td>
<td>Skin Problems</td>
</tr>
<tr>
<td>9</td>
<td>Eye, Ear, Nose and Throat Problems</td>
</tr>
<tr>
<td>10</td>
<td>Medical Problems</td>
</tr>
<tr>
<td>11</td>
<td>Pediatric Problems</td>
</tr>
<tr>
<td>12</td>
<td>Gynecological Problems</td>
</tr>
<tr>
<td>13</td>
<td>Emergency Problems</td>
</tr>
<tr>
<td>14</td>
<td>Public Health Administration and Primary Health Care</td>
</tr>
<tr>
<td>15</td>
<td>Community Health Services: Organization, Management, and Supervision</td>
</tr>
<tr>
<td>16</td>
<td>Maternal and Child Health Care</td>
</tr>
<tr>
<td>17</td>
<td>Family Planning</td>
</tr>
<tr>
<td>18</td>
<td>Nutrition</td>
</tr>
<tr>
<td>19</td>
<td>Dental Health</td>
</tr>
<tr>
<td>20</td>
<td>Environmental Sanitation</td>
</tr>
<tr>
<td>21</td>
<td>Statistics</td>
</tr>
<tr>
<td>22</td>
<td>Epidemiology</td>
</tr>
<tr>
<td>23</td>
<td>Communicable Disease Control</td>
</tr>
<tr>
<td>24</td>
<td>Health Education</td>
</tr>
</tbody>
</table>

The content of each module was organized around a problem or group of problems. For each, a protocol was developed to provide a framework on which the *wechakorn* could base his decision-making and action. Each protocol outlined possible presenting problems, complaints or the symptoms and signs to look for, and what action should be taken, such as treatment or referral to a physician. The protocols made very clear the extent to which the *wechakorn* could manage each health problem. Figure 1 presents an example of one protocol.
Protocol 10.11 Diarrhea

**Chief complaint**

- Diarrhea → yes → Abrupt nausea/vomiting/abdominal pain. → yes → Many people are involved/food poisoning is suspected → yes → Food poisoning
  - Treat

  no

  → Anorexia, nausea vomiting/abdominal pain after ingestion of certain foods or substances.
  → yes → Acute gastroenteritis
  - Treat

  no

  → Mucous bloody diarrhea/sudden abdominal pain which is relieved after each bout of diarrhea/tenesmus/fever
  → yes → Bacillary dysentery
  - Treat

  no

  → Foul-smelling loose stools with mucus and blood/mildly tender lower abdomen/ trophozoites and cysts of E. hist in stools
  → yes → Amebic dysentery
  - Treat

  no

  → Watery diarrhea/vomiting/muscle cramps/dehydration with or without shock
  → yes → Cholera
  - Treat

  no

  → Other symptoms and signs, e.g., chronicity, cachexia or progressive weight loss
  → yes → Other diseases
  - Refer patient to hospital.
CHAPTER 3

SELECTION: A PROFILE
OF WECHAKORN PARAPHYSICIAN TRAINEES

"... It is sometimes desirable at the beginning of a new training programme to seek exceptionally well qualified candidates in order to foster a positive attitude among the public and the professions towards the new manpower category."

The experience of similar programs in other areas has demonstrated the importance of assuring that the first group trained be successful in order to secure support from and acceptance by professional groups, government agencies and the public. Therefore, selection of the initial group of wechakorn trainees was crucial.

Key staff of the Provincial Health Office, Provincial Hospital and district hospitals, and other influential groups were extensively interviewed and consulted to reach agreement on methods and criteria for selection of candidates. However, for the first class, priority was given to selecting outstanding senior nurses of the Provincial Hospital, as their reputations and acceptance by professionals and consumers were already excellent. The nurse candidates were also joined by a group of outstanding rural health center workers.

Selection criteria included: completion of formal training as a nurse, a midwife, a sanitary health worker, or a nurse aide; age below 45 years; at least two years of health work experience in Lampang Province; and, a record of good work performance. For the first class, candidates were proposed by their immediate supervisors (e.g., district health officers) and interviewed by provincial health supervisors. Later, written and oral entrance examinations were used for the second and third classes, and those with the highest scores were selected. Although this latter method identified the most alert and intelligent candidates, it sometimes created a temporary shortage of personnel when more than one candidate was selected from the same service unit. As a result, the final groups of trainees were selected by their senior supervisors and immediate supervisors.

A sense of responsibility is one of the most important characteristics for determining successful training and job performance. However, it is not always easy to measure a candidate's sense of responsibility prior to entering training.

Nurses, midwives, nurse aides and junior health workers had 10 years of basic education, plus 3 years of nursing education for nurses, 2 years of environmental sanitation training for sanitary workers, and 1½ years of training for nurse aides. Results of selection showed that among that among the 93 trainees, 14 were nurses.
51 were midwives, 35 were sanitarian health workers, and 3 were nurse aides. The age at entrance ranged from 21 to 45 years.

Wechnakorn in Lampang are characteristicly of two major types: (1) a midwife in her early twenties, and (2) a sanitarian health worker in his late twenties. Both have several years field experience in government health services before entering the wechakorn training program. In most cases, they are deployed to the same or nearby area in which they worked before wechakorn training.

Table 1 provides a summary profile of the wechakorn trainees selected.
# Table 1

Profile of *Wechakorn* Trainees in Lampang

(Four Groups Totaling 93 Trainees)

<table>
<thead>
<tr>
<th>Background</th>
<th>Nurses</th>
<th>Midwives</th>
<th>Sanitarians</th>
<th>Nurse-Aides</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average age</td>
<td>36.7</td>
<td>28.9</td>
<td>29.5</td>
<td>34.2</td>
<td>30.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Nurses</th>
<th>Midwives</th>
<th>Sanitarians</th>
<th>Nurse-Aides</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>14</td>
<td>51</td>
<td>25</td>
<td>2</td>
<td>93</td>
</tr>
<tr>
<td>25-29</td>
<td>1</td>
<td>20</td>
<td>13</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>30-34</td>
<td>1</td>
<td>10</td>
<td>8</td>
<td>-</td>
<td>19</td>
</tr>
<tr>
<td>35-39</td>
<td>10</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>40-45</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>over 45</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Secondary School Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Male</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location before Training :</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provincial Hospital</td>
</tr>
<tr>
<td>District hospital</td>
</tr>
<tr>
<td>Subdistrict health center</td>
</tr>
<tr>
<td>or Midwifery center</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Government Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 2 years</td>
</tr>
<tr>
<td>3-5 years</td>
</tr>
<tr>
<td>6-10 years</td>
</tr>
<tr>
<td>over 10 years</td>
</tr>
</tbody>
</table>

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A total of 97 *wechakorn* completed training; however, four were trained at the request of other ministries for assignment outside Lampang, of the 93 trained for Lampang, one *wechakorn* student died in a motor vehicle accident shortly before completing training, leaving 92 which have been deployed and are currently in service in Lampang.
CHAPTER 4

THE COMPETENCY-BASED TRAINING PROGRAM:
IMPLEMENTATION AND RESULTS

"Development of new cadres of community health paraphysicians from a variety of health personnel types is feasible with competency-based training. All students completed the one year training successfully and achieved comparable results on their written and clinical skills final examination." 9

TRAINING PROGRAM DESIGN AND METHOD

The total length of training was 12 months, including four months (13 weeks) of intensive, didactic (classroom) training, and eight months (33 weeks) of preceptorship rotations. Each class passed through the didactic phase together as a group for the entire four months. The eight-month preceptorship phase was divided into an initial phase of 29 weeks for clinical rotations among the various department of the hospital, including night duty. Each class of trainees was divided into smaller groups for rotation through the various departments. Working under close supervision of hospital physician preceptors, trainees learned to take histories, examine patients, diagnose problems, and prescribe proper treatment. Protocols guided the learning process for wechakorn by providing simplified decision chains which systematically present the steps in dealing with a given problem or set of problems. In addition to the 29 weeks of hospital rotations, wechakorn spent four weeks working in district hospitals and health centers: one week for community health resource planning one week for office management orientation and practice, and another two weeks on electives.

The didactic phase was divided into a series of discrete units, employing problem-oriented modules. Each module is a self-contained learning unit, which generally served as the basis of classroom sessions, and might require from a day to several weeks to complete. Methods used included lectures, demonstrations, case presentations, films, slides of video tapes, and integrated, or team teaching. A senior training staff member was also assigned to observe classroom activities. Written examination was given at the end of the didactic period, covering materials in that four month phase.

The topics and time allocations in the didactic phase were as follows:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Comprehensive Health Care</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Medical Terminology</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>
Anatomy, Physiology, History-Taking and
Physical Examination  72 hrs.
Laboratory Examination  24 hrs.
The Use of Formulary  15 hrs.
The Use of Protocol  3 hrs.
Skin Problems  18 hrs.
Ear, Eye, Nose, Throat Problems  18 hrs.
Dental Health  12 hrs.
Medical Problem  60 hrs.
Pediatric Problems  30 hrs.
Emergency Care  30 hrs.
Maternal and Child Health  30 hrs.
Gynoecological Problems  18 hrs.
Family Planning  18 hrs.
Statistics  24 hrs.
Epidemiology  12 hrs.
Communicable Disease Control  6 hrs.
Health Education  12 hrs.
Organization and Supervision of Local Health Programs  12 hrs.
Public Health Administration  6 hrs.
Primary Health Care  6 hrs.

432 Hours
(in 16 weeks)

After the didactic phase, both trainees and preceptors participated in a one week orientation on the preceptorship phase.

The competency-based curriculum was primarily designed to prepare wecha-korn to work in midwifery and health centers and in district hospitals, under supervision of the district hospital doctor and district health officer. In the preceptorship phase, trainees rotated among each of the various clinical departments in the Provincial Hospital for 29 weeks, and in district hospitals and health centers for four weeks. The preceptors provided demonstrations of clinical problems, re-checked patients seen by trainees, discussed problems and treatment, provided immediate feedback to the trainees on their performance, and recorded observations in their preceptorship evaluation book. Each required skill had to be demonstrated by the trainees, and later observed and recorded by the preceptor to provide a basis by which the trainee's progress could be monitored. During the final week, the trainees were taught how to administer a health center, keep records, write reports, and manage finances. At the end of the course, comprehensive written examinations and practical examinations were administered and the trainees' performance assessed.
RESULTS OF TRAINING

Written examinations, following each of the modules, were given during the didactic phase of the course. At the end of the course, a final written examination, covering all material in the four-month didactic phase was also given. At the end of the year’s training, following the preceptorship, a final comprehensive examination was given by outside evaluators from various institutions throughout Thailand. This final examination included assessment of skills by case presentations and practical examinations. The scoring for determination of their final levels of performance were weighted as follows:

<table>
<thead>
<tr>
<th>Examination Type</th>
<th>Weightage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examinations following each module</td>
<td>10%</td>
</tr>
<tr>
<td>Comprehensive examination following didactic phase</td>
<td>10%</td>
</tr>
<tr>
<td>Assessment of full year’s performance from log books</td>
<td>40%</td>
</tr>
<tr>
<td>Case presentations/examinations (See Appendix III)</td>
<td>20%</td>
</tr>
<tr>
<td>Final comprehensive examination after both didactic and preceptorship phases</td>
<td>20%</td>
</tr>
</tbody>
</table>

The minimum passing score was 70%. For those who did not achieve at least 70%, additional training was required, and follow-up examinations given.

A comparison of examination grades of wechakorn trainees, by type, indicates that, using the competency-based approach, there was little difference in achievement between three groups nurses, midwives, and sanitarian health workers. Because there were only two nurse aides in the program they are not included here, although their scores where comparable to those of midwives and sanitarian health workers.

Table 2
Comparative Analysis of Final Examination Scores for Nurses, Midwives, and Sanitarian Health Workers, 1975-1979

<table>
<thead>
<tr>
<th>Background</th>
<th>Mean Score</th>
<th>S.D.</th>
<th>Number of Trainees</th>
<th>T</th>
<th>Interpretation (Two-tail Test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurses</td>
<td>84.71</td>
<td>3.73</td>
<td>14</td>
<td>2.09</td>
<td>Not significant at .01, but significant at .05</td>
</tr>
<tr>
<td>Midwives</td>
<td>82.47</td>
<td>3.44</td>
<td>51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurses</td>
<td>84.71</td>
<td>3.73</td>
<td>14</td>
<td>2.14</td>
<td>Not significant at .01, but significant at .05</td>
</tr>
<tr>
<td>Sanitarian Health Workers</td>
<td>80.96</td>
<td>5.73</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midwives</td>
<td>82.47</td>
<td>3.44</td>
<td>51</td>
<td>1.41</td>
<td>Not significant at .01, and not significant at .05</td>
</tr>
<tr>
<td>Sanitarian Health Workers</td>
<td>80.96</td>
<td>5.73</td>
<td>25.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Some difficulty was anticipated and encountered in jointly training individuals with different backgrounds and educational levels. This was partially overcome by special refresher sessions to bring everyone to a standard level. But it is important to note that at the end of training, there were no substantially significant differences among the final test scores of trainees in the various categories. This is attributed primarily to the effectiveness of the problem-oriented, competency-based approach used in this health manpower development program.

A special study of the training and performance of wechakorn candidates in inserting contraceptive intrauterine devices at the Lampang Provincial Hospital was conducted and reported by Dr. Nopadol Somboone (Health and Environment, 1:1, Jan-April, 1978). The results of the study indicated that wechakorn candidates were able to achieve the same levels of performance as physicians. There were no severe complications for the 217 cases managed by wechakorn. The wechakorn rate for minor complications was only 8.7%, lower than that of physicians (11.3%). The removal rate was lower for wechakorn (19.3%) than for physicians (24.7%), and the continuation rate of those served by wechakorn was slightly higher (63.2%) than among those served by physicians (60.1%). These results further substantiate the conclusion that competency-based training is effective. Dr. Nopadol concludes that wechakorn can play a potentially significant role in Thailand’s family planning effort to reduce the population growth rate in rural areas.
"The optimum effectiveness of health personnel depends on whether they are utilized specifically for the tasks for which they were trained; whether they are ready and able to cope with these tasks; the level of job satisfaction; and their standard of living and working conditions. For these reasons, feedback from the health personnel is essential to manpower planning and training."10

Developing the wechakorn training program was one of the most innovative and intensive activities of the Lampang Project, demanding an unusual effort by Project training staff, and generating keen interest both within Thailand and abroad. After planning the curriculum and completing the training of four groups, totalling 91 wechakorn for Lampang, Project staff focussed their interest on a series of questions related to wechakorn deployment, their performance, and their effect on the health system's capacity to meet service demand: Where have the wechakorn been assigned, and what have they done since completing training? How have their new roles and activities contributed to the overall performance of the health care system? How has their work been facilitated by the system? How well have their services been accepted by rural consumers? How well have wechakorn been accepted by their problems? To answer these questions and others, Project personnel sought feedback from the wechakorn, analyzed service records and reports, and interviewed health workers, supervisors, and provincial health leaders. This chapter and the next chapters are devoted to dealing with these questions and exploring related issues.

SITES

Table 3 shows the post-training assignments of wechakorn in late 1979. The overwhelming majority (78%) of wechakorn are midwives and sanitarian health workers located in subdistrict health centers and midwifery centers, the most peripheral government health facilities. Approximately 84% of all wechakorn (77/92) are located in the rural areas (includes wechakorn at district hospitals). Seventy-four percent of the wechakorn are women. Fourteen (15%) are nurses, and as Table 3 shows, most of these are located in the Provincial Hospital, with only one at the district hospital level. This follows the normal assignment pattern for nurses within the Ministry of Public Health: most located outside of Bangkok are in provincial hospitals, a few are in district hospitals, and none are located below the district level.
Table 3
The Deployment Sites of Wechakorn in Lampang, 1979

<table>
<thead>
<tr>
<th>Wechakorn Background</th>
<th>Number &amp; Percent of Wechakorn Deployed to:</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health &amp; Midwifery Centers</td>
<td>District Hospitals</td>
</tr>
<tr>
<td></td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td>Nurses</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nurse-Aides</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Midwives</td>
<td>48</td>
<td>52</td>
</tr>
<tr>
<td>Sanitarian Health Workers</td>
<td>23</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>72</td>
<td>78%</td>
</tr>
</tbody>
</table>

a Total slightly under 100% due to rounding.

The distribution of wechakorn throughout the provincial health care system is visualized in the following Figure 2 and 3 which identify health facilities and the distribution of wechakorn within them. Most district hospitals have a wechakorn, and almost all subdistrict health centers have a wechakorn, distributing them throughout all districts of the province. However, coverage provided by the wechakorn is largely determined by the density of the population of the area served and of the location of rural health center facilities. Their locations as reflected in the figure are more a result of population concentrations than of uniform geographic coverage.

ROLE EVOLUTION

Given the several locations to which wechakorn have been assigned, and the varying mix of personnel at those locations, it was natural that different roles would evolve. It has been important to recognize the difference in these roles, as they have more clearly identified and characterized different levels of need for the various managerial and support elements: drugs, supplies, and transportation logistics; technical consultation, reports and information, and program monitoring and management.

Three major wechakorn roles have developed, which are generally predictable, and are closely related to the place where the wechakorn was assigned. These three are (1) the health center/midwifery center wechakorn, (2) the district hospital.
FIGURE 2. DISTRIBUTION OF GOVERNMENT HEALTH FACILITIES IN LAMPANG PROVINCE - 1974

Government Health Facilities

- Provincial Health Office
- Provincial Hospital
- District Hospital (2)
- Subdistrict Health Center (36)
- Midwifery Center (31)
- Child Nutrition Center (11)
FIGURE 3. DISTRIBUTION OF GOVERNMENT HEALTH FACILITIES AND WECHAKORN IN LAMPANG PROVINCE - 1979

**Wechakorn Distribution**

- 72 in Subdistrict Health Centers and Midwifery Centers
- 5 in District Hospitals
- 14 in Provincial Hospital
- 1 in Midwifery Training Center

92 total number *Wechakorn* serving in Lampang Province

*Government Health Facilities*
- Provincial Health Office
- Provincial Hospital
- District Hospital (7)
- Subdistrict Health Center (70)
- Midwifery Center (30)
- Child Nutrition Center (100)

(918 Village Health Posts which cover all villages are not shown in this figure.)
wechakorn, and (3) the Provincial Hospital wechakorn. There are variations within each of these roles. Also, two wechakorn were assigned to the regional midwifery school and (in 1980) to the Provincial Health Office.

Aside from the professional distinction between the Provincial Hospital wechakorn and those in rural assignments (the former being primarily nurses, the latter being mostly midwives and male sanitarians), there are other characteristics in which some background differences can be observed. The Provincial Hospital wechakorn tend to be older (86% are over 35) and their years of government health service, consequently, tend to be greater: none had less than two years, and 79% (11/14) had over 10 years of service. The rural-based wechakorn are generally younger: 84% (66/79) are under 35, and they have fewer years of government service, 81% (64/79) having less than 10 years of service.

Wechakorn in Health Centers and Midwifery Centers

The great majority of the wechakorn were recruited from, and have been reassigned to, the most peripheral government health service facilities — the subdistrict health centers and midwifery centers. Seventy-three of the wechakorn trained, 49 midwives and 24 sanitarians, are located at this level, and have built a role which is the most substantial and productive that has developed, in contrast to the roles of their wechakorn colleagues in district hospitals and the Provincial Hospital.

When the newly-trained wechakorn return to their health center assignments, they were immediately free to practice the full range of skills they had gained from their one year of training, with no restraints placed on them by any other member of the health center. Unlike wechakorn at district hospitals and the Provincial Hospitals, who work under physicians, those wechakorn returning to rural health centers added a new range of clinical skills and services previously unavailable at the subdistrict and village levels. The new range of medical care skills and medicines, a broadened range of family planning services, and community health organization and program planning which the wechakorn gained from training added a new potential to improve the low credibility of the rural health center. Wechakorn deployed to rural health centers were cognizant of their key role in the newly evolving primary health care system, with particular reference to the health post volunteers, health communicators, and traditional birth attendants who have been trained in all villages served by the rural health center. In addition to providing medical care referral services for villagers too ill to be cared for by a health post volunteer or a traditional birth attendant, the wechakorn provides technical guidance and encouragement to health post volunteers and health committees in conducting local health programs. For example, health center wechakorn played key roles in organizing and coordinating local nutritional surveillance, and treatment and follow-up for children who were severely malnourished. To a great extent, the level of community health activity is related to the relationship between the wechakorn and the community health volunteers, particularly the health post volunteers, in the area served by the health center.
The new role was quite satisfying to the wechakorn at the health center level, as he or she was trained, equipped, and clearly authorized to deal with most of the health problems encountered at that level, leading to improved social status and other benefits within the community. But by the same token, the relative isolation and independence of the health center wechakorn, though a stimulus to personal initiative and acceptance of new responsibilities, made it much more difficult for them to routinely consult with physicians when problems arose, or to receive routine technical guidance, monitoring information, and supplies and other logistical support. For their wechakorn colleagues working with physicians in district hospitals the Provincial Hospitals, no such problem is apparent.

Wechakorn were asked which type of health facility they would prefer to work in if given the choice. Of the subdistrict health center wechakorn, 82% said they would choose to remain where they were as health center chief, 16% would prefer to be in the district hospital, and only 2% preferred the Provincial Hospital. All wechakorn located in midwifery centers indicated they would prefer to serve at the subdistrict health center level. All district hospital wechakorn would choose to be chief of the subdistrict health center. Of the Provincial Hospital wechakorn, 33% would prefer subdistrict health center, none preferred the district hospital, and 67% would choose the Provincial Hospital. In addition to factors concerning role and responsibility, wechakorn responses may reflect the individual’s personal interests, residence, and background.

District Hospital Wechakorn

There are only seven district hospitals in Lampang for the province’s twelve districts, making the number of wechakorn assigned at this level quite small. In 1979, there were five wechakorn assigned to district hospitals. One of these wechakorn was a nurse, three were midwives, and one was a sanitarian health worker.

The role which developed for the wechakorn at the district hospital locations has been directly related to the outlook of the physician who heads the hospital. Each district hospital — formerly called district health center, first-class health centers, or rural medical and health centers — is expected to be staffed by one physician, a nurse, two or three midwives and nurse-aides, and a junior health worker. Some also have a dental hygienist. The fully equipped and staffed district hospital is capable of dealing with most outpatient medical care problems, some emergency inpatient care, some minor surgery, including sterilizations, deliveries, family planning, immunizations, well-baby clinics, and other health promotion or disease prevention programs. The physician who heads the hospital, as observed in Lampang, tends to be a young, male, recent medical graduate fulfilling his compulsory rural health service requirement. Some of these young physicians — particularly those who have gone through a strong community health program in medical school — have been very receptive to wechakorn and have utilized them effectively. A few,
perhaps as a result of recent influence from urban-based specialists, or of inadequate orientation to the project strategy and concepts, have been reluctant to share responsibility.

The role that evolved most commonly at the district hospital level has two major components. (1) The wechakorn is given responsibility for screening outpatients, although the hospital doctor takes ultimate responsibility for seeing each medical care case and prescribing treatment. In the absence of the doctor, however, the wechakorn is usually given overall responsibility for providing outpatient medical care. (2) The wechakorn is also given responsibility for monitoring inpatients confined to the district hospital, particularly at times when the physician is not available. However, after the emphasis given to medical care during training many of the district hospital wechakorn still feel their new skills are not being fully utilized. Also, because the role of the district hospital in community health programs in the rural areas is relatively limited (its geographic authority only extends to the subdistrict in which it is located) the scope for wechakorn work in the community is circumscribed.

**Provincial Hospital Wechakorn**

Wechakorn located in the Provincial Hospital — all but two of whom are nurses — were expected to relieve the heavy burden on the physicians in the hospital by screening many of the daily load of 500-600 patients in the Outpatient Department, and to assist in the inpatient wards. During the preceptorship phase of training, many of the wechakorn trainees practiced in this role productively. But almost from the moment that the seven nurses who trained in the first group of wechakorn returned to the hospital, and similarly for subsequent groups, the role of the wechakorn in the Provincial Hospital became uncertain and has been frequently changing.

The seven nurses in the first wechakorn training class, on returning from the year of training, expected to assume their new role in the hospital, yet retain their former senior supervisory nurse positions which they held when recruited. This somewhat unrealistic expectation, coupled with some continuing resistance from a few key physicians in the hospital, made it difficult for the newly-graduated wechakorn nurses to firmly establish their new role. This problem was compounded, at the time, by inadequate clarity of the wechakorn role in the hospital and by lack of official Ministry authorization for the new positions, meaning that in order to maintain their career momentum and remain eligible for further promotions, they would have to return to their former supervisory nurse positions. Many nurses were thus drawn back into the responsibilities of their former jobs, and away from the new wechakorn role.

In time, viable roles did evolve for nurse wechakorn assigned to the Provincial Hospital. By 1980, at the end of the fifth year of implementation, there were 13 wechakorn located in the Provincial Hospital (11 nurses and 2 nurse-aides). Three of
these had developed important roles in the Community Health Department, screening the variety of patients who came there for medical care, running the well-baby clinics, the pre-natal education clinics, general health education clinics, and acting as the backbone for many of the Community Health Department's field programs, such as the mobile vasectomy clinics, nutrition programs, and school health (discussed in Monograph 4). Another nurse wechakorn joined the hospital's family planning section, assuming a great deal of responsibility for family planning acceptor screening, IUD insertion, Depo Provera injection, and oral contraceptive pill distribution. Another nurse wechakorn became head of Outpatient Department nursing, continuing, to some extent, in the role for which she had been trained. She took a two-week course in radio communications for medical consultation. She now monitors the short-wave radio unit in the hospital, recently developed as a direct consultative link to selected remote rural health centers (described in more detail in subsequent sections). One nurse wechakorn became chief of nursing in the hospital. Another hospital nurse left to teach in the new regional nursing school in Lampang, and the remaining hospital wechakorn have returned to their staff positions in the wards.

In general, the wechakorn in the Provincial Hospital have not been given responsibility to practice and utilize their full range of skills and develop the role for which they were trained. However, in other major hospital activities, such as the Community Health Department, Family Planning Section, and community programs, the wechakorn have assumed broader responsibility, utilizing many of the new skills they have acquired.

The Most Viable Role: Subdistrict Health Center Wechakorn

In summary, experience to date indicates that overall, the most viable role, and the one with the greatest individual satisfaction has evolved at the subdistrict health centers and midwifery centers. In the Provincial Hospital, the presence of physicians and many other highly skilled professionals, some of whom are skeptical of wechakorn capabilities, greatly overshadowed and limited the potential contribution of the wechakorn. At the district hospital level, the wechakorn has gained more responsibility, though this depends on the physician heading the hospital. But at the subdistrict health center level, the wechakorn brought a new range of skills and services not previously available at that level, and not duplicated by any other worker in that center. Not only has this enhanced the service output of the health center, but the potential for conflict or competition with other members of the health team is minimal.

An interesting footnote on the different roles is provided by the responses of wechakorn when asked which location they thought most appropriate for their Eighty-eight percent of the health center wechakorn felt their current location was most useful, 5% thought the district hospital location best, and the remainder would choose the Provincial Hospital or some other alternative. All wechakorn located in midwifery centers (soon to be upgraded to health centers) felt location in the subdis-
trict health center most appropriate. Of the district hospital wechakorn, 84% though the subdistrict health center level most appropriate, and the rest felt the district hospital location was best. Fifty percent of the Provincial Hospital wechakorn, thought the subdistrict health center location most appropriate, none identified the district hospital, 42% thought the Provincial Hospital most appropriate, and 8% listed some other alternative.

PERFORMANCE OF WECHAKORN

The performance of wechakorn has not been uniform, given the three major locations of their sites and different services demands. To quantitatively describe and assess the contribution of wechakorn in each of these roles is a complex task. Although performance data for each facility level is available, it is not easy to clearly delineate the respective contribution of wechakorn in either quantitative or qualitative terms. This is particularly difficult at the Provincial Hospital and district hospital levels, where the number of workers providing services is quite large. At the health center level, the task is somewhat easier, as there are only two, or at most, three people responsible for the range of services.

To gain a fuller picture of the wechakorn contribution, a survey of wechakorn was conducted as part of the Administrative Analysis, carried out by project consultants from the National Institute of Development Administration (NIDA). In this survey 87% of all wechakorn (80/92), 85% of the rural health center level workers (62/73), and a sample of health post volunteers in all districts were interviewed to determine attitudes, role satisfaction, perceptions of training and support, and the amount and quality of contact between wechakorn, rural health workers, and community health volunteers.

To gain more information concerning other aspects of the wechakorn role, other detailed questionnaires were sent by mail to all wechakorn. Sixty percent of the mailed questionnaires were returned, but less than 50% were returned by wechakorn located at the health center level.

The findings from these surveys, and from other data sources, are reported topically in the following sections of this chapter.

Service Output

Most survey data gathered by the Lampang Project, the Community Health survey, administrative analysis, and Task Analysis, coupled with service statistics, indicates a significant, but modest increase in utilization of government health services by the rural population. This is particularly true when rural villagers were asked who they consulted first when ill). *Over the period of project operations, there was a significant increase in the proportion who said they went to a govern-
ment rural health facility (midwifery center, health center, and district hospital). This and related data, suggest increased accessibility and acceptability of government services, especially at the subdistrict health center level, due, in part, to the wechakorn's new skills and knowledge.

The responses of the wechakorn themselves reveal much about their individual activities. Wechakorn were asked how many patients they treat each day, and their responses are summarized in Table 4.

At the district hospital and subdistrict health center 33%-37% of the wechakorn, saw between 11 and 20 patients per day. This represents a significant increase over the number of patients seen before the wechakorn training program. Most wechakorn at rural health centers estimated that their daily medical care contact load had increased from 20% to 100% in the year after completing their training.

Table 4
Distribution of Daily Medical Care
Contacts by Wechakorn at Various Locations in Lampang, 1979a

<table>
<thead>
<tr>
<th>Average Daily Number of Medical Care Contacts</th>
<th>Wechakorn Location</th>
<th>For All Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health Center</td>
<td>District Hospital</td>
</tr>
<tr>
<td></td>
<td>Midwifery center</td>
<td>No.</td>
</tr>
<tr>
<td>None</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Under 5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>5-10</td>
<td>34</td>
<td>3</td>
</tr>
<tr>
<td>11-20</td>
<td>23</td>
<td>2</td>
</tr>
<tr>
<td>21-50</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Over 50</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>6</td>
</tr>
</tbody>
</table>

aSource: Administrative Analysis
bColumn totals slightly above 100% due to rounding

While Table 4 represents the distribution of the volume of medical care contacts by wechakorn at various health facilities, it cannot represent the differences in the quality and substance of the medical care contact. This is an important distinction to recognize, as the wechakorn in rural health centers assume more responsibility in providing medical care in their remote locations than do wechakorn at district hospitals or at the Provincial Hospital where the wechakorn may only screen the
patients before they are seen by the physician, yet this would also have counted as a medical care contact.

A majority (59%) of the Provincial Hospital wechakorn said that, on the average, they had more than 10 medical care contacts per day and 42% had more than 20 contacts per day. At the same time, three of the wechakorn in the hospital (including those in the senior supervisory positions), said they saw no medical care patients.

The medical problems encountered most frequently during patient contacts appear to be relatively uniform in the rural locations. More than 90% of medical care contacts served by wechakorn at the district hospital and health center level were for treatment of fever of various types, gastro-intestinal problems and respiratory ailments. In the Provincial Hospital, however, only a third of the wechakorn said that these were the problems encountered most often.

The locations from which patients came to health facilities follows a pattern which might be expected: rural health centers generally serve the immediate villages or subdistrict areas; patients at the district hospital come from all over the district, and patients at the Provincial Hospital come from all parts of the province, as well as from neighboring provinces. While the district hospital wechakorn indicated that 17% of the patients came from within the subdistrict where the hospital was located (and that 83% came from other areas inside the district), the subdistrict health center wechakorn indicated that about 98% of their patients came from within the subdistrict where they were working.

A survey of wechakorn in nearly all locations indicates that the greatest amount of working time is used for provision of medical care services. Half of the Provincial Hospital wechakorn, all of the district wechakorn, and 82% of those at the rural health centers said they spent a majority of their work time providing medical care services. It is not unusual for the Provincial Hospital nurse wechakorn to be involved in medical care, given that this is the main work of the hospital. Wechakorn who are not involved in medical care are located in the Community Health Department and the family planning section, or are the senior nursing supervisors. Likewise, a major thrust of the district hospital services is medical care, and wechakorn usually participate in this activity. There are other preventive and promotive services provided by the district hospital, but these are carried out by other staff as well.

What is perhaps most interesting is that a large majority of the wechakorn in the subdistrict health centers also indicated they spend the largest proportion of their work time in medical care. However, given the prior gap in medical care services at this level, given the emphasis on medical care during training and their new range of medical care skills, instruments and drugs acquired, it is not surprising
that meeting the demand for medical care is how the wechakorn has used most of his or her time. Furthermore, because rural villagers demand curative medical care services most often, effective treatment of the medical problem which brings relief to the patient promotes acceptance of the wechakorn who may then build on this new credibility and social status to promote and launch disease prevention and health promotion services in the community.

Training the wechakorn in medical care was viewed as a means to fill the deficit of such services in rural areas, and to revive the credibility of the rural health center, opening the way for other promotive and preventive health programs. However, the question must be raised about the extent to which the heavy emphasis on medical care has deflected the energy of the health center staff — particularly the wechakorn from pursuing other important community health programs.

Assessment by the wechakorn themselves tends to confirm the high priority that must be given to meet the demand for medical care. Seventy-eight percent of all wechakorn interviewed said they thought curative medical care is the most appropriate work for the wechakorn, and the proportions expressing this opinion were roughly similar for each wechakorn group — in the Provincial Hospital, district similar for wechakorn from each facility — the Provincial Hospital, district hospitals, subdistrict health centers, and midwifery centers.

**Community Health Activities**

Despite the medical care emphasis in training, and the obvious demand from consumers for medical care services from wechakorn, curative care has not been provided completely at the expense of community disease prevention or health promotion activities provided by rural health facilities. Each facility has a team of health workers, who together provide a wide variety and range of integrated health services. Therefore, the impact that the presence of the wechakorn has had on the overall output of services by each type of facility will be closely examined.

The development of the Provincial Hospital's Community Health Department has given new impetus to preventive and promotive health programs which have traditionally been minor in hospital programs. However, since the Community Health Department was established, it has been short of staff. Consequently, wechakorn assigned there have assumed major responsibility for the treatment and education of patients who come to the hospital, and for developing and expanding community programs such as the mobile vasectomy and health clinics, school health programs, and a broad range of health education programs for the hospital and communities. The nurse wechakorn in the Hospital's Family Planning Section has been deeply involved in motivating and screening acceptors and prescribing oral contraceptive pills, IUD insertions, and Depo Provera injections on an equal footing with the section's physician.
During the initial years of Project operations, the overall output of preventive and promotive health services by rural health centers had modest, but continual increases. Rural health facility coverage of deliveries, and care have increased in the Project areas. The number of Child Nutrition Centers has increased more than eightfold. Family planning acceptance has increased and IUD insertions and Depo Provera injections have been added to the health centers service capability. Immunization programs have been expanded. Pilot nutritional surveillance and community water supply projects have been introduced.

The wechakorn normally spends the morning hours at the health center providing medical care, when public health regulations require that there be a health worker attending the health center. There is still ample free time available to do community health programs in the afternoons. Wechakorn have enhanced the impact of some community health programs, such as the mobile vasectomy activity where they have helped recruit acceptors and assisted in operating the clinics. They have been the key to organizing nutrition surveillance programs. They have helped to promote cooperation with the community health volunteers, both in medical care and especially in oral contraceptive distribution. The health center wechakorn visits health post volunteers most frequently and is relied on most for consultation and support. Most evidence tends to support the conclusion that although wechakorn see medical care as their most important, most appropriate and satisfying function, and practice it more than in the past, they do continue to serve in their other community health roles and responsibilities as midwives and sanitary health workers.

Assessment of Clinical Skills of Wechakorn On-the-job

A special study to assess the clinical skills of eight wechakorn paraphysicians on-the-job was conducted by twelve senior medical students over a period of three days. Their performance was assessed in provision of clinical services for five categories of service delivery; family planning, antenatal care, general patient care, pediatric care for ages 0-5 years, and pediatric care for ages 6-14 years. In each of these categories, five areas of clinical skills performance were assessed: history-taking, physical examination, problem identification, treatment and patient education, and follow-up and/or referral. Ratings were assigned in the following classifications: not done, done correctly, done partially correctly, and done but not correct. The results indicated achievement of a reasonable level of clinical competence in most areas, and identified some areas that could be usefully strengthened in follow-up training or on-the-job supervision.
Table 5
Direct Observation Assessment of Wechakorn's Clinical Skills by Supervised Senior Medical Students

<table>
<thead>
<tr>
<th>Performance</th>
<th>Not done (%)</th>
<th>Done correctly (%)</th>
<th>Done but partially correctly (%)</th>
<th>Done but not correct (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Family Planning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Taking history</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Physical examination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Problem identification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Treatment and patient education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Follow-up and referral</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5 patient contacts observed)</td>
<td>100</td>
<td>60</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>B. Antenatal care</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Taking history</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Physical examination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Problem identification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Treatment and patient education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Follow-up and referral</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3 patient contacts observed)</td>
<td>100</td>
<td>67</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>C. Care for General Patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Taking history</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Physical examination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Problem identification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Treatment and patient education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Follow-up and referral</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(46 patient contacts observed)</td>
<td>70</td>
<td>62</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>D. Care for Pediatric Cases 0-5 yrs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Taking history</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Physical examination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Problem identification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Treatment and patient education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Follow-up and referral</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(29 patient contacts observed)</td>
<td>62</td>
<td>3</td>
<td>36</td>
<td>4</td>
</tr>
<tr>
<td>E. Care for Pediatric Cases 6-14 yrs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Taking history</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Physical examination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Problem identification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Treatment and patient education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Follow-up and referral</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(9 patient contacts observed)</td>
<td>56</td>
<td>44</td>
<td>56</td>
<td>11</td>
</tr>
</tbody>
</table>
In a second phase of this study, twelve senior medical students observed six wechakorn provide care for twenty-one patients over a period of five days. Scores were assigned on a scale of 5 for wechakorn performance in the following five areas: history-taking, physical examination, problem identification treatment, and human relations.

**Table 6**

Direct Observation Assessment of Wechakorn's Clinical Skills on-the-job by Unsupervised Senior Medical Students

<table>
<thead>
<tr>
<th>Performance</th>
<th>Score (on scale of 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Taking History</td>
<td></td>
</tr>
<tr>
<td>Present illness</td>
<td>3.43</td>
</tr>
<tr>
<td>Past history</td>
<td>2.30</td>
</tr>
<tr>
<td>B. Physical Examination</td>
<td></td>
</tr>
<tr>
<td>Affected parts</td>
<td>3.71</td>
</tr>
<tr>
<td>Others</td>
<td>2.60</td>
</tr>
<tr>
<td>C. Problem Identification</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.90</td>
</tr>
<tr>
<td>D. Treatment</td>
<td></td>
</tr>
<tr>
<td>Medical</td>
<td>3.7</td>
</tr>
<tr>
<td>Patient education</td>
<td>3.35</td>
</tr>
<tr>
<td>E. Human Relations</td>
<td>4.55</td>
</tr>
</tbody>
</table>

Notes: (1) Six E₁ wechakorn were observed by 12 senior medical students in providing care for 21 patients seen over a period of 5 days (January 1979)

(2) Time spent for each patient averaged 15.57 minutes

**WECHAKORN INCOME**

Aside from the new set of skills and added prestige and credibility of wechakorn in the community, there has also been an increase in income for some wechakorn. There are two possible sources of this income: an increase in government salary from normal promotion related to wechakorn training, or a supplementary income from seeing patients privately. About half of the wechakorn interviewed in 1979 said they had received no increase in government income since completing wechakorn training. Except for wechakorn in the Provincial Hospital, almost
all of those who did gain an increase in income said it related to completion of wechakorn training. Table 5 shows the income increase by source for each of the wechakorn locations in 1979. By 1981 however, all wechakorn deployed to rural health facilities had received an increase in their government earnings.

Table 7
Sources of Income Increases for Wechakorn, 1979

<table>
<thead>
<tr>
<th>Source of Income Increase</th>
<th>Wechakorn Location</th>
<th>All Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health Centers/ Midwifery Centers</td>
<td>District Hospitals</td>
</tr>
<tr>
<td>No income increase</td>
<td>29</td>
<td>47%</td>
</tr>
<tr>
<td>Salary increase</td>
<td>7</td>
<td>11%</td>
</tr>
<tr>
<td>Private patient</td>
<td>23</td>
<td>37%</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Administrative Analysis, 1979

But in 1979, only thirteen percent of all the wechakorn had received an increase in their government salary after completing training. Most of these were annual step increases. However, when the Civil Service Commission legitimized wechakorn, it approved the addition of a ฿ 300 (U.S. $15) monthly stipend for increased technical capability, but this increase was limited to wechakorn serving in the rural health facilities: subdistrict health center and midwifery center wechakorn. The policy decision took time to implement, however, and at the time of the 1979 survey, most had not received their new monthly stipend.

The overall salary levels for the wechakorn in different locations are presented in Table 8.

Table 8
Summary of Wechakorn Government Salaries, 1979

<table>
<thead>
<tr>
<th>Month Salary Level</th>
<th>Wechakorn Location</th>
<th>All Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health Center/ Midwifery Center</td>
<td>District Hospital</td>
</tr>
<tr>
<td>Thai Baht</td>
<td>US $</td>
<td></td>
</tr>
<tr>
<td>Under ฿ 2,000</td>
<td>$ 100</td>
<td>21%</td>
</tr>
<tr>
<td>฿ 2,001-฿ 2,500</td>
<td>$ 100-125</td>
<td>68%</td>
</tr>
<tr>
<td>฿ 2,501-฿ 3,500</td>
<td>$ 125-175</td>
<td>11%</td>
</tr>
<tr>
<td>Over ฿ 3,500</td>
<td>Over $ 175</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Administrative Analysis, 1979
The higher salaries for Provincial Hospital wechakorn reflect their longer years of government service and generally higher salaries paid to nurses, who constitute a majority of the hospital-based wechakorn. Those in the district hospital and health center settings generally have lower salaries, with those in health center locations being lowest.

Especially interesting are most recently collected (1980) data showing many wechakorn earn income from private patients: forty-one percent of the wechakorn interviewed said they received income for providing services privately. Most of them experienced an increase in private contributions following their training. Only one of the hospital wechakorn reported income derived from private patients, whereas half of the district hospital wechakorn, and 37% of the rural health center wechakorn said they received some income from treating private patients. For those wechakorn receiving contributions for private services rendered, the majority receive less than $50 (1,000 baht) per month, and very few received more than $100 (2,000 baht) per month in addition to their government salaries.

Wechakorn assigned to district hospitals and rural health centers are more readily drawn into serving private patients as a result of several factors mentioned by wechakorn: a large proportion of these rural wechakorn live in the district hospital or health center compound or in a nearby community, making them very accessible to villagers during non-official hours; they tend to be lower paid and, therefore, are more likely to seek additional sources of income; there are few doctors or other modern medical care providers in the district towns, and there are no doctors at the subdistrict or village levels, reducing the probability of potential competition or criticism.
"... the most important evaluators of primary health care services are the people for whom such services are designed. Utilization rates and background noise should be analyzed as they related to the response of rural people to the services. Surveys on consumer satisfaction may be appropriate in some settings. How these services are perceived and utilized will be as important to the technical personnel working with the program as it is to policy makers who support it."

The training of wechakorn paraphysicians and their assignment to rural health facilities, together with the mobilization and training of community health volunteers in every village of Lampang, greatly expanded the range of curative, health promotive and disease preventive services at the subdistrict and village levels. Wechakorn paraphysicians have contributed greatly to filling the previous gaps, in terms of health manpower and health services delivery capability at these levels. Much that has been presented in previous chapters indicate, directly or indirectly, the acceptance of wechakorn paraphysicians by villagers who are now utilizing rural health centers and district hospitals more than ever before. However, to learn more of the villagers' responses to the new range of services at rural health centers — and, specifically, of their attitudes towards and perceptions of wechakorn paraphysicians — two separate surveys were conducted in 1979 and 1980.

The first survey, conducted in 1979, involved interviews with 288 villagers by independent interviewers from outside Lampang. The respondents were predominantly (78%), aged 21-50 years but 5% were under 20 years of age and 17% were older than 50 years of age. Seventy-five percent of those interviewed were men and twenty-five percent were women. When asked if they had used health center services at least once, 95% responded that they had used health center services while 5% indicated that they had never used.

Of those (95%) who had used the health center, 2% were indifferent, and 2% were very satisfied with the health center services. Of those very satisfied, 15% were "very satisfied" with the health center services. Of those not satisfied, 15% were "very satisfied" with the health center services. Of those not satisfied, 2% were "very satisfied" with the health center services. Of those indifferent, 64% indicated that they had never used.
Those who had received illness care services from wechakorn paraphysicians were asked what was the result of treatment, and the responses were distributed as follows: cured - 62%, palliative - 20%, referred - 8%, not cured - 9%, and 1% did not know. When asked if they would return to consult the wechakorn paraphysician again, 85% would return because the service is nearby, 8% were not sure as it would depend on the disease or problem, and 7% said they would not return.

When villagers were asked if wechakorn paraphysician services were useful to them and to the village, 26% responded "very useful", 62% responded "useful", 7% said "not useful", and 5% were "not sure".

When village were asked "What do your friends think about wechakorn?", 72% said they liked wechakorn because of good treatment, good human relations, and because they were available and accessible. 17% were indifferent because the wechakorn were not always available when needed, and 11% did not like wechakorn because they were not available at night or would not make home visits.

The 1980 survey of villagers attitudes towards wechakorn paraphysicians was a special purpose study to follow-up on the pilot program for specialized dental health service training for wechakorn paraphysicians. As mentioned earlier, 14 wechakorn paraphysicians received dental health service training in 1978. The 1980 survey of villagers was conducted to assess villager attitudes towards and perceptions of wechakorn dental services. The respondents in the survey, therefore, were selected on the basis that they had received dental health services from the wechakorn. The survey was conducted in six subdistricts and included 193 respondents. Since the type of service received and the nature of the contact may have had a bearing on villager attitudes and perceptions, these are reviewed first.

The type of dental health service received from wechakorn by the 193 respondents were distributed as follows: Extraction - 65%, Filling - 14%, Scaling - 11%, Advice - 9%, Drain abscess - 1%, and Examination only - 1%. Of those who visited wechakorn for dental health services only once, 91% were satisfied, 9% indifferent or did not respond. When asked if the problem, 92% said "yes", 1% said "no", and 7% did not respond. When the respondents were then asked where they would go in the future. The results
Table 9
Villagers’ Former Source of Dental Health Care Before
Wechakorn Trained and Intended Next Source
of Dental Care After Trying Wechakorn

<table>
<thead>
<tr>
<th>Source of Dental Care</th>
<th>Before Wechakorn Dental Service Available</th>
<th>After Trying Wechakorn Dental Service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Provincial Hospital</td>
<td>13</td>
<td>6.7%</td>
</tr>
<tr>
<td>District Hospital</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Rural Health Center (Subdistrict level)</td>
<td>32</td>
<td>16.6%</td>
</tr>
<tr>
<td>Private clinic</td>
<td>12</td>
<td>6.2%</td>
</tr>
<tr>
<td>Self-treatment</td>
<td>37</td>
<td>19.2%</td>
</tr>
<tr>
<td>Local practitioner</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Mobile Unit</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>No consultation sought</td>
<td>75</td>
<td>38.9%</td>
</tr>
<tr>
<td>No response</td>
<td>21</td>
<td>10.9%</td>
</tr>
<tr>
<td>Total</td>
<td>193</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

When these villagers were asked where they would advise friends and relatives to go for dental health services in the future, the results are similar to their own intentions. 87% said the Health Center (wechakorn), 1% - Provincial Hospital, 1% - District Hospital, 1% - Self-treatment, and 9% - no response or no consultation.

In addition to the interviews conducted with 193 villagers who had already received dental health services from wechakorn, the 1980 survey also included interviews with 308 villagers who had never consulted wechakorn for dental services. When this group was asked if they had ever visited wechakorn for any other problem (other than dental problems) 64% (197) said “yes”, 23% (71) said “no”, and 13% (40) had no response. 40% (171) of this group was not yet aware that wechakorn provided dental health services, but 48% (148) already knew, and 12% (37) did not respond. When asked where they would next seek dental care services, now that they were aware, 87% indicated they would consult wechakorn at the health center, 9% did not respond, and 4% said they would go elsewhere. Of the 4% (13) that would go elsewhere, 8% (1) preferred the Provincial Hospital services, 15% (2) believed wechakorn to be unreliable, 8% (1) preferred self-medication, and 8% (1) had “no money”.

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The result of these studies, together with other data sources such as health service records, indicate both directly and indirectly that wechakorn have been well accepted by villagers. Assuming that wechakorn will be adequately supported and supervised by the Provincial Health Office and, indirectly, the Ministry of Public Health, their potential for improved health, medical and dental service delivery at the rural health centers is clear. Can the Provincial Health Office and the Ministry of Public Health demonstrate the will and the capacity to adequately supervise, support and maintain wechakorn? This question and its implications, in view of experience gained in Lampang, is addressed in the following chapters.
"Front-line and intermediate personnel after training have too often found that their deployment has been inhibited by deficiencies in management support: shortage of drugs and material supplies; lack of equipment; unreliable communications and transport; unattractive working and living conditions in rural areas; and even (sometimes) failure to ensure regular and prompt payment of salaries... An adequate, continuous flow of resources to support rural health programmes is a fundamental requirement in primary health care." 12

A theme often emphasized in the monographs is that great attention was given to building the health service infrastructure – building and improving health facilities and selecting and training health personnel – while, too frequently, inadequate attention was given to the essential processes for motivating and guiding health workers, monitoring their performance, maintaining supply logistics, and providing personnel support which directly influences personnel performance and, collectively, the performance of the overall system.

Much attention was given to developing curricula, training and retraining several categories of workers, and sending them back into the health delivery system, assuming they would produce the expected increase in quantity and quality of service performance. But insufficient attention was given to strengthening the supervision, support and logistical elements that would be required to promote and maintain their performance. This led at times, to problems which should have been anticipated, but were not, and to occasional unpreparedness of the provincial health care administration to adapt to the new categories of workers and to facilitate their work. This was particularly true in the case of the wechakorn.

In a discussion of support and supervision of wechakorn, most attention is properly given to the needs of wechakorn located in subdistrict health centers and midwifery centers. Those in the Provincial Hospital and in district hospitals work under the direct supervision of physicians and rarely experience shortages of drugs, supplies or equipment. And they can easily find technical consultation or make additional needs known quickly.

Wechakorn in rural health centers faced a very different situation. They must operate much more independently, distant from those who could provide technical supervision and support, and often their isolated locations made communication difficult even within the district. A number of the new skills and services for which the wechakorn were trained have not, in the past, been authorized for health center
personnel, and frequently, new drugs and other supplies needed to provide the new range of services have been unavailable, or in very short and irregular supply. Rural health centers have been chronically under financed and under equipped when compared with district hospitals and the Provincial Hospital. Given these factors, most of the following discussion of support and supervision refers most of all to the rural health center wechakorn.

TECHNICAL SUPERVISION

On returning to their health center assignments trained to practice a new range of skills, the first wechakorn groups found that little had been done to facilitate their new role. The range of drugs which they needed to provide the new range or medical care services was formerly unavailable at health centers, and health center workers had not been authorized to give antibiotic injections. Trained to insert IUD’s and inject Depo Provera - services that had previously only been provided by physicians or specialised nurses - wechakorn found that the equipment and drugs needed were unavailable, and they initially encountered reluctance from senior provincial staff when they were requested. Some of these problems were resolved quickly, but others took an extended period to resolve, and some problems remain. Authorizing wechakorn to practice a new range of services under the overall responsibility of the Provincial Health Officer, and convincing and assuring other senior provincial health staff that these were legitimate activities, was an immediate and time-consuming concern of senior Project staff. Part of this problem related to the lack of a clearly written directive from the Ministry of Public Health specifying the wechakorn role and responsibilities.

The person normally most suitable to provide technical supervision of the wechakorn is a physician, ideally one who had a role in training or who is responsible for monitoring wechakorn performance. Within the Provincial Hospital and district hospitals, such supervision is readily available. In the rural areas, on the other hand, the health center wechakorn are distant from any physician, making it difficult to receive consistent technical support and regular supervision. Moreover, the person officially responsible for supervision of health center workers is the District Health Officer, frequently a senior sanitarian who has no clinical training, unlike wechakorn. This makes him inappropriate in a role as their technical supervisor.

As increasing numbers of wechakorn were deployed throughout the Province, the Project staff sought the assistance of physicians in the Provincial Hospital’s Community Health Department to provide additional technical supervision. However, given their responsibilities within the hospital, they could only provide supervision in the field on an irregular basis. The Provincial Health Office also encouraged doctors in the district hospitals to provide assistance when possible, but
several district hr - pital doctors were reticent to contact health center wechakorn, anticipating the possibility of District Health Officers' sensitivity to the district Hospital physicians usurping their role.

Another means to provide emergency technical consultation was a shortwave radio system that was set up, linking selected rural health centers with the Provincial Hospital and the Provincial Health Office. This was a Ministry of Public Health program set up in provinces all over the country, in which health center workers in remote locations were trained in specific medical care skills, and equipped with a special drug kit, kept under lock and key in the health center, and only used as authorized by a consulting physician through the radio linkage. A few wechakorn also received this training. A senior wechakorn in the Provincial Hospital monitored the radio network, directing requests for assistance to the appropriate physician when necessary. Although undoubtedly helpful, not all of the health center locations receiving radios were isolated, and some of the most isolated health centers received no radio. Nevertheless, this is one means to provide technical consultation when routine visits are not possible.

Wechakorn outline the situation well concerning supervision. When asked who their regular supervisor was, 38%, including 58% of the wechakorn in the Provincial Hospital, said they had no regular supervisor. For the health center wechakorn, 45% mentioned that the District Health Officer or the Provincial Health Officer was their supervisor. In response to a question on the frequency of supervision, of the health center wechakorn interviewed, 37% had received no supervision in the past year, and only 23% said they had been visited as much as once a month.

Aside from the relatively low frequency of supervision, the content of supervision is an important matter. Of the health center wechakorn who said they did receive some supervision, only 3% said they had been supervised on provision of medical care, 61% said the supervisory visit had concerned records and reports (the normal administrative function of the district and provincial health supervisors), and 36% concerned other matters.

Provincial health office and Project staff have recognized for some time that the mechanisms to provide technical support for rural health center wechakorn are inadequate, but, after several approaches, no clear and effective solution to this problem has been found. In recent months, however, there may be an important development in resolving this problem: two of the more experienced and outstanding wechakorn have been appointed District Health Officers.

This places a technically-qualified wechakorn in a position of direct responsibility for supervising health center personnel, including the resident wechakorn. Having been a health center wechakorn before, the new wechakorn District Health Officers fully understand the need for technical support, and should be more respon-
sive to the needs of their colleagues. Another feasible solution is to assign a senior and outstanding wechakorn to the provincial health office for purposes of regularly supervising health center wechakorn and ensuring continuity of supply and other logistical support. These may be the most pragmatic solutions of the supervision problems experienced, not only in Lampang Province, but in rural Thailand as a whole.

CONTINUING EDUCATION

Given the relative infrequency of on-the-job technical supervision, refresher training on a regular basis is another means to provide technical support, particularly for the more isolated, rarely-visited wechakorn. During early phases of the Project, clinical conferences and attendance at some medical meetings were arranged. However, this was on an occasional, rather than a regular basis. A group of 14 wechakorn was also selected to receive six weeks of intensive dental health care training in a pilot program sponsored by the Provincial Health Office and the Faculty of Dentistry, Chiang Mai University. This training program was received enthusiastically by the wechakorn, many of whom had seen dental health as an important service need. Such continuing education programs clearly stimulated the morale and initiative of the wechakorn workers, and extended further the range of services they could provide. Wechakorn mostly express a strong interest to have additional training in areas of need and service demand general medicine, dermatology, pediatrics, and dental health.

DRUGS AND MEDICAL SUPPLIES

After completing training, and following authorization by the Provincial Health Office, wechakorn in the rural health centers had to expand the range of drugs and medical supplies available to meet the needs of their new service capability. When the first wechakorn groups completed training, the normal health center budget for drugs annually was 3,000 ($150). This amount was extremely low, even without the presence of the wechakorn. Moreover, half or more of the drugs were ordered from the Government Pharmaceutical Organization only once a year, and the average time for delivery often ranged between six and nine months. Health centers were frequently out of the drugs and medical supplies most needed for their important functions.

To relieve this situation, the budget of drugs and medical supplies in health centers has been doubled, and further funds can be drawn from special budgets made available at the Provincial Health Office.

To overcome the problem of slow delivery of drugs, the Provincial Health Office has improved its warehouse capacity in Lampang, and provides transportation
for direct delivery to the rural health centers. Despite these steps, shortages still do occur. To increase the *wechakorn* flexibility in adequately meeting service demands, *wechakorn* have been authorized to purchase drugs on the open market if shortages occur, replacing them with government stocks when they are delivered. Purchases on the open market are made with money from a health center revolving fund, generated by contributions from consumers when they receive service.
"The experience in Lampang has shown that developing a problem-oriented curriculum, operating a competency-based training program, and imparting relevant knowledge and practical skills to develop new mid-level, medical-health care practitioners can be achieved. But to sustain the workers in their new roles requires improved and increased technical supervision and support, periodic follow-up training, and adequate budgetary and reliable logistic assistance commensurate with their new roles and responsibilities. These support needs are ongoing, and must be carefully planned and reliably sustained for the delivery system to have impact in improving the health of the population it aims to serve." 13

While mid-level health workers have long been the backbone of the Thai governmental health care system, the development of Lampang’s community health paraphysicians — wechakorn — represent a significant advance by the Ministry of Public Health in its effort to develop mid-level health care providers for subdistrict level rural health centers. The role of wechakorn paraphysicians contributes substantially to improved coordination and delivery of integrated medical care, health promotion and disease prevention services at rural health centers. Beyond this, the role of wechakorn paraphysicians, or their equivalent, is crucial to the National Primary Health Care Expansion Program, especially in terms of technical guidance, stimulation and maintenance of community health volunteers. This final chapter, therefore, aims to review major conclusions that can be drawn from the Lampang experience, and to present specific recommendations for consideration by the Ministry of Public Health and others who might launch similar training programs.

APPROACH TO TRAINING

The competency-based, problem-oriented, modular approach to wechakorn training clearly demonstrated its potential as a pragmatic approach to imparting a broad range of knowledge and skills in a limited (one year) period of time. Competency-based training is based on the assumption that a wide range of theoretical background knowledge can be reduced to an essential minimum, and that training in specified skill activities is emphasized and facilitated through supervised learning-by-doing.
The concept of competency-based training means that each individual trainee must perform every skill (as determined by role and task analysis) to a specified level before being approved as competent. The competency-based approach builds flexibility into the program to accommodate each individual's pace of learning and achievement of competence. This was maintained to a large extent during the training program, but because it is highly dependent on the availability of specific types of patients to demonstrate a given skill, as well as on the availability of preceptor time to check on achievement of the requisite skill performance, implementation of the competency-based training approach is not always easy, especially when training time is fixed.

**Recommendation**

Ministry of Public Health trainers of mid-level, medical care providers (e.g., nurse practitioners), or of mid-level medical-health care providers (e.g., wechakorn and the health center midwife and sanitarian health workers trained in a short, 'wechakorn - type' four-month course) should implement competency-based training. This training should employ problem-oriented training modules, emphasizing practical experience and learning-by-doing, and involving experienced clinicians and other health workers for both didactic and preceptorship phases of training.

**DURATION OF TRAINING**

*Wechakorn* received one year of training, but this, of course, was not arbitrary or fixed. *Wechakorn* training staff, on evaluating the program, recognized that some components could be reduced, some modified and some items eliminated, permitting more flexibility in the allocation and/or contraction of the total length of training, if needed. At the same time, since trainees were selected from existing personnel, in some districts a number of health centers were without a key member of their staff for an extended period of time. The training program can easily be modified by dividing the overall training content, part to be covered in the initial training program and part to be covered later as continuing education.

There can be no immediate answer to the question of training duration without first carefully analyzing what training is expected to achieve. This means first answering the question, *What knowledge and what level of skills development is needed on completion of training, taking into consideration the trainees' background, education, training and experience?* It also means carefully analyzing the expected role and the required capabilities to perform that role, and then translating these into training time allocations. Adding all of the time components required for each skill or problem area will lead to a suggested length of the total training period. In summary, this means that the capabilities desired for the trainee is the issue that must be discussed first, which will lead to more realistic estimates of the time required for training.
Recommendation

Ministry of Public Health training programs for mid-level medical and health care providers, like wechakorn paraphysician training and "wechakorn-like" training of midwives and sanitary health workers for rural health centers, should be long enough for trainees to acquire the knowledge and to develop the skills needed, as determined by the expected role and as acquired and measured by competency-based training methods. The total training period need not be a full year, as it was for wechakorn, nor does it need to be a continuous period, as it was for wechakorn. The knowledge acquired and the level of skills developed by wechakorn could also be accomplished in a multi-phasic training program (e.g., 3 months at a time), extended over a longer total period with time back on-the-job between the training periods. The cumulative training period to achieve the knowledge and skills levels of wechakorn would then depend on the individual's pace, as well as the availability of instructors and preceptors with required skills who could be provided by the hospital or training institution.

LOCATIONS OF TRAINING

In a pragmatic, problem-oriented type of training program, experience with wechakorn training has been similar to that for the clinical training of medical students. To provide sufficient opportunities for utilizing the required knowledge and practicing the skills learned in the training program, the training center must problems that are included in the various modules. This means that the training center would almost of necessity be a good-sized provincial hospital, with an outpatient load of several hundred per day; of equal importance, it would need a large enough number of physicians to serve as preceptors during the clinical training process. The heart of the wechakorn training in Lampang is guided learning-by-doing, and it therefore follows that each trainee must have sufficient exposure to clinical problems and opportunities to practice the skills being taught under the guidance of the physician-preceptor.

Similarly, if the training program has a component centered in rural health facilities, such as a district hospital, the same requirements are operating. When a group of three to six trainees is sent for rotation through the district hospital, there also must be a sufficient number of patients to provide them opportunities to practice their skills, as well as a physician who is both interested in and oriented to his role as a preceptor.

During the course of training, some Lampang Project wechakorn groups, as well as the four-month "wechakorn-type" trainees of the MOPH’s Primary Health Care Expansion Project rotated through district hospitals which have a daily outpatient load of only 20 to 25 patients or less. This meant that trainees were frequently idle, were unable to be exposed to common health and medical problems, and could
not develop the necessary skills in the very brief training period allocated for district hospital rotations. To overcome such problems, carefully planned additional community health activities, closely supervised by training staff, could be built into the district hospital rotations.

**Recommendation**

Training program locations for mid-level, health care providers, like *wechakorn*, should be multi-centered, utilizing (1) a large hospital with an adequate patient load and an adequate number of physician-preceptors, (2) a district hospital with typical rural outpatient clientele (and with a physician-preceptor), and (3) rural health centers and other rural facilities for developing skills in health promotion, disease prevention, and implementing community health programs and services.

**TRAINING OF TRAINERS**

Implementation of competency-based, problem-oriented training programs requires a strong program of trainer training for a reorientation to this type of training methodology. Most, physicians, for example, were educated and trained to think in terms of body systems, and they must be reoriented to think in terms of problems. Additionally, those training trainers should be very familiar with the role specifications of the mid-level, medical-health provider trainees, so as to impart to the trainers being trained the most appropriate training methods and practices. Therefore, the trainers should be very familiar with modern educational methods and techniques. This suggests that a “core training staff” for training trainers should be assembled from experienced medical educators and practitioners, such as from faculties of medicine and other institutions, and from the Ministry of Public Health. The core staff can then travel to various regional centers to conduct regional training of trainers. The trainers. The newly-trained trainers would then be responsible for organizing and conducting the mid-level health care provider training programs for their own areas.

Problem oriented, competency-based training should make use of learning in real work situations whenever possible. Teaching modules and visual aids should be developed to depict real life interactions, medical and health problems, and be problem-oriented. Although borrowed audiovisual aids are frequently used, it is best to use locally-produced materials when possible to better approximate the local medical and health problems, as well as the local work conditions and roles of the medical-health care providers.

Training materials, such as the *wechakorn* training modules, are best developed locally — ideally, by the instructors who will use them in the training program as they were in Lampang. Materials produced from outside the region or country will require adaptation to make them appropriate and relevant to the local circumstances.
Recommendation

A core staff for training trainers should be assembled from experienced medical educators, mobilizing resources of various training institutions and the Ministry of Public Health, and then be oriented strongly to the principles and methods of competency based, problem-oriented training. The core staff can then conduct regional training programs for trainer training, using locally-developed training materials appropriate for the health problems of the region.

RECRUITMENT AND SELECTION OF TRAINEES

The Lampang Project intentionally recruited and trained three major types of existing health workers: nurses, midwives, and sanitarian health workers. The first class that was assembled included the most experienced and most highly recommended candidates, and they qualified for training on the basis of their experience and their supervisor’s recommendations. Classes two and three took an entrance examination. Both methods were successful in terms of identifying capable trainee candidates. When the training experience and achievement levels of the three types of trainees were compared, there were no major differences. Nurses, midwives and sanitarian health workers can achieve similar levels of knowledge and skills development when competency-based training is employed. However, the attitudes and motivation of the three types may be different. The most active wechakorn in Lampang today are midwives and sanitarian health workers in rural health centers.

Recommendation

To the extent that Ministry of Public Health training programs for mid-level, medical health care providers are directed at filling the gap that exists at the subdistrict-level health centers, it is recommended that midwives and sanitarians be selected as a priority.

DEPLOYMENT, SUPERVISION AND SUPPORT

On completion of their training, wechakorn in Lampang, more or less predictably, fell into three role categories: the Provincial Hospital role, the district hospital role, and the subdistrict health center role. The most viable and useful role, and the one which provided the most satisfaction for the wechakorn themselves, was the rural health center role. This location is where the service gap was greatest, and where a range of clearly new skills added to the center’s capability, and hence, credibility in the eyes of the village population. An important lesson gained in Lampang is recognition of the need for new capabilities at the health center level, which are somewhat different from needs at the district hospitals and the Provincial Hospital. Whereas the wechakorn assigned to the rural health center bring a new range of clinical skills and service capability not present before, wechakorn at the district
hospitals and Provincial Hospital basically serve to supplement physician skills and capability that are already present.

In one sense, the differentiation of roles that has evolved in Lampang parallels the direction of manpower planning within the Ministry of Public Health. The mid-level practitioner which the Ministry of Public Health plans to place in Provincial Hospitals and district hospitals is the nurse practitioner, who receives one year of mostly clinical training. However, nurse practitioners are not assigned below the district hospital level. The Ministry’s response to needs at the subdistrict health center level is the development of a one-to four-month clinical training program for health center workers. As in Lampang, the Ministry has distinguished between the roles at district hospitals and the Provincial Hospitals and at the subdistrict health centers.

Although the needs at the subdistrict health center level are greatest, they cannot be met just by adding a new component of training to the health center worker’s role. *The wechakorn, or other similarly trained worker, must be strongly supported in that role by providing adequate training, the required network of technical supervision, a system of referrals, and adequate funds and authorization for the expanded range of medicines, supplies and equipment. Every effort must be made to secure official government recognition of the new role and capability of the subdistrict health center worker, including a salary stipend commensurate with their skills.*

*Wechakorn* serving in district hospitals and the Provincial Hospital locations, though not lacking in technical consultation and supplies, have found other limitations in their roles. Located in the environment where their skills are not unique, they have difficulty in developing a role acceptable to their fellow workers. A number of the nurse practitioners in district hospitals and provincial hospital locations have experienced similar limitations. Whereas the initial step of rural health center *wechakorn* on completing training is to establish new credibility with the rural population, the immediate need for *wechakorn* in the district hospitals and Provincial Hospitals roles is to establish credibility with their fellow workers in the service facility. This means that a careful orientation of district hospital and Provincial Hospital leadership concerning the capabilities and expected role of the *wechakorn* must precede their assignments to these facilities. The orientation must be officially strengthened by a directive from the MOPH which clearly spells out the expectations concerning assignment of *wechakorn* (or other such workers) to district hospitals and to the Provincial Hospitals.

**Recommendation**

Before launching mid-level, medical-health care provider training programs, a clearly written Ministry of Public Health directive should be issued that definitively specifies the roles and responsibilities of the new medical-health care providers. *The
respective roles of both wechakorn and nurse practitioners should be given a legal basis, and MOPH regulations should be modified to accommodate these new health care providers. This should be followed-up by appropriate planning and action by provincial health authorities to strengthen the systems of supervision, supply logistics patient referrals, reporting and information feedback, and procurement of equipment needed by the new medical health care providers. It is advisable to organize a formal orientation of all senior provincial and district health staff who will relate to the newly trained workers. Such an orientation should clearly explain their new role, responsibilities, and support needs, including clearly identifying the support functions each type of staff towards the wechakorn. Particularly at the beginning of the program when trainees are deployed, frequent visits should be made and their activities monitored closely to provide needed technical guidance and to solve problems soon after they arise. To the extent possible, salaries should be increased to a level commensurate with their new training and skills, and incentives developed for improved performance on the job.

FOLLOW-UP TRAINING AND CONTINUED PROFESSIONAL DEVELOPMENT

The wechakorn of Lampang have strongly expressed their interest to have more training in a number of fields. Additional training such as dental health care has been provided, with a very positive effect on wechakorn morale and expanding their services. Their interest in additional training reflects to a great degree, the demand for services that are being made by their rural clientele. Therefore, the appropriateness and relevance of the type of follow-up training can be ascertained easily by consulting or surveying practicing wechakorn. Many have stated that additional training would be more of an incentive for improved performance than increased salary or other monetary gain. When asked in a recent survey what type of support they would appreciate most, the most common answer was (1) regular follow-up training and (2) regular supervision and supply deliveries. Both of these are much more directly related to their on-the-job performance.

There is presently no career advancement potential for wechakorn trained in Lampang. The Civil Service Commission has recognized the new technical skills of the wechakorn, and has authorized a salary stipend for those who serve in rural locations. But only in their capacity as nurses, sanitarians, or midwives can the wechakorn seek career advancement. In the case of nurses in the Provincial Hospital, being a wechakorn interfered with career advancement, forcing most of them to return to straight nursing supervisory positions. The wechakorn who are rural sanitarian health workers can be promoted to become District Health Officers, or later senior sanitarians in the Provincial Health Office. Likewise, although the potential is more limited, midwife wechakorn can become senior or supervisory
midwives in the district hospital or Provincial Health Office. But in each case, the possibility for promotion relates to the wechakorn position before training. Wechakorn training in itself does not enhance career advancement. The MOPH and Civil Service Commission recognize the nurse practitioner as a new category of health worker, with specified career potential. In the case of the wechakorn a new set of skills are recognized but the worker retains his or her original designation as nurse, midwife or sanitarian, and retains only the career potential inherent in that category of health worker.

Recommendation

*Follow-up training should be planned as an integral part of the overall training program.* The type of follow-up training and it's frequency and duration should be planned in response to local conditions and in consultation with the wechakorn after they have been in practice for a period. Many wechakorn in Lampang recommend that *follow-up training should be conducted every six months or, at a minimum, once per year.* The training period need not be long, three to five full days may suffice, depending on the type of training and its aims. To strengthen health worker's commitment to serving as wechakorn, and to maintain the morale and motivation of those already trained, *careful consideration should be given to developing a career ladder for mid-level health care providers, based on their new role, and not on previous positions.* Such a ladder has been developed for nurse practitioners, who can move into a range of positions from the district to Provincial Health Office and to hospital locations. Similar potential for advancement should be considered for other rural health workers who have been trained as wechakorn and similar types of practitioners.

**FUTURE PROSPECTS**

An overall trend in rural health manpower development in Thailand, and many other nations, is to meet rural health care needs with mid-level, medical-health care providers. This approach simply faces the reality that physicians cannot be produced in sufficient quantities, nor attracted to the rural countryside in numbers sufficient to meet all the existing medical and health care needs. This means, then, that the various categories of mid-level health workers must be appropriately trained at each level to meet the existing service demands and needs adequately, and cost effectively. The system that has evolved in Lampang, and which is also evolving in the rest of Thailand, incorporates the recognition that rural health centers will not be staffed by physicians, but that they can be economically and adequately served by wechakorn-like health workers, backed-up by a system of referral to physicians in the district hospitals and in Provincial Hospitals.

Although manpower and delivery system development trends indicate a recognition that mid-level practitioners can assume responsibility for most medical
and health care needs at the rural health center level, the additional technical, logistical, and managerial support required by the new responsibilities have not yet been adequately built into the overall health system development.

The experience in Lampang has shown that _developing a problem-oriented curriculum, operating a competency-based training program, and imparting relevant knowledge and practical skills to develop new mid-level medical health care practitioners can be achieved_. But to sustain the workers in their new roles requires improved and increased technical supervision and support, periodic follow-up training, and adequate budgetary and reliable logistic assistance commensurate with their new roles and responsibilities. These support needs are ongoing, and must be carefully planned and reliably sustained for the delivery system to have impact in improving the health of the population it aims to serve.
## APPENDIX I
### Disease Problems Recorded by Service Agencies in 1975

<table>
<thead>
<tr>
<th>Disease Problems</th>
<th>Lampang Hospital</th>
<th>Them District Hospital</th>
<th>Pongyar Health Center</th>
<th>Health Post Volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Impatient</td>
<td>Outpatient</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1. Diseases of The Respiratory System</strong></td>
<td>URI, Pharyngitis, Bronchitis</td>
<td>URI, Influenza, Tonsillitis, Pneumonia</td>
<td>URI, Bronchitis, common cold, Cough, Pneumonia, Tuberculosis, Asthma</td>
<td>Cough, Common cold, Pneumonia, Tuberculosis, Dyspnea, Tuberculosis</td>
</tr>
<tr>
<td><strong>2. Diseases of The Digestive System</strong></td>
<td>Hepatitis, Appendicitis, Peptic ulcer, Appendicitis, Castritis</td>
<td>Peptic ulcer, Appendicitis, Dysentery, Dyspepsia</td>
<td>Diarrhea, Peptic ulcer, Gastroenteritis, Dysentery, Gastritis</td>
<td>Abdominal pain, Diarrhea, Dysentery, Constipation</td>
</tr>
<tr>
<td><strong>3. Symptoms and Ill-Defined Condition</strong></td>
<td>Pyrexia, Convulsion, Malaria</td>
<td>Pyrexia, Abdominal pain, Ulnverulsion, Fainting, Edema, Malaria</td>
<td>Pyrexia, Abdominal pain, Headache, Malaria</td>
<td>Headache, Fovor, Fatigue, Abdominal pain, Dyspepsia, Edema (Parasitic infection)</td>
</tr>
<tr>
<td><strong>4. Diseases of Skin</strong></td>
<td>Abscess, Cellulitis, Dermatitis</td>
<td>Abscess, Dermatitis, Allergy</td>
<td>Dermatitis, Itching, Allergy, Chronic ulcer, Scabies</td>
<td>Pruritus, Eczema, Dermalitis, Chronic ulcer, Acne, Pediculosis, Scabies</td>
</tr>
</tbody>
</table>
APPENDIX 11
Preceptorship Rotations for *Wechakorn* Trainees

<table>
<thead>
<tr>
<th>Rotation</th>
<th>Lampang Hospital</th>
<th>District Hospitals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>(6)</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>(7)</td>
<td>7</td>
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<td>9</td>
<td>10</td>
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<tr>
<td>(10)</td>
<td>10</td>
<td>1</td>
</tr>
</tbody>
</table>

**Code Explanation**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Medicine and Dispensary</td>
</tr>
<tr>
<td>B</td>
<td>Obstetrics - Gynecology and Family Planning</td>
</tr>
<tr>
<td>C</td>
<td>Surgery - Orthopedics and Emergency Room</td>
</tr>
<tr>
<td>D</td>
<td>Pediatrics and Laboratory</td>
</tr>
<tr>
<td>E</td>
<td>EENT and Dental Clinic</td>
</tr>
<tr>
<td>F</td>
<td>Thern District Hospital</td>
</tr>
<tr>
<td>G</td>
<td>HangChat District Hospital</td>
</tr>
<tr>
<td>H</td>
<td>Ngao District Hospital</td>
</tr>
<tr>
<td>I</td>
<td>Jaehom District Hospital</td>
</tr>
<tr>
<td>J</td>
<td>Wangnua District Hospital</td>
</tr>
</tbody>
</table>

1, 2, 3, ..... , 10 = indicates the trainee group number
# APPENDIX III

## CASE PERFORMANCE EVALUATION FORM

<table>
<thead>
<tr>
<th>Date ..................</th>
<th>General Hospital No ...........</th>
<th>Adminission No .............</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home ...............</td>
<td>Family Name. ...........</td>
<td>Age ..................</td>
</tr>
<tr>
<td>Race ..................</td>
<td>Occupation .........</td>
<td>Address ..................</td>
</tr>
</tbody>
</table>

| Score 1 or 0 |

<table>
<thead>
<tr>
<th>History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Complaint</td>
</tr>
<tr>
<td>Present Illness</td>
</tr>
<tr>
<td>Past Illness</td>
</tr>
<tr>
<td>Family History</td>
</tr>
<tr>
<td>Social History</td>
</tr>
<tr>
<td>Nutrition Status</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical Examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vital Signs</td>
</tr>
<tr>
<td>General Appearance</td>
</tr>
<tr>
<td>Head and EENT</td>
</tr>
<tr>
<td>Chest and Abdomen</td>
</tr>
<tr>
<td>Genitalia</td>
</tr>
<tr>
<td>Extremities</td>
</tr>
<tr>
<td>Back and Spine</td>
</tr>
<tr>
<td>Nervous System</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Laboratory Examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood</td>
</tr>
<tr>
<td>Stool</td>
</tr>
<tr>
<td>Urine</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnosis / Problem Identification</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Treatment and Patient Education</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Follow up and Referral</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Preceptor Signature</th>
<th>Total</th>
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</thead>
<tbody>
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<td>Total</td>
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</tr>
</tbody>
</table>

215
### Student Log Book

#### Evaluation Period

<table>
<thead>
<tr>
<th>Rotation</th>
<th>Beginning Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student's Name</td>
<td>Ending Date</td>
</tr>
</tbody>
</table>

### INSTRUCTIONS FOR THE STUDENT:

1. Keep this booklet with you all the time for a record of your progress.

2. It is your responsibility to be certified on all of the requirements listed in the booklet.

3. Be sure to have your preceptor CHECK and initial each requirement upon completion (except for the protocol list).

4. Each week show this booklet to the Personnel Development Division so that your progress can be recorded.
<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>No. Req.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Strep Throat</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Viral URI</td>
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<td>Influenza</td>
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<tr>
<td>Brochitis</td>
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<tr>
<td>Pneumonia</td>
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**HAVE PRECEPTOR DATE AND INITIAL EACH PROBLEM SEEN**

<table>
<thead>
<tr>
<th>SKILL</th>
<th>No. Req.</th>
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<th>3</th>
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<th>7</th>
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</thead>
<tbody>
<tr>
<td>Recognizing the abnormal breath sound of wheezing</td>
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<td></td>
<td></td>
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<tr>
<td>Recognizing the abnormal breath sound of rales</td>
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<tr>
<td>Recognizing irregular heart rate</td>
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<tr>
<td>Recognizing heart murmurs</td>
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<td>Detection of enlarged thyroid</td>
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</table>

**HAVE PRECEPTOR DATE AND INITIAL EACH SKILL PERFORMED CORRECTLY**
### SKILL

<table>
<thead>
<tr>
<th>SKILL</th>
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<th>5</th>
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<th>7</th>
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<th>9</th>
<th>10</th>
<th>Make a &quot;✓&quot; when req. completed</th>
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</thead>
<tbody>
<tr>
<td>Removal of urethral stone (when seen)</td>
<td>1</td>
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<td></td>
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<tr>
<td>Maintain airway</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control of bleeding</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I.V. fluid replacement</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O₂ Inhalation</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Have preceptor date and initial each skill performed correctly.

### Presenting Condition

<table>
<thead>
<tr>
<th>Presenting Condition</th>
<th>Protocol No.</th>
<th>No. Req.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>Make a &quot;✓&quot; when req. completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sore Throat/Fever</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fever/Cough/Dyspnea</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edema/Dyspnea</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jaundice/Abdominal Pain/Ascites</td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nausea/Abdominal Pain/Vomiting</td>
<td>6</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Have this record for your personal use.
# Appendix V

**Preceptorship Evaluation Book**

<table>
<thead>
<tr>
<th>INSTRUCTIONS FOR THE PRECEPTOR</th>
<th>INSTRUCTIONS FOR THE STUDENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The purpose of this book is to assist you in evaluation of <em>Wechakorn</em> students while they are on your rotation.</td>
<td>1. Make sure the patient you select has a presenting condition on which you are to be evaluated (a condition on your presenting on addition/protocol checklist).</td>
</tr>
<tr>
<td>2. Use page of the booklet for each patient seen by a <em>Wechakorn</em> student.</td>
<td>2. Before giving the book to your preceptor, complete your work-up and write your findings on the OPD card.</td>
</tr>
<tr>
<td>3. Please score each numbered item after reading the student work-up and checking by examining the patient yourself.</td>
<td>3. On every patient you see, have your preceptor complete one page.</td>
</tr>
</tbody>
</table>

## Evaluation Period

<table>
<thead>
<tr>
<th>Rotation</th>
<th>Beginning Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student's Name</td>
<td>Ending Date</td>
</tr>
<tr>
<td>DATA COLLECTION</td>
<td>PROBLEMS DEFINED</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>1. Followed protocol No: correctly</td>
<td>1. Recognized primary problem</td>
</tr>
<tr>
<td>2. Asked if other presenting conditions</td>
<td>2. Recognized other problems if present (score 1 if no other problems)</td>
</tr>
<tr>
<td>3. Asked about relevant past medical problems and treatment</td>
<td>Points Achieved</td>
</tr>
<tr>
<td>4. Recognized significant abnormalities</td>
<td>Minimum Standard</td>
</tr>
<tr>
<td>5. Performed physical exam gently and without clumsiness</td>
<td>Achieved</td>
</tr>
</tbody>
</table>

CONTINUING CARE

1. Arranged follow-up and/or referral correctly

Points Achieved

<table>
<thead>
<tr>
<th>Key: Points Achieved</th>
<th>Minimum Standard</th>
<th>Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = correct</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>0 = Wrong or did not do</td>
<td>Minimum Standard</td>
<td>Achieved</td>
</tr>
</tbody>
</table>

Patient's Name

Date

Preceptor's Initials
APPENDIX VI

Preceptorship: Problems Checklist (Medicine)

Class: I

Rotation: Medicine

Beginning and Ending Dates: November 24, 1975 to June 18, 1976

Objective

By the end of this rotation the student will have observed/examined patients with the following problems at least the minimum number of times indicated on the Problems Checklist in the student log book.

<table>
<thead>
<tr>
<th>Problems</th>
<th>Total Required</th>
<th>Problems</th>
<th>Total Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strep Throat</td>
<td>6</td>
<td>Amebic Dysentery</td>
<td>3</td>
</tr>
<tr>
<td>Viral URI</td>
<td>5</td>
<td>Cholera</td>
<td>3</td>
</tr>
<tr>
<td>Influenza</td>
<td>6</td>
<td>Acute Gastritis</td>
<td>5</td>
</tr>
<tr>
<td>Bronchitis</td>
<td>6</td>
<td>Intestinal Colic</td>
<td>6</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>5</td>
<td>Flatulency</td>
<td>6</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>5</td>
<td>Constipation</td>
<td>5</td>
</tr>
<tr>
<td>Asthma</td>
<td>5</td>
<td>Peptic Ulcer</td>
<td>6</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>6</td>
<td>Ascariasis</td>
<td>6</td>
</tr>
<tr>
<td>Hepatitis</td>
<td>5</td>
<td>Vitamin $B_1$ Deficiency</td>
<td>6</td>
</tr>
<tr>
<td>Cirrhosis of Liver</td>
<td>3</td>
<td>Hemorrhagic Fever</td>
<td>3</td>
</tr>
<tr>
<td>Cancer of Liver</td>
<td>2</td>
<td>Pyoderma</td>
<td>3</td>
</tr>
<tr>
<td>Jaundice</td>
<td>6</td>
<td>Folliculitis</td>
<td>3</td>
</tr>
<tr>
<td>Food Poisoning</td>
<td>3</td>
<td>Herpes Zoster</td>
<td>3</td>
</tr>
<tr>
<td>Bacillary Dysentery</td>
<td>3</td>
<td>Leprosy</td>
<td>5</td>
</tr>
<tr>
<td>Allergic Dermatitis</td>
<td>3</td>
<td>Scabies</td>
<td>5</td>
</tr>
<tr>
<td>Gnathostomiasis</td>
<td>2</td>
<td>Pediculosis</td>
<td>3</td>
</tr>
<tr>
<td>Psychoneurosis</td>
<td>6</td>
<td>Diabetic Coma</td>
<td>1</td>
</tr>
<tr>
<td>Hookworm</td>
<td>6</td>
<td>Hypoglycemic Coma</td>
<td>1</td>
</tr>
<tr>
<td>Tape Worm</td>
<td>6</td>
<td>Drug Poisoning</td>
<td>3</td>
</tr>
<tr>
<td>Malaria</td>
<td>3</td>
<td>Insecticide Poisoning</td>
<td>3</td>
</tr>
<tr>
<td>Meningitis</td>
<td>5</td>
<td>Heat Stroke</td>
<td>1</td>
</tr>
<tr>
<td>Hypertension</td>
<td>6</td>
<td>Anaphylactic Shock</td>
<td>1</td>
</tr>
<tr>
<td>Epilepsy</td>
<td>1</td>
<td>Dehydration</td>
<td>3</td>
</tr>
<tr>
<td>Migraine Headache</td>
<td>1</td>
<td>Thyrotoxicosis</td>
<td>5</td>
</tr>
<tr>
<td>Rheumatic Heart Disease</td>
<td>5</td>
<td>Neurocirculatory Asthenia</td>
<td>3</td>
</tr>
<tr>
<td>Nephritis</td>
<td>6</td>
<td>Renal Stone</td>
<td>6</td>
</tr>
<tr>
<td>Alcoholic Coma</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Preceptorship: Problems Checklist (Medicine)

Class: I
Rotation: Medicine
Beginning and Ending Dates: November 24, 1975 to June 18, 1976

Objective

By the end of this rotation the student will have correctly used the following protocols as prescribed in the student log book at least the minimum number of times indicated.

<table>
<thead>
<tr>
<th>Presenting</th>
<th>Number of times protocol must be passed by the end of the rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sore throat/fever</td>
<td>10</td>
</tr>
<tr>
<td>Fever/cough/dyspnea</td>
<td>10</td>
</tr>
<tr>
<td>Edema/dyspnea</td>
<td>10</td>
</tr>
<tr>
<td>Jaundice/abdominal pain/ascites</td>
<td>10</td>
</tr>
<tr>
<td>Nausea/vomiting/diarrhea</td>
<td>10</td>
</tr>
<tr>
<td>Fever/abdominal pain</td>
<td>10</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>10</td>
</tr>
<tr>
<td>Sore mouth/bleeding gums</td>
<td>6</td>
</tr>
<tr>
<td>Fever/rash</td>
<td>6</td>
</tr>
<tr>
<td>Skin complaints</td>
<td>10</td>
</tr>
<tr>
<td>Numbness</td>
<td>5</td>
</tr>
<tr>
<td>Anorexia/pale/worms</td>
<td>10</td>
</tr>
<tr>
<td>Fever/heatache/stiff neck</td>
<td>10</td>
</tr>
<tr>
<td>Headache/convulsion</td>
<td>6</td>
</tr>
<tr>
<td>Palpitation/tachycardia</td>
<td>6</td>
</tr>
<tr>
<td>Frequency</td>
<td>6</td>
</tr>
<tr>
<td>Convulsions/headache/coma</td>
<td>6</td>
</tr>
<tr>
<td>Poisoning</td>
<td>6</td>
</tr>
<tr>
<td>Loss of consciousness/fainting/shock</td>
<td>6</td>
</tr>
</tbody>
</table>
REFERENCES


2. Ibid.

3. Ibid.

4. Ibid.

5. Ibid.

6. Ibid.


EXPANDING THE COMMUNITY HEALTH ROLE
OF THE PROVINCIAL HOSPITAL

Sommai Yasamut
Jumroon Mikhanorn
John Rogosch
Stanley Zankel

Monograph 4
Lampang Health Development Project Documentary Series
1981

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- Performance of the Community Health Department

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Figure 1 Current and Future Functions of the Community Health Department, Lampang Provincial Hospital 248
Figure 2 Responsibilities of the Community Health Department, Lampang Provincial Hospital 249
This monograph, the fourth in a series designed to comprehensively document the experience of the Lampang Health Development Project, deals with extending the Provincial Hospital’s role into the community, and more fully integrating its activities into the provincial health care delivery system. This expansion has been achieved by establishing a Department of Community Health, and by conducting a series of training and technical support activities related to integrated community health care. This monograph describes how the modified role of the Provincial Hospital (especially the Community Health Department) has evolved and assesses the hospital’s achievements that related to the overall outcome of the Lampang Project.

PROJECT OBJECTIVES AND STRATEGIES RELATING TO THE PROVINCIAL HOSPITAL

Integrating the Health Infrastructure

One of the basic concepts behind the Project objective of establishing an integrated provincial health infrastructure was that all government health units (curative, preventive, and promotive, including hospital and peripheral, rural health facilities) would be coordinated under one single administration. The Ministry of Public Health, shortly before the Project began operations in 1974, had nominally consolidated the Provincial Hospital and all rural public health units under one head: the Provincial Chief Medical Officer (now called the Provincial Health Officer). For a variety of reasons that will be discussed in more detail, the Provincial Hospital operated relatively independent of the Provincial Public Health Office.

As the Lampang Project was established, Project planners recognized that the Provincial Hospital was the end-point of most referrals from the peripheral, rural facilities, and that it contained staff with the highest levels of education and skills which would be needed for training, technical support and supervision of the new categories of workers planned by the Project. Project planners therefore sought to more closely coordinate hospital activities with the other provincial health care units.

Expanding Health Prevention and Promotion

A second major task was to expand the hospital’s role in preventive and promotive health services. The Provincial Hospital’s role has traditionally been primarily curative, although it has included preventive health activities, such as pre-natal and family planning clinics, well-baby clinics, and immunization clinics. At the same time, the hospital has been heavily utilized, particularly in the out-patient departments, by a large number of patients with relatively minor problems that could have
been treated closer to their homes at a less sophisticated facility than the provincial hospital. One of the project strategies was to reduce the number of hospital visits for minor illnesses by building a capacity to deal with these problems at the periphery, or by screening many of those with minor illnesses for the physicians at the Provincial Hospital.

Paraphysician Training

One means for improving the capacity of the underutilized rural health centers to care for and prevent the major proportion of the minor illnesses encountered in rural villages, and relieve to the burden of care for minor illnesses on the Provincial Hospital physicians, was the development of the *wechakorn* paraphysician. Drawn from the ranks of government nurses, midwives, and sanitarians, the majority of *wechakorn* were trained for assignment in rural health centers, with a few deployed in the provincial or district hospitals to assist physicians. The project strategy for providing one year of competency-based training to four groups of *wechakorn* (totalling almost 100 trainees) was to use the Provincial Hospital as the center for training, with the hospital staff as the trainers. This training not only took advantage of the high level of technical skills available in the Provincial Hospital, but also served to involve hospital staff in the needs and limitations of health care at rural health facilities.

The advanced training given to hospital and rural health center staff as *wechakorn* also generated new demands for technical supervision and support, which normally have not been available in the provincial health office. Project staff therefore sought to stimulate hospital staff to take responsibility for providing some of this technical support and supervision to the newly-trained *wechakorn*, particularly for those assigned to the rural areas.

Upgrading the Provincial Hospital

Finally, independent of the Lampan Project objectives, the Ministry of Public Health had designated the Lampang Provincial Hospital as one of several hospitals to receive regional status. Each of eight planned regional hospitals is being expanded and upgraded technically to act as a referral unit for hospitals within the severeral provincial areas of their responsibility, and to provide intern and residency training. As a result, since 1977, a phased expansion plan has been carried out, and is continuing in the Lampang Provincial Hospital. In the first phase, a new out-patient facility was constructed, and is now in operation. Sections of the old out-patient and in-patient departments have been renovated, and an eight-story addition to the hospital, which will raise the bed capacity to 750 beds, is now under construction. New staff have been added, and a school of nursing, associated with the provincial hospital, has begun training its first classes. Together, these changes have brought a great increase in the complexity of services and capacity of the Provincial Hospital, presenting a changing environment into which the Lampang Project has also introduced its own innovations and strategies.
To explain the functioning of the Lampang Provincial Hospital and the changes that have evolved in it first requires an understanding of the organization of hospital-based care in Thailand, and its role within the whole system of health care. Describing the classification and organization of hospitals within Thailand is not a clear-cut task. There are a variety of sources reporting the number and capacity of hospitals, as well as a variety of classifications of hospitals which do not always coincide. Although a definitive, up-to-date classification of hospitals and their bed capacity is not currently available, there is sufficient information to provide a general background.

HOSPITAL TYPES AND SPONSORSHIP

In 1974, the Ministry of Public Health reported that nationwide, there were 248 general hospitals (those hospitals that accept all types of patients) with a total bed capacity of 39,722. This included both government and private hospitals. There was also a group of 329 rural district health centers, now renamed district hospitals, with a capacity of 3169 beds in 1974. To these categories were added "specialized hospitals", that is, those dealing with specific types of disorders, such as psychiatric disorders, narcotics addiction, and tuberculosis. Table 1 summarizes the Ministry's classification of hospitals in Thailand.

Since the Provincial Hospital is the topic of interest, and since all provincial hospitals are general hospitals, attention is given to this category. District hospitals, specialized hospitals, and other such institutions will not be considered.

Table 1
Hospitals in Thailand, 1974

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of Facilities</th>
<th>Number of Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>General hospitals</td>
<td>248</td>
<td>39,722</td>
</tr>
<tr>
<td>Specialized hospitals</td>
<td>31</td>
<td>12,283</td>
</tr>
<tr>
<td>Maternal and child health hospitals</td>
<td>5</td>
<td>575</td>
</tr>
<tr>
<td>District hospitals (includes health centers with beds)</td>
<td>329</td>
<td>3,169</td>
</tr>
<tr>
<td>Midwifery centers</td>
<td>48</td>
<td>402</td>
</tr>
<tr>
<td>All Types of Facilities</td>
<td>661</td>
<td>56,151</td>
</tr>
</tbody>
</table>

Source: Roemer, p. 80
Table 2
Source of Sponsorship of General Hospitals in Thailand, 1974
(Source: Roemer, P. 82)

<table>
<thead>
<tr>
<th>Source of Sponsorship</th>
<th>Number of General Hospitals</th>
<th>Number of Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Public Health</td>
<td>87</td>
<td>23,262</td>
</tr>
<tr>
<td>Other ministries</td>
<td>63</td>
<td>11,463</td>
</tr>
<tr>
<td>State enterprises</td>
<td>13</td>
<td>574</td>
</tr>
<tr>
<td>Municipalities</td>
<td>6</td>
<td>1,243</td>
</tr>
<tr>
<td>Private</td>
<td>79</td>
<td>3,180</td>
</tr>
<tr>
<td>All Sources</td>
<td>248</td>
<td>39,722</td>
</tr>
</tbody>
</table>

Table 2 indicates the source of sponsorship of the general hospitals. The Ministry of Public Health—sponsored hospitals, as Table 2 suggests, are generally larger facilities, averaging over 250 beds. Although the Ministry of Public Health owns the majority of the beds, there are many other general hospitals under different sponsorship. Included in the “Other ministry” category are the large teaching hospitals associated with the nation's medical schools (which are directly under the Prime Minister’s Office) and other hospitals with the Ministries of Defense, Communications, Interior and other branches of government. In 1974, private hospitals were large in number, but relatively small in bed capacity. However, in the past five years, there has been a great expansion in the number of private hospitals, particularly in Bangkok, and it is now estimated that there are more than 200 private general hospitals in the country with a bed capacity of almost 4,500. Since 1974, there has also been a considerable expansion in number and capacity of government general hospitals.

Provincial hospitals, located in the capital town of every province in the country, by far account for the largest number of general hospital beds overall, as well as for hospitals within the control of the Ministry of Public Health. In 1978, Ministry sources indicated there were 89 hospitals labelled “provincial hospitals” for the country’s 72 provinces. Although a province normally only has one provincial hospital, located in the capital town, the excess number of provincial hospitals is a result of more than one general hospital being located in each of several larger provinces with dispersed populations. The average size of a provincial hospital remains about the same as in 1974, or slightly more than 250 beds per hospital. However,
they range from as small as under 100 beds, to several hospitals now being expanded and upgraded as regional referral facilities with 600 to 700 beds. The size of the hospital varies roughly with the size of the provincial population it serves. The number of physicians varies with the size of the hospital, and MOPH standards suggest there be one doctor for every 15 beds in a provincial hospital, and one doctor for every 10 beds in the regional facilities. However, some of the smaller provincial hospitals in more isolated provinces have only four or five doctors in residence (range in 1978: 3-35 doctor/hospital, with an average of 10.5 doctors per hospital), and the overall ratio throughout the country is about one physician for 20 beds (Prawase Wasi, p. 21).

SERVICES AND STAFFING

As a general hospital, each provincial hospital admits all types of patients on both an in-patient and out-patient basis. However, the range of services and medical specialties to deal with these problems depends on the size of the hospital and its clinical staff. The orientation of the hospital is predominantly curative, although most hospitals have well-baby and immunization clinics, and family planning clinics. Frequently, staff members participate in rural mobile clinics, usually organized on an ad hoc basis by private sector service organizations. There is no systematic outreach into the community, and the major focus of the provincial hospital is on the sick patient who comes to the hospital for service.

In most provincial hospitals, a majority of the medical staff open private clinics in the provincial town. Whatever their specialty, most of the physicians operate their clinics on a general practice, fee-for-service (usually called fee-for-medicine) basis. Only hospital staff physicians can admit patients to the provincial hospital.

In the past, the provincial hospital and the provincial health office were more or less independent units, falling under separate departments within the Ministry of Public Health. To encourage greater cooperation between these units, a reorganization within the Ministry placed both the provincial hospital and the provincial health office under one unit, the Office of the Under-Secretary of State for Public Health. At the same time, the provincial hospital was nominally brought under the responsibility of the provincial health officer. Some improvement in cooperation and coordination between the provincial hospital and the provincial health office may have been achieved, but there were still several factors that served to maintain the hospital's autonomy from overall planning and coordination of health care within the province. First of all, although responsibility for both the provincial hospital and the provincial health office were consolidated within the Under-Secretary's Office, each unit still falls under a separate division within the Under-Secretary's Office. Provincial hospitals are under the Division of Rural Hospitals, and provincial health offices are under the Division of Rural Health.
The provincial hospital is nominally under the responsibility of the provincial health office, but the hospital receives its budget independent of the provincial health office, and personnel promotions and a variety of other administrative procedures within the hospital do not normally come under the scrutiny of the provincial health officer. Moreover, although the provincial health officer, as the person with overall responsibility for health care within the province, normally represents health units on the Governor's staff, the provincial hospital director, who is in a prestigious position, can often bypass the provincial health officer and deal directly with the governor in affairs that concern the hospital. Consequently, despite a number of positive steps taken to improve coordination of health care between the curative and public health arms, progress can be considered only modest.

Unlike many rural health facilities, provincial hospitals tend to be highly utilized: 100%+ inpatient censuses are not uncommon, and the out-patient departments are often overcrowded beyond capacity. A large proportion of the outpatients come to the hospital with minor ailments, without referral from another facility, and many could be easily treated at a rural health center. But many patients prefer to come to the hospital, where they believe the care and the physicians to be of a superior quality. This belief persists in spite of the overcrowded conditions, frequently resulting in patient encounters with the physician averaging no more than two or three minutes, and involving minimal examination and diagnosis.

Budget for salaries of professional staff, most operating costs, and capital construction are provided by the Ministry of Public Health, but the Ministry budget seldom covers the total operating cost of the provincial hospital. As a result, although provincial hospitals are public facilities, with special allowances made for low-income patients, they normally require patients to make some payment. These charges vary greatly depending on the service received and the ability of the patient to pay, but the income for the hospital generated by these payments accounts for at least 20% or 25% of its total budget. The additional funds generated are normally consolidated in what is called a “revolving fund”. The largest items for which the revolving fund is used are employment of additional hospital staff not covered by the government budget, and for drugs, equipment, and premises maintenance.

LAMPANG PROVINCIAL HOSPITAL

In 1942, a 25-bed hospital was build under the sponsorship of the Lampang Municipality, on a 20 acre plot. In 1950, the Department of Medical Services in the Ministry of Public Health took over responsibility for the hospital, purchasing adjacent land and adding new buildings and departments regularly until the hospital reached its pre-Project 300-bed size. During the period of Lampang Project implementation, the hospital was continually being expanded and renovated, as it was
designated a regional referral facility. By 1980, a new out-patient unit and a new nursing school had been completed; an eight-story addition, which will double the hospital size to over 600 beds, was under construction.

There are three private hospitals in Lampang, although only one, the 50-bed Van Sanwood Missionary Hospital, provides any significant service capacity. The other two are small 10 to 20 bed facilities, and with only one physician available in each part time, they are little utilized. In 1974, there were two district medical and health centers, which have since been renamed “district hospitals”; each had 10 beds and one physician in attendance. The district hospitals are under the responsibility of the Provincial Health Office, and have no direct link to the Provincial Hospital. Since 1974, five new district hospitals have been opened, for a total of 70 to 80 additional district hospital beds.

Table 3 summarizes the trends in Lampang Provincial Hospital bed capacity, staff, and service load from 1974 through 1979, the years of Lampang Project operations. The table shows a gradually increasing number of beds, and of both professional and nonprofessional staff. The inpatient load has increased only slightly; bed capacity has increased significantly, but a similar expansion of inpatient care must await the development of a full staff to support the increased bed capacity. On the other hand, the outpatient load has shown a sharp and progressive increase since 1974, particularly after completion of the new outpatient wing in 1977.

The in-patient departments currently include surgery, medicine, pediatrics, and obstetrics-gynecology. The out-patient departments are obstetrics, gynecology and family planning, pediatrics (including well-baby immunization clinic), ear, eye, nose, and throat (EENT); minor surgery (including orthopedics); and medicine. As in most provincial hospitals, some community health activities, such as family planning, well baby, and immunization clinics, have been integrated into the outpatient departments.

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<td>316</td>
<td>316</td>
<td>371</td>
<td>561(^a)</td>
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<td>16</td>
<td>22</td>
<td>24</td>
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<tr>
<td>Beds/Physician</td>
<td>22:1</td>
<td>20:1</td>
<td>14:1</td>
<td>15:1</td>
<td>21:1</td>
<td>18:1</td>
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<td>Dentists</td>
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Table 3 (continued)

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<td>34</td>
<td>35</td>
<td>45</td>
<td>111</td>
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<tr>
<td>Total Staff (professional + support)</td>
<td>368</td>
<td>397</td>
<td>471</td>
<td>549</td>
<td>628</td>
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Service Load

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<tr>
<td>Total inpatients/year</td>
<td>26,896</td>
<td>29,615</td>
<td>28,999</td>
<td>30,897</td>
<td>29,850</td>
<td>28,920</td>
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<tr>
<td>Average daily census</td>
<td>320</td>
<td>337</td>
<td>344</td>
<td>386</td>
<td>426</td>
<td>379</td>
</tr>
<tr>
<td>Percent of capacity (104%)</td>
<td>(107%)</td>
<td>(109%)</td>
<td>(104%)</td>
<td>(85%)</td>
<td>(75.6%)</td>
<td></td>
</tr>
<tr>
<td>Average length of stay (days)</td>
<td>4.3</td>
<td>4.2</td>
<td>4.3</td>
<td>4.6</td>
<td>5.2</td>
<td>4.8</td>
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<tr>
<td>Totals outpatients/year</td>
<td>118,879</td>
<td>144,399</td>
<td>157,140</td>
<td>185,403</td>
<td>185,533</td>
<td>194,525</td>
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<tr>
<td>Average outpatients/day</td>
<td>326</td>
<td>396</td>
<td>431</td>
<td>508</td>
<td>508</td>
<td>533</td>
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</table>

60 of these are baby bassinets, which were not included in bed totals before 1978.

Source: Annual Reports, Lampang Provincial Hospital, 1974-1979.

Following the nationwide pattern, the government budget allocated to the Lampang Provincial Hospital by far overshadows that provided to the Provincial Health Office, which is responsible for all rural health care and facilities. Table 4 summarizes the budget allocations for the Provincial Hospital and the Provincial Health Office over the 5 years of Lampang Project operations.

Table 4
Operational Budget Allocations for the Lampang Provincial Hospital and the Provincial Health Office, 1974-1979

(Figures in Baht; 20 Baht US$ 1.00)

<table>
<thead>
<tr>
<th></th>
<th>Provincial Health Office</th>
<th>Provincial Hospital</th>
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<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Government Budget</td>
</tr>
<tr>
<td>1974 (Pre-project year)</td>
<td>Not available</td>
<td>฿9,649,001</td>
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<tr>
<td>1975</td>
<td>5,279,885</td>
<td>13,040,700</td>
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<tr>
<td>1976</td>
<td>7,154,966</td>
<td>18,051,661</td>
</tr>
<tr>
<td>1977</td>
<td>8,475,195</td>
<td>20,606,705</td>
</tr>
<tr>
<td>1978</td>
<td>10,779,063</td>
<td>29,725,667</td>
</tr>
<tr>
<td>1979</td>
<td>13,667,914</td>
<td>40,717,976</td>
</tr>
</tbody>
</table>

a Operational budgets only — budgets for land & construction not included.

Source: Annual Reports, Lampang Provincial Hospital, 1974-1979, and Lampang Provincial Health Office fiscal accounts.
It is clear that although the budgets of both have increased each year, the operational resources available to the Provincial Health Office are small in comparison to those available for the Provincial Hospital. If capital funds were also added these budget totals, the difference between the hospital and the Provincial Health Office would be even greater. The difference between the two in resources available is emphatic when one considers that the provincial health office is responsible for seven district hospitals, about 70 district health centers, 35 midwifery centers, a variety of special-purpose programs, and the primary health care volunteer network. The provincial hospital is a single facility.

As in all provinces of Thailand, the director of the Provincial Hospital is nominally under the authority of the Provincial Health Officer. However, the Provincial Health Officer has little role in coordinating hospital activities and exercises no control over the Provincial Hospital's budget or administration, which, as mentioned earlier, flow through a separate line from the Ministry of Public Health. There has traditionally been no routine system of reporting hospital activities to the Provincial Health Office. These are a few factors which suggest a relative autonomy of operation of the Provincial Hospital within the provincial health care system.
CHAPTER 2

STEPS IN BUILDING THE HOSPITAL ROLE

The initial steps in developing a role for the Provincial Hospital were designed to establish a base from which more substantive activities could spring. First, the Project's Planning and Programming Division (initially called Medical and Health Services Division) was placed inside the hospital. The Chief of this division was responsible for planning and coordinating the implementation of all Project rural health strategies through both the hospital and the Provincial Health Office.

Another Project staff position, designated "hospital-based planner", was also established, and a senior physician from the hospital was chosen to fill it. The planner was chosen as a link between the Project and the hospital staff, to help develop specific activities in which the hospital would participate, and to assist in explaining Project goals and strategies to the hospital staff. In addition, the Provincial Hospital director was encouraged to take part in Project and provincial health planning meetings to gain an overall understanding of Project strategies.

PARAPHYSICIAN TRAINING

The most intensive involvement of the Provincial Hospital in the early stage of the project was in preparation of a training program for the wechakorn paraphysicians. Project staff planned to begin the one-year training program for the first group of wechakorn immediately, but the curriculum, an outline of instruction methods, and training of trainers had to be completed first. During the first months of the Project, several Project staff (including one senior physician from the provincial hospital) travelled to the University of Hawaii to take part in training workshops organized by the Health Manpower Development Staff, who provided technical assistance in establishing wechakorn training based on the Medex model. They received orientation in the development of competency-based training programs and materials. After returning to Thailand, they, in turn, oriented other hospital staff who would take part in the wechakorn training. Consultants from the University of Hawaii Health Manpower Development Staff (Medex) also assisted.

The hospital staff shared responsibility for preparing each of the 24 training modules, the heart of the competency-based training program. In addition, Project and hospital staff who had been oriented to the training approaches persuaded others in the hospital to assume responsibility for training activities. There was resistance from some hospital staff members, but in the end, a small nucleus of staff in the hospital enthusiastically supported the program, and the majority willingly provided the support needed.
After intensive preparation, the first class of fifteen wechakorn began training in July, 1975. Hospital staff physicians, coordinated by the staff of the Lampang Project Personnel Development Division (with a hospital physician as deputy chief) carried much of the teaching load in the didactic, or classroom phase, and acted as preceptors during the preceptorship, or clinical phase. Hospital staff continued in these roles through the completion of training for the subsequent three groups, training a total of 96 wechakorn (92 for the Lampang Provincial health system, and four from other areas/ministries).

DEVELOPMENT OF THE COMMUNITY HEALTH DEPARTMENT

As part of the general reorganization of the provincial health care infrastructure, establishing closer links with the provincial hospital required a unique modification and rearrangement of service units and relationships. The project strategy for establishing the hospital as the nucleus of the health care network consisted of several steps through which the ultimate structure would evolve:

1. Temporary extension of the hospital out-patient department to district health centers.
2. Establishing a Community Health Department in the hospital which eventually would have responsibility for direct support of rural health services.
3. Combining a number of Provincial Health Office service functions in the Community Health Department.

Extended Outpatient Services

In the first phase, hospital out-patient department services were extended to the district health center in Hang Chat, the first district to which integrated services were introduced. Since the district health center had no physician in residence, an immediate priority was to add one to the staff. The simplest approach to filling the position, and to initiating involvement of the hospital in rural health care, was to rotate provincial hospital physicians through the center in Hang Chat at two-month intervals. The rotation program continued for almost two years, providing services during the clinic hours five days a week, until the new district hospital was completed and staffed by a permanently-assigned physician.

During the period that provincial hospital physicians served in the Hang Chat health center, the utilization of services there increased sharply. In the year before physicians were rotated through Hang Chat, the average number of patients seen per month had been about 125. However, shortly after the physician rotations began, the monthly average more than doubled. Since the hospital physicians were only in transient assignments, their role was generally limited to providing medical care services, and they did not have sufficient time or opportunity to lead the district health team. With the completion of the district hospital in Hang Chat, the permanently-assigned physician assumed this responsibility.
Unique Role of the Department

As Project operations commenced, a community health department was proposed as a mechanism to effectively link the Provincial Hospital to the Provincial Health Office and rural health services. The hospital-based planner undertook the initial organization of the department, and became the department’s chief. An old building, separate from the Provincial Hospital main buildings, was assigned to the Community Health Department.

The Community Health Department established in the Lampang Provincial Hospital was the first of its type in Thailand, although there were already a number of community health or community medicine departments in teaching hospitals associated with medical schools. However, the function of community health departments in medical schools has been primarily to train medical students and other health professionals. Each medical school faculty has generally chosen one rural district, served by a district hospital and outlying health centers, through which small groups of medical students have rotated for periods of up to six weeks. The field work in the rural district is coupled with classroom lectures, and is expected to prepare the newly-trained physician for future work in rural areas.

Developing a community health department in a non-teaching provincial hospital was a complex task. The objectives of such a department are somewhat different from those of a medical school department. The medical school normally selects small areas to be used as a field training site for students. The objective in Lampang, on the other hand, was to make the Community Health Department the center for stimulating and coordinating health services in all rural districts, rather than one selected area. But training is also a function of the department, as an integral part of the department’s role in linking the hospital with rural health centers.

The Ministry of Public Health has recognized the need for community health departments in general hospitals, and has planned to establish such departments in other provincial hospitals in Thailand. The Ministry will evaluate the model and experience of the Lampang Hospital Department in order to plan for expansion to the rest of the country.

The Department of Community Health was initially headed by the Project’s hospital planner, assisted by a public health nurse/health educator, a social worker, an epidemiologist/statistician and secretary. With a seriously limited number of available staff positions and resources at its disposal, most of the early activities of the department were focussed inside the hospital. These were:

1. Organizing educational activities for the prenatal, well-baby, postnatal and family planning clinics;
2. Implementing educational activities and discharge counselling programs in the various wards;
producing a variety of educational brochures and leaflets for distribution in the various out-patient clinics;

(4) Improving the public address system for broadcasting health messages periodically during the day;

(5) Improving environmental sanitation on the hospital premises; and,

(6) Coordinating collection of hospital statistics and epidemiological reports normally sent to the Provincial Health Office.

While concentrating on activities inside the hospital during the initial period, the department's chief looked for opportunities to link the department with peripheral rural health services. In mid-1977, one such opportunity presented itself: the organization of a mobile vasectomy clinic.

MOBILE VASECTOMY CLINIC

In mid 1977, the Lampang Project Director suggested that the Community Health Department become involved in the Ministry of Public Health's mobile vasectomy program. Under this program which is a part of the National Family Planning Project, teams were set up within provincial health offices in a number of provinces to provide vasectomies to villagers in rural locations. This was an ideal activity for the Community Health Department to expand rural services, as the chief of the department was a skilled surgeon specializing in urology. With assistance from the vasectomy training team of Ramathibodi Medical School, the first mobile clinic was organized in Hang Chat District in October, 1977. The response was much greater than expected – 150 rural villagers had a vasectomy in the first two days of the clinic, confirming the acceptability of vasectomy in the rural areas. After the first clinic, the mobile team travelled to rural locations twice a month. A motivation team worked with local village leaders and health volunteers prior to the mobile team's visit.

The Family Health Division of the Ministry of Public Health provided a minibus for the mobile team as well as costs of supplies and per diem for participating staff. The mobile vasectomy team achieved important results during its first year of operation. Nearly one thousand vasectomies were performed, compared with less than a hundred performed in the hospital in previous years.

The mobile clinic has filled a major gap in the generally successful National Family Planning Project. It seems apparent that many rural men are interested in having a vasectomy. But the Provincial Hospital, where vasectomies have been most readily available, is not easily accessible to rural men. Bringing the service closer to their homes (the mobile clinics have been operated from rural health centers) has made it more convenient, and the high quality of service provided has reinforced acceptance among rural villagers.
Expansion of the Mobile Clinic Work

As the mobile vasectomy team travelled through rural areas of the province, large groups of villagers also came to the clinic site seeking care for other ailments. It became clear to the mobile clinic team that although the vasectomy service could continue to be a spearhead, the clinics were also a good opportunity to provide care for villagers on a walk-in basis, and to emphasize immunizations, maternity care, and well-child care, in addition to general physical examinations. The addition of these clinical, promotive, and preventive services has made the Lampang mobile vasectomy program unique.

The clinics have also served to provide support and training for physicians, wechakorn, and other health workers at the district hospitals and rural health centers. Physicians and nurse-wechakorn from the Community Health Department have often used the mobile clinics to train district hospital doctors in improving their vasectomy technique, and in supervising health center-based wechakorn. This continuing education and supervision function is a morale booster for peripheral health staff; it also provides the local health workers with opportunities to discuss clinical problems, which is often not possible with their administrative supervisors. Equally important, the mobile clinics are a vehicle through which Provincial Hospital and Provincial Health Office staff can gain a clearer understanding of rural health care needs, the management and logistic limitations in serving these needs, and the difficult conditions under which health workers operate at the periphery. This understanding is crucial for hospital staff who encounter rural patients only briefly, and have no opportunity to know the full background of their health problems and the environment which fosters them. The mobile clinics also give new credibility to the health center where the clinics are held.

EXPANSION AND CONSOLIDATION OF HOSPITAL-BASED ACTIVITIES

During the several years since its inception, the Community Health Department has expanded its activities and consolidated its service program within the hospital. Such expansion has been greatly facilitated by the completion of the large, integrated out-patient department in mid-1978. The service programs described below have been consolidated under the department's responsibility.

Medical Care for Referred Patients

Although most patients seeking medical care in the hospital go to one of the out-patient departments, those referred from rural health centers and district hospitals come to the Community Health Department. If other, more specialized, out-patient care or in-patient care is required, the Community Health Department refers the patient to the appropriate referral point in the hospital.
Infectious and Communicable Diseases (Tuberculosis Clinic)

The Community Health Department treats patients with communicable diseases such as dengue fever, pneumonia, skin disease intestinal parasites, and tuberculosis. The tuberculosis clinic which started as a curative service, has added a preventive/promotive component which includes health education of patients and family members. Aside from the treatment of patients with anti-tuberculosis drugs and vitamins, family contacts are encouraged to have a tuberculin test and, if negative, are given a BCG immunization.

Well-Baby Clinic

When the well-baby clinic was turned over to the Community Health Department by the Pediatrics Department in 1977, well-child activities primarily emphasized immunizations. This activity was conducted by instructors and students from the Lampang Midwifery School in one afternoon session each week. Although the immunization program was important, the Department staff felt the well-child clinic was not comprehensive in scope. More services were added to the well-baby clinic, and as it was expanded to a full day each week in 1978, the scope of services was also broadened to include nutritional assessment, physical examination, clinical assessment, and the complete range of primary immunizations. The Midwifery School still uses the afternoon session for training, but has expanded the emphasis to include health education, nutrition and physical assessment.

Prenatal Clinics

Prenatal clinics are run by the Obstetrics/Gynecology Department, but the Community Health Department assists the prenatal clinics by educating new mothers in the importance of immunizations, family planning, and proper child care. The Community Health Department wechakorn and social worker have provided expectant mothers with special health education classes in the clinic waiting room. Emphasis is given to the importance of breast-feeding, proper infant food preparations, and contraception. Expectant mothers who come to the well-baby clinic are also encouraged to utilize the prenatal clinic.

Social Welfare Services

The Community Health Department has assumed responsibility for overall supervision of welfare services at the hospital, including free medication, supplementary food for children, and other types of support for indigent patients and their families. Private sector support has been provided by the Rotary and Lions Clubs of Lampang, and is administered by the social welfare section.

Health Education

One initial activity of the Community Health Department was to provide health information to both patients and hospital staff, and later, specific educational programs associated with the well-baby, prenatal, and tuberculosis clinics. Group education sessions are held at the out-patient departments and various in-patient
wards. On three mornings each week, films are shown to large groups of people gathered at the out-patient department. Film topics include transmission and prevention of communicable diseases, promotion of good child nutrition, and the importance of family planning. Messages are also broadcast through an intercom system which connects every ward and department to the Health Education Unit of the Community Health Department.

Special health education sessions have been given to other members of the hospital staff with the aim of encouraging all staff members to take an active role in disease prevention and health promotion. Head nurses of all in-patient wards have been trained to teach patients ways to prevent and reduce health problems commonly found in the north, as well as the importance of good environmental sanitation and personal hygiene.

Environmental Sanitation

From its earliest days, the Community Health Department has assumed responsibility for monitoring environmental sanitation in the provincial hospital. This has included improvement of the sewerage system, development of safe collection of refuse in each ward, construction of latrines throughout the hospital, improvement of drinking water at the various wards in departments, and control of vector-borne disease agents through the use of insecticides and addition of screens in the in-patient wards.

Other Activities in the Lampang Municipality

The Department has focussed primarily on health activities in the Provincial Hospital or in selected rural communities of the province. However, the need for attention to health problems within the municipality of Lampang became apparent. Discussions were held with municipal officials to explore possibilities for using school administrators and staff to influence the health of the school-age population. The importance of including a school health program in the curriculum of all undergraduate programs at the Lampang Teacher Training College was also stressed. In late 1978, a health exhibition was held in the largest secondary school in town. The Department has since established a routine school health program in the first six grades of all schools located in the municipality. Aside from health education, immunizations and health examinations are given in cooperation with the Lampang municipal health authorities.

A later development in the Community Health Department's activities was the establishment of a jail health program, beginning with typhoid immunization and narcotics control programs to reduce the high incidence of these problems. Occasionally, Community Health Department staff also participate in special social welfare projects organized with the Red Cross and other service agencies to extend education, agricultural and economic assistance within Lampang.
Figure 1 summarizes the current overall functions of the Community Health Department and plans for future additions; Figure 2 outlines the specific responsibilities of each unit within the Department.

STAFFING: AN EXPANDING, UNMET NEED

The Community Health Department began in 1975 with a professional staff of three, none of whom had a permanent position in the department. It had no budget of its own, as it was initially experimental, and had no official recognition from the Ministry of Public Health. This made recruitment of staff especially difficult during the first three years. Most had to be borrowed from other departments or units, and with no permanent positions or possibility of career advancement, turnover was rapid. Many young staff with excellent potential stayed in the department only briefly, accepting better, more permanent positions elsewhere as they became available.

A major task of the department, then, was (1) to seek support within the Provincial Hospital, (2) to make the department an officially-recognized unit, and (3) to secure permanent staff positions from the Civil Service Commission. Acceptance of the Community Health Department’s status within the hospital structure, and official recognition by the Ministry of Public Health were readily achieved. The Ministry has now authorized establishing similar departments in a number of provincial hospitals as well as in Lampang. With the completion of the new outpatient building, the department was fully integrated into the provincial hospital structure, and special budget provisions were made available.

Resolution of the staffing problems has been more complicated, but there has been, and continues to be, a progressive increase in both the total number and professional backgrounds of the department’s staff. Table 5 summarizes the staffing pattern over the period of Lampang Project operations.

After the Ministry of Public Health adopted community health departments as formal policy, official positions for department staff were requested from the Civil Service Commission. A number of positions have been authorized, but the department has continued to fill almost half of its staff needs with personnel on loan from other hospital departments and from the Provincial Health Office.
FIGURE 1

Current and Future Functions of the Community Health Department
Lampang Provincial Hospital
1979

Community Health Department

Hospital-Based Services

- Immunizations
- Nutrition
- Health education
- Communicable disease control
  and surveillance
- Outpatient medical care
- Environmental sanitation
- Social welfare
- Drug addict care (outpatient)
- Special disease clinics
- Medical care by radio for
  isolated areas
- Malnourished children's ward
- Ward for contagious diseases
- Drug addiction ward
- Geriatric services

Community-Based Services

- Jail health
- School health
- Community information/education
- Mobile health services
- Coordination of health activities
  in the Lampang municipality

Support for Peripheral Services

- Medical referrals
- Mobile clinics
- Special services
- Technical supervision

* New activities to be added during 1981-1986 period
FIGURE 2
Responsibilities of the Community Health Department
Lampang Provincial Hospital
1979

Other Departments

Provincial Hospital

Community Health Department

Health Promotion
- School health
- Dental health
- MCH
- Nutrition

Communicable Disease Services
- Epidemiology
- TB
- Hepatitis
- Malaria
- VD
- Vector-borne diseases
- Other communicable diseases

Environmental Health
- Sanitation
- Water supply
- Environmental protection

Health Education/Information
- Indigent patient care
- Chronic patient care
- Coordination with private charitable agencies

Curative Services
- Medical care
- Integrated mobile health care
- Mobile family planning
- Treatment for communicable disease
- Patient referral
- Nutrition surveillance
- Medical care by radio

Social Welfare
- Information
- General health education
- Nutrition education
- School health education

Administration
- Statistics

District Hospitals

Health Centers and Midwifery Centers
Table 5
Community Health Department Staff
1975-1979

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</tr>
<tr>
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<td>-</td>
<td>-</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Nutritionist</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Sanitarians</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Nurse-aides</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Health Educator</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Clerical/Other</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>16</td>
<td>18</td>
</tr>
</tbody>
</table>

\(^a\) Wechakorn in the department are hospital nurses or provincial health nurses trained as wechakorn.

A problem unique to the Community Health Department, and which constantly affects staff morale, is career advancement. Within the Provincial Hospital in general advancement to senior-level positions in each professional category is limited to the clinical departments, and such positions are not available in the Community Health Department. As a consequence, several staff must retain their positions in the clinical departments, and only serve in the Community Health Department on a loan basis. For nurses and nurse-wechakorn, the problem is most troublesome. All hospital nurses have had to retain their positions in the clinical departments, where they can advance through the ranks, rather than accept a permanent position in the Community Health Department, which cannot offer this potential.

The hospital nurse-wechakorn were originally expected to assume a major responsibility for screening patients in the outpatient department and Community Health Department, relieving the burden on the physicians. However, to accept a permanent position in the outpatient departments would have stifled career advancement, and subsequently, most of the nurse-wechakorn returned to senior positions in the clinical wards. (One joined the recently opened nursing school.) Of the 15 hospital nurses trained as wechakorn, two are in the Community Health Department, one is in the family planning unit, one is the head of outpatient nursing, one is chief of all nurses, and the others have returned to the clinical wards.
PERFORMANCE OF THE COMMUNITY HEALTH DEPARTMENT

Table 6 summarizes services provided by the Community Health Department since 1977, when data were first consolidated for the unit.

Table 6
Summary of Services, Community Health Department,
Lampang Provincial Hospital
1977-1979

<table>
<thead>
<tr>
<th>Services</th>
<th>1977</th>
<th>1978</th>
<th>1979</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well Child Services - Total</td>
<td>4,793</td>
<td>5,330</td>
<td>6,761</td>
</tr>
<tr>
<td>Immunizations:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCG</td>
<td>b</td>
<td>b</td>
<td>627</td>
</tr>
<tr>
<td>DPT</td>
<td>b</td>
<td>b</td>
<td>5,631</td>
</tr>
<tr>
<td>OPV</td>
<td>b</td>
<td>b</td>
<td>6,002</td>
</tr>
<tr>
<td>Child Nutrition Services</td>
<td>890</td>
<td>3,563</td>
<td>4,432</td>
</tr>
<tr>
<td>Maternal Health: Tetanus Immunization</td>
<td></td>
<td>817</td>
<td>1,250</td>
</tr>
<tr>
<td>Pre - and Postnatal Education</td>
<td></td>
<td>194</td>
<td>855</td>
</tr>
<tr>
<td>Tuberculosis Patients (old and new)</td>
<td>751</td>
<td>1,385</td>
<td>2,005</td>
</tr>
<tr>
<td>Outpatient Medical Care</td>
<td>11,733</td>
<td>10,469</td>
<td>4,678</td>
</tr>
<tr>
<td>Mobile Vasectomy Services</td>
<td>265</td>
<td>761</td>
<td>401</td>
</tr>
<tr>
<td>Other Mobile Services</td>
<td>1,001</td>
<td>12,577</td>
<td>7,317</td>
</tr>
<tr>
<td>Social Welfare Services</td>
<td>1,975</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Outpatient</td>
<td>-</td>
<td>3,364</td>
<td>3,732</td>
</tr>
<tr>
<td>Inpatient</td>
<td>-</td>
<td>1,573</td>
<td>4,200</td>
</tr>
<tr>
<td>Jail Health Contacts</td>
<td>-</td>
<td>-</td>
<td>2,734</td>
</tr>
</tbody>
</table>

Source: Community Health Department Report, June 1980

* Before 1977, there was no unified collection of this data
* Totals for 1977 & 1978 unavailable

The mobile vasectomy program has been a unique activity, and has produced results which merit special mention. Before the mobile team was organized, about 30 to 40 men came to the provincial hospital for a vasectomy each year. But in the first two and a half years of operation, the mobile clinic brought vasectomy services to over 1,400 rural men. Operating out of rural health centers, the mobile team has made vasectomies more accessible to rural men who desire no more children, bringing the service close to their homes.

Shortly after the mobile vasectomy clinic began operating, each man receiving a vasectomy was interviewed to gather background information on demographic characteristics, economic status, and reasons for desiring a vasectomy. The survey
was slightly expanded to include new items of interest. Overall more than 1,000 men were interviewed up to the end of October, 1979.

The results of the survey provide some insight into the type of person who accepts a vasectomy and his reasons for doing so. Table 7 summarizes some of the more pertinent findings.

Table 7
Summary of Mobile Vasectomy Clinic Results, 1977-1979

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Acceptors</td>
<td>1,540</td>
</tr>
<tr>
<td>Average Number Acceptors/Clinics</td>
<td>17</td>
</tr>
<tr>
<td>Average Age of Acceptor</td>
<td>32.7 years</td>
</tr>
<tr>
<td>% Age 30 or less</td>
<td>42.6 %</td>
</tr>
<tr>
<td>% Age 45 or less</td>
<td>95.8</td>
</tr>
<tr>
<td>Average Age of Acceptor’s Wife</td>
<td>29.2 years</td>
</tr>
<tr>
<td>% Age 25 or less</td>
<td>31.4 %</td>
</tr>
<tr>
<td>% Age 30 or less</td>
<td>65.9 %</td>
</tr>
<tr>
<td>% Age 35 or less</td>
<td>83.2 %</td>
</tr>
<tr>
<td>Acceptor’s Family Size - Average</td>
<td>3.0 children</td>
</tr>
<tr>
<td>2 or less children</td>
<td>50.3 %</td>
</tr>
<tr>
<td>3 or less children</td>
<td>72.5 %</td>
</tr>
<tr>
<td>Average Education of Acceptor</td>
<td>3.5 years</td>
</tr>
<tr>
<td>Average Education of Acceptor’s Wife</td>
<td>2.8 years</td>
</tr>
</tbody>
</table>

The summary data suggest that the majority of acceptors, most of whom are rural farmers, are relatively young (with young wives), have small families, and have little education. A large number are poor in terms of the amount of land needed to support a family. The data suggest a clear potential impact on fertility, as the majority of acceptors have terminated fertility well before the end of their wives’ reproductive period, and with relatively small family size. The results also suggest that the commonly-held belief that poor, uneducated rural men are not interested in vasectomy is not valid, at least in the Lampang area.
CHAPTER 3

CONCLUSIONS AND LESSONS LEARNED

Of all the approaches attempted by the Lampang Project, modifying the role of the Provincial Hospital — and, especially, establishing a Community Health Department — has been perhaps the most challenging, with the fewest guiding precedents. Project staff already had some experience in the concepts and methods of training village health volunteers and paraprophysicians, and adapted the approaches to meet Project needs. But there was no conceptual background or experience in Thailand to serve as an impetus in the project effort to expand the hospital's role in the community. Consequently, the first steps to implement this component of the Project were tentative, and initial progress was slow to gather momentum. But with each new activity and source of support, the Department of Community Health gained a firmer institutional footing.

But a review of accomplishments only serves to highlight what remains to be done. As in most other aspects of the Lampang Project, the development of the Provincial Hospital's community-based role must continue to evolve as the lessons and experience gained are regularly assessed. What has been learned thus far, and the problems that remain, are summarized in the following paragraphs.

TRAINING WECHAKORN

Training the wechakorn paraphysician was the first major step taken to involve the Provincial Hospital in dealing with the health needs of the population outside of the hospital confines. Hospital physicians, provided with a conceptual framework and structured guidelines by the Lampang Project, carried the brunt of responsibility for passing on their medical skills to both hospital and rural health wechakorn during the one-year training period, who then served to infuse a new medical care competence and credibility into the rural health care delivery network.

The impact of the hospital contribution to this training program introduced a variety of changes into the hospital itself, but the impact was perhaps much greater on the surrounding community. There are now trained wechakorn in almost all of the more than 70 rural health care facilities of the province. The training provided has (1) clearly stimulated an esprit de corps among the newly-trained wechakorn, and it has given them new credibility as individual health workers in their communities; (2) it has helped to renew community interest in the rural health center; and, (3) it has created the important teacher-student link between the hospital-based physician and the wechakorn trainees, one that is a potential vehicle for further learning and support.
CREATING A COMMUNITY HEALTH DEPARTMENT

The establishment of a Community Health Department was the first systematic effort to expand the scope and depth of the hospital in serving the broader community health needs. Creating such a department was one component in the overall project strategy of more closely linking and integrating the total provincial health care infrastructure.

The Community Health Department was the first of its kind in the country, and similarly-named departments in medical school teaching programs did not provide appropriate models for a provincial service hospital. Once established, it remained for the department to carve out a clear role for itself within the hospital and to extend its reach into the community. Two major events provided opportunities to solidify the department's role: (1) the opening of the new hospital outpatient wing, and (2) the organization of the mobile vasectomy clinic.

With the opening of the new, expanded outpatient department building, the Community Health Department was given the large area in which to conduct its activities, and to expand and consolidate the range of its programs within the hospital. In effect, this institutionalized the department within the hospital structure, a crucial requisite for the department to fulfill its role effectively.

The organization of the mobile vasectomy clinic was of equal importance, as it provided a concrete opportunity for taking hospital staff into the community to serve an unmet need, and to forge a continued working link with the rural health care facilities. Using the vasectomy clinic as a means to begin community-based activities is perhaps unique in Lampang, as such clinics are normally operated by staff from a provincial health office. However, the mobile vasectomy experience has provided a clear lesson. For the Community Health Department to establish a clear-cut role in the community, it must choose a service extension program that serves a distinct, but unmet, perceived need in the community; one that utilizes the unique skills and experience available in a provincial hospital, one that supports and supplements overall provincial health activity, and finally, one that establishes and fosters the supportive, teaching link with the peripheral health facilities.

Another major factor in the development of the Community Health Department’s service capacity has been the addition of the wechakorn paraphysicians to the department staff. The department’s wechakorn, formerly nurses within the hospital wards or provincial health office, have been a key element in the department’s ability to carry out both its field-based and hospital-based programs. It is in the Community Health Department that the hospital-based wechakorn have truly fulfilled the role envisioned for them in pre-Project planning.
SUPPORT FOR THE COMMUNITY HEALTH DEPARTMENT

The tenacity of the department staff in seeking support has also been a major facilitating factor. As the department opened in the early days of the Project, it was fortunate to have Lampang Project budgetary and staff support during the period that its role was neither institutionalized by the Provincial Hospital, nor fully authorized by the Ministry of Public Health. However, as the department took on more substantive activities, its resource needs became greater, and more responsibility for the department's support shifted to the Provincial Hospital. When the Ministry of Public Health officially authorized the establishment of community health departments near the mid-point of Project operations, the department's role was accepted and institutionalized within the Provincial Hospital. This made staff positions and budgetary support directly available to the department. The department has continued to seek new staff positions from the Civil Service Commission, and although great progress has been made, continuing efforts must be exerted to secure sufficient staff to carry out the expanding program of the department. An important outcome is that by the end of project field operations in September, 1979, all support for the Department of Community Health had been assumed by the Provincial Hospital and the Ministry of Public Health.

PROBLEMS AND OBSTACLES TO OVERCOME

The experience in modifying one component of the Provincial Hospital's role, and particularly in establishing the Department of Community Health, has been characterized by steady progress as new opportunities presented themselves, and as existing constraints have been overcome. Because removing the constraints has been a major task and accomplishment of the department, it is these areas that have received more than the usual amount of attention. As Project and hospital staff look to the future and to further growth and strengthening of the hospital and the Community Health Department's role, it is thus the potential constraints and obstacles that stand out, and which require further consideration.

Growth of Staff

In the near future, the Provincial Hospital's size will grow to 750 beds as it assumes regional hospital status. In recent years, as the hospital slowly increased bed capacity under its phased expansion plan, the inpatient load has not significantly increased. This is due, in general, to a much more slowly increasing hospital staff. As the new hospital units open in the near future, the problem of staffing will become extremely acute. It will most likely be some time before sufficient staff can be made available to appropriately match the increased bed capacity. This suggests that there will be great pressure on current hospital staff to assume responsibility for the new capacity, and the increase in size and status of the hospital will undoubtedly open up new opportunities for advancement in the clinical departments. A major
concern, is that the already considerable pressure on the Community Health Department staff will become more pronounced as the department expands its role and that many of the very competent staff will be attracted to the new clinical positions available with more career potential.

Performance of the Mobile Vasectomy Team

The mobile vasectomy/health clinics, which have been a mainstay of the Department's community-based field activities, have shown a decline in frequency and output in the last months of Project field operations, particularly in the post-1979 period. The decline is the result of several factors.

1. As the pace of the Community Health Department activity within the hospital has increased, the time that staff have available for travelling into the field has become scarcer, and the frequency of the clinics has been reduced from two to one each month.

2. The vasectomy acceptors' response at the clinics, when they are organized, has been reduced by the absence of an effective pre-clinic motivation team. Earlier clinics had been preceded by staff from the Project audio-visual unit, who, working with local village leaders and the village health volunteers, had publicized the planned clinics and their location, and the importance and advantages of vasectomy. However, the A-V Unit has been disbanded, and no equally capable team has assumed this function.

3. The National Family Planning Project has provided a vehicle specifically for the mobile vasectomy team out department staff suggest that the budget available for gasoline is insufficient to send the team into the field more than once a month.

4. One major factor that seems to have influenced the number of vasectomies provided through the mobile team in Lampang, and as a wider phenomenon throughout Thailand, is the introduction of special support for physicians performing vasectomies in private clinics through the program sponsored by the Association for Strengthening Information on Family Planning Programs (ASIN). In this program, physicians operating private clinics (although they may be the same physicians who work in the provincial hospital or provincial health office) are paid a stipend by the ASIN organization for every private vasectomy they perform. As the number of vasectomies performed by the mobile vasectomy team has declined in recent months, a concurrent and substantial increase in the number of vasectomies performed under the ASIN-supported program has occurred. In Lampang Province, approximately 50% of the vasectomies are now performed through the private ASIN-supported program.

This same trend is apparent in many other provinces throughout the country.

Another apparent national trend is the the former sharply increasing rate of vasectomy acceptors has remained static in the past year. It has been suggested that the pool of available vasectomy acceptors may have been fully tapped, accounting
for the slowing of acceptance. However, in Lampang, since the majority of acceptors in both the mobile clinic program and the private clinic program are rural men, the pool of appropriate acceptors is not likely to have been fully tapped. The mobile clinic has only reached many of the districts once or twice, leaving large areas in the more isolated districts untouched by vasectomy services. In districts where exceptionally good motivation teams have operated, and where local health support has been strong, repeated visits by the mobile team have continued to bring in large numbers of acceptors. There is no reason to doubt that similar success could be achieved in other districts, and it is much too early to conclude that the pool of motivated acceptors has been depleted.

Ultimate Integration of Provincial Health Care

The final area which has overriding importance in the ultimate integration of the provincial health care system is the set of constraints inherent in the current provincial health organizational structure. Much progress has been made in bringing the provincial hospital and the Provincial Health Office closer together and in improving communication and coordination. Provincial health staff have been assigned to the hospital’s Community Health Department, there has been close interaction between the Provincial Hospital mobile clinics and the rural health center staff, and a general feeling of shared responsibility has developed during the Lampang Project operational period. Much of this has been achieved on an informal basis, a result of the efforts of Project staff.

But as the Project operational period fades further into the background, these limitations within the official health care organization begin to reassert themselves.

(1) Provincial Hospital and Provincial Health Office administration still remain basically separated and uncoordinated. Informally, a number of staff within the provincial health headquarters were shifted to the Community Health Department in the hospital. However, as administrative problems were encountered, the provincial health staff, who were never really under the authority of the Community Health Department chief, shifted back to the Provincial Health Office.

(2) The Provincial Health Office is directly responsible for district hospitals, but there is no official link between the Provincial Hospital and the district hospital. Technical support and resources could possibly be provided to district hospitals by the Community Health Department, but there is no official channel to institutionalize this. A further complication is that the district hospital itself is only responsible for the geographic area of the subdistrict in which it is located, and is not responsible for health care in the full district. Health centers within the district and their staff fall under the responsibility of the non-physician district health officer.
If a strong technical support and supervision network is to be established, a more appropriate arrangement might be the Community Health Department providing technical and administrative support to the district hospital, and the district hospital, in turn, providing the same kind of support for wechakorn and other personnel in the subdistrict health centers, with overall coordination at the Provincial Health Office. This might also provide the means for rotating junior hospital staff into district hospitals or districts which do not have a physician present, which would provide technical input to the district, as well as give experience and understanding to the hospital physicians in the needs of the rural health care.
REFERENCES


STRENGTHENING MANAGEMENT, SUPERVISION, AND SUPPORT FOR INTEGRATED RURAL HEALTH CARE

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John A. Rogosch
Ronald G. Wilson
Pien Chiowanich
Chachawan Virabhand

Monograph 5
Lampang Health Development Project Documentary Series
1981

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INTRODUCTION

This monograph concerning management, supervision, and support in an integrated rural health care system is one of a series describing development of the various components of the Lampang Project. Previous monographs have reviewed and analyzed the organization of an integrated infrastructure, the training and performance of paraphysicians, the training and deployment of three types of village health volunteers, and the organization of a village health care network. These monographs have, in a sense, focused on development of the structural components with which a system of integrated rural health care is built. To construct a strong foundation which can effectively serve the rural people requires a carefully mixed cement to bond the components together and give the whole a strength which is often greater than the sum of the individual components. The cement bonding all of the components of the health care system together is the network of support and management.

In many ways, it is much easier to produce than to sustain the components of an integrated system. It is comparatively easy to select and train new types of health workers, and to secure resources for construction of facilities and procurement of equipment. But once the components are in place, experience has shown that it is more difficult to establish and maintain a high level of momentum in which all components are coordinated. It is often more difficult to meet the increased demands for support, logistics, supervision, and management, in part, because they have most frequently been the weak spots in rural health care delivery.

The Lampang Project differs from other internationally-known research or demonstration projects (such as Danfa in Ghana and Narangwal in India) in several important aspects which are relevant to the topic of this monograph. In other pilot efforts, the project staff organized its own independent health delivery infrastructure and hired its own health service delivery workers which it carefully controlled in relatively small areas serving less than one hundred thousand people. This permitted the projects to have much more control and flexibility in dealing with health problems and in managing the components developed to meet them. However, the Lampang Project did not develop its own delivery infrastructure, but rather worked directly through the existing Thai government provincial health care delivery system in a large area serving a population of over 600,000 people.

Working though the provincial health delivery infrastructure had distinct advantages: a well-developed delivery structure was already available, which could be modified and shaped to serve both Project and Ministry of Public Health goals. Also, working within the existing infrastructure meant that, if successful, the Project had much more potential for similar adaptation and expansion in other parts of the country.
But there were also disadvantages to working directly through the existing provincial health infrastructure: acceptance of all of its inherent limitations and dysfunctions was required. These negative aspects included pre-existing resource inequities, inadequate integration and coordination, weak management and supervision, an unresponsive logistics network, and an information system that did not facilitate decision-making. Consequently, a major Lampang Project task was not simply to design an appropriate and effective network of management, supervision, and support, but also to overcome the existing problems in these areas, which have been chronic within the Thai provincial health care system. If the Project could deal effectively with these important problems from within the existing provincial health care system and create a modified system more responsive in terms of management, supervision, and support, then the experience could provide useful lessons for expanding and improving health care throughout the country.

In addition to dealing with the management problems already inherent in the system, the major new addition of a network of village health volunteers (health post volunteers, health communicators, and traditional midwives) added new kinds of needs for support, management and technical guidance, requiring approaches different from those normally used in the government health care structure.
CHAPTER 1

PROJECT OBJECTIVES FOR MANAGEMENT, SUPPORT AND SUPERVISION

The overall objectives of the Lampang Project included increasing health care coverage to at least two-thirds of the target groups; expanding the integrated health care delivery network to every village of Lampang Province; increasing the range and improving the quality of curative, promotive and preventive services at all levels; and, improving cost-effectiveness of the whole system. To achieve these ends required the development of a number of specific objectives within the area of management, supervision and support. These objectives were to:

1. Reorganize the provincial health infrastructure, bringing more closely together the predominantly curative-oriented Provincial Hospital and the public-health service units under a single coordinating authority, the Provincial Health Office;
2. Establish a Department of Community Health in the Provincial Hospital as a key link between the hospital and the Provincial Health Office, and between the Provincial Hospital and the network of peripheral health care facilities;
3. Reorganize the roles and responsibilities within the Provincial Health Office, including modification of the organizational structure and management functions to facilitate appropriate coordination and support for the new arrangement of integrated health services, with special emphasis on securing adequate support and appropriate technical guidance for the newly-deployed wechakorn and the network of village health volunteers;
4. Establish a streamlined health information system by determining the minimal information needed to be effective, developing processing methods for quick analysis of the data collected, and placing it at the decision points appropriate for program monitoring and management;
5. Decentralize decision-making to the lowest appropriate levels, and stimulate initiative and self-reliance in the peripheral health units; and,
6. Seek approval from the Ministry of Public Health for the new organization of the Lampang Provincial Health Office, and gain the necessary approval for new positions from the Civil Service Commission.

These objectives together summarize the Lampang Project strategy for managing and supporting the integrated provincial health care delivery system and its newly-introduced components. The strategy included approaches designed to deal with some of the major problems related to supervision, support and management which are inherent in the existing provincial health delivery network, and which if
not resolved, could seriously limit the overall project effort. To understand the ways the above objectives were operationalized first requires a clear understanding of how the provincial health structure has traditionally functioned, its inherent problems, and the environment in which the system operated. The following chapter provides this background.
A REVIEW OF PROVINCIAL HEALTH ORGANIZATION

ROLES AND RESPONSIBILITIES

The overview of the government health care network in Thailand provided in Monograph 1 describes the various components of the Ministry of Public Health, the branches that deal directly with health care in the upcountry rural areas, and the general organizational structure of the provincial health care system. Some key elements should be briefly reviewed as background for this monograph. Within the Ministry of Public Health, a relatively recent reorganization aimed at integrating health services assigned responsibility for both curative and preventive rural health care delivery to the Office of the Under-Secretary as the single administrative authority. However, within the Office of the Under-Secretary itself there is a major division of responsibility between two divisions: (1) the Division of Rural Hospitals and (2) the Division of Rural Health.

The Division of Rural Hospitals has direct programming responsibility for all provincial hospitals. At the provincial level, hospitals are nominally under the authority of the Provincial Health Office (the Provincial Hospital has been discussed in detail in Monograph 4 and will not be considered here). However, the Provincial Health Office, which is directly responsible for all district hospitals (in earlier years called district medical and health centers), and rural health centers at the subdistrict and village levels, receives programming direction from the Division of Rural Health, another separate division within the Office of the Under-Secretary. The Provincial Health Office provides both curative and preventive/promotive services, but is primarily regarded as the public health arm for rural health care. The Provincial Hospital and the Provincial Health Office receive separate budgets from their respective divisions in the Ministry, with personnel promotions and administrative policy likewise coming from these divisions. Although there is some coordination within the Under-Secretary’s Office, operationally at the provincial level there is a relative autonomy of action and function between these two major components of provincial health care.

Figure 1 shows the health care delivery system of the Provincial Health Office, the major provider of government health care to the rural population. Although the Provincial Hospital is shown as a unit under the Provincial Health Office, prior to the Lampang Project entry, the Provincial Hospital operated quite independently. The district hospitals, of which there were three in Lampang (two with doctors) in 1974, fell directly under the control of the Provincial Health Office, rather than the Provincial Hospital. Within each district there is also a unit called the district health
office, headed by a district health officer, who is usually a senior sanitarian health worker. The district health office is directly responsible for all health centers and midwifery centers within the district.

In late 1974, when the Project began, there were 11 districts, and 75 subdistricts. Every district had a district health office, but for the 75 subdistricts, there were only 35 subdistrict health centers. Each subdistrict health center was originally staffed by one government midwife and one health worker sanitarian (both have had 1½ years of training in their respective specialties, after 10 years of school). The subdistrict health center is the most common outlet of government health services. In addition, there were also a few midwifery centers, each staffed by one government midwife. When the Project began in 1974, there were 34 midwifery centers for the province's 538 villages.

Figure 1 suggests that the district health office and its network of subdistrict health centers falls under the authority of the district officer, who is the civil administrator for all the district's government units. The Ministry of Interior is responsible for local administration throughout Thailand, and the senior government officer in each province is the provincial governor; the senior government officer in the district is the district officer. Provincial health officers are formally responsible to the governor, and the district health officer is likewise responsible to the district officer. In practice, however, resources, manpower, and policy come directly from the Ministry of Public Health to the Provincial Health Office. In the same manner, the district health office and the district hospital receive this type of support and logistics from the Provincial Health Office. The governor and the district officer must approve many fiscal, personnel and administrative procedures, but they have little involvement in health affairs, and take no active role in the content of health programming. But they can provide an important impetus to programs when necessary.
Network and Administrative Relationship Between Ministry of Public Health and Ministry of Interior

**Formal Administrative Authority**

**Technical, Budgetary and Informal Administrative Authority**

---

**Figure 1**

Network and Administrative Relationship Between Ministry of Public Health and Ministry of Interior

Ministry of Public Health

National Level:
OFFICE OF THE UNDER-SECRETARY

Provincial Level:
PROVINCIAL PUBLIC HEALTH OFFICE (Provincial Health Officer)

PROVINCIAL HOSPITAL

District Level:
DISTRICT HOSPITAL (M.D.)

HEALTH CENTER (Sanitarian, Midwife)

Subdistrict Level:
MIDWIFERY CENTER (Midwife)

Village Level:

Ministry of Interior

OFFICE OF THE UNDER-SECRETARY

GOVERNOR'S OFFICE (Governor)

DISTRICT OFFICE (District Officer)

DISTRICT HEALTH OFFICE (Non-M.D.)

SUBDISTRICT (Kamnan or Sub-district Headman)

VILLAGE (Village Headman)
Although both district hospitals and the district health offices are directly under the Provincial Health Office, they operate somewhat independently, as do the Provincial Hospital and the Provincial Health Office. The district hospital, with its physician and other support staff, is directly responsible to the Provincial Health Office. However, its own geographical area of responsibility is limited to the single subdistrict in which it is located, and it has no responsibility for coordinating health care beyond the borders of that subdistrict. The district hospital role is predominantly curative, although it also carries on public health activities within its particular subdistrict. If there is also a health center in the same subdistrict, the district hospital is responsible for supervision and support of this health center. There are normally between five and ten subdistricts in a district, and the district hospital supervisory responsibility is therefore quite narrow in terms of health work for the whole district. The other subdistrict health centers fall under the responsibility of the district health office.

Likewise, the district health office is directly responsible to the Provincial Health Office, and provides supervision and support to the subdistrict health centers and midwifery centers outside of the subdistrict where the district hospital is located. The district health officer and the district hospital physician may coordinate their activities on an informal basis, but there is no official authority relationship between them, and consequently, they tend to operate independently. Neither is directly responsible to the other, nor is there any mandated cooperation in their roles. Moreover, because the district hospital doctor is frequently a young physician fulfilling his compulsory rural service requirement, and the district health officer is generally a more senior sanitary health worker, there is often a communication gap and potential for conflict.

RESOURCE LIMITATIONS

A review of budget and personnel available for rural health work, in terms of manpower and budget, reveals both an absolute shortage and a maldistribution of resources which seriously hampers the capacity of the provincial health office to serve the rural majority. The extent of the problem is continually changing as budgets, facilities and personnel change. However, data available for selected recent years still roughly represent the overall national situation for the period of Lampang Project operations. The resource limitations are characterized by the four factors subsequently described:

(1) **Incomplete Coverage of the Rural Population**

Geographical coverage of the rural population with hospitals and health centers has progressed markedly in recent years, but gaps still remain at the peripheral levels. Table 1 summarizes overall population coverage.
Table 1

National Coverage of Geographical Units * by Government Health Facilities (1976)

<table>
<thead>
<tr>
<th>Type of Facility</th>
<th>Number of Geographical Units</th>
<th>Number of Facilities Available</th>
<th>Percent Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provincial Hospitals</td>
<td>71 provinces</td>
<td>89</td>
<td>100%+</td>
</tr>
<tr>
<td>District Hospitals</td>
<td>570 districts</td>
<td>288</td>
<td>40%</td>
</tr>
<tr>
<td>Health Centers</td>
<td>5,299 subdistricts</td>
<td>3,720</td>
<td>71%</td>
</tr>
<tr>
<td>Midwifery Centers</td>
<td>48,847 villages</td>
<td>1,456</td>
<td>3%</td>
</tr>
</tbody>
</table>

* Does not include Bangkok Metropolitan Area

Source: WHO, p.26

(2) Shortage and Maldistribution of Health Manpower

The total number of Thai physicians in 1978 was about 8,000. Almost 20% of these or nearly 1,500 Thai doctors, were in training or in practice abroad, mostly in the United States. There were 1,253 doctors in training: 440 were interns, and 813 were residents. The largest proportion of the remaining 5,500 doctors worked for the government in the various ministries and medical schools. However, almost 4,000 of these physicians were located in Bangkok, leaving about 1,400 for service in the provinces. But in the provinces themselves, the uneven distribution of available physicians is even more striking: in 1976, there were approximately 1,400 doctors working for the government in the provinces. But of these 1,400 doctors, over 900 were located in provincial hospitals, 140 were in provincial health offices, and only 300 were assigned to rural district hospitals (Pravase, 1978). Therefore, although there was an average of slightly more than ten physicians in each provincial hospital, there was a physician in only half of the rural districts throughout the country. There were only about 300 district hospitals staffed with physicians for the nation’s approximately 570 districts. Although in Bangkok there was almost one physician per thousand people, in the provincial rural areas (excluding provincial towns), there was an average of one physician per 120,000 people (Pravase, 1978; Roemer, 1979).

The problems of manpower shortage and distribution were also true for dentists, pharmacists, and nurses. Table 2 shows the available numbers of health manpower of all types and their location in provincial areas.
Table 2 shows that most of the highly-trained personnel (physicians, dentists, pharmacists, and nurses) were located in hospitals in provincial towns. In rural areas, there were few nurses, and the most common types of health workers were government midwives and sanitarians, who generally staff the district, subdistrict and midwifery centers. The distribution of manpower shows clearly that health care in the rural areas, where 85% of the population live, has been, and continues to be provided by paramedical workers.

In Lampang, the manpower situation has been even more critical than for the nation overall. Table 3 shows the distribution of manpower in the province in 1975. Although there were 16 doctors in the provincial hospital, and one in the provincial health office, there were only two doctors assigned to district hospitals in the rural areas where almost 600,000 people lived. Only 36 subdistricts of the total 75 subdistricts had a health center, and there were few midwifery centers.
Table 3
Health Facility and Manpower Distribution in Lampang, 1975

1) Geographical Coverage

<table>
<thead>
<tr>
<th>Facility</th>
<th>No. Geographical Units</th>
<th>No. Facilities Available</th>
<th>Lampang Coverage</th>
<th>National Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>District Hospitals</td>
<td>11 districts</td>
<td>3</td>
<td>27%</td>
<td>56%</td>
</tr>
<tr>
<td>Health Centers</td>
<td>75 subdistricts</td>
<td>36</td>
<td>48%</td>
<td>73%</td>
</tr>
<tr>
<td>Midwifery Centers</td>
<td>538 villages</td>
<td>36</td>
<td>7%</td>
<td>4%</td>
</tr>
</tbody>
</table>

2) Health Manpower

<table>
<thead>
<tr>
<th>Types</th>
<th>In Provincial Hospital</th>
<th>In Provincial Health Office</th>
<th>In Rural Facilities$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors</td>
<td>16</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Dentists</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nurses</td>
<td>58</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Nurse-Aides</td>
<td>34</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Government Midwives</td>
<td>0</td>
<td>0</td>
<td>86</td>
</tr>
<tr>
<td>Sanitarian Health</td>
<td>0</td>
<td>12</td>
<td>52</td>
</tr>
<tr>
<td>Workers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dental Auxiliaries</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

$^a$District hospitals, subdistrict health centers, and midwifery centers

Source: Annual Report, Lampang Provincial Health Office, 1975

3) Limited Budgetary Resources

The availability and distribution of manpower is an important problem in serving the health needs of the rural population. But the budget limitations, and the uneven allocation between the Provincial Hospital and the Provincial Health Office are even more striking. Table 4 shows the breakdown of budgetary resources available in Lampang Province during the period of Project implementation.

The contrast between the budget for the provincial hospital and the provincial health office are striking. The provincial health office has consistently received an annual operational budget level of less than half of that allocated to the provincial hospital, and the gap is increasing. In more recent years, the provincial health budget has been approximately one-third of the provincial hospital budget. Not only is the absolute difference between the budgets increasing, but the annual proportional increase in the budgets has differed substantially between the provincial hospital and the provincial health office. In the past four years, the provincial health office budget has been increasing approximately 27% annually, whereas the provincial hospital budget has been increasing at about 32% per year.
Table 4
Lampang Provincial Health Operational Budget Allocations
(Fy 1974 - 1979)
$ 20 = US $ 1.00

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Total</th>
<th>Provincial Hospital</th>
<th>(% of Total)</th>
<th>Provincial Health Office</th>
<th>(% of Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974</td>
<td>Not available</td>
<td>$9,649,001</td>
<td>(-)</td>
<td>Not available</td>
<td>(-)</td>
</tr>
<tr>
<td>1975</td>
<td>$18,320,525</td>
<td>13,040,700</td>
<td>(-)</td>
<td>$5,279,885</td>
<td>(29)</td>
</tr>
<tr>
<td>1976</td>
<td>25,206,627</td>
<td>18,051,661</td>
<td>(72)</td>
<td>7,154,966</td>
<td>(28)</td>
</tr>
<tr>
<td>1977</td>
<td>29,081,900</td>
<td>20,606,705</td>
<td>(71)</td>
<td>8,475,195</td>
<td>(29)</td>
</tr>
<tr>
<td>1978</td>
<td>40,504,730</td>
<td>29,725,667</td>
<td>(73)</td>
<td>10,779,063</td>
<td>(27)</td>
</tr>
<tr>
<td>1979</td>
<td>54,385,890</td>
<td>40,717,976</td>
<td>(75)</td>
<td>13,667,914</td>
<td>(25)</td>
</tr>
</tbody>
</table>

*aDoes not include budget for land and construction

*bTotal includes revenue from fees for service

Source: Provincial Health Office and Provincial Hospital Financial Records, 1974-79.

The differences in available budget levels are all the more emphatic when one considers that the provincial hospital budget is applied to a single facility. By comparison, the budget for the provincial health office must currently be shared among: the provincial health headquarters, with its service and supervisory units, over 70 subdistrict health centers, 7 district hospitals, 29 midwifery centers, and 12 district health offices. Since 25% to 30% of the total provincial health operational budget is allocated to the provincial health headquarters and the various units located there, the amount of the budget available for directly financing the many rural health centers is very small. This has greatly limited the amount of money which is available for health worker per diem and travel when in the field, for supplies and medicines to stock in the health centers, for organizing community health programs, and for the simple maintenance of the health center premises.

An example of this constraint is the limited funds available for drugs. When the Project started in 1974, each district hospital was allocated $10,000 ($500) for drugs annually, and the drug budget for each subdistrict health center was $3,000 ($150) annually. Annual budgets for each of these peripheral facilities have been minimal, providing the health workers little opportunity to plan new programs and adversely affecting health worker initiative and morale.

A further complication in the financing of rural health facilities, especially the subdistrict health centers, is the policy of "free medical care" established by the reform government in 1975. Under an income indistribution policy, funds were made available to the Ministry of Public Health for the purchase of medicine for medically indigent patients (those whose family income was under $2,000 per month). However, the bulk of these funds went to provincial hospitals and less trickled down to rural health centers. At the same time, the policy of the government also stipulated that no charges to patients at health centers could be made for...
medicine or family planning supplies. In the past, the small donations requested from patients and family planning acceptors had been a mainstay of financing the rural health centers. Cutting off this source of revenue sharply reduced the financial resources available.

(4) Health Service Utilization

As the Lampang Project began, the problems of lack of access to health care and underutilization were considered to be of major importance. Much of the rural population lacked access to health care. Only a small proportion of the population had a government health facility located near their homes, or that could be reached easily with available transportation.

Even in areas where rural health centers were available, they were frequently underutilized. Only about 25% of the people used such services in any year. One of the major reasons generally given for the underutilization was the limited range of curative services available in the health centers. Government midwives and sanitarians who staff rural health centers were trained only in first aid and emergency treatment, and were not authorized to provide broader curative services, such as giving antibiotic injections. To most villagers, "health care" is the curative care one seeks when ill; the credibility of health center workers has been low, in part, because their illness care skills were limited by training and policy. This factor, combined with the serious underfinancing and limited stores of drugs and other supplies in the rural health centers, has contributed to the underutilization of the rural health care facilities.

Underutilization of government rural health facilities has been confirmed periodically in nation-level surveys and in the baseline Community Health Survey carried out by the Lampang Project. Both sources have shown that the first place the majority of ill people go is the drugstore. Over 50% of the respondents in each survey said this was their first source of care. The proportion of ill people who chose to go to rural health facilities as a first source of care has generally been under 20%.

ORGANIZATION OF PROVINCIAL HEALTH HEADQUARTERS

The provincial health office is divided into functional sections to support both provincial-level and rural health programs and activities. Figure 2 represents a typical Thai provincial health office as it was organized in 1974 when the Lampang Project began. Staff in several of these sections, such as health promotion, sanitation, and communicable disease control, were responsible for direct support of specific technical activities at the rural health center level. However, the limited number of staff and the administrative demands on their time reduced the actual time they spent in the field supporting program activities. On the average, very few health center workers were visited by supervisory staff more than once a year, and some rural health workers received no supervisory visit at all. This limited the ability of the provincial health office to emphasize any particular program area, to provide follow-up education and training to health workers, and to encourage and stimulate the morale of workers at rural health facilities.
Figure 2

Division of Responsibilities Within a Provincial Health Office, 1974

PROVINCIAL HEALTH OFFICE
Provincial Health Officer

BUSINESS SECTION
- Documents
- Finances
- Accounting
- Personnel
- Plans & Construction
- Supplies, Equipment and Transportation

HEALTH PROMOTION SECTION
- MCH
- Family Planning
- School Health
- Nutrition
- Social Welfare
- Drugs & Instruments
- Dental Health

COMMUNICATIONS, TRAINING AND SERVICE PROMOTION SECTION
- Public Health Studies
- Vital Statistics
- Information
- Health Education
- Training

SANITATION SECTION
- Water Supply
- General Sanitation
- Prison Health
- Environmental Health
- Occupational Health
- Vector Control

COMMUNICABLE DISEASE CONTROL SECTION
- General Control & Prevention of Communicable Disease
- Special Programs
- Epidemiology
- Immunizations

FOOD, DRUGS, AND PUBLIC HEALTH LAW SECTION
- Food and Drugs
- Public Health Law
& Miscellaneous Activities
A program planning section was conspicuously absent from the Lampang Provincial Health organizational structure in 1974. The planning and assessment function had normally been carried out by the provincial health officer and his deputy. Decisions were usually based on directives received from the Ministry of Public Health, on their own impressions and observations, and to a minimal extent, on data from the provincial health information system. There were no staff members specifically trained in needs assessment and planning. At any rate, such a function would have been difficult because of the limited availability and poor quality of data from the provincial health information system. A large amount of data were gathered on a routine basis at the rural health facilities and channeled into the Provincial Health Office. However, these data were generally unprocessed raw numbers which were scattered unsystematically among the various sections of the Provincial Health Office. Consequently, processed data which could have enabled health staff to monitor and manage programs, staff and facility performance were unavailable at the appropriate decision points, and there was no overall consolidation of data from all sources to facilitate the planning/management/evaluation process. Moreover, there was virtually no routine feedback of information to the peripheral units that generated the data.

The lack of an adequate and reliable routine reporting system greatly limited the ability of staff in the Lampang Provincial Health Office to clearly identify the extent and location of problems. This, in turn, seriously constrained their ability to prioritize health programs and appropriately allocate the scarce resources available.

The limitations on planning, on information available for decision-making, and on the effectiveness of the Provincial Health Office organization are perhaps symptomatic of a broader problem which affects all government units serving the rural areas: a highly-centralized bureaucracy. Leaders within the Ministry of Public Health (and the actions they have taken over the past decade) have strongly emphasized the need to better serve the rural population, where needs are greatest and least served. However, the highly-centralized character of the government, including the Ministry of Public Health, has been one impediment in this effort. All recruitment and most senior-level appointments for health positions at the provincial level (down to the district level) are made by the central Ministry of Public Health, and all promotions and appointments are often based more on seniority and adherence to rules and regulations than they are the job performance and program achievement.

In short, advancement in the system is based more on ability to serve the needs of the bureaucracy than on the effectiveness with which the worker has served his client group — the rural population. The lack of a client and service orientation, a well-known symptom of bureaucracy everywhere, often tends to separate even health center workers from the rural population they serve, and fosters a patronizing attitude toward villagers. This clearly is another important factor related
Consequently, despite efforts to decentralize administrative authority within the provinces, the deeply-rooted centralization of the bureaucracy in budgeting, personnel administration, and policy and program planning has continued to resist major change. The centralized nature of the system directly affects management, support, and supervision: if health workers do not view their primary mission as one of serving the rural population's health needs, then the resources and managerial/support activities will not tend to be directed at achieving this mission.

The health care organization, its environment, and the problems of health care at the provincial level in Thailand have been documented at length as a necessary step in understanding the background into which the Lampang Project has introduced change. Much discussion has been devoted to problems and impediments to progress within the system, but it should not be assumed that this system has not been capable of significant achievements. In the past decade, notable progress has been made in a number of important health areas: many new hospitals and rural health centers have been built, and thousands of new health workers of all types have been trained and deployed to the rural areas, providing a greatly expanded network through which health needs can be served. However this expansion also reiterates the problem mentioned in the opening paragraphs of this monograph: it is easier to build than to sustain the components of an integrated health care system.

Some programs (most notably, family planning) have met with remarkable success. The achievements of the family planning project have shown that, despite whatever limitations are apparent in the health care delivery system, family planning services of all types have been made available and accessible to rural people. The delivery of these services was achieved through the innovative use of both medical and non-medical health workers, through imaginative educational and motivational approaches, and by the mastery of a complex management, logistics and information system. The success of family planning has been an important factor in the sharp decrease in fertility nationwide, with all of its accompanying health and economic benefits.

The preceding overview of Thai health service delivery can be summarized by the following list of needs and problems which the Lampang Project’s modified, integrated health care system faced:

1. Inadequate coverage by rural health facilities, and frequently, poor access to those that were available.
2. Inequitable budget and manpower resource allocation which heavily favored curative, rather than preventive and promotive services.
3. An under-financed and underutilized rural health care delivery network, which was poorly equipped to deal with needs of the rural people.
(4) A lack of coordination between the hospital and the public health network, both at the provincial and district levels.

(5) A lack of planning capability in the Provincial Health Office, and a deficit in the information needed for identifying, prioritizing, monitoring and managing health programs.

(6) Lack of an adequate mechanism for providing training and technical support to peripheral health workers.

(7) A highly-centralized health bureaucracy, which has undermined local planning functions and tended to divert health workers' attention away from serving the rural population.
CHAPTER 3

ACTIONS TAKEN IN THE LAMPANG PROJECT

In response to the problems described in previous chapters, and after analysis of key areas that required strengthening to achieve Project objectives and to carry out specific operational tasks, a series of changes were introduced into the organization and function of the provincial health office. The changes were not limited to the provincial health headquarters itself, but affected the peripheral rural health facilities, as well as the provincial hospital. The organizational and operational changes were not all introduced at once at the beginning of the Project. As Project implementation proceeded, management and support needs became apparent. But, frequently, there was a considerable lag time before a change could be introduced in response to an apparent need. The following discussion of the changes introduced therefore encapsulates experiences and decisions spread over almost five years.

Senior Ministry planners of the Lampang Project recognized from the outset that the Lampang Project could not be a separate and parallel entity, but had to be an integral, yet temporary part of the provincial health care delivery system. To avoid the potential situation of Project staff second-guessing provincial health staff, the Provincial Health Officer of Lampang also served as the Lampang Project Field Director (the Field Director has been either the Provincial Health Officer, or the Deputy Provincial Health Officer). This arrangement has provided the line authority needed to implement Project plans through the general operations of the provincial health care system. It seems unlikely that the Project could have gone far without the Provincial Health Officer or his Deputy as the Project Field Director.

REALLOCATION OF ROLES AND RESPONSIBILITIES IN THE PROVINCIAL HEALTH OFFICE

Figure 2 showed the general organization of the Provincial Health Office before the Lampang Project began. As the need for organizational rearrangements became clearer during the course of Project operations, a reorganization of the Lampang provincial health headquarters was made and approved by the provincial governor and the Ministry of Public Health. Figure 3 describes the reorganization of roles and responsibilities within the Lampang Provincial divisions. The two new major areas of responsibility that were created are the Planning and Evaluation Division and the Private Sector Division. The former satisfies the chronic need for overall coordination of planning and evaluation. The Private Sector Division is predominantly responsible for community health volunteer support and coordination. It is called the private sector division because volunteers are not officially part of the provincial health structure, and because this division also takes responsibility for coordination with private sector practitioners, druggists, and service agencies.
Figure 3
Reorganized Lampang Provincial Health Office Structure

Lampang Project Field Director's Office

Lampang Project Divisions:
- Personnel Development
- Research & Evaluation
- Planning & Programming
- Administrative Services

Provincial Health Office (PHO)

Office of Technical and Public Health Administration

Project Field Supervisors

Private Sector Division

Planning and Evaluation Division

Communications, Training and Health Promotion Division

Technical Support Division

Administrative Division

Provincial Hospital Community Health Department

District Health Office (DHO)

Assistant DHO

Health Centers

Midwifery Centers

Village Volunteers

Direct administrative and technical authority

Informal technical authority
Figure 4
Responsibilities of the Community Health Department,
Lampang Provincial Hospital, 1979

Other Departments
Provincial Hospital
Community Health Department

Health Promotion
- School health
- Dental health
- MCH
- Nutrition

Communicable Disease Services
- Epidemiology
- TB
- Hepatitis
- Malaria
- VD
- Vector-borne diseases
- Other communicable diseases

Environmental Health
- Sanitation
- Water supply
- Environmental protection

Health Education/Information
- Information
- General health education
- Nutrition education
- School health education

Curative Service
- Medical care
- Integrated mobile health care
- Mobile family planning
- Treatment for communicable diseases
- Patient referral
- Nutrition surveillance
- Medical care by radio

Social Welfare
- Indigent patient care
- Chronic care patients
- Coordination with private charitable agencies

Administration
- Statistics

District Hospitals
Health Centers and Midwifery Centers
Planning and Evaluation Division

The Planning and Evaluation Division of the Provincial Health Office (which should be distinguished from the Lampang Project Evaluation and Research Division) is responsible for:

- Preparing the master plan of the Provincial Health Office, and monitoring the progress of the plan;
- Assembling the data and information necessary for analyzing problems and operational constraints;
- Coordinating its activities with other divisions of related responsibility;
- Planning curative services, including resource planning for curative services in the district hospitals and other health facilities (excepting the Provincial Hospital) and seeing that supplies and materials are provided in a timely and sufficient manner;
- Planning of immunization and communicable disease control programs;
- Planning program activities in maternal and child health nutrition, and family planning;
- Planning dental health (a new activity) and school health programs; and
- Planning sanitation and safe water supply programs in the rural areas.

In 1978, the functions of the Project's Planning and Programming Division were taken over by the newly-organized Planning and Evaluation Division in the Provincial Health Office.

Private Sector Division

The Private Sector Division has responsibility for support of the community health volunteer network, including health post volunteers, traditional midwives, health communicators, and the village health committees. This includes monitoring and performance of the volunteers and their monthly reports, identifying problems, and assisting in resolving problems in cooperation with the district and tambon health workers, who are in a direct support role.

The division also has control of activities concerned with public health law, including all licensing procedures and authorization of health activities as required by health law.

Technical Support Division

The Technical Support Division is responsible for collecting all data and reports, including those generated by units within and outside the Provincial Health Office, and for selecting the items appropriate for management decisionmaking; for supplying information to any unit requesting it; for completing all reports required by the Ministry of Public Health, and for providing summary feedback reports to units generating the information.

The Technical Support Division also provides technical support to other
internal and external health units. This includes supplying technical resource people for required institutional presentations, distribution of technical documents, public health exhibitions, and responding to enquiries concerning public health in Lampang.

The division monitors the performance of technical units, in particular, activities of the Division of Training, Communications and Health Promotion. This unit is also responsible for any research required by the province or by the ministry to improve technical standards and the quality of health care.

Communication, Training and Health Promotion Division

The Communication, Training and Health Promotion Division takes responsibility for all public health communications, public affairs, and public relations as required in Lampang Province. The division arranges training at all levels as specified in the provincial plan, and according to the needs and requests of district hospitals and district health offices. This includes providing trainers and resource people for training sessions. This division is responsible for manpower development at all levels, including selection and pretesting of candidates for training, seminars, and continuing education, as well as testing for promotions. It is also responsible for follow-up evaluation of training programs.

Administrative Division

The administrative division is responsible for all provincial financial transactions, including budget control and disbursement, procurement, bidding and contracts for construction. The division oversees all personnel procedures, including salaries and leave records. It is responsible for the Provincial Health Office secretariat which types and files all official correspondence. Equipment inventory also falls within the division's duties. Although not directly involved in service programs, the administrative division plays a key role in providing timely, adequate financial and material support for program activities, and in maintaining the morale of field personnel.

ORGANIZATION OF THE COMMUNITY HEALTH DEPARTMENT IN THE PROVINCIAL HOSPITAL

Creating a Community Health Department in the Provincial Hospital was planned as a key mechanism for coordinating community health work between the provincial hospital and the provincial health office. The man chosen to head the new department was a senior surgeon in the Provincial Hospital, who was also given a joint position as hospital planner on the Project staff. The Lampang Hospital's Community Health Department was the first of its type in Thailand, and therefore had to conceive and carve out its role, continually expanding its activities. (The development of the Community Health Department role is described in detail in Monograph 4). Figure 4 summarizes the various functions of the Community Health Department.
The major aims of the Department’s activities are (1) an expansion and consolidation of preventive and promotive services within the Provincial Hospital and (2) an extension of medical and health services into the town and rural communities, spearheaded by the mobile vasectomy and mobile health clinics. Project and provincial staff identified several tasks for the Community Health Department which were crucial in the effort to improve technical support and management at the rural periphery. These tasks were:

1. To consolidate and expand preventive and promotive services within the Provincial Hospital.
2. To assume some of the curative service functions provided by the provincial health office. A number of the Provincial Health Office service staff were assigned to the Community Health Department to carry out these functions.
3. To rotate provincial hospital physicians through the district hospital in one implementation area. As an initial step, this would fill a temporary service gap at the district level, and also provide a direct referral link to the Provincial Hospital.
4. To develop a closer relationship between staff at the district hospitals and provincial hospitals through improved mechanisms for technical support and referral.
5. To assist in meeting specific service demands for family planning. This was achieved primarily by the organization of the mobile vasectomy clinic, which later expanded to include general health care and preventive/promotive services.
6. To provide direct technical support and consultation for rural health center wechakorn through the clinics and other field visits.

**IMPROVEMENT OF INFORMATION QUALITY AND UTILIZATION**

A large amount of potentially useful information is generated from the more than 40 types of records and reporting forms utilized in the provincial health care system. However, its unprocessed form and frequent unavailability at key decision points has weakened its actual value. Several steps have been taken to strengthen the provincial health information system during the course of project operations.

**Data Processing**

Staff analysts from the Project’s evaluation and research division have routinely reviewed provincial health service statistics, summarized them and processed them for the Provincial Health Office. The Project staff provided this assistance during the period when the Provincial Health Office had no strong analytic capability of its own. The analysis of service statistics enabled both provincial health staff and Project staff to identify the areas and facilities where performance was effective or not, and where problems were apparent.
Primary Health Care Reporting

With the addition of a primary health care network (the village health volunteers) a whole new information component had to be added to the provincial health information system. However, information demands on the volunteers had to be minimized and the system kept as simple as possible. The health post volunteer records his health activities in a daily log, and the local government health worker closest to him visits each month to record the service contacts on a master sheet, which are then consolidated at the district level and sent to the DHO. The Research and Evaluation Division of the Project assisted in establishing the volunteer reporting system and during the course of Project operations, provided a monthly summary of volunteer activities to the Provincial Health Office field staff. A review of these monthly performance summaries pin-pointed problem areas and areas that provided no report, enabling field staff to quickly judge where to focus their attention.

Health Surveys

Although not a component of the routine health information system, the community surveys carried out by the Research and Evaluation Division as part of the overall Project evaluation process did provide important information to provincial health staff concerning program areas needing priority attention. For example, the baseline Community Health Survey showed that a large proportion of preschool children in the Project operational areas suffered from serious malnutrition. The results of this survey were brought to the attention of provincial health officials, who then began a nutritional surveillance program. This led to the identification of specific areas where malnutrition was concentrated, and where intervention programs were then organized. The Community Health Survey also showed that the level of immunizations, particularly in preschool age children, was very low, a fact also confirmed by a Ministry of Public Health review of immunization performance by the province over the last several years. Such data stimulated an increased emphasis on immunization programs for preschool children.

Training Seminars

As modifications in the reporting and information system have been introduced, training and consultation seminars have been held, bringing together local service personnel and project and provincial health leaders in an attempt to create a more meaningful information system. Some progress has been made in providing routine feedback to the peripheral units generating the reports and information, but achievements in this area have been modest.

Informal Channels

In addition to the routine sets of reports and records that are the foundation of the provincial health information system, there are also informal channels of information flow, senior provincial health staff have encouraged responsible division staff to review requests for support carefully, to exchange as much information from
monthly meetings as possible, and to promptly respond to requests and problems.

Considerable effort has been expended in an attempt to reduce the heavy burden of reporting that is placed on workers in peripheral health facilities, and to select a more limited number of items relevant to management decision-making.

DELEGATION OF AUTHORITY TO APPROPRIATE LEVELS

Technical Responsibility

Delegation of authority in technical areas was somewhat easier than delegation of authority in administrative matters. For example, after returning to their assignments following the year of training in a wide range of both curative and preventive skills, the wechakorn paraphysicians were authorized and equipped to provide a much wider range of medical and health care services than they had in the past. Not only could they take care of perhaps 80% of the medical problems that might arise in their area, but they also were backed up by a patient referral system. At the same time, most wechakorn in the rural health units have now been authorized to insert IUD's and to inject Depo Provera, activities which were formerly only within the scope of a physician's authority. All wechakorn in district hospitals or rural health centers act under the authority of the Provincial Health Officer, who is a physician. Assigning this new technical responsibility to the wechakorn did not come easily; there was considerable resistance at both the provincial and central ministry levels. Nevertheless, this technical delegation has been achieved.

Delegation of responsibility for simple first aid and illness care, distribution of household drugs, and distribution of follow-up cycle contraceptive pills to the health post volunteers has been successfully achieved. Turning over responsibility to village health volunteers is not unique to Lampang, but it has required a re-definition of responsibilities in rural health units. For example, prior to the Lampang Project, the lowest level government health units authorized to distribute family planning supplies were the subdistrict health center and the midwifery center. Permitting the village health volunteers to distribute contraceptives in their home villages made acceptance and continuation much more convenient, but it required that the local government midwives take responsibility for supplying and accounting for the contraceptives distributed by volunteers.

The delegation of expanded technical responsibilities to the peripheral health center and to the village level, however, exerted new demands for technical and logistic support on the Provincial Health Office. The wechakorn's new clinical skills required a broader range of drugs and equipment, and more capable technical supervision. The village health volunteers needed regular visits to gather information on performance, to resupply the household drugs and contraceptives, and to provide moral and technical support as appropriate.
Delegation in Other Areas

A general objective of decentralizing and delegating Provincial Health Office responsibilities was to stimulate the district hospital staff and the district health officer to assume a more active, initiating, problem-solving role in the delivery of rural health care. Under normal circumstances, reports and information on health center and volunteer performance, including needs and problems, were consolidated at the district health office; they have seldom been scrutinized, but were simply passed on up to the Provincial Health Officer. The same situation has been frequently true at the district hospital. Although not district hospital has excellent potential for dealing with problems of supply, technical support, and program planning, but seldom has exercised this potential.

With the emphasis on decentralization and delegation, the Provincial Health Officer has encouraged and officially authorized the district hospital physician and his staff to review carefully their technical and logistic needs, and the planning and programming support needs, and to deal with them at the district level at their own discretion without referring to the provincial health officer for special authorization. Depending on the willingness and energy of the district hospital physician and his staff, it was estimated that a majority of technical and program support functions could be dealt with at this level. The district hospital is well-equipped to provide technical consultation and support for wechakorn, drugs and other supplies for health centers encountering shortages, and technical support for community programs such as nutritional surveillance and the mobile vasectomy clinics.

Similar encouragement has been given to the district health officers to take responsibility for problems they can immediately deal with themselves, rather than simply refer problems to the Provincial Health Office. The district health officer consolidates all the reports and data coming in from the health centers and village volunteers. If he scrutinizes these carefully, there are many items that he can deal with immediately, including supply problems, administrative and personnel problems. It was expected that the district health officer could easily deal with at least 10-15\% of the problems. But with no staff to support him, his capabilities were somewhat limited. However, the Ministry of Public Health has recently provided an assistant district health officer in a few areas to relieve some of the administrative burden; during the period of Lampang Project operations. In other areas, the Project funded the hiring of district volunteer coordinators, who, as assistants to the district health officer, were specifically responsible for direct support of the village health volunteers.

Aside from the issues of delegating authority for wechakorn to perform new technical services, and for health volunteers to distribute contraceptives, the question of delegating responsibility from the district to the health center and village level has been of lesser importance. Health centers and midwifery centers are the major service arm at the periphery of the rural health delivery system, and already operate with a fair amount of independence. What has been lacking is frequent and
consistent stimulation and encouragement from district health staff to initiate and carry out community-based programs of high priority in their areas.

**FUNCTIONAL LINKS BETWEEN THE PROVINCIAL HEALTH OFFICE AND THE LAMPANG PROJECT**

The Provincial Health Officer's concurrent role as Project Field Director has been the most important link between the Project and the Provincial Health Office, crucial in overall planning and implementation of Project-related activities. To further support Project-inspired field activities, the Project hired three field supervisors, who, under the direction of the Field Director/Provincial Health Officer, acted as organizers, trouble-shooters, problem-solvers, and field stimulaters in the early stages of the Project when community organization and field training activities were most intense. The supervisors were health workers from Lampang—or neighboring provinces—who had long experience in rural health service. Two were already respected staff members of the Lampang Provincial Health Office.

Another supervision/support mechanism established was the addition of an assistant district health officer in each district to specifically provide support for village health volunteers. Although a new private sector division was established in the Provincial Health Office, it only had one staff person, and he alone could not provide routine support for all village health volunteers throughout the province. Similarly, the district health officer, already responsible for supervising rural health centers, could not also assume responsibility for supporting the large number of health volunteers. Project staff therefore recommended hiring an assistant district health officer, whose specific role was to support village health volunteers: gathering data on their performance, providing moral and technical support, and assuring continuity of drug supplies. Development of guidelines for the assistant district health officer was based on experience and observations of the role of the district coordinator in the private-sector Community-Based Family Planning Services (CBFPS) organization, which had been invited to apply its approach in one district of Lampang.

**IN-SERVICE TRAINING PROGRAMS FOR SERVICE AND SUPERVISORY PERSONNEL**

All administrators and supervisors from the Provincial Health Office and the Provincial Hospital, including physicians, chief nurses, dentists, pharmacists, district health officers and supervisors of the Provincial Health Office received one week of Project-organized orientation and training to:

-- Help them understand the Project goals and approaches;
-- Orient them to the operation of integrated health services and how it would affect them; and,
Orient them to the importance of their own roles and the roles of others on the health team. The training was completed in five half-day sessions to minimize the time that senior staff had to be away from their responsibilities.

All staff who provided services at the Provincial Hospital and district hospitals, health centers, and midwifery centers were given one week of training to orient them to the Project's goals and methods, and to demonstrate how the Project approaches would affect them in their individual jobs. Most of the people who received the training were nurses, laboratory technicians, dental hygienists, junior health workers, midwives, and practical nurses. On-the-job training was provided in addition to routine supervision.

TEAM-BUILDING ACTIVITIES

During the first two years of Project operations, it became apparent that Project objectives and strategies were sometimes perceived differently by members of the Provincial Health Office, Provincial Hospital, and Lampang Project staffs. Even among the Project staff, there was not always clear agreement on all goals and approaches to be taken. The lack of consensus occasionally led to misunderstandings, duplication of effort, and conflicting activities. This situation resulted from insufficient inter-communication and coordination, which are crucial in the early stage of implementation, but are often neglected in the rush to plan and act.

Recognizing the need to develop a full consensus, to clarify Project goals and approaches to all senior staff, and to air any lingering problems or misunderstandings, the Project Director invited a consultant from the Faculty of Business Administration, National Institute of Development Administration (NIDA) to conduct a series of team-building exercises in Lampang. Using a number of Western "organization development" techniques adapted for use in Thailand, the NIDA consultant brought Lampang Provincial Hospital, Lampang Provincial Health Office and Lampang Project staff together in a series of meetings to discuss Project objectives, appropriate activities to fulfill them and specific problems and their resolution. The sessions also were structured to permit direct, but anonymous feedback, which helped to reveal interpersonal conflicts.

The result of the team-building sessions was mixed. Many felt there was an improvement in the clarity of Project approaches and an increased consensus. There was a definite perception of a "clearing of the air". However, the direct feedback techniques were new to most participants, and quite different from traditional Thai patterns of communication. Consequently, while some participants responded openly, others were sensitized or resisted the process. Such results are not inconsistent with those observed when the same techniques have been used in Western business or government settings.
DISTRICT MANAGEMENT WORKSHOPS

As Project training and health program activities gained momentum in the field, the need for improved effectiveness of health organization at the district level (a key level in rural health service delivery) received increasing attention. Some of the problems of planning and coordination at this level (discussed in Chapter 2) emerged with greater frequency and importance.

To deal with district-level health organization and management needs in a systematic fashion, Project and provincial health staff sought to organize a formal workshop to address these needs pragmatically and comprehensively. Coincidentally, a number of senior officials in the Ministry of Public Health (MOPH), also recognized the same management needs, and were planning corrective action. They agreed to join the Project in planning a workshop that might serve as a prototype for other MOPH training workshops on a wider scale. The University of Hawaii agreed to sponsor three one-week pilot management workshops in Thailand between June, 1978 and June, 1979. Staff from Lampang and other provinces participated.

Workshop planners tried to utilize less conventional approaches to make the meetings more interesting and useful to the participants, rather than simply presenting technical material in classroom-type lectures. The first meeting was therefore organized using the following approaches to content and methodology:

- District hospital physicians and district health officers senior sanitarians were invited to participate jointly in the meeting. As members of different professions, in-service training in other programs or projects was usually separate for each. But recognizing that the working relationship between the district doctor and health officer is vital for effective health management in the district, planners felt that building the relationship could and should begin by bringing them together in the workshop.

- Case studies, incorporating actual field experiences, were the basis of joint problem-solving discussions, organized around small working groups. These techniques presented situations that the district doctors and health officers were familiar with and roughly simulated the environment in which they normally had to resolve problems. As a final product, the groups had to write a short-term joint health plan of action for programs in the district.

- In the last days of the workshop, the provincial health officers who were the superiors of the participating doctors and health officers, joined the final sessions to review and respond to the meeting outcomes. Workshop planners felt that solutions or recommendations developed by the participants for improved district management would require the assent and active support of the provincial health officers to have any long-term effect.
Participation in the initial workshop was enthusiastic, and the participating district doctors and health officers responded thoughtfully and productively in the group discussions. Lampang Province benefitted directly, as the doctors and health officers from all of its twelve districts were participants in the first workshop.

SENIOR STAFF MEETINGS WITH WECHAKORN AND VILLAGE HEALTH VOLUNTEERS

Hang Chat was the first district where Lampang Project activities were implemented. As training for wechakorn and village health volunteers was nearing completion in Hang Chat, Project and provincial health staff sought information to guide them in planning further activities in the second, and much larger, seven-district operational area. One major source of information came from a series of meetings held with many of the newly-trained and deployed health workers.

A meeting was held with the first group of wechakorn who had completed their year of training some months earlier. They offered suggestions about how the methods and content of their training could have been made more appropriate for their field assignments. They also brought problems to the attention of the senior staff concerning the lack of routine technical consultation, shortages of medicines and supplies, and delays in formal assignments of clinical responsibility by the Provincial Health Officer.

Another meeting was held with village health volunteers, who also suggested new additions to training. They, too, highlighted recurrent problems, such as the irregular resupply of household medicines, financing purchases of medicine, and infrequent support visits by the local health workers.

The meetings were an important forum for not only clarifying the training and program elements, but also for enabling field workers to identify outstanding problems and to propose solutions. Indirectly, the meetings served as a means to demonstrate concern by senior staff for the work and needs of the rural health workers, and to give them an opportunity to participate in resolving problems.
PERFORMANCE AND RESULTS

The previous chapters have described the variety of problems encountered in the provincial health care network, and some of the Project's major attempts to solve them. To assess how effective the approaches have been is a complex task. Describing quantitative changes in the facilities available, services utilized, and clients served can give some evidence of how the system is performing. However, some of the questions concerning support, logistics, management, and supervision cannot be addressed directly with quantitative answers; the key information in dealing with these areas more often tends to be qualitative, impressionistic, and anecdotal. In the following paragraphs, a brief review of the quantitative changes in performance and program outputs is presented, followed by a broader, more qualitative description of the changes occurring in the areas of management, support, and supervision.

CHANGES IN SERVICE CAPACITY AND UTILIZATION

As each of the preceding monographs has described and reinforced, there has been a significant increase in the absolute number of facilities and staff, as well as an improvement and expansion of health worker skills. There are now:

- A district hospital with a doctor and a wechakorn in 7 of the 12 districts of the province;
- A health center with a wechakorn in 72 of the province's 78 subdistricts; and,
- Twelve wschakorn nurses working in the Provincial Hospital.

Beyond this, an entirely new network of primary health care volunteers augments the government's expanded health care capacity, providing an initial entry point to the health care system and sources of health information and advice in each of the province's 592 villages. The network includes:

- 823 health post volunteers;
- 5,340 health communicators; and
- 346 trained traditional birth attendants.

All of these add up to a significant expansion of health service capacity in the province. There also have been important changes in the patterns of service utilization, and in the performance of certain high-priority programs. These are summarized briefly here, but will be documented in detail in the subsequent monographs of Volume II.

-- There has been a definite shift in the proportion of care provided by the Provincial Hospital and the peripheral health facilities. Utilization of the
Provincial Hospital has increased only marginally, but there has been a larger shift to utilization of the lower-cost services at the district, subdistrict, and village level.

-- There has been an important shift in utilization from private sector sources to provincial health sources. Part of this shift has been accounted for by the decreasing use of local drug stores and an increase in the use of primary health care services provided by the village volunteers, subdistrict health centers and district hospitals.

-- A marked improvement and expansion of service capacity and quality at the rural health care periphery has been demonstrated. The number of physicians serving in rural district hospitals has more than tripled. Wechakorn paraphysicians are now assigned most rural health centers, and are authorized to perform a broader range of curative and preventive services. A foundation of simple medical care and more convenient family planning services and other preventive health measures has been built at the village level.

-- District health leadership and management has gradually improved through the shifting of younger, more active health workers (including several outstanding wechakorrs:) into District Health Officer positions.

Family Planning

Oral contraceptives are now provided in most villages by village health volunteers. Vasectomies are made available to rural men near their homes through the mobile vasectomy clinic. Depo Provera injections and IUD insertions are provided at many rural health centers, whereas they were previously available only at the district and provincial hospitals. Both male and female sterilizations are also available now in most of the district hospitals. There is a source of family planning information now available in every village of the province.

Maternal and Child Health

There has been a distinct shift away from delivery at home to utilization of health centers and hospitals; and also from utilizing untrained traditional-midwives to using better-trained attendants, such as trained traditional midwives, government midwives, nurses and physicians; there has been a sharp increase in the number of women seeking pre-natal examinations. There has been an increase in well-baby clinic frequency and attendance, both in the Provincial Hospital Community Health Department, and in district hospitals and rural health centers.

Nutrition

The number of Child Nutrition Centers has more than doubled, as has the total number of preschool children attending them. A nutritional surveillance and intervention program has been carried out province-wide, involving village level volunteers. Nutrition education and food supplementation have been emphasized at the peripheral level.
Medical Care

First aid and simple medical care using household drugs, are now available in every village. The staff at the health center, led by the wechakorn, can care for most illnesses and injuries occurring in rural villages, and can refer those beyond their capability to the district or Provincial Hospital. This increased medical care capability has had a positive effect on the credibility of the health center and providers. Villagers have more trust and confidence in those who can care for them when ill, making them more receptive to preventive and promotive health advice.

Improved Water Supply

Working with health post volunteers at the village level, the Regional Sanitation Office implemented a pilot program to test the feasibility of community participation in installing and maintaining covered wells with polyvinyl chloride handpumps as a low-cost way to improve the quality of water in existing wells.

Questions to Be Answered

It is apparent that considerable change has occurred. But questions remaining to be answered are: How much change was the result of Lampang Project stimulated interventions and modification? How much change was the result of other Ministry of Public Health actions, and how much is attributable to longer-term trends that were underway before the Project began? These questions will be dealt with in a more detailed analysis in subsequent monographs of Volume II. The summary of Project activities and apparent effects presented above does not reveal much about management, supervision and support within the system nor does it measure the extent of the specific organizational and functional changes. The following discussion more systematically assesses management, supervision and support within the reorganized system, based on more qualitative information and observations.

RESULTS OF REORGANIZATION

Integration of Planning

In many ways, the rearrangement of divisions and reallocation of responsibilities within the Provincial Health Office resulted in a much more rational alignment of functions. Previously, program planning was diffused through several divisions, and there was no integrated or systematic approach to setting priorities and directing resources to them. As the functions of the Lampang Project division of planning and programming were integrated into the Provincial Health Office in 1978, they were primarily assumed by the Planning and Evaluation Division, which consolidated planning functions for all technical program areas under the single division. With a base of reliable information concerning which health problems are of highest priority, which areas have performed less effectively and where other important problems lie, the Planning and Evaluation Division has been able to more effectively arrange program priorities and direct the necessary resources to them.
Support for Village Health Volunteers

Based on an effective system of reporting which permitted monthly monitoring of volunteer activities, and on a network of direct support through the coordinators located in the district, the Private Sector Division made a promising start. The district coordinator consolidated the reports of volunteers in each subdistrict of his district, followed up when reports did not come in, dealt with problems of supply and technical support, and sent the information on to the Private Sector Division. Support for Training

The Communications, Training, and Health Promotion Division has resumed its traditional role: that is, testing candidates for pre-service training, selecting candidates for in-service training programs testing candidates for promotion, and arranging MOPH-mandated training programs in the province. The division has taken a much less active role in providing training support to maintain the innovative components of the Lampang system.

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(1) The volunteer reporting system has failed to operate as effectively as in the past. Reporting from the volunteers has fallen off in regularity, and less attention has been given in the Provincial Health Office to routine consolidation of reports and monitoring of these activities. However, recently, one of the hospital-based wechakorn has returned to the Provincial Health Office Private Sector Division to assume direct responsibility for volunteer monitoring and support.

(2) The district volunteer affairs coordinators, who have been supported financially by the Lampang Project and who assisted some of the district health officers had to be released at the end of the project's five-year operational period. The loss of these staff has greatly affected peripheral support for volunteers and consolidation of information about their activities. However, in the province's largest district, where about 40% of the population is located, the district health office has found special funds to maintain employment of the volunteer coordinator, who has continued to serve in an effective support role.

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this may be, in part, the reason for their lack of active participation in follow-up training support. Had they been more closely involved in the basic training programs and had they been strongly oriented to the need for follow-up training to maintain the capability of the system's new workers, they might have continued in a more active role.

It appears that the follow-up training requirements for wechakorn would be beyond the capability of staff presently in the Communications, Training, and Health Promotion Division. The wechakorn require technical support from a physician or an experienced, highly-skilled wechakorn, neither of which are presently in the division. But the division staff could capably provide follow-up training support for the health volunteers as program activities involving volunteers are set up, particularly in coordination with the PHO's Private Sector Division and the Planning and Programming Division. For example, if the Provincial Health Office wishes to see volunteers involved in nutritional surveillance programs or family planning motivation programs the Planning Division could assist in setting up the specific training components to refresh or develop new skills crucial to carrying out such high-priority programs.

Project Field Supervisors

During the five-year course of Project operations, the Provincial Health Officer, in his capacity as Project Field Director, was able to hire three special field supervisors, acting as trouble shooters who could be sent to any area when initiation of Project activities, support, problem solving, or special investigations were required. However, as Project field operations neared completion in all districts in 1979, the role of the field supervisors became less crucial and they were released.

Information Flow

The Community Health Department has built a viable role within the Provincial Hospital, and continues to expand into the community. The department's mobile vasectomy and health clinic has had clear benefits for rural health care. It has taken the vasectomy service to rural men in isolated locations, it has helped to add credibility to the health centers where the clinics are held, and provided some technical support to wechakorn and other health staff working in the peripheral facilities.

The transfer of several wechakorn and other staff, along with their responsibility for service programs from the PHO to the Community Health Department has been less successful. The contrast in work styles and environments between the hospital and the Provincial Health Office are partly responsible for this. However, another major factor is that although the provincial health staff were transferred to the hospital, they still were officially attached to the Provincial Health Office, from where all promotions and other personnel support still came, rather than from the hospital. When they became concerned that their need for advancement and other personnel support were not receiving sufficient attention from their supervisors in
the hospital, all staff transferred back to the Provincial Health Office. The Community Health Department has retained two hospital wechakorn, and has recently recruited a nurse practitioner to assist in the Department's expanding work. One of the nurse wechakorn who returned to the Provincial Health Office now supports volunteer activities in the Private Sector Division.

DELEGATION OF RESPONSIBILITY TO THE PERIPHERY

District Hospitals

There are now seven districts with a district hospital: the largest district, Muang District, is served by the Provincial Hospital, and therefore has no district hospital. Thus, eight of the twelve districts, covering about 75% of the population, are served by hospitals with physicians. With encouragement from the Provincial Health Office, the district hospital physicians have assumed more responsibility and have taken greater initiative in planning and implementing programs within the district. Although their role, as spelled out by the Ministry of Public Health, does not give them authority over health work in the whole district, the delegated authority from the provincial health officer has minimized this constraint. The district hospital is best equipped to provide technical and material support, and it has transportation available. These are important factors in planning and implementing programs in cooperation with the rural health centers.

The response throughout the seven districts has been mixed, but there have been some positive results. In more than half of the districts, district hospital physicians have enthusiastically and actively taken on new responsibilities, supporting health programs throughout their district, providing technical and administrative support for health centers, and dealing with the great majority of planning and problems that arise. In some districts, the physician has been less active, and has basically remained within the confines of his district hospital, giving little attention to community programs. It is generally the younger, newer graduates, with a stronger orientation in community medicine who have taken initiative in the districts. They have started their own mobile vasectomy programs, helped to develop community nutrition programs, and have generally shown concern for community health problems beyond the doors of the district hospital.

District Health Offices

Although a similar mandate for initiative and responsibility was given to the district health officers, relocation of several was required first. In the early period of Project implementation, it was apparent that the performance of district health officers in several of the major districts had become stagnant. As a preparatory step, therefore, the Provincial Health Officer chose district health officers who had been performing effectively and assigned them to the larger districts needing improvement, promoted active sanitary health workers to the district officer jobs in other
districts, and placed inactive district health officers in less responsible positions. Recently, two capable and experienced wechakorn have also been appointed as district or assistant health officers. This laid the groundwork for placing more responsibility on the district health officer's shoulders.

But the limitations on the role of the district health officer were also recognized. Without a staff, he was a "one man show" with official transportation, and had a large geographical area of responsibility, covering numerous personnel in several health centers. The Project addition of the district volunteer coordinator added a new capability to the district health office. As the person who controls information at the district level, the district health officer has the most potential for identifying needs and problems. Many of the district health officers have taken initiative in dealing with program needs and problems as they see them, without referring back to the Provincial Health Office. If the district health officer encounters technical or resource constraints, he can make the needs and problems known to the district hospital physician, who has more resources to provide in jointly dealing with the situation locally. In the most effective district health operations, this cooperative relationship between the district hospital physician and the district health officer has been a key element in successful program implementation and problem solving.

One important consequence of delegating responsibility is the pressure generated on Provincial Health Office support divisions. As district hospital physicians and district health officers in some areas have initiated activities locally, these have been translated into new, more persistent demands on the province for support. Maintaining the enthusiasm and momentum of the district staff has required adaptation and renewed energy on the part of the provincial staff to respond adequately and in a timely fashion.

The achievements at the district level have, however, often been fragile, and a series of factors could easily undermine the positive outcomes.

1. In late 1979, the project-funded district volunteer coordinator had to be released. This limited the district health officer's ability to continue support for volunteer activities. Only in Muang District (fortunately, the largest district with almost half of the province's rural population) the district health office managed to continue employing the volunteer coordinator. (The private sector CBFPS district coordinator also continued working in Ngao District). The Provincial Health Officer is actively seeking support to reestablish the coordinator position in all districts.

2. Effective cooperation between the district health office and the district hospital is critical, and is dependent on the relationship between the district hospital physician and the district health officer. This relationship has traditionally been a source of conflict in many districts through-
out the country, and has not been completely resolved. The district hospital is strong in resources and technical capability, but its staff is dependent on the district health officer and must work through him as the official responsible for the district health centers.

(3) The major gap remaining is the lack of a single unit or person clearly designated as leader of the health team at the district level. Until this issue is resolved, there will always be potential for conflict, and for fragmentation of programs designed to serve the rural population's health needs.

TECHNICAL AND OTHER SUPPORT FOR DISTRICT HEALTH WORKERS

Coupled with encouragement to initiate local projects, the Provincial Health Officer has also provided technical support for planning and implementing the programs proposed at the district level. The objective has been to maintain momentum at the periphery. Technical, logistics, personnel and transportation support has improved for each of the district hospitals. This support has been provided to a somewhat lesser extent for the district health officers. This section describes technical and other support for district and subdistrict personnel; Chapter 5 covers support for village volunteers.

Technical Support and Supervision

During implementation of the Lampang Project, many new programs were established which require increased technical support and supervision. As more and more emphasis has been given to the widespread nutritional problems local programs have been organized locally with support from the Provincial Health Office, the Division of Nutrition at the Ministry of Public Health, and from private sector sources, such as the Lampang Rotary Club. Broad support — skilled staff, supplies, and transportation — have been provided by the Provincial Hospital for mobile vasectomy teams. Vasectomy services in district hospitals have been strengthened as the PHO has encouraged the district doctors to expand this service by providing necessary instruments and supplies, and improving the district hospital operating rooms. Wechakorn in most rural health centers have now been authorized to insert IUD's and to give the Depoprovera injection, broadening the range of contraceptive services at the periphery beyond the usual contraceptive pill. A number of wechakorn in isolated areas have been trained to provide dental health services, and a dentist has been added to the Provincial Health Office staff, in part, to support these wechakorn, and also to develop other community dental health programs. Lampang, is the only Provincial Health Office in Thailand that has a dentist on its staff.
The Community Health Department in the Provincial Hospital serves as a continuing source of technical support for rural health work. It receives referred cases from the district hospitals and rural health centers, it has provided considerable support for community-based programs, such as nutrition, school health, mobile vasectomy and mobile health care, and acts as a source of technical support when its staff are doing mobile clinics in the rural health centers.

The development of the paraphysician wechakorn has been one of the outstanding contributions of the Lampang Project to provincial health care. In general, the capable and successful performance of the wechakorn in their communities has been a marked achievement. The Provincial Health Office has provided support to facilitate the wechakorn role by authorizing a new range of medical and health services, and by providing supplies, drugs, and equipment to meet their technical needs. However, technical support and supervision for the wechakorn in the rural health centers, where most of the group are working, is one area which has not been well resolved. Supervision and support visits have been sporadic, and many wechakorn have never had a visit by a person capable or providing technical consultation and advice. Originally, this function was assigned to the Department of Community medicine, but its two physicians have minimal time available for travelling into the community on a routine basis; there are neither physicians nor highly-skilled wechakorn, in the Provincial Health Office who have been given this support responsibility. Consequently, this outstanding support gap remains. The wechakorn have been trained in a wide range of new skills to provide a majority of the health care services at the periphery; with their advanced training, they require more intensive support and technical supervision, yet this need has not been well met. The very recent promotion of two outstanding wechakorn to positions as district health officer has the potential to improve the capacity for technical supervision at the district level, especially in those districts without a physician.

Transportation

Transportation has been secured for most of the district hospitals and district health offices. However, at some health centers, a problem of transportation remains. Virtually all government midwives working in subdistrict health centers and midwifery centers have received a small motorcycle from UNICEF to be used in supporting family planning and maternal and child health activities. These motorcycles have been provided to most government midwives, irrespective of need or merit. On the other hand, sanitarians working in the same health centers have not been supplied with motorcycles, and this hampers community health work. Both the government midwife and the sanitarian have responsibility for supporting rural health volunteers, and the sanitarian has an equal responsibility for community work, as he is responsible for developing small water supply and sanitation projects. Many sanitarians in rural health centers who want to take an active role are forced to purchase their own motorcycles and use them for official business, despite the scant availability of funds for maintenance and repair.
Distribution of Medicines and Supplies

Several steps have been taken to improve the supply system for rural health facilities. A new building has been constructed for drug and supply storage, and a reorganized inventory system established. But the factor most important to improved logistics is the new emphasis on sending drugs and supplies directly to the rural facility requesting them, eliminating the need for a rural health worker to come and pick them up as in the past. The Provincial Health Office has made transportation available to facilitate the movement of medicine and supplies to the rural facilities.

ATTITUDES OF THE PROVINCIAL HEALTH AND PROVINCIAL HOSPITAL STAFFS

The one or two weeks of orientation concerning the goals and methods of the Lampang Project provided for service personnel and supervisors in both the Provincial Health Office and the Provincial Hospital could not, in itself, effectively build a unified team. However, several key senior provincial health and hospital staff offered strong support for the Project, and took an active role in assuring that it was implemented according to plan. But the response from a number of junior staff was less than enthusiastic. Despite the formal orientation program, a receptive framework was not effectively organized. This was perhaps the result of several factors:

1. A number of professionals from outside Lampang were brought in as Project staff, and frequently the suggestions or plans that they made did not correspond with those of other staff members. For example, plans made by the Project’s Program and Planning Division did not always correspond to those proposed by the provincial health officials.

2. During early pre-Project planning discussions with provincial hospital staff, a number of specific equipment support items were requested to enable the hospital to fulfill its Project-related roles. Project planners agreed that these needs would be met wherever possible, but should, of necessity, be contingent on the donor funds made available. However, several key hospital staff members felt that Project planners had made a firm commitment to provide the requested items. Unfortunately, when final Project budget decisions were made by the donor agency in collaboration with the MOPH planners, equipment items received minimal support. On learning of the budget decisions, some hospital staff members felt that the planners had been unsympathetic to hospital needs, and they, in turn, resisted involvement in Lampang Project activities. For some, these feelings lingered through several years of Project operations.

3. The most important factor, however, was probably related to who received or did not receive financial rewards. The Project provided some
stipends, or per diem, to provincial health and hospital staff who took on special responsibilities for Project related work. Some received this kind of reward, others did not. This inevitably led to disappointment on the part of those who received nothing, at times generating jealousy and resentment. Those who were dissatisfied became less supportive and less involved in Project activities.
CHAPTER 5

SUPPORT FOR PRIMARY HEALTH CARE

Because the role of primary health care volunteers is somewhat unique, as are their support needs, the discussion of the primary health care volunteer component has been reserved for separate consideration. Some management and support components of the primary health care network have already been mentioned, such as the role of the Private Sector Division in the Provincial Health Office, and of the volunteer coordinator in the district health office. A more detailed discussion of the primary health care volunteer system is presented in Monograph 2.

A network of primary health care volunteers has been successfully established. The network has great potential for expansion of services to the rural population, which could result in long-lasting benefits to its health status. However, a number of questions and issues remain unresolved, and these must be dealt with effectively if the large investment in training the volunteers and building the primary health care network is to be justified by its impact.

The major service activities of the health post volunteer are simple medical care and first aid, distribution of household drugs, and distribution of oral contraceptives (and occasionally, condoms). On a less frequent basis, volunteers are also involved in nutritional surveillance, education about vasectomy clinics, immunization programs, improved water supply, deliveries and maternal care.

Factors in Maintaining Performance

The performance of volunteers frequently reaches a high level shortly after completion of their training, tapers off to a plateau within the first year, then gradually increases. Sustaining this plateau seems to depend on how well the household drug supplies of the volunteers are maintained, and how frequently the volunteers are visited by the local health worker, who brings supplies, provides technical support, and assists with problems. The support has been inconsistent from area to area, depending on the interest and initiative of the local health workers directly responsible for volunteer work. Where there has been a relationship of trust and confidence, the volunteers tend to have performed better, and health workers have involved the volunteers more frequently in community health programs.

There has been some hesitance on the part of many health workers to turn over responsibility to the health post volunteers, in part, a result of the non-professional status and minimal training of the volunteers. This problem was demonstrated in the nutritional surveillance program implemented throughout the province. As Road-to-Health Charts were filled out for each child weighed, the charts were kept by the health worker at the health center. Having the mothers keep the charts (as
they have done in other countries) was not acceptable to health workers, nor was keeping the chart available at the village level, at least in the hands of the health post volunteer. Most health workers maintained that the health post volunteers would lose the charts. Therefore, the charts were kept in the health center distant from the families who could profit by the educational and motivational value of maintaining the charts for their own children.

Experience with volunteer oral contraceptive distribution has been somewhat different. Initially, health post volunteers had a minimal role in contraceptive distribution. But in the final two years of Project field activities (1978-79), volunteers were encouraged to increase their role in oral contraceptive distribution. Unlike the performance pattern in providing illness care services, volunteer distribution of oral contraceptives increased slowly and continually to a high plateau. One reason for this pattern is the nature of contraceptive use: it is repetitive. Once the volunteer begins to supply village women, acceptors come back each month for their next cycle of contraceptives. More important, unlike household medicines, oral contraceptives are supplied to the volunteers free (following government policy) through health and midwifery centers, eliminating any potential cash flow problems. Volunteers do request a donation from acceptors for the convenience of village-level availability, but volunteers do not pay for contraceptive resupplies from the local health center.

Finally, contraceptive distribution is a program in which health and midwifery centers truly share responsibility with volunteers in a mutually beneficial way. The distribution by health post volunteers makes pill use convenient for village women, and reduces the health center routine service load. Yet under the National Family Planning Project reporting system, all pill distribution by volunteers is still credited to the health center. The health center workers are more attentive to contraceptive resupply, and the volunteers get a small, but consistent financial incentive.

**Supply of Household Drugs**

Supplying the volunteers with household drugs for simple medical care has been a key problem for which several approaches have evolved. Initially, a consignment of household drugs was given to each volunteer on completion of training. These drugs were to be sold and the proceeds used for purchasing the next consignment. However, volunteers often received no payment for medicines they dispensed, creating cash flow problems. Sometimes they did not have enough money on hand to purchase the resupplies normally distributed through the local health center. At first, the local health center staff issued the resupply drugs on credit, but after a short period of time, the health workers found they were running up large debts. To remedy this, an arrangement was made with one of the large local drug distributors to sell the drugs to volunteers at wholesale prices, using drug stores in each district as the supply outlets. This meant that the volunteers had to come in to the district drugstore to pick up the drug supplies themselves and operate on a cash basis only.
The system eliminated the problem of health worker debts. However, it became less convenient for the volunteer to get his drug supply, and required that he have cash for immediate payment. This tended to reduce the probability that the volunteer would refill his drug supply promptly.

The system as it is currently organized is a mixed one: in some areas, health workers continue to provide the drugs to the volunteers, but on a cash basis. In other areas, the private drugstores still provide the resupplies, also on a cash basis. In family planning, as mentioned earlier, the problems of resupply and indebtedness are much less apparent.

Perhaps the best system of resupply is carried out in the district where training and support for volunteers have been turned over to the private-sector Community-Based Family Planning Services organization (CBFPS) on a pilot basis. In this district, where 45 volunteers have been trained by CBFPS, the resupply function is carried out by the district volunteer coordinator, who is hired by and directly responsible to CBFPS. The coordinator travels throughout the district, bringing household drugs and contraceptive resupplies to volunteers on a cash basis, and gathering information for the reporting system. This system is undoubtedly more convenient for the volunteers since they are spared the inconvenience and lost time in travel to a resupply point, and are guaranteed regular visits. However, like HPV’s, CBFPS volunteers must pay for household drugs and contraceptives, and CBFPS maintains a careful accounting system.

LINKS BETWEEN VILLAGE VOLUNTEERS AND RURAL HEALTH FACILITIES

Although the network of village health volunteers is a relatively autonomous one, its link to the rural health center network is crucial for technical and material support, and for maintaining volunteer motivation and participation. A measure of this linkage is the frequency of contact between health center and midwifery center workers and the health post volunteers.

Frequency of contact varies widely from area to area, dependent on the needs of the individual volunteer and on the interest level of the health center workers. Normally, the health workers in a given center share responsibility for volunteer support and visits. Each worker therefore has direct responsibility for about 3 to 5 health post volunteers, depending on the number of villages in the subdistrict. Confirmation of the level the health worker-volunteer contact was covered by a project survey of health post volunteers. A random sample of 113 volunteers from 10 of the province’s 12 districts, or about 17% of the total health post volunteers working in those districts showed the following:

- 75% of the health volunteers had been visited at least 10 times since completing training;
Almost 17% had been visited more than 30 times;
Only one volunteer had never been visited;
Visits were mostly made by health center and midwifery center workers: wechakorn (45% of the visits), government midwives (24% of visits); and male sanitary worker (17% of visits);
Volunteers also travelled to consult with health workers: 76% said they most frequently went to see either a wechakorn, male sanitary worker, or the government midwife; and
Finally, the health post volunteers interviewed indicated the health worker interactions they favored most were with wechakorn (48%); the government midwives (20%); and the male sanitary workers (14%). Most of these workers are located at the health center and midwifery center levels.

This is a clear indication of relatively frequent contact between the rural health center workers and the village health volunteers. The content of those interactions is not specified in the survey data, but drug resupply and gathering volunteer performance information are the most likely reasons for the contacts.

FUTURE CONSIDERATIONS

Long-term performance and continued motivation of village health volunteers needs to be given careful consideration. The basic assumption of many health leaders is that motivation and performance will be maintained because volunteers gain prestige and status in their communities, because they feel they are serving their neighbors and making merit as Buddhists, and because they receive personal and technical support through frequent visits by the local health worker. While such idealism may motivate some, it may be inadequate for many others in the pragmatic environment of village life.

In the short term, during the months immediately following training, the novelty and the status of their work may motivate the volunteers, particularly if they only see villagers and distribute medicine from their homes when convenient. However, despite the minimal demands on their time, a slackening in some areas of performance after the first year has sometimes been observed. One method to counter this slackening in performance and to improve the volunteer contribution to community health is to have volunteers trained and employed in high-priority programs such as oral rehydration therapy for infant and child diarrhea, nutritional surveillance, promotion of immunizations, water supply and sanitation. However, such an approach requires more time and a greater effort on the part of the volunteer working within the community. (To be successful, volunteers have to do more than wait at home for villager visits). It seems unrealistic to expect this kind of work from the volunteer without some additional form of reward, whether it be from the community itself (not yet tested in Lampang) or from other government sources.
Finally, one of the major components of the primary health care approach is that community participation and community involvement is required as a foundation of support and motivation for the primary health care worker. There is, of course, a clear need for such a program to succeed. But it is unrealistic to expect that community participation will emerge spontaneously. Rural villagers in Thailand have long been capable, pragmatic, and self-sufficient where their own immediate economic and daily life needs are concerned. But they have not taken initiative or joined together in community programs, such as preventive or promotive health, when the direct and immediate benefit to them seems less clear. Such programs have been left to the government to organize and carry out.

The government has mandated that training and programming for primary health care begin immediately. The pragmatic health manager at the provincial level cannot wait for community involvement to develop; it takes time, and there has not been a strong record of cooperation between the village and the government. The provincial health manager must recognize that as the primary health care volunteers return to their villages to begin work, they need to be strongly supported, and immediately involved in a narrow range of high-priority programs for which they are well-trained. At the same time, the support of the community must be continually sought, and may gradually emerge as the utility and contribution of the volunteers becomes more apparent in the community.

Not resolved, could seriously limit the overall project effort. To understand the ways the above objectives were operationalized first requires a clear understanding of how the provincial health structure has traditionally functioned, its inherent problems, and the environment in which the system operated. The following chapter provides this background.
CHAPTER 6

CONCLUSIONS AND LESSONS LEARNED

More than five years of experience in implementing the approaches of the Lampang Project have revealed the needs of management and support for expanding and modifying the provincial health care delivery system, and in developing a new, village-based primary health care network. Many of these needs have been met. The years of experience have also exposed some areas of unmet need and problems that have not been, or cannot be dealt with adequately. Many of the obstacles or problems encountered are amenable to change at the provincial level. But others are imbedded in the structure and organization of the government, and resolution would require overall system reform. Recognizing these needs and problems is important because the national government is making large investments in similar approaches to rural health care. Many of the experiences in Lampang are directly relevant to other provinces that are presently, or will soon be, implementing the Ministry plan. If the needs and problems are clearly recognized at the outset by both the provincial implementors and the national level planners, they will be better prepared to deal with them, and there will be much greater potential for a large return on the Ministry's investment.

Dealing with Resource Constraints

As reflected in the National Economic and Social Development Plan and in current Ministry of Public Health programs, there is now strong emphasis on expanding, integrating and improving the rural health care system and serving the needs of the rural majority. However, there still appear to be disparities between policy and implementation, and between intention and action. A review of the nationwide budgetary allocations between the Provincial Hospital and the Provincial Health Office, with its network of rural health facilities, shows that the large proportion of budgetary resources are still concentrated in the clinical, curative-oriented facilities, which are few in number, low in coverage and high in cost. The more peripheral rural facilities, which are much larger in number and which serve a broader proportion of the population, are seriously underfinanced in comparison.

The same inconsistency is seen in the distribution of health manpower. Most of the doctors, nurses, dentists and other highly-skilled professionals are concentrated in the provincial hospitals or in Bangkok. Very few are in district-level hospitals, and none are in the rural periphery. Most of the rural health centers are staffed by sanitarians and government midwives. Recognizing that the disproportionate distribution of manpower is unlikely to change in the near future, the Ministry of Public Health and the Lampang Project have made a commitment to upgrade the skills of some workers in the peripheral health centers, and to train large cadres of primary health care volunteers to provide a health care entry point in every
village. This approach essentially accepts the limited budget available for rural health care, as these approaches are low-cost in nature when compared with the more clinic-centered care. Intensive programs to upgrade the skills of health center workers, and to train village health volunteers have been completed in Lampang, and are underway in ministry programs in at least fifty other provinces.

The rural health service network, including the primary health care volunteers, is a structure with great potential for dealing with the major health needs of the rural population. However, to fulfill this potential requires a strong system of support from the provincial level. Technical and material support are seriously needed at the health center level, which is the major government health provider in the rural areas. The health centers must be tightly linked to the village health volunteers, through a small number of selected, high-priority health programs which have a direct effect on the health status of the population, and in which the community health volunteers have a major role for which they are well trained. But as the provincial health care system now operates, the availability of resources, well-trained technical manpower, and technical and managerial support become weaker as one moves from the provincial center to the rural periphery. This imbalance must be overcome.

District Health Organization

Provincial health leaders have stimulated increased initiative from the district hospitals and district health officers, and they have encouraged cooperation between these two key units of the district health organization. Much has been achieved, albeit on an informal basis, during the years of Project operations, but this progress has not been institutionalized. The district hospital and the district health office remain separate organizational structures within the district, and there is still no unified team or health team leader at the district level. On one hand, the district hospital has technical, financial and material resources which could greatly enhance planning and implementation of programs in the district. On the other hand, the district health office is officially responsible for all health centers in the district, is the focal point for performance information coming from these health centers, and is the conduit for supplies and support to them. If all of these capabilities were coordinated into a single functional unit, their achievements could increase markedly.

Training Needs

A major investment has been made in training both the wechakorn paraphysicians and the large groups of village health volunteers. However, this training was only the first step in making a new type of integrated health care delivery system operational. Continued follow-up training is needed to maintain the system, and to build new capabilities as new programs are added. At the provincial level, this training has often been regarded more as an end point, rather than a beginning. Training staff must conduct not only specific courses to develop new skills, but
follow-up on-the-job education in the field. At the same time, the type and style of
the training provided is a crucial element. Although innovative training approaches
were used for the wechakorn during their one year of training, the competency
based, non-formal approach to training (which is most appropriate for the less-
educated, minimally literate villagers who become volunteers) has not yet been
infused into provincial training approaches.

Village Health Volunteers

Some major rethinking may be required concerning the role, preparation and
support of village health volunteers. A network has been established and is in place,
but its full potential for contributing to health programs has not been realized.
Careful consideration needs to be given to which programs should be emphasized by
the volunteers, and supplemental training provided in the skills that are required to
carry them out. A further question needs to be raised about how much time a
volunteer may realistically have available to spend on community health work. This
leads to the issue of sustained motivation and incentives. It is clear that volunteers
cannot perform effectively unless there are regular supportive visits, follow-up
education, and replenished supplies. Moreover, the question of whether continued
health performance can be maintained by a volunteer who receives no tangible
rewards remains unanswered. The general notion that the volunteer will serve his
fellow villagers because of the prestige and occasional recognition he receives may be
a faulty assumption in the long term. Few would suggest that government health
workers perform their jobs without pay. There seems little reason to believe that
rural villagers, whose lifetime experiences instill in them a solid pragmatism, would
long perform a service unusual to their daily activities without some regular tangible
reward.

Orientation of Health Care Delivery

Experience in Lampang has shown that much can be accomplished in modi-
fying the the government rural health care delivery network and building a village
level primary health care network with great potential impact. But because the
government and national health bureaucracies remain highly centralized, their
officials, including health workers at the periphery, frequently lack a strong service
orientation and a deep affinity for the needs of the rural villagers. This tends to
make the health workers at the periphery passively await directives from above,
rather than initiate activities on their own. It makes them more sensitive to and
cognizant of the system’s needs rather than those of the clients they are assigned to
serve. Consequently, there remains the need to stimulate initiative from the village
community and from the peripheral service level to overcome bureaucratic inertia.

A Systems View of Management

In as complex an undertaking as restructuring and expanding a provincial
health care delivery network, it is extremely crucial that a systems view underlie
both the planning and implementation processes. A systems view of management
implies that every component in a management system is linked, directly or indirectly, to every other component; that when a change occurs in one component, other components will be affected. The interrelationship and interactions between the various parts of the total health care system (the hospitals, the rural health facilities, the volunteer network, and the private and indigenous components) must be recognized from the beginning. Introduction of change into the system, or any of its components, creates imbalances or pressures which require resolution or adaptation.

Although a systems approach seems natural and reasonable, experience suggests that planning and implementation are more often done with a narrower view, focusing on partial components of the system, without regard for impact on other related parts. For example, hundreds or thousands of village health volunteers are trained without careful thought to their supply and support needs, nor how their work can be monitored efficiently; paraphysicicians are trained for all rural health centers, but do not receive the equipment, drugs, or routine technical support commensurate with their new skills; new information needs are identified, and data collected without an institutionalized capability to process and analyze the data.

Introducing change into the system sets in motion a chain reaction that eventually affects most parts of the system in some way. Without a systems view, the new pressures and demands created on the various components of the system will frequently go unrecognized, or will be unanticipated, and thus disruptive, making the health care system unable to cope with or respond adequately to change.
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A SYSTEM OF EVALUATION AND MANAGEMENT INFORMATION
FOR RURAL HEALTH CARE

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INTRODUCTION AND SUMMARY

This monograph on project evaluation in Lampang is being written before all the results of evaluation are in. Planning the evaluation approaches, developing objectives and the methodologies to meet them, and data gathering are complete. These steps have provided much information about how to evaluate a multi-faceted, integrated, rural health project. The aim of this monograph is primarily to summarize the evolution of the Lampang Project evaluation process, and also to share a few preliminary experiences gained in more than five years of Project implementation. However, full analysis of the utility of evaluation approaches and lessons learned must await completion of the evaluation results. Forthcoming reports and monographs will address these issues in more detail. Finally, this monograph is not meant to be a guide or handbook for evaluation, although it may provide suggestions useful to others planning evaluation and monitoring systems for both pilot projects and ongoing health delivery systems.

The strong emphasis on evaluation in Lampang has been unusual for a health project in Thailand. Earlier Thai pilot projects have been small, with limited programmatic focus, and little attention has been given to systematic evaluation. The large size of the Lampang service area, with a population of over 600,000, and the scope and variety of planned activity, presented an arduous task for implementation. But it also posed a unique challenge for evaluation, in terms of the amount and range of data required, and in the need to develop a comprehensive evaluation system that could meet the specific needs for information, yet not become overwhelming and unmanageable.

Some of the Lampang approaches were not new — they had been implemented earlier on a small scale (see Monograph 1). But they were consolidated with other new approaches in a unique mix that constituted the overall project strategy, which further complicated the evaluation task. Originally, the external donor agency had intended to support comparable integrated health service projects in five different countries, each with extensive evaluation components. Ultimately, only the Lampang Project was implemented. But the donor agency maintained a special interest in evaluation. The outcome has been that diverse objectives have had to be fulfilled in project evaluation, and that measurement of project achievements has had to take on several dimensions.

In one dimension, measurement of end-stage achievement, such as health status and system performance targets, was required. But measurements of this type do not provide the answers of how, and why or why not a certain level of achievement resulted. Ongoing internal monitoring was also needed to look inside the delivery system and document the ongoing changes and the reasons for them. Therefore, measurement of end-stage achievements and ongoing internal monitoring are the two major dimensions of the Project's evaluation system.
PROJECT EMPHASIS ON EVALUATION

Evaluation was an integral part of the Lampang Project from its beginning in 1974. The international agencies supporting the Project emphasized evaluation because of their desire to systematically gather information concerning performance and cost of new approaches to health care for the underserved rural majorities, and the resulting impact on the population's health status. The agencies also sought the clearest and most unequivocal information possible to guide them in their broader policy-making decisions concerning investments in health care. But they were equally interested in assisting the development of evaluation methodologies that might be applied elsewhere and in monitoring systems that would facilitate rapid information feedback for program management.

In Thailand, the decade preceding the Lampang Project's initiation brought a renaissance in approaches designed to serve the clearly unmet health needs of the population, especially in the rural areas. A new flexibility had emerged in the thinking of many health leaders in the country, stimulating a variety of pilot projects designed to test innovative or non-conventional approaches to rural health care. This included acceptance of non-physician practitioners, attempts to streamline the provincial health care management and information systems, and fledgling attempts at village-based, more self-reliant health care using village health volunteers. These were Thailand's early precursors to the current primary health care movement. But in most of the Thai pilot projects that were undertaken, little systematic evaluation of the results was done. Although many of these activities seemed quite beneficial, assessments of their actual results were often retrospective and anecdotal.

The Lampang Project incorporated the experience gained in approaches previously attempted in other Thai pilot projects, modified some of these, and added other strategies which were completely new. The strong donor support for evaluation provided Ministry of Public Health leaders with an opportunity to more systematically assess the various innovative approaches to health care delivery which had been interwoven into the Lampang Project. Undertaking evaluation of the Lampang Project has been, by nature, a complex task because of the multi-faceted approach of the Project. But the decision of Project planners to deeply involve the Project in evaluation reflected the Thai Government's need for clear and valid information concerning the wide range of new approaches to rural development, particularly in the area of health.

As the Lampang Project began, it was assumed that because many of the features of the Project were new and untried, a thorough and careful assessment of their results would be needed to convince the Ministry of Public Health and other government leaders that these approaches could be extended to areas outside of Lampang. Another facet of the need for evaluation was thus related to replicability, that is, the social, administrative, and financial feasibility of applying the Project's key features in other areas of the country.
The Lampang Project must be viewed as a response to a number of health system and health status problems, and its features are proposed methods for dealing with or resolving these problems. Health leaders in Thailand are familiar with the major problems of health in the Thai population. They believe that the population's limited access to care and the inadequate performance of the existing government health system are crucial impediments to improving the nation's health. Thus, the Lampang Project's major features are designed to greatly expand the coverage and service scope of the health care system and to increase utilization of its service. The assumption is made that, other things being equal, successful implementation of the Project's features will lead to improvements in health. Therefore, the evaluation system had to provide information concerning this linked chain of events — project inputs, outputs, processes, system performance, and impact on health.

To secure information concerning the various aspects of the Project required drawing on a variety of sources. Much information concerning day-to-day health system operations was already available in provincial health information consisting of the routine information gathered at regular intervals from reports, records, and other documents. For other aspects of evaluation, information was not available; it had to be generated through surveys and special studies. These studies provide a base of qualitative and quantitative information which was required by the evaluation system. In addition, other sources of information which provide the underlying explanations and rationales for events, are the impressions and observations gained from interviewing field workers and staff, as well as external consultants and visitors.

An important factor complicating the evaluation process is the dynamic nature of the health care system and its environment. At the same time that the Project has made inputs and modified the operations of the Lampang provincial health care system, the Ministry of Public Health, independent of the project, has also introduced other major inputs and changes in the Lampang system as part of its overall plan for health care development in the nation. Likewise, profound social and economic changes have occurred in Thailand over the last decade, which may have unanticipated and possibly synergistic effects on Project performance. Therefore, evaluation of the Project should supply information to decision-makers which can clearly identify the achievements of the Project's features, and distinguish them from the effects produced by other concurrent changes in the health care system and external factors in the socioeconomic environment.

The evaluation system envisioned by Project planners in 1974 focused on many aspects of the performance of the Lampang health care system (as modified by the Project), and its impact on the health of the population. Many resources were devoted to this evaluation process. It was considered short-term, in that most of its components of evaluation would not be continued as routine activities once the Project was completed. As the evaluation process evolved in the first years of the Project, and as provincial health staff became aware of the potential uses of data.
being gathered, it became more apparent that certain aspects of the evaluation process would be valuable as ongoing activities and should be made permanent, integral parts of the management and decision-making process. In the end, then, Project staff were faced with the need to develop two interrelated systems: (1) an evaluative system to assess the outputs and impact of the Project and its specific features, and (2) an ongoing management information system that Lampang provincial health staff could use routinely for planning and decision making after the project ended.

SUMMARY OF PROJECT EVALUATION ACTIVITIES AND FUTURE EVALUATION NEEDS

Unlike the preceding five monographs, Monograph 6 is highly technical and the content is likely to be of less interest to the general reader. For the convenience of those who are interested in a summary, but not necessarily in the specific details of the evaluation process, a brief overview of Project evaluation approaches, experiences, and future needs is presented here.

Establishing the Evaluation System

From the earliest planning stages, Project staff have been assembling a variety of data from several sources aimed at measuring achievement of the Project's major objectives. The objectives include service coverage, acceptance, and accessibility; health-system performance and costs; Project impact on the health status of the population; and the feasibility of implementing the Project's key approaches in other areas of the country. The major Project operational objectives have been translated into evaluation objectives, which have guided the collection and analysis of data. Data have been generated from two major sources: (1) a system of reports and records, most of which already existed in the provincial health information system, and (2) several surveys and special studies that were specifically organized by the Project's Evaluation and Research Division. Together these provided the base of data on which to measure Project progress.

One limitation in the early evaluation stage was the simplicity and generality of the overall Project objectives. Because these general objectives were translated into more specific operational guidelines only in the first year of Project implementation, Project evaluation staff had to forge ahead without specific programmatic and operational targets on which to base construction of measures of indicators. Until specific Project strategies were in operation, Project evaluation plans suffered from a lack of specificity and clarity in some areas. For example, although the general Project goal was to increase coverage of rural women ages 15 through 44, and children under age 6, this was not translated into the specific service targets involved; targets for prenatal care, delivery care, postnatal care, nutrition services, family planning, etc. make up this broad coverage objective.
Scope of Evaluation

Four major objectives defined the scope of Project evaluation as it evolved. These objectives were designed to include assessments of:

- Accessibility and utilization of services;
- Performance of the health delivery system and its personnel;
- The impact of health services on the population’s health status; and
- The social, administrative and financial feasibility of replicating the project’s key features.

A series of specific indicators was developed to facilitate measuring attainment of the objectives. These indicators, in turn, dictated the types of data that needed to be collected. Several sources, some already existing and others created by the Project, were used to generate the sets of data required. These sources included:

- Community Health and Nutrition Surveys;
- Task and Cost Analysis Surveys;
- Administrative Analysis Surveys;
- Provincial health service statistics and management information; and
- Special studies.

The final step in the evaluation process has been to integrate and analyze the several sets of data to assess and document the results and impact of the Project.

Organizing the Evaluation Team

It was possible to organize an evaluation team which provided major skills required to develop the system of evaluation and carry out its component parts. In Lampang, the Project maintained a small staff of professionals, and a corps of data collectors and coders throughout five years of Project operations. Although Lampang Project staff retained responsibility for carrying out some major components of the evaluation plan, they chose to share evaluation responsibilities with other institutions from the outset. Collaborators from the National Institute of Development Administration (NIDA) took the responsibility for the component studies, as well as for providing general data processing services through the NIDA computing center. This arrangement was advantageous in drawing on professional capabilities which could not be attracted full-time to Lampang, as well as in giving a national training institution experience in health-related social research. However, diffusing responsibility for evaluation tasks to a broader group outside of Lampang has complicated management of the evaluation process, and at times, impeded communication and timely completion of required work.

Future Evaluation Needs and Support

Systematic evaluation has not been emphasized in past pilot or demonstration health projects in Thailand. The emphasis given to evaluation from the beginning of the Lampang Project is a direct result of the importance of this activity as stressed by the assisting donors, and as a result of the funds that were subsequently provided
to support evaluation. This enabled Project staff to design a system of evaluation which included a variety of mechanisms for gathering the required data. Also, it has permitted collaboration with outside professionals and institutions, and it has brought eminent consultants to assist with evaluation activities. The funds were invested by the donor in the interest of systematically evaluating and documenting the achievements and impact of the Project, activities lacking in most past pilot projects. This investment should bring the expected return: detailed measurement of the inputs, intermediate outcomes, and finally, the impact on the health of the population. This should be of value to provincial health officials, to ministry planners, and more broadly, to the international health community.

But as the Project passes into its final stage, looking to the future, a series of questions arise: What parts of the evaluation system have been institutionalized and what parts might be needed in the ongoing health delivery system? Has the provincial health information system been improved or influenced by the Lampang Project evaluation activities? Given the experience of evaluation in the Lampang Project, and the new approaches to rural health care delivery in Thailand, is the provincial information system, as presently structured, adequate to monitor health progress?

A significant part of the Lampang Project evaluation activity will end on termination of the Project. The baseline and follow-up surveys, and other special studies, which require specialized personnel for data collection and analysis, and which have been carried on with the special funding from the donor agency, will not be financed once the Lampang Project has ended. These surveys and studies were intended for specific Project activities, and for assessing results related to the potential for replication. They would, therefore, not be needed in the future.

Although the detailed special studies need not be repeated, it is crucial that the provincial health system have an information network for monitoring and management of the expanding provincial activity. Such a network cannot be as complex as the Lampang Project system. By primarily using information already available in the provincial reporting system it could capably monitor progress in service and program progress, and with little extra effort, adequately monitor the health of the target populations. The need for a more effective information system is all the more important given the great expansion of rural health care through the primary health-care network. In Lampang, a simple system of reporting on volunteer activities has been integrated into the provincial health-care system, and this will be continued when the Project ends.

The years of experience in Lampang have magnified the need for an institutionalized capacity in the provincial health office to effectively measure the health care system performance and program achievements. The system must be capable of measuring, identifying and locating problems, and of monitoring program activity with regular, rapid feedback. A key to achieving such an effective information
system within the province is to train a staff person in the Provincial Planning and Evaluation Division to coordinate monitoring the information that is gathered each month. This person can fill the role that has been carried out by the Lampang Project Evaluation and Research staff: he can select key data items from routine reports and put them into a form useful for analysis and decision-making. There is only a minimal need for increasing certain kinds of data collection because most of what is needed is already available in the plethora of descriptive data generated every month.

Emphasizing the Need for Information and Evaluation

Project evaluation staff have given much attention to educating provincial health staff about the importance and use of monitoring information: educating them in the usefulness of the data, the reasons for collecting it, and how important it is for effective work at each operational level. Progress has been made in this direction, and some individual health workers have shown an impressive grasp of health problems, health services and program progress, based on careful attention to the information they routinely gather. But for the progress to continue on a long-term basis, the Ministry of Public Health must reinforce the emphasis on effective information gathering and utilization. Although the Ministry requires the monthly reporting of huge quantities of data, there has been inadequate emphasis on the immediate use of the information at the service level, and in other management decisions, nor has there been adequate emphasis on feedback of this information. As the Ministry expands its training of provincial, district and subdistrict-level health workers in management skills, one of the important topics to be covered should be simple analysis and use of routine health information in program monitoring and planning.

Other Evaluation and Research Needs

As the Lampang Project has progressed through the five years of field implementation, there have been planned areas of emphasis in specific program components, of the delivery system, and in the evaluation system established to assess Project achievements. As the Project entered its final phase, the focus in international health has shifted somewhat, with special attention now given to issues of primary health care. As a result, both Thai-based and outside observers have expressed interest in the possibility of further testing or demonstrating new types of technology and delivery approaches which were not stressed during earlier Project operations. Some would like to seek answers to research questions which the current evaluation system does not emphasize or deal with in detail.

In Lampang, there is a solid base of experience in testing approaches for improving and expanding rural health-care infrastructure for developing parapathologists and village health volunteers, for stimulating community participation, and for generating information to answer research and evaluation questions. Part of the experience has also been in acquiring an understanding of the gaps in rural health-
care approaches, the pitfalls in evaluating them and the areas that need further atten-
tion. The base of experience gained would thus make Lampang, given adequate
support, well-equipped to deal with other demonstration and research issues. Among
the more important of these are:

(1) Further Testing of Primary Health-Care Strategies

Thailand, like many of its Asian neighbors, has embarked on an ambitious
plan to build a network of village-based primary health care throughout the country
and to link it to the government’s peripheral health facilities in a pattern similar to
that in Lampang. However, little detailed evaluation of the overall approach, the
program content, and the resulting impact on health care and health status has been
done. Many questions remain to be answered: What kinds of people are the most
able workers? What are the most effective training methods and content? What pro-
gram activities should primary health-care volunteers emphasize? How much time
devoted to health can be realistically expected from volunteers. How frequent are
dropouts? How can effective community support be generated?

The Lampang Project information and evaluation system can provide par-
tial answers to some of these questions, and the Ministry of Public Health is studying
others. But a more systematic testing and evaluation of the primary health care
program remains an important need throughout Thailand.

(2) Testing Health Program Technology Appropriate for Village-Based
Implementation

While an infrastructure for integrated health services and primary health
care has been successfully established in Lampang, there has been less progress in
building village-based health programs that have a clear impact on the health pro-
grams of highest priority, such as nutrition, environmental sanitation, and communi-
cable disease. Further testing and research is needed to explore and develop techno-
logy and organize approaches appropriate for implementing specific, high-priority
programs at the village level.

Several programs have already been tested in Lampang on a pilot basis, as
part of planned Project activities, or as special additions. For example, a demon-
stration program to improve existing shallow wells by using a simple well cover and a
polyvinylchloride (PVC) handpump is underway, involving the village health com-
mittees and health post volunteers, and supported by the local health center workers.
Another program currently being tested is use of a simple, locally-made, hand-
operated food texturizer to produce nutritious food supplements. A variety of
locally available food sources are being tested in Child Nutrition Centers and other
village sites. A pilot-Nutritional surveillance program using a village market scale has
also been carried out.
There are many other specific health programs for which technologies could be tested: community nutrition improvement, local preparation and distribution of oral rehydration preparations, water supply and sanitation improvement, and communicable disease control. The Lampang rural health structure could serve as an appropriate setting for testing both the technological materials and the community organizational or delivery mechanisms for introducing them.

(3) Improving Community Participation
Although the Lampang system has established the essential elements of a village health action organization, namely a village health committee and cadres of village health volunteers in every village, methods for achieving full community participation have been elusive, and methods for implementing local financing of primary health care have not been attempted. Yet, there is a clear need for community participation in village health programs, in supporting village health workers, and in financing local health and development activities.

The experience of the PVC handpump trial suggests that village members are willing and able to organize themselves, to participate in the installation and maintenance of the handpump, and to finance the costs of installation and repair of the handpump. Other high-priority program intervention trials through community participation and financing could be tested in the Lampang system to continue the process of social preparation and community motivation, and to encourage improved community organization for village health improvement programs. Beyond this, the Lampang system could be utilized to search for appropriate community organizational methods for local collection, management, and allocation of local resources for village-based, community-directed activities in health care, health promotion, disease prevention, family health, and home and environmental improvement.

(4) Strengthening Health Service Organization and Management
Although great effort has been expended to improve provincial health organization and management, many gaps still remain, both in Lampang and nationwide. Through continued health services research, the Lampang health infrastructure and information system could develop practical methods and procedures for local health planning, programming, and management that will meet local health needs and serve to strengthen the national health information system for purposes of country health programming and developing specific health strategies.
CHAPTER 1
SCOPE AND METHODS OF EVALUATION

EVALUATION OBJECTIVES AND INDICATORS

The evaluation system that evolved in the Lampang Project is designed to measure and explain what effect Project inputs have had on the pattern, quantity and quality of service utilization, and ultimately on the health status of the Lampang population. The overall goals of the Lampang Project have been translated into four major evaluation objectives:

Objective 1: To measure accessibility and acceptance of services in experimental and control areas over time.

Objective 2: To assess the performance of the health system, its personnel and the costs of health delivery within existing operations and management practices.

Objective 3: To measure the impact of integrated health services on the target population’s health in terms of changes occurring in baseline health status indicators over time.

Objective 4: To assess the social, administrative, and financial feasibility of replicating the key features of the Lampang Project health delivery system.

These broad objectives subsume a number of specific questions to which answers were sought in the course of Project evaluation:

- To what extent can integration of curative, preventive, and promotive health services be attained?
- To what extent can cooperation between government and private sector health services actually be attained?
- Can at least two-thirds of the target population be reached by the extended and integrated government health service system?
- Can underutilization of existing government peripheral health facilities be overcome?
- Can the health status of the population, in terms of fertility, mortality and morbidity, be measurably improved by integrating and extending rural health services?
- To what extent can health system management practices and the efficiency of provided health services be improved?
- To what extent and with what continuity can community health volunteers and other private sector groups be involved in an integrated government health service delivery system?
- To what extent can the integrated health services approach and the extension of health services through community health volunteers bring increased cost effectiveness?
- Is it feasible to replicate the Project's key features in other areas of Thailand, given available resources?

Figure 1 shows the relationship between the overall Project approaches and the evaluation framework.

The details of each evaluation objective, and the indicators which will be used to measure attainment of the objectives are explained in more detail in the following paragraphs.

**OBJECTIVE 1: TO MEASURE ACCESSIBILITY AND ACCEPTANCE OF SERVICES IN THE EXPERIMENTAL AND CONTROL AREAS OVER TIME**

Services are considered available when all components of the integrated system have been completed in a given area, including a primary entry point to health services within each village area, backstopped by a referral network of health centers and district hospitals, staffed by local government health workers, health post volunteers, and traditional midwives.

Accessibility refers to the service characteristics which facilitate or obstruct utilization by consumers. Accessibility factors include cost, travel time and quality of care. These make it easy or difficult for consumers to secure health services they need. Acceptability refers to the level of consumer satisfaction once services have been utilized. Accessibility and acceptability are not easily assessed, but continued utilization of services is an indicator of these factors.

Acceptance is considered to be a major behavioral endpoint of Project effort which will largely be measured by the patterns of service utilization by consumers. Acceptance could be viewed as the expected result of interaction between the members of the community and the health services system, and it is the final outcome in a chain of behavioral events which constitute the community's response to and satisfaction with the innovative health service system.

Accessibility and acceptability may relate directly to the economic terms of supply and demand. The supply of health care is determined by the number of facilities and workers available, the pattern of their distribution and location, and the characteristics which make them appealing to prospective consumers. Demand is the result of the population's response to their own perceived health problems (need), and their perception of the services available. Demand may also be stimulated by communication efforts that create an awareness of need for services.
**FIGURE 1 – RELATIONSHIPS OF PROJECT APPROACHES AND EVALUATION DESIGN**

<table>
<thead>
<tr>
<th>Project Frame work for Evaluation</th>
<th>Project Operations</th>
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<tr>
<td>- Mortality</td>
<td>- Nutrition</td>
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</table>

1. If an expanded, integrated health infrastructure incorporating the Lampang key features is established, then system operations and management will be more effective.

2. If system operations and management are effective, then performance and coverage of health personnel and facilities will be increased.

3. If the coverage and performance of trained health personnel and facilities are increased, then availability and acceptance will be increased.

4. Increased availability and acceptance may lead to reduced fertility, morbidity and mortality.

5. If Project features are effective and costs are low, then the feasibility of replication will be high.

**Obj. 1** — To measure the performance of the health system and its personnel, and the costs of health delivery within existing operations and management practices.

**Obj. 2** — To assess the performance of the health system and its personnel, and the costs of health delivery within existing operations and management practices.

**Obj. 3** — To assess the financial, social and administrative feasibility of replicating the key features of the health delivery system of the Project.

**Obj. 4** — To assess the financial, social and administrative feasibility of replicating the key features of the health delivery system of the Project.
In the view of many Lampang Project planners, demand for government health services had been low, in part, because of supply constraints. Either health workers and facilities were unavailable, or they were viewed as incapable of serving the need, or they were inconvenient or unacceptable to the villagers. By increasing the supply, or availability of workers and facilities, and by improving their quality and appeal (accessibility), then it is assumed that demand (utilization) — the proof of access — will increase and health needs will be served.

Accessibility and acceptance have been measured by the following indicators:

1) **Availability of Services**
   
   (a) Total number of facilities in Lampang Province:
       - Hospitals (provincial/district)
       - Health centers
       - Midwifery centers
       - Child Nutrition Centers (day care)
       - Village health posts
   
   (b) Distribution of facilities and manpower
       - Percent of districts with district hospital
       - Percent of district hospitals with wechakorn + MD + nurse
       - Percent of subdistricts with a health center
       - Percent of subdistrict health centers with wechakorn
       - Percent of villages with health post volunteer
       - Percent of villages with trained traditional birth attendant
       - Percent of villages with Child Nutrition Centers (day care)

   (c) Population/service personnel ratios (outside of Lampang town)
       - Number of MDs/population
       - Number of nurses/population
       - Number of wechakorn/population
       - Number of sanitarians/population
       - Number of midwives/population

2) **Accessibility**
   
   (a) Cost to consumers for services and drugs
   
   (b) Cost to consumers for travel, in money or travel time, to obtain services

3) **Acceptance Defined as Utilization**

   (a) General Utilization
       \[ \text{Percent of rural target population served} = \frac{\text{Number of target population receiving service at least once in a given year}}{\text{Total number of target population}} \times 100 \]
(b) **Maternal and Child Health Service Utilization**

- **Percent of deliveries assisted by trained personnel**
  \[
  \text{Percent of deliveries assisted by trained personnel} = \frac{\text{Number of deliveries assisted by trained personnel in a given year}}{\text{Total deliveries in that year}} \times 100
  \]

- **Percent of mothers delivering who receive prenatal care**
  \[
  \text{Percent of mothers delivering who receive prenatal care} = \frac{\text{Number of women delivering during a given year who receive at least one prenatal contact}}{\text{Total number of deliveries in that year}} \times 100
  \]

- **Percent of mothers receiving postnatal care**
  \[
  \text{Percent of mothers receiving postnatal care} = \frac{\text{Number of mothers delivering in a given year receiving postnatal care at least once during the first six weeks postpartum}}{\text{Total number of live births in that year}} \times 100
  \]

- **Rate of immunization for BCG and DPT**
  \[
  \text{Rate of immunization for BCG and DPT} = \frac{\text{Number of children under age six immunized in a given year}}{\text{Total number of children under age 6}} \times 100
  \]

(c) **Family Planning Utilization**

- **FP new acceptor ratio (by method and total)**
  \[
  \text{FP new acceptor ratio (by method and total)} = \frac{\text{Number of target women (or their husbands) who receive initial FP services in a given year (by method, and total)}}{\text{Total number of non-pregnant non-contracepting target group women in that year}} \times 100
  \]
Current FP practice prevalence (by method) = Number of target women currently practicing FP (by method, and total) / Total number of target group women x 100

Family Planning continuation rate = Number of target women currently practicing FP / Number of target women who have ever practiced x 100

Percent of current acceptors getting services from:
- Provincial hospital
- District hospital
- Subdistrict health center
- Midwifery center
- Health post volunteer
- Other

(d) Nutrition Service Utilization
Nutritional surveillance, coverage rate for target group women = Number of mothers who had children under age six weighed at least twice in a given year / Total number of mothers with children under age six in that year x 100

Nutrition service coverage for children under age six = Number of children under age six who received nutrition services at least once in a given year / Total number of children under age six in that year x 100

Percent of pre-school children in nutrition center = Number of pre-school children in centers / Total number of children age 3-5 years x 100

Other, more qualitative measures, such as consumer satisfaction and perception of service quality will be used to more fully interpret the changes in utilization observed.
The key indicators listed above focus on the specific program areas emphasized by the Lampang Project, namely, family planning, nutrition, and maternal and child health services. However, measurements of many other variables have been made. The above indicators have been selected as appropriate measures of achievement in the areas of emphasis.

OBJECTIVE 2. TO ASSESS THE PERFORMANCE OF THE HEALTH SYSTEM AND ITS PERSONNEL AND THE COSTS OF HEALTH DELIVERY WITHIN THE EXISTING OPERATIONS AND MANAGEMENT PRACTICES.

Aside from accessibility and acceptance of services, a Project aim was to assess the integrated health care system's operations and management practices, the performance of health personnel, and the effects of these on the costs of services provided.

Performance refers to both the amount of time spent in each task category and the output of health services delivered by type. Performance and costs are derived from data gathered in Task and Cost Analyses and from provincial service statistics.

Indicators to be used include:

1. **Health System Performance**
   - Health personnel to population ratios - (number of personnel/1,000 population).
   - The total service output for each service facility level (e.g., hospital, health center), by category of service (medical care, MCH, etc.).
   - The proportion of services provided at the provincial hospital and the peripheral units (district, subdistrict, village). This is a measure of the system's ability to provide the majority of simple curative and preventive care at the periphery, and to channel only more serious problems to the provincial hospital.
   - The proportion of illness cases which are referred at each level of service.
   - Average length of hospital stay.
   - The average time to perform various service functions, by type of worker and facility.
   - A comparison of the total number of users of services with the number of services provided by the various facilities.
   - The proportion of overall work time spent in providing services and other functions, by worker and by facility.
   - The projected additional service capacity of the system (based on "idle time" encountered) can indicate where time might be available for increased activity.

2. **Costs of Health Delivery**
   - Overall government cost per unit by service contact, by type of service, and by facility.
Overall provider cost by type of facility and total expenditure by service category.
The government's per capita expenditure on health services.
Consumer cost per episode of illness, and estimated total family cost for health per year (number of episodes times the average cost-episode per family).
Analysis of Project costs which are classified as replicable or non-replicable.

Though more difficult to gather information about, factors such as a health worker's understanding of his job, his orientation, communications, coordination, cooperation, conflict and sense of reward, are incorporated into an interpretive analysis of performance and costs where possible.

OBJECTIVE 3: TO MEASURE THE IMPACT OF INTEGRATED HEALTH SERVICES ON THE TARGET POPULATION'S HEALTH IN TERMS OF CHANGES OCCURRING IN BASELINE STATUS INDICATORS OVER TIME.

As a longer term result, in part due to Project interventions, changes in health status are expected. These changes are measured by the following indicators:

(1) Changes in Fertility
   Crude birth rate (CBR)
   General fertility rate (GFR)
   Age-specific fertility rates
   Percentage of first births, and distribution of all birth orders

(2) Change in Mortality and Morbidity Rates
   Infant mortality rate
   Changes in the pattern of illness as reported in symptom surveys

(3) Changes in Nutritional Status
   Proportion of children under age six who are undernourished

(4) Changes in Quality of Environment Measures
   Proportion of households with a covered well
   Proportion of households that safeguard the quality of their drinking water
   Proportion of households with a privy
Replicability refers to the ability or demonstrated potential of the Royal Thai Government (RTG) to incorporate the key features of the Lampang Project into the health care system throughout Thailand. The Project has emphasized development of a low-cost health care delivery system, meaning that the system will include key features replicable nationally within the resources available to the Royal Thai Government. (The term "replication" has caused some observers to mistakenly assume it included duplicating the project in toto in other areas. But "replication" refers only to the Project's key features, and might be better expressed as "potential for implementation or adaptation" in other provinces.)

From a management perspective, "low-cost" means that the cost per unit of service provided under the new delivery system will be less than it would have been under the former delivery system. It does not mean that RTG health expenditures can be reduced or even remain at present levels, since government budget allocations to health can be expected to increase. Low-cost, rather, refers to increased cost-effectiveness (the increased output will be greater than the increased input) of the integrated health care delivery system.

Originally, emphasis was placed on evaluating the feasibility of replication so that Ministry of Public Health and other government planners could rationally decide on expansion of the Project's key features to other parts of the country. However, in the midst of the Project's third year of operations (1977), the Ministry undertook, with World Bank and other international support, an expanded rural health services project incorporating a number of features similar to those in Lampang. The decision to commence that project was based on observations of experience in Lampang and other primary health care projects, along with a sense of urgency to expand and improve rural health care.

Evaluation of Project performance, effects and impact on health status is important to implementation of the Ministry's current policy and expansion plans, with particular emphasis on rural health services expansion. Analytic information and experience gained in Lampang are crucial to modifying and articulating approaches and methods the Ministry will use in its phased primary health care and rural health services expansion in the next several years.

Quantitative data relating to cost, system performance, and impact on health will be derived from data collected for the first three evaluation objectives.

Other qualitative indicators that will be used to assess the feasibility of applying Lampang approaches in other areas, include the following:
Efforts to remove legal restraints from new categories of government practitioners (wechakorn practitioners, etc.) and provision of salary and career development incentives for them.

Ministry of Public Health approval and adoption of the integrated provincial hospital/health center infrastructure (including the Provincial hospital's Community Health Department) on a country-wide basis.

Level of community participation and acceptance of services throughout the life of the Project.

Response to the Lampang Project by both public and private health leaders over time, including key RTG policy-makers.

Change over time in public and private expenditures for health services; and Change in consumer perception of government health services.

EVALUATION DESIGN AND METHODOLOGY

The evaluation system was designed to assess how project inputs affect the operations of the provincial health care delivery system, how they affect the pattern of service utilization and costs; and, how these, in turn, are associated with observed changes in the health status of the population. All of these factors then contribute to an assessment of the feasibility of applying the Project's key features in other locations. To make this overall assessment conditions were measured before the Project began, and follow-up measurements were made after Project inputs and implementation were completed.

For purposes of evaluation, experimental areas and control areas were established. In the Lampang operational area, there were three sequentially-phased experimental areas (designated \( E_1, E_2, \) and \( E_3 \)) for implementation. \( E_1 \) was a single district, \( E_2 \) was comprised of seven districts, and \( E_3 \) four districts. There was one control district within Lampang Province (which was also the last district for implementation), and one outside district in Lampoon Province, adjacent to Lampang. (See the map at the beginning of Volume II.)

The nature of the Lampang Project defined the need for experimental and control areas. As a demonstration project, the Lampang Project was planned to test — often in new combinations — a number of approaches that had been tried before, but required further study on a larger scale. Evaluation of the Project was designed to measure what changes occurred in key indicators over the period of project operations. Experimental and control areas were needed to distinguish which changes were due to the Project, and which were a result of other factors.

The evaluation system focuses on measuring the change in indicators before and after Project interventions, as well as on monitoring processes, i.e., the shorter-term changes that occur during the course of the Project. To gather the types of
<table>
<thead>
<tr>
<th>Source of Data</th>
<th>Method of Data Collection</th>
<th>Party Responsible for Data Generation</th>
</tr>
</thead>
</table>
| (1) Community Health Survey, including Nutrition Survey | Household interview  
 Interview, anthropometric measurements | Project Evaluation and Research Division  
 Project Evaluation and Research Division |
| (2) Task Analysis                                  | Observation, interview                          | National Institute of Development Administration (NIDA) NIDA  |
| (3) Cost Analysis                                  | Observation, abstract of records and reports    | NIDA                                                          |
| (4) Administrative Analysis                       | Interview and observations of consumers and providers | Project Evaluation and Research Division                      |
| (5) Provincial health information system (service statistics and management information) | Abstract from records and reports               | Project Evaluation and Research Division                      |
| (6) Vital Events Monitoring                        | Abstract of monthly reports                     | Project Evaluation and Research Division                      |
| (7) Special Studies:  
 - Health Volunteer Performance  
 - Consumer satisfaction study: Project volunteers vs private sector volunteers  
 - Well-improvement study  
 - Assessment of the Wechakorn dental training program | Household interview and activity review  
 Household interview  
 Project records  
 Consumer survey | Project Evaluation and Research Division  
 Project Evaluation and Research Division  
 Regional Sanitation Office, Lampang  
 Faculty of Dentistry  
 Chiang Mai University |

Table 1
Summary of Lampang Project Evaluation Information Sources
data required to construct the specified indicators, and to achieve the overall evaluation objectives, a variety of data sources have been required. Some data, particularly service statistics and other management information, were available from the existing provincial health information system, which has been expanded to include village volunteer activities. Other data, relating to, for example, health practices, health status and service utilization, are incomplete or unavailable, and had to be generated by surveys or special studies organized by the Project’s Evaluation and Research Division. Table 1 summarizes the various sources of information that are incorporated into the Project’s evaluation system, along with methods and frequency of collection.

The following sections briefly describe each of the information components utilized in the evaluation system.

COMMUNITY HEALTH AND NUTRITION SURVEY

Initially, the Community Health Survey was established to study the socio-demographic characteristics, and the knowledge, attitudes, and practices concerning health status and health care. A separate Nutrition and Dental Health Survey was also organized in conjunction with the Community Health Survey. However, after encountering problems with the complexity and cost of the original Nutrition and Dental Health Survey, the Nutrition Survey was simplified and included as a component of the Community Health Survey. The dental health component was eliminated. The general types of data collected in the Community Health Survey include the following:

**Population Characteristics:**
- Age, sex, marital status
- Education, occupation
- Economic status

**Health-Related Situational Factors:**
- Immunizations
- Privy possession
- Water supply

**Illness in Previous Two Weeks:**
- Symptoms and duration
- Time lost from routine activity

**Mortality in Previous Year:**
- Cause
- Place of death
Service Utilization
Related to morbidity in previous two weeks:
  Type of care
  Cost

Government services in previous year:
  Service type and source
  Reason for going outside immediate locality

Pregnancy-Related Factors and Care:
  Prenatal problems and care
  Place of delivery and attendant
  Postpartum problems and care
  Cost of care

Pregnancy and Family Planning:
  Outcomes of all pregnancies
  Time and result of last pregnancy
  Current family planning practice, by method and source of service

Nutrition:
  Height and weight of pre-school children
  Mother and child feeding habits
  Clinical signs related to nutrition

Hang Chat District (E1) was the first intervention area where field operations began. It had a population of about 42,000 in 8,000 households. A sample of 1,500 households (20% of the total) was drawn from a household list, using a stratified random sample design. A village, a geographic cluster of approximately 120 households, was taken as the primary stratum, and within a village households were stratified by the number of inhabitants in the household — namely 1-3, 4-6, and above 6. From each of the strata, sample households were selected at the rate of 10 percent, 20 percent, and 25 percent respectively, resulting in an overall sampling rate of 20 percent.

A sample of 1,000 households (10%) was similarly selected in the C1 control area, and 500 (10%) in C2 control area. In the second intervention area (E2), the province's seven southern districts, with a population of over 300,000 (52,000 households), the sample included 2,600 households, or 5 percent of the total. Sampling was also in two stages: first, a 20% sample of village units (60 villages) was drawn from each district. These villages were then divided into two strata according to health facility availability: villages with health or midwifery centers, and those without such facilities. Half of the required number of villages in each district were chosen from each stratum. In the second stage, a sample of households was drawn
from a household listing in the 60 sample villages, although the earlier stratification by household size was discarded. No surveys were done in the three E3 districts, as these were the last areas for intervention, and comprised less than 25% of the total provincial population.

Follow-up surveys used the sampling method applied in E2 baseline surveys. The follow-up sample size in E1 was 1,100 households, in E2 it was 1,800 households, in C1 it was 750 households, and in C2 it was 350 households. Table 2 summarizes the sampling procedures.

Table 2
Sample Frame: Community Health and Nutrition Survey

<table>
<thead>
<tr>
<th>Project Area</th>
<th>Total Population</th>
<th>Total Household</th>
<th>Baseline</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>Sample Size</td>
<td>Date Surveyed</td>
</tr>
<tr>
<td>E1</td>
<td>42,000</td>
<td>8,000</td>
<td>1,500</td>
<td>4/75-6/75</td>
</tr>
<tr>
<td>E2</td>
<td>320,000</td>
<td>54,000</td>
<td>2,600</td>
<td>2/77-5/77</td>
</tr>
<tr>
<td>E3</td>
<td>200,000</td>
<td>35,000</td>
<td>Not surveyed</td>
<td>—</td>
</tr>
<tr>
<td>C1</td>
<td>60,000</td>
<td>12,000</td>
<td>1,000</td>
<td>6/75-9/75</td>
</tr>
<tr>
<td>C2</td>
<td>29,000</td>
<td>5,000</td>
<td>500</td>
<td>8/75</td>
</tr>
</tbody>
</table>

COST AND TASK ANALYSES

The integrated health delivery system has introduced several new types of health and auxiliary personnel operating in a somewhat modified service setting. It is important to measure what impact the new workers and organization have on both system performance and cost.

During the early Project intervention period in each operational area, existing hospital and health staff were given orientation and training on the new organizational structure, techniques, and concepts of the integrated health care system. Existing and newly-recruited personnel work in a changed service/administrative environment which is the focus of both the Task Analysis and the Administrative Analysis. Whereas the Administrative Analysis undertook qualitative measurements of the administrative structure and its processes, together with person-to-person interactions, the Task Analysis comprised quantitative measurements of the pattern of activities of health personnel (e.g., time and motion studies). These measurements were used to determine the indicators of effectiveness and the ability to perform the required functions identified under the new service system. The Task Analysis thus
helps to answer questions regarding personnel performance, effectiveness, and efficiency.

More specifically, the Task Analysis serves the following purposes:

To determine the allocation of staff effort, thereby permitting an assessment of need for reallocation in the interest of improving efficiency;
To determine the relationship between the performance of tasks and the pattern of staff interactions; and
To determine staff effort allocation among service categories as a basis for budgetary resource allocation, especially for the allocation of personnel costs over various services and functional areas.

Cost Analysis, which is closely linked to Task Analysis, is regarded as one of the most important components of the Project's evaluation. The cost-effectiveness of the integrated health delivery system will be one of the most meaningful criteria used to guide high-level RTG decision-makers in their deliberations regarding replication of the Project's key features. The chief criteria for determining the "replicability" of a particular key feature in a developing country plagued by inadequate resources might include the following: affordability, responsiveness to perceived needs, acceptability.

It is the aim of the Cost Analysis to compare and contrast changes in the cost-effectiveness of the existing government health delivery system and the innovative integrated health delivery system. "Low-cost" means that the cost per unit service in the innovative integrated health delivery system will be lower than that of the pre-intervention system and the concurrent control system.

The following types of data are collected in the Task and Cost Analyses:

1. **Peripheral Facilities**
   - **Personnel Performance**
     - Work time devoted to each type of activity type (MCH, FP, etc.)
     - Work time spent by each type of worker
     - Daily service contacts
     - Patient referrals

2. **Costs**
   - Categorical costs, i.e., personnel, supplies etc.
   - Unit service costs
   - Overall facility costs
   - Provincial Health Office costs
   - Per capita costs
   - Costs to consumers per illness episode
Task analysis data were collected by: (1) direct observation, (2) interviews of health personnel and consumers receiving service, and (3) analysis of administrative documents and service statistics. Observations by qualified nurses or other interviewers were made at selected health service units on consecutive days in a specified two-week or one-week periods. During the observation period, activities of health personnel were recorded, along with the physical and administrative environment in which they worked. This provided data from which to derive (1) both the average time and the pattern of variation of time used to perform each type of task, (2) the proportion of time spent for various types of activities (including waiting time and idle time), and (3) the quantitative standards of performance under ideal case loads and normal working conditions. For health post volunteers, similar, but less activity data were collected by examination of their daily activity logs.

Data for the cost analysis were derived from several sources. Financial documents of the Provincial Health Office and the Lampang Project provided data on government and Project expenses by major budget category (e.g., personnel, medical supplies, equipment, etc.). These were then apportioned to service function categories (e.g., MCH, family planning, nutrition). Personnel costs were allocated to service categories according to the findings of the Task Analysis, which estimated the average time health personnel spent performing various services and tasks. Functional cost estimates included allocated shares of total expenditure for such items as facilities, equipment, depreciation, maintenance and repairs, travel and per diem, personnel training costs, consultant fees, office supplies, printing costs, data collection and processing, medical supplies, and food supplements. Functional allocations for these items were based on the service load proportion carried by the various facility types.

The Community Health Survey is the source of data for estimating expenditures incurred by patients. Cost of services paid by the patient, either for private services or RTG services, will be estimated from the survey on an annual basis as well as on the per episode basis.

Table 3 summarizes the sampling framework for Cost and Task Analyses.
Table 3
Sample Frame and Survey Dates: Cost and Task Analyses

<table>
<thead>
<tr>
<th>Project Area</th>
<th>Baseline I</th>
<th>Baseline II</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Facilities Sampled</td>
<td>Date Surveyed</td>
<td>Total Facilities Sampled</td>
</tr>
<tr>
<td>E1</td>
<td>10</td>
<td>9</td>
<td>4/75</td>
</tr>
<tr>
<td>E2</td>
<td>39</td>
<td>31</td>
<td>8/77</td>
</tr>
<tr>
<td>C1</td>
<td>9</td>
<td>8</td>
<td>4/75</td>
</tr>
<tr>
<td>C2</td>
<td>5</td>
<td>5</td>
<td>4/75</td>
</tr>
</tbody>
</table>

Note: No surveys were done in the E3 districts.

ADMINISTRATIVE ANALYSIS

There were several broad objectives of the Administrative Analysis:

1. To evaluate and compare the administrative structure and process of the Lampang Project with those in other, non-integrated areas.

2. To evaluate, in part, the performance of the Project's innovative health service providers: wechakorn, health post volunteers, health communicators, and trained indigenous midwives.

3. To evaluate the responsiveness of health services to the local needs and demands of the community, specifically relating to:
   - Availability, and accessibility of government health services
   - Consumer awareness of the service availability
   - Community interest and participation in the health program
   - Degree of acceptance of services by the community

4. To assess the perceptions of, and attitudes toward, the innovative health delivery system by both consumers and health personnel.

The instrument used for data collection was a multi-part questionnaire administered by Project interviewers, which included questions concerning the structure, functions, and process of the administrative system. It included separate sections for each of the various groups to be sampled.
There were several groups from which samples were drawn, and to each of which a segment of the questionnaire was devoted. These groups were:

1. Existing government health personnel in the experimental areas and in the control areas of the Project.
2. Innovative health care providers in the experimental areas including: Wechakorn (paraphysicians);
   Health post volunteers;
   Health communicators.
   Trained indigenous midwives.
3. Members of local semi-government committees: provincial, district, and village coordinating committees.
4. Members of private organizations participating in health care services: private hospital administrators, private nursing staff, charity association administrators.
5. Health service consumers in the experimental and control areas.

PROVINCIAL MANAGEMENT AND HEALTH INFORMATION SYSTEM

Although a clinical and health service statistics reporting system has been established nationwide as a part of the government health services system in Thailand, it has not been effective in providing useful information for local health service planning, management, or evaluation. Under-reporting, incompleteness and inaccuracy of reports, unconfirmed clinical diagnoses, inadequate attention given by health personnel in utilizing reporting forms and in completing records, insufficient classification of data, and serious delays in data processing, analysis, and dissemination of health information are characteristic of the present health information system. As a result, accurate, valid data crucial to planning and evaluating health services are often unavailable. Furthermore, no system has been developed for rapid retrieval and feedback of essential management information to promote rational decision-making and effective management of government health services. The Lampang Project has sought to improve the existing provincial health information system using service statistics and other data for continual monitoring and assessment of Project progress during the course of operations, and for evaluating its outcomes.

The aims of this activity were the following:

To gather data on morbidity patterns, service utilization patterns, consumer consultation patterns by type of personnel and service facility, and the geographical patterns of service coverage throughout the Project’s duration;
To improve vital events reporting;
To improve the completeness and accuracy of health records and reports; and,
To promote effective utilization of health information and data.

Monitoring of Provincial Health Service Statistics

Besides the various surveys and special studies done by the Project, service statistics are generated by the existing provincial health information system. These longitudinal data can be used to monitor health system performance on a monthly basis. However, the service statistics were often in raw form and poorly organized, requiring the Evaluation and Research Division to extract the data needed, and to process them for use in monitoring and management decision making. The incorporation of service statistics into the overall evaluation system is important in ascertaining the pattern of change in service utilization during the span of Project intervention.

In addition, as a result of developing the village health volunteer network, a new component had to be added to the provincial information system. A simple monthly reporting system has been established to generate information on volunteer activities, which enables the provincial health staff to monitor the volunteer network. The information is provided by the health post volunteer, who notes service contacts in a daily service register. The information is then gathered during the monthly visit of the local health worker (from the subdistrict health center or midwifery center) who summarizes volunteer services in his area of responsibility.

Overall, the provincial information network provides a wide range of potentially useful data, which is summarized below.

Table 4
Lampang Provincial Health Information System
Summary of Major Items in Monthly Reports

<table>
<thead>
<tr>
<th>Clinical Care</th>
<th>Preventive/Promotive Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical care contacts</td>
<td>Immunizations</td>
</tr>
<tr>
<td>Referrals</td>
<td>Maternal and child health</td>
</tr>
<tr>
<td>Mobile clinics</td>
<td>School health</td>
</tr>
<tr>
<td>Treatment of animal bites</td>
<td>Food sanitation</td>
</tr>
<tr>
<td>Laboratory procedures</td>
<td>Environmental health</td>
</tr>
<tr>
<td>Indigent medical care</td>
<td>Nutrition activities</td>
</tr>
<tr>
<td>Medical care by radio</td>
<td>Family planning</td>
</tr>
<tr>
<td></td>
<td>Environmental sanitation</td>
</tr>
<tr>
<td></td>
<td>Health education</td>
</tr>
</tbody>
</table>
Table 4 (continued)

<table>
<thead>
<tr>
<th>Communicable Disease Control</th>
<th>Primary Health Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>VD control</td>
<td>Household drug distribution</td>
</tr>
<tr>
<td>TB control</td>
<td>Service contacts</td>
</tr>
<tr>
<td>Parasite control</td>
<td>Family planning contacts/supplies</td>
</tr>
<tr>
<td>Malaria control</td>
<td>Deliveries by traditional midwives, plus pre-and post-natal care</td>
</tr>
<tr>
<td>Rabies control</td>
<td></td>
</tr>
</tbody>
</table>

**Supervision**

Number of supervisory visits

Figure 2 shows how this data flows through the various components of the service system.

Although a broad array of data is produced by the provincial information system, the form in which it is reported (usually raw numbers of events of services) limits the data's potential value. The data could be more productively used if converted to rates or other standard measures. Another limitation of the information system is the lack of a systematic mechanism for feedback to the units generating the information. These constraints will be discussed more fully in a later section.

**Vital Events Monitoring System**

One of the barriers to the extension of effective health and family planning programs in developing countries is the lack of accurate and complete data on vital events (e.g., births, deaths). Such information is essential for planning, implementing and evaluating health services.

In Thailand, vital statistics are routinely collected by local Ministry of Interior authorities from the registration of births and deaths. The routine tabulation of births and deaths is at least two years behind schedule, and under-registration was estimated at 30% for births and 41% for deaths in 1975.

Rather than rely upon or attempt to improve the cumbersome existing reporting system (which, in any case, is beyond the authority of the Ministry of Public Health) a pilot monitoring and reporting system of vital events in villages of one experimental area was developed parallel to the existing system. The term "monitoring" is defined as continuous routine observing and recording of vital events as they occur. The vital events reporters were village health volunteers in each village of the Project intervention area (E₁). They reported vital events to local government health workers, who had the responsibility to report these events to the district health officer. The district health officer, in turn, compiled these events in a monthly report to the Provincial Health Office.
FIGURE 2 - LAMPANG PROVINCIAL HEALTH INFORMATION SYSTEM

DIAGRAM OF DATA FLOW

Village Level

Health Post Volunteer

Keeps daily service book

- Subdistrict Level

Subdistrict Health Center Worker

- Collects & summarizes monthly HPV, TBA activities
- Completes monthly health center service report
- Completes monthly special service reports, e.g., FP

- Sent to

District Health Office

- Completes monthly health center service report
- Summarizes special services (e.g., FP) monthly reports

- Sent to

Provincial Level

Lampang Project Research and Evaluation Division

- Gathers survey data on health status and service utilization
- Extracts/processes selected data from reports
- Feeds back selected information to management decision points

- Sent to

Provincial Health Office

- Quarterly summary sent to Ministry of Public Health

- Monthly service summary

District Hospital

referral

Provincial Hospital

- Official channel
- Non-official channel
Two simplified reporting forms were used in the monitoring system — one for births and the other for deaths.

The birth form included the following information items: location and person reporting; name, age and address of mother; date of delivery; sex of infant; vital status of infant; place of delivery; and personnel performing the delivery.

The death form included: location and name of the person reporting; name, age and address of the deceased; date of death; place of death; cause of death or symptoms preceding death; person identifying the cause of death, or, in cases not seen by trained medical personnel, the major symptoms prior to death.

SPECIAL STUDIES

Near the end of the five-year Project implementation period, project evaluation staff discerned several gaps in information areas which were not adequately covered by the original evaluation plan. With increasing attention being given to issues of primary health care, Project evaluation staff felt that additional data were needed concerning community health volunteer performance. Secondly, after turning over responsibility for village health volunteer training in one district in the E3 area to the private-sector Community-Based Family Planning Services (CBFPS) it seemed important to make some comparison of performance between CBFPS-trained volunteers and Lampang Project trained volunteers. These needs therefore resulted in two additional special studies, which were only follow-up in nature because there was no baseline.

(1) Study of Health Post Volunteer and Health Communicator Performance
The study purpose was to assess the performance and consumer acceptability of village health volunteers. A small sample of 485 village housewives (in 118 villages of the E2 area) was interviewed to gain information on their use of and perception about village health volunteers. At the same time, samples of 100 health post volunteers and 195 health communicators were also interviewed to assess their job satisfaction, perceptions of their own service performance, and the adequacy of support by local health workers. Finally, a sample of almost 100 government health workers was interviewed to match their views of volunteer performance with those expressed by the volunteers themselves.

(2) Comparison Between Health Post Volunteers Trained by Lampang Project and by the Community-Based Family Planning Services Organization
In 1977, the Lampang Project invited the Community-Based Family Planning (CBFPS) Organization to train health post volunteers in all villages of Ngao District in the E3 area. CBFPS has been successful in competently organizing and managing village-based family planning supply programs, and Project leaders felt it
would be useful to incorporate their experience in Lampang. But since Ngao District is outside of the E₁ and E₂ Project areas where data collection was being done, a special study was organized to assess the CBFPS volunteers, performance and compare it with health post volunteers in the adjacent E₃ district of Wang Neua.

A sample of 1,540 household heads (or housewives) in 25 villages of Ngao District were interviewed to find out to what extent, and for what reasons, they used their local health post volunteers. Comparisons of the responses will be made with those from 1472 households in 19 villages of Wang Neua District.

Finally, there are several other special studies which may have a bearing on Project results, but which are being conducted by other units and which are not part of the original evaluation plan. These are:

(3) Demonstration Study of Well-water Supply Improvement
A demonstration study of well water supply improvement in Hang Chat District (E₁), involving chlorination, installation of a well cover and a PVC pump for all existing dug wells in the district. This study is being conducted by the Lampang Regional Sanitation Office in cooperation with the World Health Organization.

(4) Assessment of the Dental-Health Training Program
An assessment of the dental-health training program for the wechakorn paraphysicians. In 1979, wechakorn in several isolated health centers were selected to receive 6 weeks of clinical and preventative dental training. The provincial health staff were interested in evaluating wechakorn performance and patient satisfaction, and a study was done in cooperation with the Chiang Mai University Faculty of Dentistry, which organized the original training program.

DATA COLLECTION AND PROCESSING

A full-time staff of multi-purpose field data collectors were responsible for the field interviews and data gathering in the Community Health and Nutrition Survey, Cost and Task Analyses, and Administrative Analysis. Since the amount of data collection and variety of studies involved have made data collection an almost continual task, the Project hired data collectors fulltime, rather than hiring them on an occasional basis as field survey needs dictated. This permitted Project evaluation staff to select a well-qualified group of data collectors, who benefitted the Project through their accumulated expertise and continuity. It also facilitated identification of outstanding workers among the data collectors who could be used later as field managers. The field data collectors received a week of training before they began initial survey work during the baseline period in 1975, and received short orientation before each additional survey task. Most of the field data collectors were graduates
in social science from Chiang Mai University and were young, active people with an interest in village life, who also spoke the local northern Thai dialect.

In addition to the field data collectors, the Project retained a group of data coders, who took responsibility for transferring all of the data from survey and study forms to coding sheets. The coded data was then sent to the Computing Center at the National Institute for Development Administration in Bangkok.

The coded data for the Community Health Survey (except for the nutrition component), Cost and Task Analyses, and Administrative Analysis were punched and edited at the NIDA Computing Center. Most tabulations and other analytic procedures were done by the staff at the Computing Center. The Project maintained a computer programmer to oversee the editing and preparation of the analytical procedures and tabulations. The nutrition survey data were processed manually in Lampang, as were the vital events and provincial health service statistics.

FRAMEWORK FOR DATA ANALYSIS

To measure the extent of change in health system performance, service utilization, and health status attributable to the complex of Project inputs, the Project evaluation design provided for both experimental and control areas. Project inputs were applied in three sequential intervention areas (data were only gathered in two of these areas), and two districts were maintained as control areas. One control area was within the Lampang Province operational area. It was made the last district to receive Project inputs. Another district outside of the Lampang Project area, but in an adjacent province, was also maintained as a control. However, considerable baseline data comparability has been observed between the control and experimental districts, particularly between the Lampang internal control district and the other experimental districts. The general thrust of analysis, then, has been to compare changes in the relevant measures and indicators, over time, between the experimental and control areas (see Figure 3).

The data that have been gathered from the various sources reviewed earlier are aimed at testing several major hypothesis inherent in the Project approaches, and included in the evaluation objectives:

An integrated rural health care system, incorporating the Lampang approaches, can be established.

In areas where such a system is established, health service coverage of the target population will be substantially increased in comparison to control areas which do not have this system.
FIGURE 3 - SCHEMATIC OUTLINE OF OVERALL ANALYTIC FRAMEWORK FOR BOTH EXPERIMENTAL AND CONTROL AREAS.
The establishment of an integrated health delivery system will lead to substantially improved system performance and lowered service unit costs in comparison to the control areas.

The improved system performance and costs in the experimental areas will lead to increased service accessibility and utilization by the population.

Increased service utilization and coverage with basic health services, such as MCH, Nutrition, Family Planning, and medical care will have a substantial effect on the population’s health status.

The general improvement in service delivery and cost-effectiveness will make it feasible to implement the Project’s key features in other areas of the country.

These are the general hypotheses that underlie the design of the Project. However, there are many other questions to which answers are being sought, some of which have already been listed previously.

Table 5 provides an overview of how selected indicators fit into the general analytic framework, and of the sources which provide the necessary data items.

The first step in analysis will be to document any change in availability of services, which involves reporting change in the number and distribution of facilities and personnel of each type. Documentation and possible explanations will follow concerning how the quantitative changes have affected the network of facilities, the appropriateness of their staffing, and their capability of providing specified services to the target populations. Parallel to the quantitative analysis of service availability, but of no less importance, is the qualitative assessment of the process of building the integrated delivery network. While numbers and distribution of facilities and workers provide a concrete view of changes in service availability, complete assessment of the service capacity available requires a deeper qualitative look into the issues of recruitment, selection, training, and system maintenance (including problems encountered and ways they were resolved). Such a qualitative analysis is crucial to fully grasping the task of developing an integrated structure.

Although the documentation of service availability is relatively straightforward, it does not describe the perception and response of consumers to the resources available. Another level of analysis thus concerns the factors of accessibility and acceptability. Data on service costs to consumers, as measured by distance and time, and reasons given for use or non-use of services have been gathered by interviews with service users. Likewise, these interviews have elicited responses related to
<table>
<thead>
<tr>
<th>Items or indicators to be measured</th>
<th>Source of Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Provincial/Project Records</td>
</tr>
<tr>
<td>A. Health System/Manpower Development</td>
<td></td>
</tr>
<tr>
<td>1. Reorganization of Infrastructure</td>
<td>P</td>
</tr>
<tr>
<td>2. Number of facilities/personnel</td>
<td>P</td>
</tr>
<tr>
<td>3. Training new workers completed</td>
<td>P</td>
</tr>
<tr>
<td>No. of wechakorn</td>
<td></td>
</tr>
<tr>
<td>No. of village health volunteers</td>
<td></td>
</tr>
<tr>
<td>Service Personnel</td>
<td></td>
</tr>
<tr>
<td>4. Management, supervision,</td>
<td>P</td>
</tr>
<tr>
<td>maintenance of system</td>
<td></td>
</tr>
<tr>
<td>5. % of project area where</td>
<td>P</td>
</tr>
<tr>
<td>integrated service available</td>
<td></td>
</tr>
<tr>
<td>B. Health System Performance/Cost</td>
<td></td>
</tr>
<tr>
<td>1. Total service output by facility level</td>
<td></td>
</tr>
</tbody>
</table>
Table 5 (continued)

Source and Use of Selected Indicators
(P = primary data source, S = supplementary)

<table>
<thead>
<tr>
<th>Items or indicators to be measured</th>
<th>Source of Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Provincial/Project Records</td>
</tr>
<tr>
<td>2. % of service provided at periphery periphery</td>
<td>S</td>
</tr>
<tr>
<td>3. Pattern and time spent in service functions</td>
<td>P</td>
</tr>
<tr>
<td>4. Unit service costs (MCH, FP, Nutrition)</td>
<td>S</td>
</tr>
<tr>
<td>5. Health personnel ratios/population</td>
<td>P</td>
</tr>
<tr>
<td>6. % of cases referred at each level</td>
<td>P</td>
</tr>
<tr>
<td>7. Consumer satisfaction with services</td>
<td>S</td>
</tr>
<tr>
<td>8. Satisfaction of workers in integrated delivery system</td>
<td>P</td>
</tr>
<tr>
<td>Items or indicators to be measured</td>
<td>Source of Data</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>--------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Provincial/Project Records</td>
</tr>
<tr>
<td>C. Coverage/Accessibility/Utilization</td>
<td></td>
</tr>
<tr>
<td>1. % of target population served</td>
<td>P</td>
</tr>
<tr>
<td>2. MCH</td>
<td>P</td>
</tr>
<tr>
<td>- % of deliveries by trained personnel</td>
<td>P</td>
</tr>
<tr>
<td>- % of mothers receiving pre and post-natal care</td>
<td>P</td>
</tr>
<tr>
<td>- Immunizations</td>
<td>P</td>
</tr>
<tr>
<td>3. Family Planning</td>
<td>P</td>
</tr>
<tr>
<td>- New acceptors</td>
<td>P</td>
</tr>
<tr>
<td>- Contraceptive prevalence</td>
<td>P</td>
</tr>
<tr>
<td>- Pattern of contraceptive method</td>
<td>P</td>
</tr>
<tr>
<td>4. Nutrition</td>
<td>P</td>
</tr>
<tr>
<td>- % of children under surveillance</td>
<td>P</td>
</tr>
<tr>
<td>- % of children in child nutrition center</td>
<td>P</td>
</tr>
<tr>
<td>- % of pre-school children receiving nutrition services</td>
<td>P</td>
</tr>
</tbody>
</table>
Table 5  (continued)

Source and Use of Selected Indicators
(P = primary data source, S = supplementary)

<table>
<thead>
<tr>
<th>Items or indicators to be measured</th>
<th>Provincial/Project Records</th>
<th>Community Health/Nutrition Survey</th>
<th>Cost/Task Analyses</th>
<th>Vital Statistics</th>
<th>Service Statistics</th>
<th>Administrative Analysis</th>
<th>Other Special Studies/Other Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>D.  Changes in Health Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Infant mortality</td>
<td></td>
<td>P</td>
<td></td>
<td>P</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Child malnutrition</td>
<td></td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Fertility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Crude birth rate</td>
<td></td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Age-specific fertility rate</td>
<td></td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- % first births</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Pattern of illness symptoms in mothers and children</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>S</td>
</tr>
<tr>
<td>5. Quality of Environment Measures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
acceptability, or consumer satisfaction with services, and the regularity with which consumers indicate they use the services. It is important for the analysis to link these accessibility and acceptability factors with the overall pattern of service delivery. They can help to identify what features may have stimulated or impeded acceptance of services, and why service utilization might have evolved in a given pattern. But, for the most part, measurement of availability and acceptability is based on attitudinal data, which are of limited validity. Ultimately, the most important measure of access and satisfaction by consumers is in their behavior — the utilization of services. Analysis of the changes in utilization volume and patterns by the target populations is therefore one of the major thrusts of the evaluation.

The patterns of utilization by the target population of women and children will be analyzed to clarify the differential effects on specific types of services and providers. The change in the total volume of the major service categories, their distribution through the various service levels, and relation to the specific target population needs, will be assessed using the format presented in Table 6.

Table 6
Proposed Analysis Format

<table>
<thead>
<tr>
<th>Women's Services</th>
<th>Project</th>
<th>Non-Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Village</td>
<td>Subdistrict</td>
</tr>
<tr>
<td>Medical Care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Children's Services</th>
<th>Project</th>
<th>Non-Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Village</td>
<td>Subdistrict</td>
</tr>
<tr>
<td>Medical Care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immunization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Health/Nutrition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other</th>
<th>Project</th>
<th>Non-Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Village</td>
<td>Subdistrict</td>
</tr>
<tr>
<td>Medical Care</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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The tables are separated into service utilization by women, children, other population groups and by the place where service was received. Utilization by each group is further broken down into the major preventive and curative service categories relevant to overall evaluation. These service categories have been grouped to make them compatible with the categories used in the Cost and Task Analyses. More detailed analysis of service categories will, however, be possible for the Community Survey.

The format of Table 6 will also be used for recording time and cost measurements derived from the Cost Analysis, as originally envisioned, measured time spent by various service personnel for the major service categories, and for each type of facility. These time performance measurements then serve as a basis for allocating personnel costs in the cost analysis. To the personnel costs are added the costs of expendable supplies, capital costs, and maintenance costs, allocated at each facility on the basis of its service load. Together, these result in a unit-cost estimate for each type of service by personnel type and facility level, following categories similar to those in the analysis of utilization. The unit costs are computed by using the number of service contacts observed during a five to ten day survey period.

Further refinements of the Cost Analysis will be introduced to more clearly distinguish the impact on cost resulting from changing utilization patterns and from inflation. First, to strengthen estimates of annual service loads, service data from sources other than the Task Analysis survey, such as service statistics and health-volunteer activity reports, will be incorporated into the Cost Analysis when possible. Secondly, to segregate the effect of inflation on utilization patterns, workload variations will be analyzed using a cost structure standardized on the baseline year.

The next step in overall data analysis is to relate the Project's service performance output to the health status of the target population. On one hand, service delivery and utilization are well-documented and can be traced to Project inputs with some clarity. But evidence of the impact on health status is more fragmentary; limitations in vital statistics and Project survey data make it more difficult to directly link any measured change to Project activity.

Once the more technical quantitative and qualitative analysis and interpretation of results have been completed, they will be utilized in a careful review leading to recommendations concerning the feasibility and appropriateness of applying Lampang Project approaches in other areas of Thailand. This is, of course, the final step in the evaluation process; to assemble the Project results and achievements in a comprehensive presentation that will permit senior government planners to make decisions concerning further applications and adaptation of the Lampang experiences in the effort to expand and improve rural health care.
ORGANIZATION AND RESPONSIBILITY FOR EVALUATION COMPONENTS

Of the Lampang Project's four divisions, the Division of Research and Evaluation has had responsibility for coordinating all evaluation-related activities, both within the Project and those assigned to the outside collaborating institutions. The Research and Evaluation Division offices are located in the Lampang provincial health service complex.

The staff of the Division of Research and Evaluation consists of:

**Once Chief of the Division** Responsible for planning, directing, coordinating and assessing all evaluation activities. He is also chairman of the Project Evaluation Board (discussed below). The Chief, and Associate Professor in the Faculty of Medicine, Chiang Mai University, has been with the Project from its operational beginnings.

**One Statistician/Epidemiologist** Responsible for training and supervising data collection personnel, for coordinating the overall activities of data collection in the field, for providing statistical services at the central office and for overseeing all statistical related activities at the Project site.

**One Medical Anthropologist** (with the Project only during the first two years) was responsible for advising and assisting the Evaluation Board, study component heads, and data collection personnel. Her activities included: finalizing the precise wording of questions in survey instruments, analyzing the Community Health Survey instrument pre-tests, and designing and undertaking some special studies, such as the role of traditional midwives.

**Two Assistant Statisticians** Responsible for assisting the statistician/epidemiologist.

**One Field Manager** Responsible for maintaining work schedules of the component studies, for coordinating activities of field supervisors and data collectors.

**Two Field Supervisors** Responsible for supervising data collectors in the field, under the direction of the field manager, and for ensuring quality control of data collection in the field by: controlling the flow of questionnaires, checking for completeness and accuracy of completed forms, organizing the completed forms, closely supervising data collection workers, and reinterviewing households as required.

**Field Data Collectors (12)** Responsible for collecting data for the various compo-
nent studies and surveys of the evaluation system, working under the direct supervision of the field supervisors and under the overall supervision of the field manager.

**Data Coders** (8) Responsible for converting the collected data into coded form prior to keypunching and processing, and for manually processing some data.

**COLLABORATIVE ARRANGEMENTS**

During the early planning of the Project evaluation system, consultants from the National Institute for Development Administration (NIDA) in Bangkok played an important role in recommending evaluation strategies, developing specific studies, and establishing sampling procedures. In addition, NIDA was, in 1974, just establishing a new computing center, and offered this facility for Project work. As a result, the initial consultation with the NIDA faculty members evolved into a close collaborative relationship which has been crucial to completion of the Project’s planned evaluation activities. Professionals from the Faculty of Applied Statistics and the Research Institute at NIDA have contributed to the evaluation process throughout the years of Project operations. The consultants who accepted Project evaluation responsibilities included:

- A senior statistician consultant, assisted in the design and methodology of evaluation studies;
- A sociologist consultant, head of Administrative Analysis;
- A data processing consultant planned, implemented and coordinated data processing activities;
- A computer programmer under the supervision of the data processing consultant responsible for computer programming;
- Joint heads of the Task and Cost Analysis (one operations research specialist, and two statisticians); and
- Joint heads of the Administrative Analysis component (a sociologist and a public administration specialist).

Health-related field research on a scale that the Project required had not been done in Thailand in the past, and no one institution had appropriate skills for all the evaluation needs. Since Lampang Project staff also thought that the complete array of the needed competencies were not available in Lampang, it was proposed that evaluation responsibilities be shared among other institutions and individuals who could provide the requisite professional skills.

In addition to the NIDA collaborators, there have been other short-term consultants who have provided valuable assistance to the evaluation effort. Consultants have come from:

    American Public Health Association
EVALUATION BOARD

As the Project's evaluation system was being organized in the first year of Project operations, Project evaluation staff, along with the NIDA collaborating professionals found it necessary to meet frequently to finalize and coordinate both technical and administrative decisions, and to develop the Evaluation Plan. These coordinating meetings were formalized into the organization of the Project Evaluation Board, whose members met regularly to assure that all project data requirements were met by the individual study components, to coordinate data collection, processing, and analysis, to facilitate the synthesis of the various data sets, to provide critiques of reports and papers being drafted, and to assure proper coordination and timing of evaluation activities.

The Evaluation Board was composed of the following members:

The Chief of the Project's Research and Evaluation Division, who served as Chairman of the Evaluation Board;

A Statistician/Epidemiologist from the Division of Research and Evaluation;

A Sociologist Consultant from NIDA;

A Statistician Consultant from NIDA,

Heads of Cost and Task Analyses and Administrative Analysis;

A Lampang Project staff member from the Division of Planning and Programming; and

Resident Project staff members from the University of Hawaii School of Public Health.
CHAPTER 3

ASSESSMENT OF THE EVALUATION AND INFORMATION SYSTEM: EXPERIENCE TO DATE

The previous pages have outlined the concepts, objectives, plan, methodologies and organization which constitute the system of evaluation for the Lampang Project. When necessary, early Project approaches to evaluation were modified and adapted to meet evolving needs and problems. It is the purpose of the following sections to describe the Project's experiences in evaluation, the decisions that were made, and the problems that arose and their resolution.

PLANNING FOR PROJECT IMPLEMENTATION AND EVALUATION

As project planning was completed in mid to late 1974, the project goals were very general "to serve at least two-third of the target groups", and "improvement in the health status of the population". The programmatic focus of the Project was nutrition, family planning, and maternal and child health. Pre-Project planning and problem identification had been based largely on national data, and no comprehensive profile of Lampang Province health problems and service system problems was available at the time the Project was initiated. An immediate need, then, was to more clearly articulate the Project's goals and translate them into performance and health status targets. It also remained for Project evaluation staff to establish a set of evaluation objectives and to select the appropriate methodologies for achieving them.

In December, 1974, shortly after the Project began, a Project implementation workshop was held to bring together a broad range of Thai health planners and implementors, Project staff, and both Thai-based and foreign-based consultants, in an attempt to clarify the operational goals, strategies and methods of the Project. An evaluation sub-group within the workshop also recommended appropriate objectives and methods for evaluation. However, in the months preceding the beginning of the Project (as well as in the workshop evaluation sub-group), it became apparent that there were some differences in the expectations and requirements of Ministry of Health implementors and those of the donor agencies concerning the scope of evaluation. The outcome was that during the first year of Project operations, discussion continued between Project staff and the collaborating agencies as to evaluation objectives and the specific components of the evaluation system. However, because the general information needs of the evaluation system had been previously defined, initial baseline data gathering began, even though the systematic framework into which it would fit had not yet been established. Within the first year, a clear plan for evaluation, incorporating the requirements of all agencies involved, was com-
pleted, much of which has been reviewed in earlier sections. This plan has become the guiding document for ongoing evaluation activities, although it has been modified and adapted periodically as needed.

Modifications in the plan and in the actual process of evaluation have been made as a result of several important factors described here:

**Timeliness of Information Availability**

The importance of rapid availability and feedback of data for planning and management decision-making has been emphasized from the start. However, as mentioned above, only fragmentary baseline data were available for pre-Project planning and target setting, with the result that Project implementation began before baseline surveys were complete. Complicating the problem of inadequate baseline data for planning was the slowness with which the initial baseline data became available. It took more than a year for the baseline Community Health Survey data to reach the hands of Project planners, by which time field operations were already well underway. Delays in the availability of data has been a chronic problem when surveys, data processing, and tabulation are involved; although later data sets were produced with a shorter turnaround time, this problem has not been completely resolved.

Timing also has been especially crucial for Ministry of Public Health planners, who have concurrently been making decisions concerning the future of rural health care in Thailand. This slowness in data availability has limited the ability of Project staff to document its experiences in a timely fashion and incorporate these into the national planning process.

**Quantity and Specificity of Information**

Because of the relative lack of clear and precise evaluation goals and methods in the early stage of the Project, along with the different needs of collaborating agencies, the initial evaluation plan specified collection of large quantities of data with little regard for how the data would be used in evaluation. The question of economy was not raised — it was more a matter of what Project evaluators felt they might want to know, rather than what was actually needed for adequate evaluation. The community surveys, for example, drew quite large samples in the baseline rounds, but it was determined that smaller samples would be adequate in follow-up rounds. At the same time, it was found that many items in the baseline survey found to be of no analytic interest were not included in the follow-up survey.

Much information has been gathered about health center operations through the Task Analysis. However, despite the major interest and emphasis given to primary health care in the period when the project was developing the village health volunteer network, there was little emphasis on gathering information about volunteer performance. There is, consequently, a wealth of detail about health center
performance, but less information available about the performance of the primary health care periphery. The addition of some special studies in the latter part of evaluation process has helped to correct these deficiencies.

Availability and Quality of Data

The data items required to construct the indicators for measuring achievement of evaluation objectives have, in some cases, been either unavailable, too costly to abstract, or of unreliable quality. This has required the deletion of some indicators, or substitution of alternatives. For example, maternal morbidity and child morbidity were originally considered to be desirable indicators, but the type of clinical survey required to collect the necessary data was seen as too complex and expensive. Symptom surveys were used instead.

ADJUSTMENT AND MODIFICATION OF THE INDIVIDUAL EVALUATION COMPONENTS

Community Health Survey

Initially, two separate surveys — one called the Community Health Survey and a second called the Nutrition and Oral Health Survey — were designed to gather information on the health status, health behavior and service utilization of the community. Both of these surveys were carried out as the baseline surveys in the first experimental area (E1), with a population of 40,000. The Community Health Survey covered a sample of 1,500 families, and the Nutrition and Oral Health Survey, because of its technical complexity and high costs, covered a very small sub-sample (300 children under age six) of this population. The problems were several: for instance, there was resistance among village families to permit the drawing of blood from their children, which made it impossible to include all children designated in the sample. Moreover, the survey attracted large groups of onlookers, many of whom requested medical or dental treatment. The result was that some villagers who were not intended to be members of the sample were included in the sample.

The Community Health Survey was done by Lampang Project staff, and the Nutrition and Oral Health Survey was carried out by a team from the Ministry of Public Health. The latter survey involved highly-skilled technicians and professionals to do the laboratory analyses and examinations required. After a review of the results of these first baseline surveys, several major decisions were made to:

Combine the Community Health Survey with the Nutrition Survey, and eliminate the Oral Health Survey, which was considered unnecessary for Project evaluation purposes; and,
Reduce the scope of the Nutrition Survey to include only height, weight, age, and obvious clinical signs of nutritional deficiency in pre-school children only.
These decisions enabled the Project evaluators to streamline data collection for the Community Health Survey, renamed the Community Health and Nutrition Survey. Thereafter, only one team of survey personnel, who could carry out both survey components at the same time was required. It also simplified analysis of the data, and reduced the need for highly-trained professionals in data collection.

A second major step was taken after reviewing the results of the baseline surveys in both the one-district $E_1$ area, and the seven-district $E_2$ area. The items in the Community Health and Nutrition Survey questionnaire wer carefully reviewed, and the subsequent elimination of those items deemed redundant or unnecessary. For example, 99% of those interviewed responded that they were Buddhists, and about same percentage responded they were ethnic Thai. Therefore these items were deleted in the follow-up survey. A second decision was made to reduce the sample sizes in the follow-up surveys, as indicated in Table 2.

Given the general delays that had been experienced in data processing, often as a result of problems in editing the coded data, there was concern that the final sets of processed data would not become available in time to complete all documentation in the final evaluation period. Therefore, a decision was made to reduce the sample sizes in each of the areas surveyed without serious loss in the representativeness of the surveys. This significantly reduced the amount of time required for follow-up field data collection, and shortened the data processing activity.

Review of the results of the baseline Nutrition Survey also led to some major programmatic shifts. The results showed that Project planners had underestimated the severity of nutritional problem in pre-school children: over 50% of the children were affected, 15%-20% seriously. As these survey results were made known to provincial health staff, a new emphasis was placed on such nutrition activities as nutritional surveillance and expansion of the Child Nutrition Center program. As another example, the baseline Community Health Survey showed a very high level of current contraceptive practice among the married women of child bearing age in the province. Over 50% indicated they were currently practicing family planning. The survey also indicated a relatively low level of fertility, much lower than expected. These results suggested to provincial health decision-makers that the family planning program had already made major gains in the province, and that project efforts should concentrate on consolidating these gains and extending permanent or more effective methods to those already practicing less effective methods.

Task and Cost Analyses

The Task and Cost Analyses were interrelated studies, carried out more or less concurrently. A major objective of the Task Analysis (for the most part, a time and motion study) was to determine the distribution of personnel time spent in various activities at health facilities. Since personnel time is a major element in the cost of providing health services, the Task Analysis provides the means for allocating
personnel time to the various service cost categories.

During the first months of Project operations, the Cost and Task Analyses suffered from the lack of a clear articulation of Project evaluation objectives and information needs. A preliminary plan for Cost and Task Analyses was organized, and data collection began in the first operational district. However, after reviewing the results of the first-round data collection, and after data needs were more clearly specified, a new team of investigators took over responsibilities for this study, improving the design and the quality of data produced.

One overall limitation of the Cost and Task Analyses has been its lack of comprehensiveness. The provincial health care system, as reorganized under the Lampang Project, might be separated into three major components. (1) the Provincial Hospital, (2) the network of rural health facilities — district hospitals, subdistrict health centers, and midwifery centers, and (3) the network of village health volunteers — the primary health care component. However, the scope of the Cost and Task Analyses has only covered the rural health facilities. Although a preliminary survey was done with the provincial hospital, this component was discontinued, and the Task and Cost Analyses team have not studied the primary health care component. If the objective is to compare the performance and cost of similar tasks in each of the major components of the provincial health care system, using a uniform methodology, then it would have been useful to collect data in each component: the provincial hospital out-patient department (where services and patient types, in many ways, resemble those at rural health facilities); the rural health facilities; and the village health volunteer network. However, such a comparison was not feasible for the primary health care network because the village health post (the key element in the primary health care network) is not really a health care facility with a full-time worker, and therefore does not lend itself to the time-motion methodology of the Task Analysis.

Because of the emergence of primary health care as a major thrust in health care strategies, both domestically in Thailand and internationally, interest in more detailed evaluation of the primary health care component of the project has greatly increased. The main source of data on village health volunteer performance has come from the routine, but elementary, reporting system designed by the Project for the provincial health office. The increased emphasis on the village health volunteer has caused the evaluation staff to design some small special studies to look at volunteer performance in greater depth.

**Provincial Management and Health Information System**

During the initial period of developing the evaluation system, much Project staff attention and time were focused on the preparation of the various surveys and studies, and relatively less attention was given to the provincial management and health information system. The surveys were new information gathering devices,
requiring special efforts, and many believed they would provide more reliable data. Because provincial health officials frequently have tended to pay little attention to local service statistics and have tended to question their reliability and validity, Project evaluation staff initially focused on the cross-sectional surveys and studies as higher-quality sources of evaluation data. But as the first sets of data from the surveys became available, some limitations in the surveys became apparent, and attention shifted to improving the quality and utilization of the information generated by the provincial health information system.

Project staff realized that they should not depend on any single type or source of data, and that survey data could be reinforced by service statistics and other data from the provincial health information system. Also, the surveys were conducted only before and after Project intervention activities, and provided no longitudinal information on short-term changes occurring during the intervention period. Because longitudinal data are precisely what the provincial health information system can provide, they can usefully complement and document the details of the broader changes that have been observed from survey data. Moreover, with the limitations in scope of some of the surveys, such as Task and Cost Analysis, it became necessary for the provincial information system to provide data where gaps occurred. This has been particularly true in documenting the performance of the primary health care network. The reporting component designed by the project for the provincial health information system to monitor village health volunteer performance has been the only source of information available on primary health care activities. These reports have been routinely summarized by the Research and Evaluation Division, and fed back to provincial health staff to incorporate in their decision-making. It is this component that helped to identify, for example, the short-term problems associated with volunteer support and performance, resulting in major modifications of the pattern of supervision and logistical support for volunteers.

Health facility service statistics, monitored and summarized for the Provincial Health Office by the Evaluation and Research Division, have enabled provincial health staff to assess the short-term impact of the Project on the utilization of rural health facilities without having to wait for survey results. It has permitted the province to immediately measure the impact of *wechakporn* deployment on utilization of rural health centers, as well as the contribution that village health volunteers are making to accessibility and utilization of health services at the most peripheral level.

Finally, looking beyond the time when Project evaluation activities cease and the provincial health care system has returned to its normal state, the basic data source and evaluative mechanism remaining will be the provincial health information system. The Division has thus expended much effort to assure that the improved provincial health information system will have the necessary scope and reliability to serve provincial management decision-making.
QUALITY OF THE DATA

Survey Data

Much attention has been given to assuring that the data collected in the field was of the highest quality. The 12 field data collectors were carefully selected. They were intelligent, highly-motivated men and women, with both an interest in and an ability to talk easily with the villagers. Half were social science graduates from Chiang Mai University, and the others were associates of arts graduates from regional colleges. All were fluent in a northern Thai dialect, which is crucial for effective communication with northern villagers, as well as for maintaining an informal interview atmosphere, thus increasing the likelihood of appropriate responses (as opposed to the controlled responses that might be given to someone viewed as an "outsider") Although the Thai-language questionnaires were printed in the central Thai dialect, there was a pre-interview review to assure consistency in the way that the central Thai questions were expressed in the northern Thai dialect. It was apparent that the field interviewers enjoyed their work and showed great camaraderie among themselves and with the villagers. They particularly enjoyed camping out during surveys in the more isolated parts of the province.

The field supervisors and the field managers strengthened the quality of the data collected through careful follow-up of the survey process. The senior statistician and his assistants reviewed a sample of each day's questionnaires, and the field supervisors and the field manager provided clarifications or reinterviews where required. To further insure productive interviewing, senior Project staff contacted the local district officials, and field supervisors met with local village headman and elders to explain the objectives and process of the surveys before the interviewers were sent out. This helped to produce a more receptive atmosphere among the villagers when the young interviewers arrived. This preparatory process was extremely important during the period of active social change in Thailand in 1975 and 1976. During this period, student involvement in critical affairs throughout the country had become intense, and activists were operating in some areas where Project surveys were being carried out. Because there were occasionally strong negative reactions to the student activists, Project and provincial health staff were concerned that the field interviewers (also young men and women with student-like appearances) would be mistaken for activists. But the pre-survey contacts with district and village leaders and the emblem supplied by the Project to identify the interviewers served to avoid any serious incidents.

The most capable interviewers were retained for the duration of the Project, and thus gained experience and skill as they were used in a variety of survey activities. Some of the outstanding interviewers were also recruited as field supervisors.

Provincial Information and Service Statistics

The quality of data generated by the provincial health information system has
been less amenable to control by Project evaluation staff. But since the provincial information system provides the major source of longitudinal data about Project performance, it has been important to identify the weaknesses in this data so that appropriate adjustments can be made.

Provincial hospital and district hospital service statistics appear to be of acceptable reliability and validity. But there is a continuing problem of incompleteness in some of the reporting, and inconsistent data have been frequently encountered. For example, the monthly total of a particular service category shown in the health records at a given health center may be inconsistent with the same total registered in the monthly report sent into the provincial health office. These must be carefully monitored so that adjustments can be made when comparing the service statistics.

The incompleteness and inconsistencies have been even more pronounced when dealing with the data relating to village health volunteer performance. The prevailing condition has seemed to be one of under-reporting volunteer activities as represented in the monthly summary. Volunteers normally register service contacts in their daily register (this is the most record keeping that can be reasonably requested from an unpaid, part-time volunteer). Unfortunately, volunteers sometimes forget to register a service contact, particularly those that have occurred outside of the volunteer’s home area. Local health center workers are expected to visit each volunteer every month and abstract service contact data from the daily register, then collate them in a subdistrict-level report, which is consolidated once again at the district level, and then sent to the provincial health office. If the number of service contacts has been underreported in the daily register, then it will also be underreported in the monthly summary. A further complication is that some health workers are, at times, unable or unwilling to make the monthly rounds to the volunteers in their area, and may estimate the service contacts for a given month. This estimate may be different from the actual number of service contacts. To overcome this problem and to permit adjustments in the volunteer service contact summaries, a review of health post volunteers reports has been made to determine the approximate level of under-reporting; by asking volunteers to estimate the proportion of service contacts they did not enter in their daily register, and by then comparing this to the figures that appeared in the monthly summary, a measurement of under-reporting can be made. This permits a proportional adjustment of the service contribution made by the volunteer sector.

Another deficiency in the provincial health information system that has yet to be remedied is the form in which data are made available. Most data on health activities in the province are presented only as raw numbers, that is, number of service activities by type, number of patients served, and so on. Such numbers are of little value for assessing performance or management decision-making, and they must be translated into rates or levels of achievement for given target populations. A major responsibility of the Evaluation and Research Division has been to convert
the raw numbers into more usable rates or levels of achievement for presentation in a useful form to the provincial health staff.

The efforts which the Evaluation staff have devoted to improving the feedback of useful information to key decision points has been mentioned previously. However, the lack of rapid feedback of useful information within the provincial health information system, and between the province and national information centers, remains a chronic problem. An effective health information system in a province could be viewed as a two-way information exchange mechanism in which each service level gathers the minimum amount of information required (concerning program and facility performance with respect to targets) and passes it up the chain to successive management/supervision levels. At the same time, there should be a concurrent feedback mechanism through which each management level sends back information comparing each service level's performance with others, and helps to identify potential problem areas. Such a two-way information flow is an essential tool for effective management: it gives managers at each level the basic information on how the system is performing, where potential problems lie, and permits each unit to gain a perspective on its performance in relation to others. Such a system also assumes an awareness of the utility of information and a minimum analytic capability at each service facility; that is, each facility level should be able to relate its service and program data to target populations and program achievement.

There is currently one well-organized information system with a feedback loop — the National Family Planning Project reporting system. This system feeds back processed family planning service information from the national level to each province in a monthly computer printout; but within each province, there is no such feedback link to the district and subdistrict facilities (although the national report includes district-level information). In Lampang, the Evaluation Division has gathered selected information from the service levels, put it into a more usable form, and has fed this information to province-level decision makers. But this service has not effectively reached lower levels. It remains to institutionalize this function within the provincial health office, and to establish a simple mechanism to feed information back to the peripheral levels.

In the past several years, both within Lampang, and on a national scale, the Ministry of Public Health has initiated dramatic changes in the organization and scope of health care delivery, particularly in the rural areas. A new health care delivery structure has been achieved, with great potential to serve the people. The next step is to more clearly identify the health needs of each province or region, and set program priorities toward which the newly-modified health structure can be directed. One key to such an effort is an effective information system that can help to identify the program priorities and can monitor the system's performance in meeting these needs.
MANAGEMENT OF THE EVALUATION PROCESS

Sharing the tasks of evaluation with other cooperating institutions has led to what is described as a "diffusion of responsibility", which considerably complicated the overall management. On one hand, it would have been more convenient for Project staff to do all of the evaluation tasks themselves. All activities would be under direct Project control, no distant communications (i.e., between Lampang and Bangkok) would have been required, some time lags would have been reduced, and costs might have been less. However, for a variety of reasons, Project leaders decided to share responsibilities for certain evaluation components. Project budget limitations did not permit the hiring of all professionals required. But even if funds had been available, it is questionable whether such people could have been attracted to Lampang, as they already have major responsibilities in government and educational institutions. A secondary goal of the Project was to involve outside institutions in Project activities to give them experience in a new area of health services research. It has been quite beneficial, as the NIDA collaborators have generated a new interest and capability in health sector research, and a number of graduate students have also gained training and experience in this area. At the same time, junior Project staff who have gone through several years of experience in Project evaluation activities have moved to faculty positions in several educational institutions. In the long run, this should contribute to increased sensitivity to and capability for evaluation in the health sector, and to its increased importance in management of health activities.

To manage such a broad set of activities has not been an easy task for the Director of the Evaluation and Research Division. A large amount of time has been devoted to the major, but less technical, facets of his role — that of setting clear guidelines for activities, coordinating their implementation, and integrating them to meet the evaluation objectives.

Another aspect of managing the evaluation process has been to closely align the evaluation process with the provincial health information system, to educate the provincial health decision-makers of its usefulness, and to help establish a coordinated center of health information within the provincial health office.

The background problems have been the unavailability, or the incompleteness and unreliability of data available at the provincial level. This has been coupled with the nature of the data that is available: mostly raw numbers that in themselves are not appropriate for analysis and interpretation. These problems have been partly responsible for the lack of a data orientation by provincial health managers, and the tradition of subjective, or "seat-of-the-pants", decision-making based on impressions and observations. It has, therefore, been a major task of the evaluation staff to gather or abstract information relevant to decision-making, convert it into rates or measures that are analytically useful, and to demonstrate to provincial health
managers how this information is useful and can be utilized in their decision-making.

Finally, another important task in managing the evaluation process is developing appropriate modes and formats for presenting Project evaluation methodologies and results. A problem that has been chronic in health and other types of organizations is the frequent lack of effective communication between evaluators and program managers. On one hand, it is a result of the first problem mentioned above, the lack of a data orientation and an unclear perception of the need for and uses of evaluation on the part of program managers. On the other hand, another frequent problem has been the way that evaluators have presented their findings: at times, they have presented the results of their work in such technical terms that they have not been comprehensible to the managers who might make use of them. Moreover, evaluators sometimes become so absorbed in their work that they do not adequately emphasize communicating what they have learned to the responsible decision-makers. They may forget that the ultimate goal of evaluation is for the results to be incorporated into decision-making, program planning, and program adjustment. But as there are several levels of decision-makers who have use for the results, so also is there a need to tailor the expression of the results to the needs and interests of each particular group of decision-makers. There are several major groups to whom presentation of the evaluation results must be made:

**Ministry of Public Health and Inter-Ministerial Decision-Makers**

At this level, there seems to be little interest in methods or the specific details of evaluation. Instead, this group is interested in a broad overview of Project achievements, and the general evidence and findings that suggest and support particular policy directions.

**Provincial and Project-Level Staff**

These decision-makers are more interested in the details of evaluation concerning the level of health problems and the effectiveness of their local program approaches in meeting these problems. However, they too, seem less interested in the methods and technical details of evaluation, but are more results-oriented and must be clearly shown how the data and analytical results are of use to them in their work.

**Researchers, Professional Evaluators, and Other Technical Specialists**

This audience tends to be more interested in the specific methodologies, review of the data and its analysis, and in assessing the quality of the data.
CONCLUSION

The Lampang Health Development Project’s system of evaluation and management information for integrated rural health care evolved during the seven-year life of the Project. Many modifications have been made to facilitate achievement of evaluation objectives and to improve management of the expanded and integrated health care system. But for every question answered, new ones arise. For every improvement achieved, a need for others appears. Health care concepts and approaches have changed dramatically in recent years, and are continuing to evolve. As the pace of this evolutionary change intensifies, the need increases for a health research and evaluation capability which can monitor and assess it. A beginning has been made in Lampang. But for the health care system to effectively reach and serve all those in need, health services research must be a continuing process, evaluating what has been accomplished and suggesting new directions for the future.
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<tr>
<td><strong>Project Directors/MOPH:</strong></td>
<td>Dr. Somboon Vachrotai</td>
<td>1974 - 1980</td>
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<td>Dr. Pirote Ningsanonda</td>
<td>1980 - 1981</td>
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<td>Project Managers/APHA:</td>
<td>Dr. Thomas R. Hood</td>
<td>1974 - 1978</td>
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<td>Dr. Susi Kessler</td>
<td>1978 - 1979</td>
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<td>Project Managers/UHSPH:</td>
<td>Dr. Emmanuël Voulgaropoulos</td>
<td>1975 - 1978</td>
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<td>Ms. Rosemary DeSanna</td>
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<td>Dr. Ronald G. Wilson</td>
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<td>Principal Investigator/UHSPH:</td>
<td>Dean Jerrold Michael</td>
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<td>Project Coordinator/UHSPH:</td>
<td>Dr. Satoru Izutsu</td>
<td>1979 - 1981</td>
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<td>Field Directors/MOPH:</td>
<td>Dr. Pricha Desawasdi</td>
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<td>Dr. Yonglaab Panjavan</td>
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<td>Associate and Assistant Field Directors/UHSPH:</td>
<td>Dr. Ronald G. Wilson</td>
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<td>Mr. John A. Rogosch</td>
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<td>Chief, Administrative Service Division:</td>
<td>Dr. Chachawan Virabhand</td>
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<td>Chief, Research and Evaluation Division:</td>
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<td>Chief, Personnel Development Division:</td>
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<td>Mr. Somjet Apimonraksa</td>
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Field Director's Staff:

Ms. Sawangpan Libivechaphong 1974 - 1981
Ms. Amara Sriboonleu 1975 - 1979
Mr. Anusorn Chaiser 1975 - 1979

Dr. Sommai Yasamut 1974 - 1980
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Mr. Kanti Nukanya 1976 - 1979
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Ms. Ninien Sailasuta 1975 - 1981
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Ms. Vilai Kusolvisitkul 1974 - 1977
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Mr. Manus Pakdi 1976 - 1979
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Ms. Duangsamorn Panpuang 1974 - 1979
Mr. Boontam Tamtravuti 1976 - 1979
Ms. Boonsri Tipsut 1975 - 1979
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<td>Ms. Yupin Duangwaropas</td>
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### Communications Unit Staff:

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During the World Health Assembly in May, 1979, the theme “Health for All By The Year 2000” was discussed and every country was exhorted to make their own policies, strategies, and plans for action to achieve this goal of “Health For All By The Year 2000.” The resolution on “Health For All By The Year 2000” was passed in May, 1977, at the World Health Assembly where all nations who were present as member states of the WHO were committed to this. The essence of the resolution is “the attainment by all citizens of the world by the year 2000 of the level of health which will permit them to lead a socially and economically productive life”, and this is now popularly dubbed as “Health For All By The Year 2000.”

The International Conference on Primary Health Care which was held at Alma Ata in the Soviet Union in September, 1978, came up with the Alma Ata Declaration on primary health care when a consensus was achieved. The declaration clearly stated that primary health care is the key to attaining the social goal of “Health For All By The Year 2000.” It also clearly indicated the close relationship of health with the other social and economic sectors. This close relationship must be emphasized in the development of primary health care to achieve our goal. While the terms “primary health care” and “Health For All By The Year 2000” have been accepted by consensus over the last couple of years, the concept has also been evolving over the last several years as a result of three important developments: first, the growing acceptance that health services alone cannot bring improved health to the people; second, the failure of the existing health services systems to meet the priority needs of the people most urgently requiring care; third, the growing concern with inequities reflected by the great disparities in the measured health status of the different population groups — both within the countries and between countries. It is the result of this growing concern that the development of both the social goal of “Health For All By The Year 2000” as well as the need to focus on primary health care has been emphasized.

It was always possible to design the health care delivery system which provides the essential health care that the people need, provided the people themselves both in the rural areas and the urban areas actively participate in it. Primary health care is the essential health care that people need; has a wide coverage; and is reasonably cheap. It should never be mistaken, nor should be misinterpreted, as primitive health care for the socially and economically poor. It is not an inferior brand of health care that we have hoisted on the poor people in the rural areas.

Primary health care itself has four fundamental concepts: (1) the community itself must take the principal role in health care activities; (2) health is not a separate entity; (3) health is an integral part of the development of the people at both the community level and the national level; (4) health care must be equitably spread.

It is more and better health care and better resources. How can essential health care be given to all? National resources naturally have to be increased and reoriented for primary health care.

Primary health care basically must include at least eight areas: first, education concerning primary health problems and the methods for preventing and controlling them. This is an important factor at the village level. But we must focus on the education concerning the prevailing problems, and this could vary from region to region.

Second, the promotion of food supply and proper nutrition. In the last two months there was a world conference on agrarian reform and rural development, where all countries were focusing on this aspect. We hope that, with the stimulation of the other sectors — particularly the Ministry of Agriculture and Food — and with the participation of the people, this component will come to a fruitful conclusion by the year 2000.

Third, the provision of an adequate water supply and sanitation. The fact that this is something which is beyond the realms of the Ministry of Public Health, and even the World Health Organization was clearly shown by the United Nation's conference on water, held some years ago, which has come up with the declaration on International Drinking Water Supply and Sanitation Decade, 1981 to 1990. There is hope that the people would be provided with an adequate supply of safe water and basic sanitation. This is to be promoted by all United Nation's agencies, working through the governments and the various ministries.

Fourth, maternal and child health and family planning. As you are well aware, many governments are focusing on the problem of population and population growth. Family planning has received proper attention, and with this increased thrust, zero population growth may be achieved by the year 2000. Maternal and
child health must develop equally to keep pace with the developments in family planning.

Fifth, immunization against the major infectious diseases. Again, the World Health Assembly has adopted a resolution that by 1990, every child should be immunized against the six main infectious diseases, namely, diphtheria, pertusis, tetanus, tuberculosis, poliomyelitis, and measles. Of course, some of these will depend on the actual prevalence and incidence of the diseases in the individual countries. You will note that smallpox is not included because, as a result of the decade-long program that the World Health Organization mounted with all the countries, smallpox has been eradicated.

Sixth, the prevention and control of locally endemic diseases. The main thrust of the health ministries in all countries has been the control of communicable diseases. The yaws eradication program and, as mentioned earlier, smallpox eradication and malaria eradication are now, because of various problems that have emerged, being transformed into malaria control, tuberculosis control, and leprosy control. But non-communicable diseases, particularly cancer and cardiovascular diseases, are receiving more attention, because these are going to be important problems by the year 2000.

Seventh, the appropriate treatment of common diseases and injuries. This is one aspect of primary medical care which has been focused on largely in the last few years with extensive development going on right in the villages. Traditional medicine with proven remedies should be incorporated in this concept of primary medical care.

And, lastly, the provision of essential drugs. Every country must determine what are its essential drugs for primary health care at the village level and the essential drugs that will be needed at the various supporting levels. The determination of the essential drugs by itself is not enough. It is necessary to formulate drug policies which will ensure the adequate supply of these drugs at reasonable cost. You are fully aware of the growth of the pharmaceutical industry since World War II and it is very necessary for each country to determine its own drug policies and, at the same time, the managerial processes and the logistics to ensure that these essential drugs are available to the people in the villages.

With our commitment to the Social goal of “health for all”, let us now examine some of the implications. The stress is “for all”. What we should now develop are well-developed national policies linking improvement in different aspects of quality of life with an overall social-economic development plan with “Health For All By The Year 2000” as a central focus. Before, we had health systems which were designed with the aim of increasing the availability of professional skills, drugs,
equipment, facilities, etc. But we must now go beyond this provision. The health system must be now increasingly designed to decrease this dependency and increase individual, family, and community capacity for engaging in health development activities and improving the quality of life. Before, we had concentration on the provision of medical care as evidenced by training education curricula, facility construction, operating budgets and measures used to evaluate performance of systems. But now we must think in terms of concentrating on health promotion activities, placing information technologies in the hands of individuals, families, and communities — and building up the multisectoral support at all levels for these activities.

Before, we had concentration of resources in urban centers and operational services meeting specialized needs for the few. This was a necessary step in our development. But now we must go quickly towards the equitable distribution of resources to the social periphery; instead of concentrating on the priority needs of the few, we must think of concentrating on the priority needs of the majority. Before, we had the situation where there was ignorance of health implications and consequences of development of projects undertaken by different sectors. Now the responsibility for promoting health must be accepted by all developmental sectors and appropriate mechanisms established to improve their project design and implementation with reference to the health sector. Earlier, we had the use of health technologies which promoted commercialization of the health sector with heavy influence of extra-national interests. There was promotion of various drugs and technologies. But now we must identify and promote the technologies which are appropriate for local development — particularly at the village level and be able to control these appropriate technologies and the various drugs. Before, we had evaluation confined to measuring inputs, that is the availability of resources, associated cost, etc. But more and more, there must be emphasis on evaluation concerning the impact on the health status of individuals and communities, especially the underserved and the high-risk groups.

This means that the translation of the principles of primary health care into action would require the priority allocation of budgetary resources to primary health care, better distribution and use of existing resources and the improvement of managerial processes and capabilities at all levels for planning, implementing, supervising, budgeting, monitoring, and evaluating — supported by a relevant information system. Research, with full involvement of populations in support of primary health care, in especially innovative ways, should be carried out to ensure that primary health care is included and progressively improved as an integral part and main focus of the comprehensive national health system.

Developmental indicators for planning, implementation, and evaluation of primary health care, including indicators for community participation of its health care, should be determined. The governments must ensure that efficient administra-
tive delivery and maintenance services be established, reaching out to all primary
health care activities at the community level; that suitable and sufficient supplies
and equipment always by available at all levels in the health system, in particular to
the community health workers; that careful attention be paid to the safe delivery
and storage of perishable supplies, such as vaccines; that there be appropriate streng­
thening of support facilities, including hospitals, and that the government ensure
that transportation and all physical facilities for primary health care be functionally
efficient and appropriate to the social and economic environment.

Every national program should set aside a percentage of their funds for contin­
uining health services research; organize health services research and development
units and field areas which operate in parallel with the general implementation
process; encourage evaluation and feedback for early identification of the problems;
give responsibility to educational and research institutions and thus bring them into
close collaboration with the health system; encourage involvement of field workers
and community members; and undertake sustained effort to train research workers
in order to promote national self-reliance.

The governments must express their political will to attain “health for all” by
making a continuing commitment to implement primary health care as an integral
part of the national health system — within the overall social-economic develop­
ment, with involvement of all sectors concerned, to adopt enabling legislation where
necessary, and to stimulate, mobilize and sustain public interest and participation in
the development of primary health care. In the development of national policies
one must watch closely, because it is the annual budget which ultimately reflects the
real policies of the government. Therefore, we should not only have the policies,
but be able to increase the resources, and more than that — to reorient resources to
support primary health care if we are committed to achieve “Health For All By The
Year 2000.” So when we think of the year 2000, we must now determine what is
meant by “Health For All By The Year 2000” — for us, and for each country, because
this will vary from country to country. Types of indicators must be developed and
must be projected now so that, when we plan for the next two decades, we shall be
able to identify the gaps, so that we will be able to develop the relevant policies,
strategies and plans of action to bridge the gap to achieve “Health For All By The
Year 2000.” This was stressed in May, 1979, when Dr. Prakorb Tuchinda, Under­
Secretary of State for Public Health, Thailand, was elected the President of the
World Health Assembly.

I would suggest a need for two types of indicators which have been used earlier.
Traditionally, there is the life expectancy at birth and the infant mortality rate. With
these you might determine what each country must have by the year 2000. But
there are other indicators which lead not only to survival, but also to the quality of
life. This implies that social as well as health indicators have to be used. Examples
would be indicators of growth and development; indicators of nutritional status; specific mortality and specific morbidity rates, particularly in children; indicators leading to social conditions that effect health status directly, or indirectly, the usage or utilization of health services, the status of women, the status of housing and environmental conditions; indicators of educational and cultural levels; psycho-social factors and mental health aspects of the quality of life. The indicators regarding these should be developed. Also the degree of community self-determination; the social and economic productivity in the communities; and the closure of gaps in the distribution of health resources should be measured. These are some of the indicators, but each country must determine what type of indicators should be set by the year 2000, in order to be able to effectively develop their policies, strategies, and plans of action.

In monitoring implementation through the provision of health care, it is important to use as reference points these goals, objectives, and targets that have been set as part of the process of formulating programs and designing the health system. To permit the governments to know whether they are making progress in attaining an acceptable level of health for all their people, it is important that a process of evaluation be introduced at an early stage. Monitoring of the implementation and evaluation of impact take place at two levels — the policy level, and the managerial and technical level. But these two have to be interlinked. At the policy level there is a need to know if the health status of the population is improving and if revisions of policies, strategies, and plans of action are required. At the managerial and technical levels there is a need to know if relevant programs are being properly formulated, and if corresponding services and activities for implementing them are being effectively designed. There is also a need to know if programs are being sufficiently or efficiently implemented through suitably operated health and related social and economic services.

The mixture of idealism and realism did much to ensure the outcome of the smallpox eradication program; as I told you, the Decade of Worldwide Effort in Smallpox Eradication did achieve the eradication of smallpox. Social idealism launched it at the World Health Assembly; technical realism led to the development of and the use of ‘right action’ — the surveillance, the containment, the selective vaccination facilitated by freeze-dried vaccine, the development of bifurcated needles, and, above all, community involvement. All these helped to achieve smallpox eradication. Let me now end with the words of Dr. Halfdan Mahler, the Director-General of the World Health Organization:

"The great reforms in the history of mankind started with social philosophies that in turn led to social action. I am convinced that the attainment of ‘Health For All By The Year 2000’ will be no exception. We have the philosophy, we have initiated the action, we must now make sure that this action is accelerated in keeping with the philosophy."
I use the guidelines generally set by the Declaration of Alma Ata which the Chairman reviewed just a moment ago, in which it was agreed by various member nations of the World Health Organization that they would make every effort to achieve "Health For All By The Year 2000," and which we also in Thailand have accepted. For those of us who are Buddhists, the "Year 2000" has no special meaning, but we can still say that our goal is for all people in Thailand to have equal knowledge and opportunities to achieve basic health within the next twenty years. Actually, this is a concept which is one approach in planning. In planning, there are two major approaches. The first approach is to establish a model, as in the case of setting out what change we would like to see in health in the next twenty years and then setting strategies to achieve that goal. The second approach is the normal planning methods by estimating the direction and level of achievement which we should attain in the next twenty years by projecting from the trends we have achieved in the past. But in this case, we establish the model in which we specify what we want to achieve. Therefore, the first step is to consider first what the characteristics of a model for achieving good health or basic health should be. To speak simply, such a model is nothing more than an expression of our intent that all Thai people should have an equal right to receive various services, such as those included in primary health care; for example, communicable disease control, maternal and child health, together with family planning, sanitation, safe water, nutrition, medical care, and health education. This constitutes our model, which incorporates the expected results, or outcomes, of our system.

The problem is that when we are setting a model to achieve the outputs we desire within the next twenty years, there are two points that we must consider: (1) what inputs are currently available and, (2) what are the processes or activities by which we will achieve the desired outcomes?

More simply, we must consider what inputs are required and what inputs are currently available, which relates to the level of resources that we have available in
out country for use in public health. Concerning resources, we all know that this includes personnel, facilities, equipment and various supplies, budgetary resources, and so on. If we examine the various personnel, we will find that, at this time, we have many types of personnel, from physicians in hospitals, and at the periphery, or tambon and village levels, we have mostly midwives, with some sanitarians, and nurse – aides. Reviewing these personnel resources, we must consider what level of capability they have in covering the population, because our final goal is one-hundred percent coverage. But what is the current percentage of coverage? I believe that it is not greater than 30%. Our personnel are probably insufficient, as are our facilities.

As we look at the budget of the Ministry of Public Health, we would observe it is probably satisfactory – about 4 or 5 percent of the total government budget for the nation. If we look a little more closely, however, we will see that most of our budget goes to health facilities. By facilities, we mean hospitals, health centers, midwifery stations, and so on. We see that these facilities receive 65 to 80 percent of the Ministry’s budget. But if we look a bit more deeply, we will see who receives services from these facilities, that is, the hospitals or health centers. It turns out that the users are mostly those who live nearby, or those who are able to pay for services (although there are some indigent, but most people have to make some payment). But most of the people who come for services are people from the immediate vicinity: if in town, it is mostly townspeople who walk in off the street – those who are more distant don’t come. Therefore, we must conclude that this 65 to 80 percent of the Ministry’s budget which goes to hospitals and health centers and other facilities really only serves a small proportion of population – perhaps only 20% of the population of the nation.

The first consideration is to extend medical care coverage into the village. This we achieve by identifying people who traditionally have been giving simple curative care for their own household or neighbors. In the Thai culture, this may mean one’s own granny, who has had this role since time immemorial. If we could somehow identify them and give them better training in what they have already been doing, we could probably achieve total coverage in a relatively short time. This is a prototype of what we eventually created as village health volunteers.

If we turn, on the other hand, to health promotion and prevention, we see a great contrast, because medical care is generally a compelling necessity for the health care consumer. But prevention and promotion of health are just the opposite – few villagers seek out this type of service because they do not feel the necessity. We consequently believe, in the case of prevention and promotion, to use a network of village health volunteers only would not work. We, therefore, decided to produce another type of worker which we call health communicators. The health communicator is based on the principle that in a village, there tend to exist small groups of people which have one central figure, a nucleus, or center of communication, in the
group. This had been confirmed by sociologists in studies of village communication patterns. Group members tend to make contact with each other frequently, and when they get together, they will come in a group of three or four members or more; one member is the central figure, or nucleus, and that person has a following of a few, or up to 10, others. This is human nature.

Concerning health promotion and prevention, the villagers should not have to seek us out — we must seek them out. Therefore we must determine what are the important components of prevention and promotion of health. Is not communication the most important component? If we don’t first understand communication, how can we achieve prevention? Health education is communication. Health education, then, is the first step — and the next step is action. The first step must be to make people understand. Therefore, to apply this principle, we must utilize village communication networks by trying to identify who are centers of communication within groups in the village; we have a fairly simple method of identifying who these people are. We choose these people, and call them health communicators, and we provide them with training and guidelines for their work. They are already centers of communication, but we hope they will broadcast messages to their other group members. They may not cover many households — our experience shows this may be 10 to 15 households. These communicators talk with their neighbors and group members concerning health problems, and we also hope that the group members will communicate with other groups. We also hope that all these village members will understand health problems and needs, leading to an action program.

In terms of human inputs needed for better coverage, it would be advantageous to have these two new types of workers — the village health volunteer and the health communicator. By having these two types of workers together in the village, in a ratio of one village health volunteer to about 10 health communicators, and if they meet frequently, a group spirit will emerge — in particular, they may be able to decide to take action which will be better than if only one person did it alone. There will be greater vigor and motivation. Having established such a network of village health volunteers and health communicators in the village, the question inevitably arises whether these volunteers, as inputs, are equivalent to primary health care. Having been deeply involved in developing these volunteers for some time, we might simply equate the primary health care program with out village health volunteer and health communicator program. But this is not the case: the volunteers are simply one tool for achieving primary health care, and there are many other means which we have not yet identified. The various media — radio, and other transistorized equipment — are other means to communicate, but no one has yet mentioned these. In the future we may have radio for health care, or we may have other agents who go into the rural areas, such as advertisers, and other groups such as drug sellers who are very active. The Lampang Project has made attempts to build a role for the drug sellers in primary health care. It follows, then, that the village health volunteers and the health communicators are not the only answer to primary health problems.
health care, but they are one of the major thrusts, which we see as a main foundation.

I would like to consider another question that has been raised concerning the simple curative care provided by health post volunteers. Simple curative care may not lead to a reduction in morbidity and mortality of the population, and many ask why invest so much in this type of activity? I would answer that the objective or concept underlying this volunteer activity is that we give curative services for simple diseases or problems but, at the same time that villagers with simple problems receive appropriate curative care, it also provides an opportunity for the volunteers to identify more serious diseases or problems in an early stage. Therefore, if the health post volunteer sees patients regularly, he or she will encounter patients with potentially serious diseases or illness, and these will be more quickly detected and referred than if there were no volunteers. This is the value of the simple curative care they provide: it will help prevent epidemics from breaking out through early case detection. We therefore consider that the most important thrust of their curative service is early case detection. As for the first aid and simple care, which they do very well, this is of use to the villagers.

Some people say that health communicators, having completed training and just remaining inactive, have little value. I would therefore like to suggest that if health communicators are really to be of useful service, they should meet together frequently and should identify their own problems. If their work has not been fruitful, it is probably because they haven’t identified the problems of the village, or government health workers have had to identify their problems for them, as was the usual practice in the past. Problems of villagers are best identified by villagers themselves, using simple appropriate technology or appropriate methods, and we need to help them define their own problems. Otherwise they will not have a chance to identify and resolve their problems. As Buddhism teaches, suffering or unhappiness must first be identified before we can seek a way to reduce it. This also means that if we have not encountered suffering or unhappiness ourselves, then how can we know how to deal with it successfully. This is another important concept that we should explain and emphasize for those working in communities: don’t go out and identify villagers’ problems for them. A survey at least may be useful, but at the very least the villagers should also be involved. We should find ways to make them understand, in simple terms, what we are trying to do. The principle involved here is that we don’t do it for them and they don’t do it for us; the things volunteers do are the things they do for their own village’s benefit; they are not our employees – they do for their own village’s benefit; they are not our employees – they don’t get salaries from the government. They should feel that they are working for their own good – not for us. We often forget that they are not our employees and we go out and give them orders, have them make long reports, and so on. It must also be stressed that the villagers and the government health workers who help them have the same status.
Based on this principle, the work of the health post volunteers and the health communicators will be different in different areas, because general development of the village must proceed together to produce an appropriate reaction toward health in the village, because this reaction toward health is an integral part of the social economic system of the village. Therefore, the concept of primary health care must somehow incorporate health activities with other social and economic activities of the village. This means that there must be village development going hand-in-hand with health, because if we only do activities in the health sector, in the end, there is no social and economic base for improvement.

Once we have people in place, have secured inputs as mentioned, and have established the process of action, of how villagers should approach the problems in their particular environment, then we can hope to reach our goal: equal ability for our people to achieve the good health they desire.

In closing, I believe that this is one of the major issues we face in the next twenty years. But I believe if we all follow the concept of primary health care, we will achieve our goal in less than twenty years.
AN HISTORICAL PERSPECTIVE OF THE LAMPANG HEALTH DEVELOPMENT PROJECT*

by

Dr. William H. McBeath, Executive Director,
American Public Health Association

The American Public Health Association is very proud to have been able to participate in the development of the Lampang Health Development Project and to have been associated with the Ministry of Public Health of the Royal Thai Government, the Lampang Provincial Health Office, and the numerous other Thai agencies and universities in this project.

In addition to those who are on the service line actually providing care — the health volunteers, the midwives, the wechakorn, and other health professionals and paraprofessionals — commendation for achievement must go to those who managed to coordinate, in a very positive way, the many agencies and institutions that have participated — and somehow surmounted the obstacles, constraints, and difficulties which are inherent in a program of this kind and magnitude. As is always the case when the child turns out so well, we are all proud to have had a part in the parenting — and the American Public Health Association is happy to have had a small role in helping the project to develop. It must be emphasized, however, that the Lampang Project is truly a Thai Project.

Let us go back a few years and put the development of the project in an historical perspective. In 1972 and 1973, reconnaissance teams from the American Public Health Association, at the request of the U.S. Agency for International Development visited several countries with the idea of determining the feasibility of establishing systematic, integrated, basic health services systems. After visiting Thailand, the team reported that not only would this be feasible in Thailand — but Thailand was already planning the strengthening of its government health care delivery system through the extension of basic services to the majority of the Thai population. The Royal Thai Government had already tested concepts in smaller projects, and there was a ready eagerness to try them on a larger scale.

There was clear recognition that justice and equity demanded that the 85 percent of the population living in rural areas be offered much more in the way of health services than they were getting. There was clear recognition that complex hospital-based medical programs were neither affordable nor appropriate to serving the needs of the majority of the population. What was needed was something of the people — something that would involve the villagers, require their participation as health service providers and promotors. That is, a system that would be understood by those who might have need for it, and use it, a system that would integrate the people into the operation. Indeed, Thailand was in the forefront of groups and agencies planning for basic health care systems.

Since the beginning in 1973, the question has been less one of whether Thailand was ready for implementation of a large scale basic health service system, rather the question has been more of how much can we learn from Thailand's experience with such a system. I think it is apparent we have learned much; that success has been manifest. The response from observers of the Lampang Project has been consistently to attempt to emulate the experience in other parts of the world.

Project staff and others involved have been invited to describe their experience in seminars and meetings in many other countries. They have been active as consultants in the development of projects throughout the region. These events clearly attest to the recognized merit of what is being done in Lampang. That programs of primary health care were universally endorsed by the Alma Ata Conference of 1978 owes, I would think, a great deal to programs such as the Lampang Health Development Project.

We wish to learn more of the details of how the Lampang Project has managed to accomplish as much as it has, including the training and placement of: 92 wechakorn, 352 midwives, 918 health post volunteers and 5,359 health communicators. These are tremendous accomplishments and serve as a challenge to others who will implement basic health service systems in Thailand and elsewhere.

Also important are the imaginative approaches to project management and administration. The coordination of several participating organizations and the administration of so many line personnel are no mean achievements and merit high praise.

An important phase of the project is still in process — that of evaluation. A major component of the Lampang Project is its evaluation unit. The purpose of thorough evaluation has been not only to assess the extent of the project's operational accomplishments, but also to determine how and why it has accomplished so much, in order that others may learn from the experience, and follow.

Many additional lessons will emerge as data are fully analyzed and discussed.
We have learned much. But we are also learning there is more to learn: How can we do the job more efficiently and effectively? What is the proper balance among preventive and promotive services on the one hand, and curative care on the other, between professional and paraprofessional staff? How can outside assistance be used most effectively? How can others borrow most effectively from what has been done? What is the surest means by which to provide equitable care to those most socially, economically and geographically distant from the benefit today's society has to provide?

In spite of obvious differences from country to country, the problems and solutions addressed in the Lampang Project have applicability around the world in developing and more developed countries. In my own country, the United States, we face a crisis of escalating health care costs which we cannot afford. It has sent us also searching for new configurations of personnel and services to provide adequate care — at affordable cost — equally accessible across economic and social strata.

Certainly the Lampang Health Development Project staff and the Ministry of Public Health recognize that the job is not yet finished. They are already involved in enhancing the skills of service workers. Wechakorn are scheduled for training in primary dental care. Plans are being made to improve supervision of health post volunteers and to use supervisors to upgrade skills of health post volunteers. And on and on.

It is important that we acknowledge that *this is not a time to rest, but a time to redouble efforts, building upon what has been done in Lampang and doing what we can to ensure that the experience will lead to marked improvements in the ways all countries meet the long neglected health needs of their people.* APHA remains interested and committed to the continuing success of the Lampang Health Development Project, and the application of its successes and lessons.
Dear Dr. Somboon:

In the end, we must all depart from this world. The Lord Buddha has taught us: When there is birth, there will naturally be death. The pleasure of knowing you and working with you made this world more enjoyable to live in. Now I feel sadly deprived, especially when you, Dr. Somboon, have become so important to our nation’s health activities and to the World Health Organization’s campaign called “Health for all by the year 2000”. I feel the loss all the more because you had reached the age when you could serve your nation most productively, using your broad experience and gentle nature in gaining support and cooperation. Not only your own countrymen, but also people from abroad have been eager to work and collaborate with you for the benefit of the Thai people.

The United States of America came into being in 1775, only seven years before the birth of the Chakri Dynasty of Thailand. The United States recently celebrated her bicentennial, and our Bangkok Metropolis will celebrate its bicentennial in 1982. The social, economic and political progress of America was rapid when compared with the progress of Europe as a whole in the same 200 year period.

In the past 80 years, the United States of America has established more than 100 medical schools...Eighty years have brought great change in public health and in schools of medicine in the United States of America. The creation of specialized physicians after World War I, and especially after World War II, produced hundreds of thousands of highly-qualified physicians to provide medical treatment to the more than two hundred million American people. This is really a great pleasure to note, but it is unfortunate that these specialized physicians flock to the big cities, while the people in the remote areas still face the problems of shortage of doctors.

* Dr. Sem’s letter was written in response to Dr. Somboon Vachrotai’s death in September, 1980, and was translated by Mr. Surindr Satchakul of USAID/Thailand.
and shortage of medical services, as if it were 80 years ago. Both the people living in the cities and those living in the rural areas have to pay taxes to the government, but the people living in cities get better social services.

Since many diseases and many medical and public health services do not need sophisticated or specialized capability, coupled with the fact that physicians with specialized training are reluctant to work in rural areas, an approach using paramedical personnel, or "medex" (physician extenders), to provide medical and public health services to the people in the rural areas was initiated. This approach is based on a physician extender to provide medical and health services to the people in remote rural areas. The *wechakorn* of the Lampang Project is similar to the "medex" in the United States.

There is a saying that "Necessity is the mother of invention". When Rockefeller Foundation came to Siam to assist in the improvement of medical education in 1923 on invitation of the Siamese Government, with HRH Prince Mahidol of Songkhla (father of H.M. King Bhumibol Adulyadej) as coordinator, Siam had only produced slightly more than 500 physicians since 1889, when the first medical school of this country was established.

But with the improvement in medical education curricula from diploma to the M.D. level during the first 10 years of Rockefeller Foundation assistance, the number of physicians graduating from the medical school decreased each year. When the Second World War broke out during 1941 to 1945, the government recognized the shortage of doctors, especially in the rural areas and in the three armed forces. The number of graduates from the single medical school was increased to 50 each year, and finally to 100 each year, to solve the problem of the shortage of physicians.

The Army established a medical education course in Lop Buri Province and recruited the tenth grade (*Mathayom 6*) graduates from various districts throughout the country to attend the diploma level medical education course. This helped relieve the shortage of physicians in the Army. When the war was over, these graduates were deployed to the districts from which they were selected to serve as medical assistants and sanitation inspectors. Unfortunately, the medical education course in Lop Buri Province was discontinued at the end of the war.

The position of the "medical assistant" was clearly mandated to assist the physician, especially the physicians working in the no more than five hospitals in the provinces. After the change from absolute monarchy to the constitutional monarchy in 1932, municipalities were established, and many municipal hospitals or local government hospitals were established in the provinces. The municipal or local government hospital usually had only one physician, so medical assistants to physicians were welcomed by all. The number of medical assistants rapidly increased in the provinces. The medical superintendent of the municipal hospitals trained these.
medical assistants on the job, until the medical assistants had the capability to work at the district medical centers. The assistants were assigned or deployed to work at the district medical centers established by the government, or with the cooperation of the people in the community who donated land and money. In Chiangrai Province on the northern border of Thailand, during the period 1937 to 1941, there were medical assistants in all large districts of that province.

The American Public Health Association leaders and Director-General Somboon Vachrotai in, 1972, 1973, and 1974, jointly recognized the problems of physicians gravitating to the urban areas, and the physician shortage in the rural areas, especially at the district and tambon levels. They unanimously agreed that public health personnel below the level of the physicians should be created to assist the physicians as mid-level medical workers to extend the scope of basic medical services into the rural areas under supervision of physicians. The category of personnel (called "medex" in the U.S.A.) called "wechakorn" in the Lampang Project was established. The close relationship between the wechakorn and the hospital physicians in providing services, the referral system for rural patients to be admitted for treatment in the hospitals, and the increased coverage of people in the rural areas with medical and health services provided by this new category of personnel have been established under the leadership of Director-General Somboon. Close follow up and evaluation has been performed over the past five years. In every meeting to review the progress of the Lampang Project, the APHA President or members of the APHA executive committee have participated. The annual reviews have also been attended by World Health Organization leaders and public health personnel of various levels. Throughout this five year period, Chiang Mai University, especially the Faculty of Medicine, has given full cooperation to the Lampang Project. Other government agencies have also given moral and technical support to the Lampang Project.

Replicability of the Lampang Health Development Project Approach

Whether activities of the Lampang Project can be replicated in other provinces or not depends on the policy of the nation. There are resources from foreign countries to support the Lampang Project in the process of creating a public health system for the rural areas, providing western approaches, with steps and stages in collecting data, in classifying problems, in establishing policy, in setting the objectives and strategies, in setting targets which may be clearly measured, in finding suitable monitoring operations, and in setting criteria for evaluation which, together, will serve as the basis for a comprehensive system for planning.

The emphasis on seeking methods of creating community participation and seeking cooperation from private sector organizations to motivate people to help solve the problems so that our society will survive has followed our traditional method of "mutual assistance among friends and relatives". But the difference from our traditional method is that the present mutual assistance must be done contin-
ously, and not seasonally as in the past.

The personnel to be created are the village health volunteers (VHV’s) and village health communicators (VHC’s) at the village level and the wechakorn for subdistrict health centers, district hospitals and provincial hospitals. We can study the extent of cooperation of the personnel at provincial, district and tambon levels from the Lampang Project. To what extent the result of the implementation of Lampang Project can be replicated in other provinces is up to the policy of the government, and is dependent on the seriousness of health workers at all levels in serving the people so that the rural people will be serious about helping themselves. A Buddhist proverb states: “You can only depend on yourself”.

Three years ago, the World Health Organization organized a conference at Alma Ata in Soviet Russia, resounding a new slogan “Health For All By The Year 2000”. To reach this goal, all countries in the world need to create new strategies to provide primary health care services to all people in the urban and rural areas by the year 2000.

Are the principles of primary health care new? Thailand has been having health services of the “barefoot doctors” and “primary health care” type for several decades, but nobody organized a conference or seminar to give names to such services. Therefore, they have now become “new” strategies, which shows the truth of the old proverb: “There is nothing new in this world”.

The readiness of the structure of primary health care, present in Thailand for some time, has roused the interest of international organizations who would make primary health care of Thailand a model for other countries, using difficult technical terminology.

My dearest Director-General Somboon Vachrotai, noble son of public health of Thailand, our descendents will look to your good example in creating public health activities for the well-being of all the people. The Lampang Project, the wechakorn, the primary health care program will become the nation’s property. These properties will be preserved with appreciation, admiration, and praise forever until, in the future, a new generation of researchers may conduct the research and rediscover them for the world of 500-600 years from now.

Please sleep with peace and happiness, admiring the results of your work which will never be forgotten by mankind. In heaven, there may be a need for a man to initiate primary health care for the happiness and good health of all the gods. May your hearty laughter, Dr. Somboon, so full of complete happiness, live on forever.

With deepest love and affection,
(Signed) Sem Pring-puang-geo, MD