PN-AAT-310 41183

THE PALLI CHIKITSAK PROGRAM OF BANGLADESH:
A NEW APPROACH TO THE DELIVERY OF RURAL HEALTH CARE

(A study commissioned by USAID, financed under Contract AID/ASIA-C-1455)

SEPTEMBER 1980

HEALTH SERVICES INTERNATIONAL, INC.
McLEAN PROFESSIONAL PARK
1485 CHAIN BRIDGE ROAD, SUITES 300 & 301
McLEAN, VIRGINIA 22101

PN-AAT-310

HEALTH SERVICES INTERNATIONAL, INC.

THE PALLI CHIKITSAK PROGRAM OF BANGLADESH: A NEW APPROACH TO THE DELIVERY OF RURAL HEALTH CARE

SEPTEMBER 1980

This study was commissioned by the U.S. Agency for International Development, and financed under contract No. AID/ASIA-C-1455. To carry out this study, Health Services International, Inc. sent a team to Bangladesh composed of Dr. Pierre Claquin, a physician, who acted as team leader; Dr. Marie P. Farrell, a nurse educator; and Dr. Howard N. Barnum, an economist. The team stayed in Bangladesh during the months of July and August 1980. Dr. Juan Pozo-Olano, President of HSI, joined the team in Dacca, August 21-24, 1980.

TABLE OF CONTENTS

Selected Data on Rural Economic and
Health Factors in Bangladesh

I. Area

55,126 square miles, or 35 million acres (approximately the size of Wisconsin) of which 22.5 million acres is cultivable. Of 22.5 million, one-third floods annually.

II. Demography

Estimated to be 87 million in 1979 (90% rural).
90% Muslim, 8% Hindu, 2% Buddhist and Christian.
Density: 587 per square kilometer.
Growth rate: 2.7% (average growth rate between 1972 and 1978).
48% of population is under 15 years of age.
15% of fertile couples practice family planning.
Average family size: 6.
Total fertility rate: 6.9.

III. Economic

GNP: 7.9 billion US Dollars.
GNP growth rate: FY77: 1.7%; FY78: 7.9%; FY79: 4% (estimated).
GNP per capita: US$ 90.
55% of GNP derived from agricultural sector.
80% of labor force is engaged in the agriculture sector.
Export earnings totalled 582 million US Dollars in FY79 (80% from agriculture sector; 70% from jute and jute products).
Imports totalled 1,572 million US Dollars in FY79. One-third of import costs covered by Bangladesh Government (reserves, barter agreements and wage earners scheme) and two-thirds by external credits and loans.
Money supply: 2,800 crore Taka (1.9 billion US Dollars).
Inflation rate: FY73: 48%; FY74: 44%; FY75: 35%; FY76: 11%; FY77: 11%; FY78: 12%; FY79: 14% (estimated).
78% of rural households own less than 2 acres of land.
33% of rural households own no farmland at all.
The number of landless households is growing at a rate of 4 to 5% per annum -- 1980 figure believed to be 40%.

IV. Health

Life expectancy at birth is less than 50 years of age.
Crude birth rate: 46 per 1,000.
Crude death rate: 18 per 1,000.
Infant mortality: 140 per 1,000 live births.
Child mortality (0 to 5 years): 250 per 1,000 live births.
Maternal mortality: 10 per 1,000 live births.

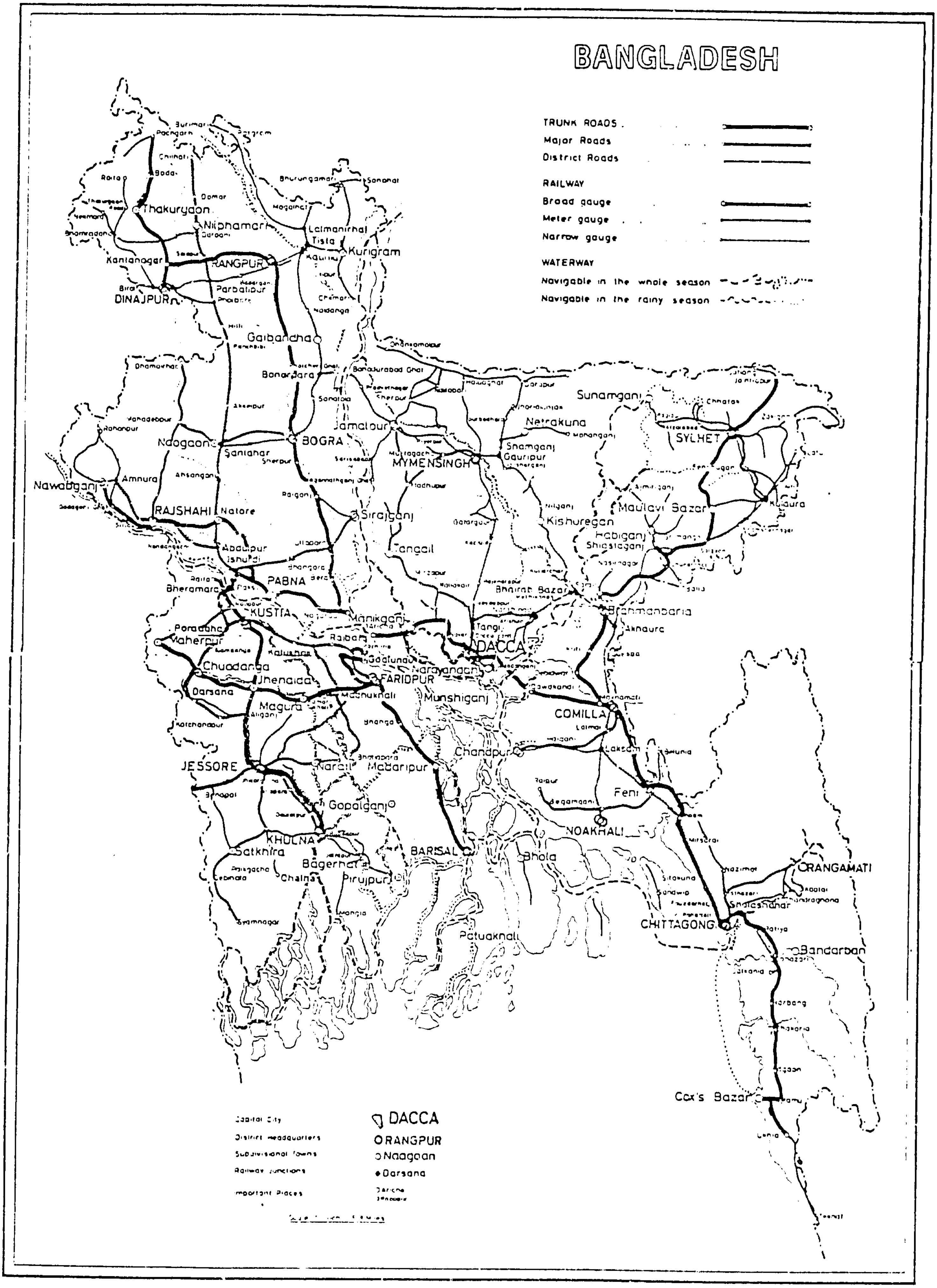

BANGLADESH
TRUNK ROADS
Major Roads
District Roads
RAILWAY
Broad gauge
Meter gauge
Narrow gauge
WATERWAY
Navigable in the whole season
Navigable in the rainy season
Thakurgaon
Nilphamari
Lalmanirhat
Kurigram
RANGPUR
DINAJPUR
Parbatipur
Kantanagar
Gaibandha
Bonarpara
BOGRA
Naogaon
Santahar
Jamalpur
MYMENSINGH
Netrakuna
Sunamganj
SYLHET
Maulavi Bazar
Habiganj
Kishoreganj
Nawabganj
Amnura
RAJSHAHI
Natore
Sirajganj
Tangail
Abdulpur
Ishurdi
PABNA
Bheramara
KUSTIA
Manikganj
DACCA
Tangi
Bhairab Bazar
Brahmanbaria
Akhaura
Chuadanga
Jhenaida
Darsana
Magura
Goalundo
FARIDPUR
Narayanganj
Munshiganj
COMILLA
Chandpur
JESSORE
Narail
Madaripur
Gopalganj
Feni
NOAKHALI
KHULNA
Satkhira
Bagerhat
Chalna
Pirujpur
BARISAL
Bhola
Patuaknali
CHITTAGONG
RANGAMATI
Bandarban
Cox's Bazar
DACCA
RANGPUR
Naogaon
Darsana

Table of Abbreviations

BDG	Government of Bangladesh
MOH	Ministry of Health
AID/W	Agency for International Development/Washington
USAID/B	United States Agency for International Development/Bangladesh
HSI	Health Services International
UNICEF	United Nations International Children's Emergency Fund
PIO/T	Project Implementation Order/Technical
NTC	National Training Center
THC	Thana Health Center
CS	Civil Surgeon
DHTO	District Health Training Officer
PC	Palli Chikitsak
THA	Thana Health Administrator
TMO	Thana Medical Officer
VHW	Village Health Worker
FY	Fiscal Year
FX	Foreign Exchange
LC	Local Costs
Tk.	Bangladesh Taka -- currency (15 Taka = $1.00)

List of Tables

Text

page number

Annexes

I. PALLI CHIKITSAK PROGRAM

SUMMARY AND RECOMMENDATIONS

I. PALLI CHIKITSAK PROGRAM

SUMMARY AND RECOMMENDATIONS

A.	Grantee:	Government of Bangladesh, Ministry of Health
B.	Implementing agency:	Ministry of Health, Government of Bangladesh
C.	Proposed amount of grant:	USAID: $ 4,795,300 BDG: 30,850,400 Total: $35,645,700
D.	Purpose of grant:	To assist the Government of Bangladesh to enhance the implementation of its Palli Chikitsak Program at the levels of teacher training and field support.
E.	Description of project:	The proposed project will enhance and strengthen the existing Palli Chikitsak Program by providing intensive teacher training for Medical Officers involved in teaching the one-year Palli Chikitsak course. Additionally, the project will create selected educational materials and supplementary manuals and will provide for distribution of government-produced materials to Palli Chikitsak graduates. The project will also provide support for on-going monitoring and evaluation activities of the program.
F.	Summary of findings:	This project paper indicates that the Palli Chikitsak Program is a viable, manageable approach to delivery of rural health care, and that enhancement of these efforts could be realized through personnel and commodities support and evaluation activities.
G.	Recommendations:	1a. Thana Medical Officers should receive training, and subsequently be technically responsible for the coordination of PC activities under the supervision of the Thana Health Administrator. b. Monitoring and long-term follow-up of PC graduates be ensured through the use of prepared District Health Training Officers oriented specifically to the PC Program.

2. A National Center be established for training of trainers (TMOs); and to develop educational materials for training and distribution.

3. The Bangladesh Government should delay the expansion of the program in 1981 by one year in order to provide a time frame during which training of trainers can take place.

4. Continued commodity support for modified medical kits and Bangladesh Government manuals is recommended; creation and distribution of a supplementary manual for PC students is also recommended to facilitate learning and teaching.

5. Health Services International, Inc., recommends that a grant for $4,795,300 be authorized to the BDG to implement its Palli Chikitsak Training Program Project.

II. PROJECT ISSUES

II. PROJECT ISSUES

The principal issues are addressed and listed below along with their respective notations. The issues ennumerated are taken from the AID/W cable approving the PID dates April 18, 1980; the Scope of Work for the Palli Chikitsak 388-0055 dates June 23, 1980; and other subsequent questions felt to be relevant and worthy of inquiry.

Implementation, to date, of the PC Program

A.	Current patterns of access to and utilization of existing rural health services.	Background and Rationale Summary of Social Soundness Analysis
B.	Rural population's perceptions of its health needs.	Summary of Social Soundness Analysis
C.	Affordability and availability of selection of health practitioner.	Summary of Social Soundness Analysis Economic Analysis, Annex G
D.	Underlying causes of morbidity and mortality.	Detailed Description Summary of Social Soundness Analysis
E.	Where rural people go for health services, frequency, alternatives, distances to travel.	Summary of Social Soundness Analysis Annex G
F.	Preferred source for health care, use of multiple sources, order to preference, patterns.	Summary of Social Soundness Analysis
G.	Differences in cost of health care according to illness, sex, age of afflicted.	Economic Analysis Annex G
H.	Educational level and skill of various types of practitioners, literacy rates, sources of training.	Annex G
I.	Ability of practitioners to make a living through health care practices (Will PC have to supplement his/her income in some way? Can a village support a PC?).	Economic Analysis Annex G
J.	Ability of rural community to support PC practitioner.	Economic Analysis

K.	Availability of drugs, medical supplied in rural areas, on the open market at costs that are not prohibitive.	Economic Analysis Annex G
L.	Interviews with THAs.	Annex G
M.	Interviews with PC graduates.	Annex G
N.	Perceptions about government versus non-government workers, accessibility to poor (Will PC services be low enough to be affordable to the poor? Will PC services be available to women?).	Summary of Social Soundness Analysis Economic Analysis Annex G
O.	Interest of practitioners in upgrading their practices.	Economic Analysis Annex G
P.	Participation of women in PC training.	Project Background and Detailed Description Summary of Social Soundness Analysis Economic Analysis Annex G
Q.	Relationship of PC graduates to existing practitioners, to government workers, ability of community to support PC (What kind of competition will the PC face from other village practitioners and how will this affect his/her ability to make a living?).	Detailed Description Administrative and Management Feasibility Economic Analysis Annex G
R.	Characteristics of PC which will maximize acceptance to rural poor especially to women and children.	Annex G
S.	The PC Training Program:	Annex G
	1. Technical content as it relates to health care needs.	Project Background and Detailed Description Rationale Annex G
	2. Presentation.	Project Background and Detailed Description Annex G
	3. Clinical practice.	Project Background and Detailed Description Annex G

	4. Course duration.	Project Background and Detailed Description Annex G
	5. Motivation, interest, techniques, technical knowledge of teachers.	Project Background and Detailed Description Annex G
	6. Location.	Annex G
	7. Teaching aids, self-instructional materials.	Technical Analysis Annex G
	8. PCs' perception of role as PC and satisfaction with training program.	Annex G
T.	Recommendations for revisions in training program to increase effectiveness:	Detailed Description Technical Analysis Implementation Schedule, Annex C
	1. Course content.	Annex G
	2. Presentation and length.	
	3. Selection of alternative trainers and training locations.	Financial Analysis
	4. Revision of selection criteria.	Annex G
U.	Recommendations for changes in management, administrative functions.	Administrative and Management Feasibility Annex G
V.	Logistical flow of materials recommendations.	Implementation Plan
W.	Program planning with Ministry.	Implementation Plan Annex F

III. PROJECT BACKGROUND AND DETAILED DESCRIPTION

III. PROJECT BACKGROUND AND DETAILED DESCRIPTION

A. Background and Rationale

1. Background

The leading causes of morbidity and mortality in rural areas of Bangladesh are typical of those in other developing countries. These causes usually include: diarrhea/dysentery, upper respiratory infections, fever, parasites and other infectious diseases.[1] The Bangladesh Government has stated that at least 50% of the population is suffering from some degree of protein-calorie malnutrition[2] -- an underlying factor contributing most heavily to death and sickness. Since Independence, the government has studied these issues within the context of the overall social, cultural and economic development of the country. They have concluded that continued improvement in the health status of its citizens depends on the continuation of four major interventions: improved water and sanitation, immunization, health education, and simple curative care.[3]

In attempts to effect meaningful changes in all of these four areas, and to realize these target interventions, the government has expended and continues to expend personnel and financial and material resources. Nevertheless, complex issues persist within the country, such as a low per capita income, rapidly growing population and dietary practices and attitudes that restrict nutrient intake.[4]

---

1. Project Identification Document for Palli Chikitsak, USAID 388-0055, pp. 1-2.
2. Scott A. Loomis, Synerisis: The Dynamics of Health; USDHEW, Public Health Service, Office of International Health Division of Program Analysis, 1976, p. 1.
3. Op cit, p. 2.

It is estimated that of the 87 million people in the country (1979) 90% reside in the rural areas. Of that number it is further estimated that 30% receive no health care services of any type.

In Bangladesh, rural health care is delivered at the thana level, and is administered through a Thana Health Center (THC). The THC combines inpatient and outpatient services and should provide care to a catchment area which includes about 200,000 people. Each center is staffed by physicians, nurses, and paramedical personnel.

At the Union Family Welfare Clinics, curative health care is reported to be delivered by Medical Assistants and Female Welfare Visitors. However, these workers serve only those who "live close to the facility, are wealthy enough to receive transport from more remote villages, and/or who are highly motivated to pay the price in time and money required to get to the center."[1] Village isolation, religious and cultural restrictions and the high cost of allopathic medicine render simple, curative care unavailable to the rural poor, women, and children -- those in most need of curative services.

The Government of Bangladesh has recognized these gaps in health care, and has taken steps to staff each village with one technician-level practitioner. By training at least one person per village, basic curative services and some preventive advice can be delivered to rural people. The Palli Chikitsak Program or village doctor program, was created to fulfill the existing gap in services.

The PC Program[2] is a one-year, full-time, comprehensive, curative health training program at the technical level. Theoretical and clinical components

---

1. Project Identification Document for Palli Chikitsak, USAID 388-0055, p. 5.

2. A description of the program is also repeated in the study which appears in Annex G.

are taught to secondary school graduates by Thana Medical Officers who use curriculum materials created by physicians specifically for the program.

The curriculum components include: general sciences, anatomy and physiology, pharmacology, physical assessment, first aid, etiology and treatment of common diseases, food and nutrition, population control, vegetable growing, and content related to rural development and leadership.

Students are recruited from the village to which they will return to practice. A commitment to complete the program and practice for five years is required in the form of a 5,000 Taka bond. Seats for women and indigenous practitioners (20% for each group) are reserved in an effort to upgrade and enhance the participation of these groups.

Students study, practice and reside at the Thana Health Center to which patients are referred daily. A government stipend of 100 Taka per month continues throughout the student experience and for one calendar year after graduation. Books and lodging are also provided during the study year.

Successful completion of the program requires passing grades on two examinations at the end of each six-month semester. Graduates receive a certificate and are eligible to practice upon receipt of final grades. Subsequent supervision of the PC is expected to be carried out by several levels of workers, including the THAs, Medical Assistants, Assistant Health Inspectors, Lady Family Welfare Visitors, and Thana Health and Sanitary Inspectors. Further, measures to assure quality control include attendance at a monthly meeting at the Thana Health Center and the maintenance of a Blue Book where THA comments would be recorded. License renewal would occur after completion of a refresher course every two years.

Specifically, upon completion of the program, the graduate would be expected to:

a. Provide treatment for the common diseases to the rural population.

b. Advise the rural people on general hygiene.

c. Provide both children and adults with immunization services.

d. Provide general advice on nutrition.

e. Advise on personal health (effects of smoking, irregularity, bad effects of long nails and hair, benefits of cleanliness, etc.).

f. Provide extensive advice on population control and regularly supply family planning materials.

g. Do small surgery of boils, etc., and provide primary treatment of broken limbs and fractures.

h. Assist in enhancing the knowledge of hygiene of the school children.

i. Refer complication patients and ensure follow-up.

j. Participate in integrated rural development.[1]

The first batch of 50 students was admitted to 50 Thana Health Centers in all districts. These groups completed a year of training and wrote their final examinations in December 1979. It was anticipated that each would begin private practice about March 1980, upon receipt of their licenses. Thus, by August 1980, approximately 2,500 graduate PCs would be delivering curative health services in 2,500 Bangladesh villages. The goal of the project is to train enough PCs in order to provide one practitioner for each of the country's 65,000 villages, and to complete the process by 1985.[2]

2. Rationale

The PC Program design is seen by the Government as an efficient way of using scarce funds and resources. By employing existing Thana Health

1. Palli Chikitsak Training Curriculum, Government of Bangladesh, p. 5.

2. See Annex E for a discussion of proposed number of trainees and plan for implementation of the project.

Administrators as the trainers of the PCs and by using existing facilities, minimal changes are required to implement the program. Training of PCs at the thana level is seen as being more cost-effective than creating a series of separate centers and developing new organizational structures.

The development of a cadre of curative village doctors is considered to be a self-supporting approach to health care at the village level. It is recognized that patients are more easily inclined to pay for curative services because the outcomes are more easily observed than the results of preventive health care. Thus, to meet health needs and to encourage the development of non-government-dependent practitioners, the program made available services which are: a) at a curative level, and b) which will ensure perpetuation of the private fee-for-service reimbursement system. Further, because no free health care exists in Bangladesh, the PC Program was designed as an affordable, safe and effective approach to providing such services.

B. Detailed Description

The overall purpose of the MOH Palli Chikitsak Project is to provide inexpensive, readily available, 24 hour, basic, curative, allopathic health services to the rural poor living in the 65,000 villages of Bangladesh. This USAID project to the MOH PC Project will provide Thana Medical Officer (TMO) training, health education materials, evaluation, and local cost support.

The long-term strategy to achieve this purpose is the intensive training of 325 thana level Medical Officers who will, in turn, train PC students who will ultimately return to their villages to render curative services. The project proposes to improve rural health through an efficient, well-focused, systematically-developed and effective technical training program. Support

will be coordinated with the Ministry of Health, through the Director of the Palli Chikitsak Program.

Thana Medical Officers have been recommended to be the trainers for the PC Program rather than the Thana Health Administrators who are currently involved. This suggestion is based on the fact that the Thana Health Administrator carries enormous responsibilities for several programs simultaneously and has considerable demands made on his time. Medical Officers tend to be more flexible with their time and less involved with a variety of immutable commitments.

It is further suggested that the Medical Officers selected be technically responsible for the coordination of PC activities at the thana level under the supervision of the THA. Thus, this project will concentrate on this pivotal element of the program -- the Medical Officers' preparation for their role as teachers. The program is seen as contributing to the fourth major intervention necessary to deal with the health problems of rural Bangladesh, delivery of simple curative care.[1]

To implement this training program effectively and to assure the public a safe practitioner, concerted efforts and resources will be invested in: 1) providing intense training for the teachers of the PC students by recreating learning situations typical of those to which the teacher and PC students will be exposed at the thana level; 2) creating simplified, streamlined manuals and materials to reinforce theoretical and clinical learning experiences; 3) creating a small but effective cadre of nationals with skills in health care management, educational technology and evaluation and teaching methods -- this will be accomplished by assigning expatriates to each of their respective counterparts; and 4) encouraging and enhancing post-training practice and

1. Project Identification Document for Palli Chikitsak 388-0055, p. 2.

counterparts; and 4) encouraging and enhancing post-training practice and quality of care delivery by extending the scope of existing personnel currently serving in the rural areas of the country to include monitoring of the PC graduates. This project considers the availability of simple curative care to each village an attainable goal by 1985.

1. Project Support

Project support through the Ministry of Health will focus on the following four key areas:

a. Medical Officer teacher training will be supported by:

   i. Provision of technical assistance (84 person months of long-term and 46 person months of short-term assistance;[1]

   ii. Support for establishment of a National Training Center to orient Medical Officers and create educational materials for training and distribution. This action will require a one year delay in the expansion of the program so that the orientation program will reach an adequate number of TMOs.

b. Development of educational technology and teacher training materials along with equipment and local cost support and 46 person months of short-term assistance; supplementary teacher training materials and effective, simple, culture-specific audio-visual materials will be produced by this team.

c. Curative health delivery services will be continued and expanded by:

   i. Continued commodity support of medical supply kits to PC graduates through the addition of sphygomanometers;

   ii. Continued commodity support for duplication and distribution of Government of Bangladesh medical manuals, already in existence.

d. Monitoring of PC graduates will be expanded by orientation and training of District Health Training Officers to supervise and monitor PC graduates through the establishment of a reporting mechanism to assure quality control of services delivered. At the district level, this mechanism will be under the ultimate supervision of the Civil Surgeon.

---

1. See page 158 for details of personnel requirements, person months required for LTCs and STCs.

2. Project Outputs

a. Comprehensive program for effective Medical Officer teacher training:

   i. Effective training of 325 Medical Officers;

   ii. Timely, adequate sequencing of sessions to allow for full impact at thana level;

   iii. Completion of well-equipped national teacher training center;

   iv. Effective program evaluation components including mid-term and end of project evaluations.

b. Appropriate educational technology and PC supplementary materials for effective learning and teaching:

   i. Production of a streamlined, attractive, pertinent, supplementary teaching manual to complement existing Government of Bangladesh manuals;

   ii. Production of simple, relevant, educational technology to assist in learning of clinical skills and as reinforcement of theoretical content;

   iii. Comprehensive evaluation of technology developed.

c. Effective planning and management for equipment delivery:

   i. Receipt of 44,000 BDG manuals by all PC graduates;

   ii. Modified medical kit received by remaining 44,000 PC students.

d. Monitoring system functioning effectively;

   i. Appropriately prepared District Health Training Officers available from each district;

   ii. Unified methods for observation, recording and review of findings effectively carried out at the district level;

   iii. Development of effective feedback strategies to provide full benefit from formative evaluation inputs to the teacher training program;

   iv. Comprehensive evaluation of workshop and post-workshop activities of District Health Training Officers.

The service and product outputs will be attained and influenced directly by the inputs of this project, particularly by the upgrading of Medical Officer

training which is clearly required if effective learning of curative skills is to be realized.

3. Project Inputs

a. Technical assistance.[1]

b. Commodities:

i. Medical kits (modified)

ii. Educational materials

iii. Manuals (BDG)

iv. Supplementary manuals

v. Laboratory equipment.

c. Support to existing PC Program:

i. Training to District Health Training Officers;

ii. Assessment of monitoring activities of District Health Training Officers;

iii. Field evaluation of PC implementation.

The need for support of the existing program to deliver curative services in rural Bangladesh is evident and is discussed in detail in the Economic Analysis of this paper and in the Findings section of the full study report in Annex C.

The intent of providing support to the existing program is not to substitute funds which the Government of Bangladesh must provide and is providing to maintain the program. Rather, it is intended to produce, in an accelerated form, a fully informed and prepared cadre of Medical Officer teachers who can enhance program implementation and development.

---

1. See page .

It should be noted that in order to maximize the benefit of the support to the program, a one year delay in the expansion of THA training centers is required.[1] This postponement will mean that a number of PCs exposed to trained TMOs will be increased by 6,128.

1. See Economic Analysis for implications of delay/no-delay in program options.

IV. PROJECT ANALYSIS

IV. PROJECT ANALYSIS

A. Technical Analysis

The objective of this project is to improve the health of rural people by assisting in the effective training of a cadre of village practitioners who will deliver basic curative health services. No attempts will be made to introduce highly sophisticated technology during the period.

1. Educational Technology

The educational technology which will be used by the project is relatively simple and has been proven effective in health education projects in other developing countries.

Simple slides will be taken of local patients who present clinical symptoms of common illnesses and disorders which are visible, such as scoliosis, malnutrition, signs of dehydration, worms, skin diseases, etc. The value and importance of using culture-specific materials cannot be overemphasized when one considers the resulting high levels of distractibility created when other cultural factors are part of the learner's visual field.

Simple-to-operate, battery-run slide projectors will be used to show slides to supplement field work and textbook assignments.

To assist Medical Officers in learining the methodology of teaching physical assessment, interviewing and observation, a portapak cassette videotape recorder will be used for easy recording and playback. The equipment is easily transported, simple to operate, and produces low-cost tapes which can be erased. Video is preferred to movies because the costs of movie films are often prohibitive and usually unavailable on the needed topics. This technology is used currently by RDRS, Lalmonirhat (Rangpur) in its training of village health workers.

It is the plan of this project to produce simple, well-made teaching materials which can supplement textbook learning. In the research conducted on the PC training it was found that patients were often unavailable for student learning experiences, and, if they were on site, they presented disease entities which the students were not currently studying. The logistics of exposing 50 students to specific patients with specific diseases on a daily basis is a challenge which can be met at least in part, through the above alternative approaches. Without them, little application of theoretical learning to a clinical situation can occur.

This project paper proposes the creation of a national teacher training center where TMO's will be introduced to the PC Program. If the assumption is made that the Medical Officers will be well-trained to teach the PC curriculum, the questions then arise: "What is the technical feasibility of the present curriculum? What changes could be made to reduce the errors made by PCs, and what changes are necessary to increase the retention of important knowledge, understandings and skills by the graduating PCs? What elements should be amplified, reduced or eliminated, which are central and which are peripheral to the program?" Some aspects of these issues are presented elsewhere in this project paper along with recommendations.[1] But, they are summarized below in order to more fully address the technical feasibility question concerning selected curricular elements.

a. The curriculm should be viewed, clearly, at a technical rather than at a professional level. For example, the hours devoted to theoretical content should be tailored specifically in anatomy and physiology of the skin to

---

1. See Annex G, Summary, Conclusions and Recommendations.

the diseases of the skin found in Bangladesh, the effects of pharmacological solutions on the skin, and the effects of nutrition on the development of skin disorders. Detailed content about disease processes and theoretical teaching of pathology are not necessary at this level of practice;

b. The study of drugs should be related directly to the disease processes studied, and should also include the traditional approaches to pharmacy use in the country. The importance of calculating the proper dosage, especially for children, must be reinforced throughout the curriculum. At this level, repetitive attempts must be made to transfer a respect for drugs; their toxic effects, side effects, potential for stimulating allergic reactions, and contra-indications.

c. The importance and timely administration of tests to serve as a means for discriminating content learned from content not learned must be reinforced along with the understanding of the remedial value of tests. Quizzes or tests should be used readily and frequently in order to identify difficulties in comprehension, understanding and/or transfer of learning.

d. As a technical level program the emphasis is on the direct application of principles. Field work is the heart of this type of curriculum and should be carefully monitored and supervised. For each theory lesson a clinical application component should be identified as well as the necessary psychomotor skills essential to that experience.

e. Each student should keep an accurate student record of clinical symptoms seen and treatment analysis completed in the field or reviewed through slides. The eligibility to sit for examinations should be based on the successful completion of a predetermined number of clinical experiences.

f. The curriculum should be designed to provide for: modules of packages of content which are comprehensive, stress principles, include examples, and use oral-visual and auditory exercises to reinforce principles and identification of major symptom and treatment analysis.

2. Conclusion

The technical aspects of this project are feasible. The technology and curriculum suggested is part of the standard equipment and programs used in many developing countries. With care and proper maintenance, the suggested equipment can produce effective and low-cost teaching aids that will complement the curricular model suggested above.

B. Summary of Social Soundness Analysis

In Bangladesh, most health problems are related to poverty, illiteracy, lack of adequate sanitation and clean water, and malnutrition. Thirty percent of children below the age of three suffer from moderate to severe malnutrition and one-third of the households consume less than 80% of their daily requirements. Diarrheal diseases, bronchiopneumonial infections and tetanus are the three leading causes of under-five mortality. With a density of 587 people per square kilometer, an average family size of six members, and 48% of the population under 15 years of age, an unequivocal need exists for health services, particularly to mothers (in child-bearing ages) and children.

In addition to its efforts in the field of preventive care, the government has made a commitment to bring modern curative facilities to the rural people who represent 90% of the population of the country. These efforts have been made through the use of Thana Health Centers, a Medical Assistant program and a network of Family Welfare Workers.

However, these efforts are likely to remain inadequate to the needs for a long time. The main obstacles are: the large number of rural consumers (77 million in 1980); the difficulty of communication in rural areas particularly during the monsoon and the small number of trained health professionals. Less apparent but as important are: the ambivalence of MBBS physicians and nurses toward rural postings, the low utilization of government health facilities by village people and the inadequate coverage of the needs of women and children under five.

Another set of obstacles to the utilization of the present government health curative system lies with its "social inaccessibility."

In Bangladesh, village isolation, religious interpretation of events, the purdah system and the weight of tradition are obstacles to the modification of health beliefs and practices.

1. Availability and Use of Allopathic Practitioners and Traditional Healers

The low utilization of government curative facilities does not imply, however, that rural Bangladeshis do not have access to medical care. Two independent studies, one by Claquin[1] and one by Chen[2] have shown that private health care providers (PHCPs) are plentiful in rural areas. Their density varies from one to five per 1,000 population. These practitioners can be classified as: qualified allopathic, unqualified allopathic, Ayurvedic, Unani, or spiritual healers or "other." Between 15 and 39% of them use allopathic medicine for treatment. These practitioners see an average of 52 to 100 patients per week and charge for services rendered. Their incomes vary from 100 to 2,000 Taka per month according to their classification. Their therapeutic efficiency is questionable, as the great majority of them have received no formal training. However, the possible iatrogenic harmfulness of their practice has never been assessed.

The Palli Chikitsak concept and program appears to be an adequate answer to the problems of providing rural health care for the following reasons:

a. The Palli Chikitsak will provide readily available, 24 hour, static, curative care. The candidate is recruited from the

---

1. Pierre Claquin, "Private Health Care Providers in Rural Bangladesh," Social Sciences and Medicine (in press).

2. Lincoln Chen, "Are There Barefoot Doctors in Bangladesh?" Social Sciences and Medicine (in preparation).

union in which his village is located, and to which he will return upon completion of his training. The ultimate goal is to produce 65,000 PCs for the entire country to provide adequate health coverage for the rural population.

b. Twenty percent of the PCs will be women and the Bangladesh Government intends to increase this proportion each year. The availability of female PCs should increase the care available to rural women in a culturally acceptable way, that is, if the number of female PCs can be increased and if these females can be motivated to increase the absolute number of patients seen.

c. The PCs are taught allopathic medicine. As mentioned earlier, there is no apparent ideological conflict between traditional and modern medicine in rural Bangladesh. Rural Bangladeshis do prefer allopathic medicine, when they can afford it.

d. When the cost of the fee for PC services is combined with the cost of medicines, the total treatment cost may be too prohibitive and thus the use of PC services may be reduced. However, a survey of 98 PCs already praticing show that in the cases of two index diseases (diarrhea and pneumonia) their fees are comparable to those charged by unqualified allopathic practitioners in rural Bangladesh. Thus, the impediment to care is not the charge for services but the differential cost of medicines required regardless of which type of practitioner does the prescribing.

e. According to Bangladesh Government instructions, 20% of the trainees should be private health care practitioners. This provision is one of the most interesting aspects of the program. It prepares untrained quacks who are already practicing to deliver care in a more knowledgeable and less harmful fashion.

2. Social Impact and Beneficiaries

It appears that the PC Program will provide a practitioner skilled in basic curative care to serve each village in Bangladesh. His/her ability to treat, deal with emergencies, provide first aid, and make decisions concerning the need for referral should be beneficial to all, particularly to the rural middle class.

Results of the PC study[1] as well as WHO's SPX studies revealed that women clients are served after adult men and children. Yet the maternal mortality rate towers at 20 per 1,000 live births and the crude birth rate looms at 46 per 1,000. Religious and cultural prohibitions, including purdah, reinforce the perpetuation of minimal exposure of females to male practitioners, a situation incompatible with target goals focused on reduced infant and maternal mortality. Thus, as a result of the program, women and neonatal infants are expected to benefit by the projected participation of female PC practitioners who present no religious or cultural restrictions to health care delivery for females.

3. Conclusions

A social analysis of the project suggests that it is socially feasible. It will be accessible to the majority of rural Bangladeshis and greatly contribute to the needs of rural women. Its design makes it socially acceptable for the non-users of government curative services.

C. Administrative and Management Feasibility

This project will be implemented through the Ministry of Health of the Government of Bangladesh, specifically through the Director of the Palli Chikitsak Program. The project, designed for two and one-half years, should benefit from the stability of consistent leadership for the post of Director has recently undergone change and a new Director has assumed the position.

The first class in the Palli Chikitsak Program entered in January 1979, That class of 2,500 students completed the program in December 1979, and a second batch of 7,500 is currently being trained. All thanas

---

1. See Annex G.

visited by the consultants were in operation, students were on site and stipends for teachers, students and graduate PCs had been processed. Thus, an effective communication network has been established and appears to be running well.

Clearly, a commitment to train the Palli Chikitsaks has been made by the government and is being implemented. The Government of Bangladesh plans to continue to support the program through contribution of the stipends awarded. Money for the program has been committed in the second BDG Five Year Plan. Project activities have been endorsed by the Ministry which views the purposes and activities as consistent with government role and policies. The PC Program appears to be viewed as an established one which will go forward and has the support of the Ministry.

Some audio-visual materials have been distributed by UNICEP in the form of models which have been used by some teachers. No other donor organizations are or have been committed to the program.

Throughout the districts in the country, District Health Training Officers are available. These officers should be assigned the additional responsibility of monitoring the practices of the graduate Palli Chikitsaks. To ensure appropriate use of their services and to ensure that correct monitoring activites occur, the officers will receive a two-day orientation to the PC Program at the National Training Center and will return for two follow-up meetings. The program philosophy, purposes, and expectations of the graduates will be reviewed along with a careful delineation of what is expected from the officers.

The use of these officers will ensure the public of the availability of the PC services and will represent a meaningful approach in preventing malpractice and drug misuses.

The use of these officers will in no way be adding additional personnel to the administrative structure of the government nor will it place additional financial demands on the program.

It is expected that close continuous interaction between the Ministry of Health and project personnel will occur throughout the life of the project. This coordination will, in part, be realized as the Team Leader of the proposed project serves as the counterpart to the National Director of the PC Program. Further it is intended that both mid-term and final evaluation components will be coordinated and supported by the government to assure an evaluation which will be useful and supportive of change.

D. Financial Analysis

The Palli Chikitsak Project is an on-going program of the Government of Bangladesh. It is concluded in the economic analysis that, if USAID is to provide effective technical assistance, the planned expansion of the on-going program should be delayed by at least one year, in FY80. Accordingly, the financial analysis is carried out on the project as it will be with a one-year delay in expansion. The present BDG/MOH budget for the PC Program, which is given in Taka in Table D.12 and reorganized and given in Dollars in Table D.13, has been analyzed and revised to correspond to the project with a one-year delay. Two versions of the revised budget are given, one (Table D.14) without an allowance for student dropout and attrition of practicing PCs (see the Economic Analysis below for a discussion of dropout and attrition), and one (Table D.15) with such an adjustment. A comparison of the two versions of the BDG/-MOH PC budget is made in Table IV D.3. Because it is impossible to predict the actual extent of attrition, a decision to replace attrition through a project extension will have to be made at a later date after

adequate surveillance has taken place. The second budget, allowing for an attrition rate is given only as supplementary information. The financial analysis is carried out with reference to the DBG budget without allowance for attrition.

Based on the budget with a one-year delay and not making an allowance for attrition, AID will provide $4,795,300 and the BDG costs will be $30,850,400, making a total projected budget of $35,645,700. Without allowing for contingencies or inflation the USAID costs will be $3,319,100, the BDG costs will be $21,273,200 and the total project costs will be $24,592,300.

Tables D.1 through D.11 in the annex give detailed financial information in estimated FY80 prices for projected foreign exchange (FX) and local costs (LC) breakdowns for each project input. The major AID project inputs are for technical assistance through the use of long-term project advisors and for supplementary PC diagnostic equipment and manuals.

1. Foreign Advisors and Consultants

Three long-term advisors, for a total of 84 person months and costing $975,100 (FX $814,200 and LC $160,900), are required to implement the project. These long-term specialists will consist of a Team Leader (physician) and two experts in health education. All three of these professionals should arrive in September 1981 and remain until the termination of USAID's participation in December 1983. Also needed as a short-term consultant, for three person months, is a specialist to advise on the writing and production of the supplementary PC manuals. The estimated cost for the short-term consultant is $35,000.

2. National Personnel

National personnel for the operations of the training center and office will consist of a national counterpart to the health educators (28 person months), a national counterpart to the foreigh short-term consultants for the manuals (3 person months), a secretary, a clerk and a driver (total of 84 person months) and an experienced computer programmer (24 person months). The total costs of national personnel will be $20,525.

3. Training Center and Office, Equipment and Supplies

The costs of the training center and technical assistance office (to be approximately 1,200 square feet for the office and 3,000 square feet for two classrooms and a laboratory) is estimated at $46,200 for the lease of space and $60,600 for supplies and equipment. A breakdown of the supplies and equipment is $22,250 for the office operations, $24,310 to outfit the classrooms and laboratory and $14,050 for the purchase of supplementary audio-visual equipment (slide duplicator, 35 mm camera and lenses, polaroid camera and cassette videotape portapak). The office will be in operation from September 1981 through December 1983. The classrooms and laboratory will be used from January 1982 through June 1983.

4. Per Diem, Travel and Housing for TMO Trainees and DHTOs

TMO trainees will spend one month each at a centrally-located training center. Three hundred twenty-five TMOs will be trained in eight sessions from March 1982 through June 1982. In addition, there will be several sessions to brief the 20 DHTOs who will be supervising the PCs at the district level. Housing for the TMOs and the DHTOs will be provided

through the lease and operation of three houses, with staff, from March 1982 through June 1983. The cost of the housing will be $49,270. Travel and per diem (without lodging) for the TMOs and DHTOs will be $62,100. Total cost of travel, housing and per diem is $111,370. The average cost per TMO or DHTO for travel plus one month of lodging and per diem is estimated at $323.

5. Equipment for THCs

Audio-visual materials, manuals for trainers and other supplementary teaching materials will be provided to THCs with technical assisted (trained) TMOs. The total costs for these materials will be $213,700.

6. Manuals, Record Books and Equipment for PC Trainees

Supplementary materials will be given to PC students who are trained in technically assisted THCs (THCs with a trained TMO). It is projected that there will have been a total of 44,245 assisted PC trainees at the planned conclusion of the program (see Economic Analysis). The supplementary materials are blood pressure instruments (25.00 each), MOH manuals ($3.50), technical assistance supplementary manuals ($7.50) and record books (in which to record patient visits, $1.00) for a total of $37.00 per technically assisted PC or a total of $1,637,100 for the project.

7. Evaluation

Evaluation of the program will be carried out twice during the project, in the summer of 1982 and summer of 1983. The evaluation will include a small sample survey of PC graduates and a computer analysis of the of the survey results. The survey team will consist of a health educator, a health administrator and a quantitative economist or sociologist. Consultant costs, excluding contractor's overhead will

be $88,830. Other costs (including contractor's overhead) will be $91,398 for a total of $180,228 covering both evaluations.

8. Other Costs

The project will have one four-wheel drive vehicle to move supplies and people for field visits and for local travel in Dacca. Two small motorcycles (125 cc trailbikes) will allow access to field sites and provide inexpensive transportation for project staff in Dacca. The cost of vehicles with maintenance and fuel over the life of the project is $39,150. A small desk top computer with hard disc storage capacity will be used to monitor the project's outputs to individual thanas, keep project accounts, keep records of PC and TMO trainees and to do limited data analysis. The US cost of this equipment is approximately $9,500. The equipment would be brought to Bangladesh as accompanied excess baggage by the short-term consultant for manuals or by the long-term advisors.

9. BDG/MOH Finaincial Contribution to Technical Assistance

Because the $21,300,000 expenditure by the BDG for the operation of the THC training units and the training of the PCs is already substantial and comprises the majority of the total project costs, the BDG financial contribution to the technical assistance is planned to be minimal and consists only of the additional cost of delaying the program by one year. The costs of delaying the expansion of the program by one year is found as the difference between the present planned expenditure (Table IV D.3, Column 1) and the projected expenditure with a one-year delay (Table IV D.3, Column 2). The difference is $51,400.

Table IV D.1: SUMMARY COST ESTIMATE AND FINANCIAL PLAN FOR PALLI CHIKITSAK PROJECT FOR FY78-FY86 ($000)

Fiscal Year	Source of Funds USAID	BDG[a]	Total
78		1,060.7	1,060.7
79		2,298.0	2,298.0
80		2,283.3	2,283.3
81	504.1	3,042.4	3,546.5
82	873.9	4,109.2	4,983.1
83	1,941.1	4,519.5	6,460.6
84		3,260.1	3,260.1
85		700.0	700.0
Sub-total	3,319.1	21,273.2	24,592.3
Inflation (10%/year on FX; 15%/ year on LC)	1,040.4	7,285.5	8,325.9
Sub-total	4,359.5	28,558.7	32,918.2
Contingency (10%)	435.8	2,291.7	2,727.5
Total	4,795.3	30,850.4	35,645.7

a. Cost for the program delayed one year, in 1981, excluding attrition. Refer to notes in Table IV D.3 and Tables D.13 and D.14.

TABLE IV D.2: USAID PROJECTED EXPENDITURES: TOTAL OF FOREIGN AND LOCAL COSTS BY FISCAL YEAR (U.S. DOLLARS)

Use of Funds	Reference Table*	FY 81	FY 82	FY 83	TOTAL
1. Foreign advisors and consultants	D.2	377.2	365.8	232.1	975.1
long- and short-term consultants	D.3	35.3			35.3
2. National Personnel	D.4	7.3	8.8	4.4	20.5
3. Training Center and Office Equipment	D.5	46.2	10.0	4.4	60.6
and Supplies Space	D.6	7.4	26.1	12.6	46.1
4. Per Diem, Travel and Housing for TMO TRainees and DHTOs	D.7	-	54.0	57.4	111.4
5. Equipment for TMO	D.8	-	82.2	131.5	213.7
6. Manuals, Record Books, and Euqipment for PC Trainees	D.8	-	231.2	1,405.8	1,637.1
7. Evaluation					
Short-term consultants	D.9	-	44.4	44.4	88.8
Other Evaluation Costs	D.10	-	45.7	45.7	91.4
8. Other Costs (Vehicles, Microcomputer)	D.11	30.7	5.6	2.8	39.1
Subtotal		504.1	873.9	1,941.1	3,319.1
Inflation (10% year on FX; 15% year in LC)		55.8	217.8	766.8	1,040.4
Subtotal		559.9	1,091.7	2,707.9	4,359.5
Contingency 10%		56.0	109.1	270.7	435.8
TOTAL		615.9	1,200.8	2,978.6	4,795.3

* The tables referenced correspond to those included in the Annexes section.

Table IV D.3: PROJECTED BANGLADESH GOVERNMENT COSTS FOR THE PALLI CHIKITSAK PROJECT ($000)

Fiscal	Current Budgeted Costs[a] (1)	Projected Cost for the Delayed Program not Including Attrition[b] (2)	Projected Cost for the Delayed Program Including Attrition[c] (3)
78	1,060.7	1,060.7	1,060.7
79	2,298.0	2,298.0	2,298.0
80	3,042.4	2,283.3	2,283.3
81	4,109.2	3,042.4	3,042.4
82	4,519.5	4,109.2	4,109.2
83	4,892.4	4,519.5	4,519.5
84	1,300.0	3,260.1	4,892.4
85		700.0	2,804.9
86			536.4
Total	21,221.8	21,273.2	25,546.8

a. From the current budget reported in the Bangladesh, Ministry of Health, Palli Chikitsak Financial Plan. This budget, in Taka, is reproduced in Table D.12.

b. Costs with a dely of one year, in 1981, in the expansion of the program. Details of the calculations are given in Tables D.13 and D.14.

c. Costs are for reaching a target of 65,000 practicing PCs by 1985. Costs are calculated under the assumption of a .08 dropout rate during training and a .04 attrition from practicing PCs. Details of the calculations are given in Table D.15.

10. Financial Commitment of the BDG to the PC Project

The PC Project was initiated and is currently being carried out by the Government of Bangladesh. Budget allocations for the PC Program totaling $19,200,000 were made in the Second Five Year Plan[1] to cover the period 1980-1985. To date, targeted expenditures on the program have been made and it is stated by the MOH that they will continue as scheduled. The expenditures on the PC Program are projected, according to the Five Year Plan, to be .07 of the total development budget for health. The clear commitment by the MOH to the program and the modest percentage of the overall health development budget indicate that BDG support for the project will continue.

E. Economic Analysis[2]

The economic analysis below provides calculations of the cost of USAID assistance per Palli Chikitsak trainee affected by technical assistance. The analysis also considers several questions that arise from a consideration of the village-level, micro-economic aspects of of the project and the adequacy of expected Palli Chikitsak income.

1. The Cost Per PC Assisted

To estimate the cost of USAID assistance per trainee affected, three different projections of the numbers of PCs trained and practicing are made. The three projections describe the course of the project assuming, alternatively: a) the expansion of the THC training centers

---

1. Government of Bangladesh, Planning Commission, The Second Five Year Plan 1980-85, May 1980. Table 17.3, p. XVII-13.

2. This section contains a summary of the economic analysis presented in Annex E.

continues as presently planned, b) a one-year delay (FY80) of the planned program expansion, and c) a two-year delay (in FY80 and FY81) of planned program expansion. In all three projections an adjustment has been made for PCs who enter the program but drop out during training and for attrition from practicing PCs. Based on experience with the first year of the program, the dropout rate is assumed to be .08 and the attrition rate is .04.

For each projection the expansion of the number of THC training units and the total number of PC graduates can be compared chronologically with the timing of the implementation of USAID assisted teacher training. The three projections depend critically on the assumption that 125 Medical Officers will be trained in 1982 and 200 in 1983. If, in fact, the 125 Medical Officers to be trained in 1982 are not trained until 1983 the number of PC trainees benefitting from technical assistance would be reduced by 5,750 in each of the three projections.

Based on the projection without a delay in the expansion of the program, the total number of PCs benefitting from technical assistance will be 20,470 without further training to replace attrition; that is, if the program ceases after 65,000 admissions. As a fraction of the total number of practicing PCs, the number with technical assistance would be .37 at the scheduled completion on the program.

With a one-year delay in program expansion, the number of PCs with technical assistance increases to 26,598 without further training to replace attrition, and the assisted fraction of all practicing PCs increases to .49. With a two-year delay in program expansion, the number

of PCs assisted increases to 31,143 and the assisted fraction increases still further to .59.

The effects of the program can also be measured in terms of the USAID cost per PC trainee assisted. If the program stops after 65,000 admissions and without a delay in program expansion, the USAID cost per trainee assisted would be $148. With a one-year delay in expansion the cost per trainee assisted would fall to $111 and with a two-year delay the cost per trainee assisted would fall to $92. The implications of the projections are that a delay in the program is necessary to increase the number of practicing PCs affected and reduce the cost of the project per assisted PC. Without a delay of at least one year in the expansion of the program the number of trainees affected would be small enough that the expenditure for technical assistance might have to be reconsidered.

2. The Distributional Effects of the Program

With regard to the distributional impact of the program it is found that, although a substantial potential demand for PC allopathic curative care exists in both lower and middle class groups, the very poorest group, without a stable cash income, will be served unevenly.

As assumption underlying the PC Program was that PC fees will be substantially less than MBBS fees and competitve with those of quacks and other non-allopathic, village practitioners.[1] Tabulation of the results of a sample survey of PC trainees sustains this assumption and

1. Project Identification Document, USAID/Dacca, Palli Chikitsak Project 383-0055, 1980.

PC fees, which average 5.9 Taka over several diseases and over home and office visits, are within the reach of all income classes.

However, for many illnesses the fees are a less important expense than the medicine. In the PC survey it was found that appropriate drugs for the common diseases to be treated as part of the PC Program are available in most rural villages, but the cost of the drugs places the full service out of the reach of the poorest income class. The average cost for fees plus drugs per patient visit is estimated at 30 Taka. This can be compared with an average annual household health expenditure per capita of 19 Taka for the poorest income group comprising 40% of the population and an average annual per capita health expenditure of 37 Taka for the next lowest 40%. It is concluded that the cost of drugs is high enough that for most families in the poorest income class the total cost of curative care will remain out of reach. For the lower middle class, the total cost of curative care is a feasible but difficult expenditure. Thus, although the landless poor will, for the most part, continue to go unserved and the highest income groups will continue to use MBBS doctors, a previously unreached middle class will have greater availability of services.

An important objective of the PC Program is to increase the access of women and children to curative care. Data from the survey of trainees was analyzed[1] and it was found that the number of male visits to the PC is roughly in proportion to expected need, the number of female visits

---

1. See Economic Analysis, Annex E.

is significantly less than in proportion to expected need and the number of child visits is significantly more. Further examination of the data from the survey shows that while 22 percent of male PC patients are women, 37 percent of female PC patients are women. An implication of this finding is that, if the services to females are to be increased, a larger proportion of women should be admitted to the PC Program. It should be noted, though, that the proportionally greater number of female patients seen by women PCs does not offset the fact that if more women are to be treated, measures must be taken to increase the scale of female practices as well as to increase the number of female trainees.

A secondary objective of the PC Program is to bring additional employment to rural areas. Questions regarding the distributional effect of this employment arise because of the program requirement of a 5,000 Taka bond before admission and because of the educational requirements of the curriculum. In the survey it was found that in practice the bond was not secured or not mentioned in recruitment and probably does not constitute an effective class barrier, although its uneven implementation across thanas may have had discriminatory effects in a few cases. Education may be a more important barrier; 46% of the respondents hold an educational level of matriculate or better. Given that 80% of rural residents are functionally illiterate and that an educational level of matriculate or above is usually only attained by the middle or upper classes the program cannot be expected to have positive effects in redistributing employment opportunities.

3. Palli Chikitsak Income

The Palli Chikitsaks are intended to become self-supporting health practitioners who charge for services. By keeping the program private the government hopes to extend basic curative services to the villages without incurring large recurrent cost budgetary expenditures or setting up the bureaucratic structure that would be necessary for the technical supervision of 65,000 widely dispersed government employees. For the program to be feasible, the PCs must be able to earn a sufficient living through the sale of their medical services to prevent their dropping out in search of alternative employment.

Based on the estimated average charge per visit and the number of patients seen per week, an estimate of average PC income is 1,075 Taka per month. Broken down by type of PC the estimates are 735 Taka per month for female PCs and 1,170 Taka per month for male PCs. These figures are roughly consistent with the average response to a question asking PC trainees their desired monthly fixed income in lieu of fees. The average response was 727 Taka per month. For women the average response was 630 Taka per month and for men the average response was 753 Taka per month. Although adequacy of income is a subjective matter, and it is still too early in the program to know if the present PC income will be sufficient to retain PC participation in the program, either alternative estimate (average patients per week times average charge or desired fixed income) is well within range of the Ministry of Health minimum objective of 750 Taka per month.

V. IMPLEMENTATION AND MANAGEMENT OF THE PROJECT

V. Implementation Plan and Management of the Project

A. Implementation Plan

The implementation of the Palli Chikitsak Training Program will go into effect upon the signing of the project agreement. Advice and co-ordination of activities will be required and assistance of the Ministry of Health will be sought from those directly and indirectly involved with the PC Program.

B. Implementation Schedule

The following implementation schedule is presented and includes dates, activities, materials and personnel involved, and expected products, outcomes and/or evaluation materials produced. Following this summary is a discussion of the critical target dates which must be met if the program is to be implemented successfully. Also included on page 42 is a summary of USAID and BDG personnel required along with anticipated number of person months and dates of employment. Page 44 entitled "Suggested Monthly Topical Outline of Training Program and Thana Medical Officers" shows the content and length of time suggested to orient and train TMOs, proposing a one-month time period for this pivotal program component. Detailed requirements for supplies and equipment are included in Annex D and qualifications of staff and position descriptions for the PC team are described in Annex F.

C. Critical Target Dates

The first critical date in the implementation plan is September 1981, the date by which long-term staff are expected to be in place. This date is crucial so that the critical facilities (office, classroom, TMO accommodations) can be established, and critical equipment (slides, cameras,

laboratory equipment and video equipment) can be ordered. In fact, it is suggested, if possible, that equipment be ordered by the contractor prior to arrival of the long-term consultants. Procurement of the cameras, etc. preceeds the development of materials, an activity which must be accomplished before TMOs begin their training. Production of slides required a patient population which presents the type of diseases in the expected population and at the critical points in the disease processes.

The second critical date is June-July 1982, the date at which the pre-test and post-test training instruments are created along with the mid-term national evaluation for the Palli Chikitsak Program. This time coincides with the time immediately prior to the initation of the first monthly training session of the TMOs, a month when the long-term staff is available to assist in the planning and evaluation of the PC Program.

If the first class of TMOs is not begun by July and instead is not started until January 1983, the impact on the PC Project will be reduced by 5,700 technically assisted PCs. If the above critical target dates are not aborted, the final date is June 1983 at which time the summative or end of projedt evaluation will take place. All elements of the program will be winding down and the last component of the quasi-longitudinal study must be initated. This data is central to the assessment of the planned interventions, and has the potential for providing valuable data for future project designs and as a model for other countries interested in creating a similar type of village level practitioner. No other country appears to have initiated such a unique approach to providing health care.

Table V B.1: FALLI CHIKITSAK IMPLEMENTATION SCHEDULE

1980 Plan

Dates	Activities	Materials	Personnel	Outcomes
August 1980	Health Services International report completed		Team Leader 2 Consultants	PC Report
October 1980	Project Paper completed by USAID		USAID Staff	Project Paper

1981 Plan

January 1981	Project Paper approved by MOH/Bangladesh and USAID/Washington		USAID Staff	Approved Project Paper
February 1981	Project Agreeement negotiated and signed by MOH/USAID			
	MOH begins project personnel recruitment		MOH Staff	STCs, LTCs recruited by BDG

Dates	Activities	Materials	Personnel	Outcomes
	USAID prepared request for proposal for contracting services		USAID	Request for Proposal (RFP)
April 1981	US contractor indentified, search for proposal and preliminary organization initiated		USAID	
September 1981	Team Leader (TL), 2 Health Educators (HEs) in place; National Counterparts (NCs) to TL and HEs in place; Secretary, Clerk, Driver in place; Short-term Consultant for Manuals (STC/M) and National Counterpart/ Manuals (NC/M)[a]	Living quarters for TL, HEs Transport Office space	MOH Contractor TL HEs NCs Secretary Clerk Driver STC/M NC/M	
October 1980	Technical Team begins work in Dacca; NTC quarters established Review Project Documentation; order supplies, equipment, micro-computer, audivisual materials, kits, MOH manuals duplicated, supplementary manuals developed, local publisher contacted	Office space Desks Filing Cabinets Lamps Living quarters for staff Hand and desk calculators Paper Pencils Supplies Shelving Local texts and references Telephone Paint	TL STC/M NC/M	Office, training center location established

a. National Counterpart STC to work on manuals will also serve interpreter function.

Dates	Activities	Materials	Personnel	Outcomes
	Development of Teacher Training Course; Teacher Training materials developed		TL, NC. HEs, NCs	
	Development of two-day orientation program for health officers		TL	
November 1981	Progress Report submitted to USAID		TL, NC HEs, NCs	Progress Report
		1982 Plan		
January 1982	Programmer (P) in place	Micro-computer	P	
March 1982	Training Center equipped	40 student desks Chairs Lounging chairs Lamps Tables Dining table Chairs Vehicle Trailbikes (2)	TL, NC HEs, NCs	

Dates	Activities	Materials	Personnel	Outcomes
	MOH Manuals and kits distributed			MOH Manuals distributed to thanas Modified kits dis-tributed to PCs
	Supplementary manuals completed			Supplementary teaching materials printed
	Recruitment for 2 STC/Evaluation initiated			
March 1982	Living accommodations for students established	Classroom materials Chalk Overhead projector 35 mm camera		Fully equipped training center, Living accomodations for students
	Arrangements for accomodations, program for health officers completed	First aid equipment 10 rolls slide Battery portapak 20 tapes 4 tape recorders 30 tapes Lecturn Screen Projector	TL, NC	

Dates	Activities	Materials	Personnel	Outcomes
May 1982	Annual Report submitted to MOH		TL, NC HEs, NCs	Annual Report
	Progress Report sumbitted to USAID			Progress Report
May 29, 30, 1982	Orientation Session for District Health Officers		TL, NC HEs, NCs	
June 1982	(E) Pre-/Post-training Evaluation instruments created along with PC Evaluation materials by 2 STC/ Evaluation (STC/E)	Living accomo-dations for STCs	STC/Es 3 Interpreters Statistician Programmer Keypunch Operator	Training evaluation pre- and post-completed
	Interim evaluation of PC Program begins	Supplies Equipment Vehicles	STC/Es TL HEs 2 Interpreters	
July 1982	First TMOs enter training			
	(E) STC/Es complete interim evaluation of PC Program		STC/Es	Evaluation document of PC evaluation

Dates	Activities	Materials	Personnel	Outcomes
	Results presented to USAID, MOH		TL STCs	
August 1982	Staff vacation			
September 1982	(E) Analysis of one-month training program using pre-post-training data and interim evaluation data results as basis for curriculum change and development		TL HEs, NCs	Revised trainer curriculum
October 1982	Second TMOs enter training		TL HEs, NCs	
November 1982	(E) Analysis of 3-month training program			Evaluation document
	Preparation of Progress Report to USAID			
December 1982	Third TMOs enter training		TL HEs, NCs	

Dates	Activities	Materials	Personnel	Outcomes
	1983 Plan			
January 1983	Recruitment of 2 STCs for July 1983 begins		TL, NC	
February 1983	Fourth TMOs enter training		TL HEs, NCs	
March 1983	Fifth TMOs enter training		TL HEs, NCs	
April 1983	Sixth TMOs enter training		TL HEs, NCs	
May 1983	Seventh TMOs enter training		TL HEs, NCs	
	Annual Report to MOH		TL HEs, NCs	Annual Report
June 1983	Eighth and last TMOs begin training		TL HEs, NCs	
	(E) Evaluation of pre-post-training measures of eight sessions		TL HEs, NCs	
	2 STC/Es in place		STC/Es	

Dates	Activities	Materials	Personnel	Outcomes
	(F) Evaluation for final evaluation of PC Program by 2 STC/Es		STC/Es 2 Interpreters Statistician Programmer Keypunch Operator	
July 1983	(E) Data collection PC graduates, in-training evaluation completed by STC/Es		TL HEs STC/Es 2 Interpreters	
August 1983	Staff vacation			
September 1983 to Dcember 1983	(E) Tabulation, analysis, final evaluation document completed		STC/Es	PC Evaluation Document
	(E) Final progress evaluation reports for training sessions and PC evaluations completed, project evaluations completed, report presented to MOH and USAID		TL HEs, NCs 3 Interpreters Statistician Programmer Keypunch Operator	Final Summary Report, PC Evaluations, Training and Project Evaluation

Table V B.2: PERSONNEL WITH DATES OF EMPLOYMENT AND PERSON MONTHS REQUIRED

USAID Funds

Person Months	Personnel	Dates
28	Team Leader (1)(TL)	Sept. 1981 - Dec. 1983
28	Health Educators (2) (HE)	Sept. 1981 - Dec. 1983
28	Secretary (1)(National)	Sept. 1981 - Dec. 1983
28	Clerk (1)(National)	Sept. 1981 - Dec. 1983
30	Driver (1)(National)	Sept. 1981 - Dec. 1983
3	Short-term Consultant/Manuals (1)(STC/M)	Oct. 1981 - Dec. 1981
6	Short-term Consultant/Evaluation (3)(STC/E)	June 1981 - July 1982 June 1983 - July 1983
1	Statistician (1)(S)(National)	June 15, 1982 - July 15, 1982
12	Interpreters (3)(Inpr)(National)	June 1982 - July 1982 June 1983 - July 1983
24	Programmer (1)(P)(National)	Jan. 1982 - Dec. 1983

Government of Bangladesh Funds

28	National Counterpart to HEs (1)(HE/NC)	Sept. 1981 - Dec. 1983
30	National Counterpart to STC/M (1)(STC/M/NC)	Oct. 1981 - Dec. 1981

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	5	7
	Orientation; Pretest; Philosophy of program Discussion.	Plan of activities; Conceptual framework; Objectives.	Terminal behaviors; Quarterly behaviors; Discussion course content.	Course content 2nd, 3rd, 4th quarters; Theory and practice expectations.	Student profile.	Criteria for selection; Learning styles; Learning problems; Identification.
8	9	10	11	12	13	14
	Approaches to teaching/ learning theory lecture; Preparation of lesson plan; Student presentation.	Student presntation with video.	Discussion/ role playing Video of techniques.	Practice with video.	Use of case studies.	Clinical teaching; Learner variables; Teacher variables; Patient variables; Contextural variables.
15	16	17	18	19	20	21
	Student practice.	Use and creation of A-V materials.	Student practice and presentation.		Ethical considerations.	Situational ethics exercises.
22	23	24	25	26	27	28
	Patient management; Referral issues.	Teaching observation.	Teaching physical assessment and history taking.	Student practice.	Evaluation methods.	Summary evaluation post-test
29	30	31				
		Student practice.				

D. Evaluation Plan

Three components have been identified to evaluate the Palli Chikitsak Program. The first focuses on the curriculum and effects of the one-month TMO training program which will assess changes in behavior (learning) of the 325 Medical Officers involved in PC training.

The second component will be a two-step evaluation to complement the findings of the study just completed on the Palli Chikitsak graduates (see Annex G) practicing in their respective villages.

A third brief but comprehensive evaluation will take place to assess the effects of the orientation and training of workshop and post-workshop activities of the District Health Training Officers. These officers will be responsible for the monitoring and reporting of health practice behaviors of PC graduates.

A logical framework for evaluation of the curriculum has been developed based upon a systems approach with both formative and summative components.

Formative evaluation is particularly useful because inadequacies and strong points of the curriculum are identified during its application and in some cases adjustments can be made to remove identified weaknesses. Summative evaluation will include the final evaluation of the curriculum.

For the PC Training Program, the following areas will be assessed:

1. Thana Medical Officers in training:

    a. of cognitive processes;
    b. of attitudes;
    c. of skills.

2. Teachers

3. Content and context:

   a. learning environment;
   b. extent level of difficulty, relevance of course content.

4. District Health Training Officers.

The above components will be evaluated through the use of:

1. Pre-training measures of Medical Officers such as attitude and knowledge assessments;

2. Post-training summative measures to assess changes in cognition, attitudes and skills;

3. Teacher evaluation instruments;

4. Use of Palli Chikitsak field study evaluations as both formative and summative indicators reflecting area of strength and weakness in practicing PCs' behavior, selection criteria, knowledge learned, management of patient care and safety issues;

5. Systematic review with established criteria of District Health Officer reporting material.

Thus, a mid-term field evaluation of practicing PCs will take place in July 1982 in order to measure the relative extent of implementation of program objectives and to identify existing or potential constraints, that is, to study the patterns of PC practice and the perceptions of the villagers serviced. These results will be used primarily to modify the teacher training program and/or to reformulate possible strategies to assure realization of project goals.

A terminal evaluation is planned during the second half of the second year of the project implementation, in July 1984. This evaluation will assess the effectiveness of the project in attaining goals and it will also outline the factors to which goal achievement (or non-achievement) can be attributed. This evaluation will be critical in establishing the need for further development of any follow-up project support.

Data gathered from other evaluations directly or indirectly related to the project will be coordinated. These may include Ministry of Health and thana-level documentation and evaluation by other donors (if alternative sources of funds other than USAID are sought).

References

Bangladesh Bureau of Statistics. Economic Indicators of Bangladesh. No. 5 May 1980

_____. 1979 Statistical Yearbook.

Bangladesh Government. Palli Chikitsak Training Curriculum.

Bangladesh Government, Ministry of Health. Palli Chikitsak Financial Plan, 1979. (Mimeographed.)

Bangladesh Government, Ministry of Health, Health Information Unit. Bangladesh Health Profile, 1977.

Bangladesh Government, Planning Commission. The Second Five Year Plan 1980-1985. May 1980.

Bangladesh Rural Advancement Committee. Resource Allocation in a Bangladesh Village. January 1980. (Mimeographed.)

Chen, L. "Are There Barefood Doctors in Bangladesh?" Social Sciences and Medicine. (In preparation.)

Claquin, P. "Private Health Care Providers in Rural Bangladesh." Social Sciences and Medicine. (In press.)

Loomis, S. Syncrisis: The Dynamics of Health. USDHEW, Public Health Service, Office of International Health Division of Program Analysis. 1976.

Project Identification Document for Palli Chikitsak, USAID 388-0055.

USAID Cable Approving PID.

WHO. Country Review, Bangladesh. Regional Office for Southeast Asia. November 12, 1979.

World Bank. Bangladesh Current Economic Positions and Short-term Outlook. March 21, 1980.

_____. Staff Appraisal of a Second Population and Family Health Project. May 16, 1979.

VI. ANNEXES

Annex A

PID Facesheet

PROJECT IDENTIFICATION DOCUMENT
PALLI CHIKITSAK TRAINING PROJECT (388-0055)

I. Project Description

A. Background:

In September of 1978, the Government of Bangladesh (BDG) launched the first phase of a massive program to place a primary health practitioner in all 65,000 villages of Bangladesh. The program provides one year of intensive classroom and clinical training to educated villagers (high school diploma), who then go back to their villages certified by the government as medical practitioners. The program was designed to be affordable to the BDG and to maximize community participation and support. To achieve these ends, it incorporated a number of innovative concepts.

First and foremost, it stipulates that these "palli chikitsak" (village doctors) are to be private practitioners, not government servants. Given the Bangladesh government's very limited health resources, passing on the cost of health services to the community is the only way of making such a program affordable; but in the Bangladesh context it makes sense for other reasons. The lines of supervision from the central government to the field are not strong enough to provide good support to an extensive system of village-level workers. Government field workers can depend on their government salary, regardless of the quality of their performance. Palli Chikitsak, however, since they receive no salary, will have to depend upon the quality and quantity of services they perform for their income. They can purchase their medical supplies through the private sector and pass the cost on to their clients, rather than depend upon the government's unreliable distribution system for medical supplies.

Secondly, the criteria for selection to the training program are geared to maintain links between the program and the villages, and to utilize the existing village health resources where possible. Trainees are recruited from the villages

where they are to work. Priority is given to recruitment of indigenous practitioners such as quacks, druggists, hakims, and dias. Priority is also given to recruitment of women.

Third, training is carried out in the rural areas, near the trainees' villages, utilizing existing health facilities as training centers (Thana Health Complexes) and employing their professional staff as trainers (Thana Medical Officers). Although the trainers receive honoraria for their teaching duties, construction costs usually encountered in a new paramedic training program have been avoided, and the students have daily opportunity to assist with patient care in a functioning health center.

In theory, the project concept is brilliant as a way of providing low cost health care services to rural Bangladeshis at a cost affordable to the BDG. In implementation, however, major difficulties are being encountered. The project has now been in operation for about one year. Fifty training centers have been open in Thana Health Complexes in every district of the country, each with 50 students, and the first group of students will soon graduate and return to their villages. Plans call for the opening of an additional 150 centers during the next year, but the government has recently decided to slow down implementation until existing problems can be solved. These problems are basically as follows.

Although curriculum content was carefully considered by the Health Division, with some advisory assistance from WHO, presentation of this information is a carry-over from the old colonial system of rote learning -- dry lectures requiring the students to take copious notes. Although some textbooks have been prepared, there is little else in the way of reference texts and teaching aids.

The teachers are doctors assigned to the Thana Health Complexes. They have no previous experience in teaching and little understanding of effective teaching techniques. Their motivation and morale is low. They see themselves primarily as physicians, and have a full load of clients both at the Thana Health

Complexes and in their own after-hours private clinics. Teaching is a low priority for them, and for some it is considered an unrequested burden. They have received little supervision and encouragement from the national or district level, because staff have not been specifically assigned to the palli chikitsak program below the national level.

For these reasons, the atmosphere at the centers has not been conductive to learning. Student retention of their studies is low and dissatisfaction is high. Several student strikes have already taken place.

Finally, there have been difficulties in recruiting from the priority groups -- indigenous practitioners and women -- for the program, because the educational level set as a minimum requirement for entry, high school completion, is too high. More women could be recruited with minor reductions in the educational requirements, but the problem is greater with indigenous practitioners, many of whom are completely literate. The incentive for indigenous practitioners to participate is also lacking -- why should they give up a year from their village practice just to come back to the village and do what they are already doing now, particularly when the student stipend authorized by the program is so low.

Thus after a year of the program's life, the Health Division has assigned to it new leadership to take a hard look at the current status of the program and what needs to be done to improve it. It is in this context that discussions have taken place to consider a role for AID.

B. Project Description

USAID will assist the BDG Health Division in establishing a high quality training program for primary village-level health care practitioners (palli chikitsak) so that by the end of the three year life-of-project the Health Division will have the capability of effectively training 10,000 palli chikitsak annually at 200 training centers throughout Bangladesh.

USAID's specific inputs will depend to some extent on the results of the Health Division's appraisal of the program, and the resulting recommendations for program

changes. Basically, however, USAID forsees assistance in the following general areas:

1. In-country and third country training for palli chikitsak instructors and administrative personnel. This would include technical assistance to design a teacher-training program and related training materials, production/purchase of requires training materials, and the cost of carrying out training to the initial 200 to 400 palli chikitsak training instructors. It would also include study/observation tours of physician extender/paramedic programs in third countries or the U.S. to program administrators and palli chikitsak instructors.

2. Technical assistance for curriculum revision, textbook improvement, and production of textbooks and other training aids.

3. Provision of classroom and clinical training equipment. UNICEF will also provide some materials of this type.

4. Refresher training. This includes technical assistance for development of refresher training curricula, with a special intensive curriculum for palli chikitsaks who were trainees between 1978 and 1981, prior to curriculum improvements. It also includes training costs for the latter group of approximately 9,000 palli chikitsak.

5. Evaluation of palli chikitsak program effectiveness, carried out jointly by the Health Division, USAID, and outside experts.

6. Provision of medical kits with initial trenche of medical supplies to palli chikitsak graduates. This can be considered start-up capital required to set up a practice. Palli chikitsak will sell the medical supplies contained in their kits to patients as part of the service charge, and utilize the proceeds to restock their supplies. USAID may also provide assistance to the Health Division in establishing a private

sector medical supply system for palli chikitsak.

7. Provision of locally-made bicycles, to be purchased by palli chikitsak graduates at a subsidized cost. Repayment to Health Division for cost of bicycles would be recycled for purchase of bicycles for future year palli chikitsak graduates.

A major portion of USAID's inputs will consist of two or three long-term consultants and/or a series of short term consultants to work with the Health Division in the areas of curriculum development and materials production for teacher training, and for refresher training, as well as for evaluation. These consultants may be from the U.S., from a third country, or from Bangladesh itself which already has extensive experience in paramedical training through voluntary agency activities.

The consultant providing the technical assistance under this project will work closely with appropriate Health Division officials in developing teacher training and curriculum design, in order to transfer these skills to the Health Division, so that it will be able to continue to carry out such activities in the future.

The Health Division is considering such program changes as moving training centers from Thana Health Complexes to sites at the district or subdivisional level, in order to ensure high-quality professional teaching staff. It is also considering including as trainers experienced, well-trained government paramedics such as Medical Assistants Lady Health Visitors or Family Welfare Visitors. Such program changes would alter USAID inputs.

The possibility of offering special incentives to indigenous practitioners to encourage their participation in the program, or of developing a special curriculum to enable illiterate indigenous practitioners to participate, may also be considered on an experimental basis.

The total life of project cost to USAID over the three year period is $14,720,000. The budget is broken out in the Estimated Project Cost section below.

The Bangladesh Government contribution consist of the salaries and honoraria of palli chikitsak instructors, the stipends and housing costs of students, all other equipment and supplies utilized in the program, and all administrative costs. As a condition to this project, the Health Division will assign permanent faculty at each of the training sites whose primary duty will be teaching palli chikitsak. Only if permanent faculty can be assigned, trained and fielded will it be possible to significantly improve the quality of palli chikitsak training. The program has 50 training centers operating at present. 80 additional centers will be opened up in 1980-81, and 70 more by 1982, for a total of 200 training cneters during the project life, each capable of training 50 palli chikitsak annually. The cost to the Bangladesh Government of this program will be approximately $10,000,000 over the project life.

C. Beneficiaries

The status of health care in Bangladesh is deplorably low. There is a shortage of skilled medical practitioners, and this shortage is particularly acute in the rural areas. For those wealthy enough to afford the transportation costs and the medical charges, there is usually a physician trained in Western medicine at the Thana headquarters, either a Thana Medical Officer or a private physician. For most people, however, the only affordable health care is that available in their village. In many villages, there is no health practitioner of any kind. In those villages where health care is available, it is through indigenous pratitioners such as druggist, "quacks", hakims (religious healers), homeopaths, and dais (midwives, who have limited abilities in health care outside of deliveries). Some of these have some western training, and many freely issue drugs which require a doctor's prescription in the U.S., such as antibiotics. Misuse of such drugs is a major problem in rural Bangladesh. Others depend primarily on traditional cures. All of them charge for services.

It is widely accepted that for about 90% of the health problems encountered in rural Bangladesh, the symptoms are easily recognizable and the cures are simple, so that a fully qualified physician is not necessary to prescribe treatment and a lesser-trained practitioner is adequate. Many of these symptoms and appropriate medicines are already known to the village level quacks

and druggists, so they are able to effectively cure specific diseases. These practitioners, however, have no knowledge of the effects of over use or improper use of drugs, of the need for sterile techniques, or of the prevention of these health problems.

There are three groups of direct beneficiaries to this project, listed in order of priority. First, there are the villagers of Bangladesh, who will receive a tremendously increased access to good health care. Secondly, there are the palli chikitsak themselves, who benefit from their training and employment. Thirdly, there is the Health Division, which will receive improved capabilities in curriculum design, paramedic training and program management.

With regard to the first beneficiary group, the villagers, two questions need to be addressed. Since the palli chikitsak charge for services, will the poor have access to them? And since they charge for services, will the palli chikitsak take an interest in imparting preventive health care knowledge, such as basic nutrition and sanitation, which could prevent many common village diseases?

As has been mentioned earlier, there is no free health care in Bangladesh, except in isolated areas where private voluntary agencies provide it. Even the government practitioners require payment. Village practitioners normally charge two to five taka per visit, plus the cost of medicines. To a day laborer family receiving six taka per day, which barely covers the price of food, such an outlay is very difficult. To such a family, however, a day of illness represents an income loss which is ill affordable; therefore most families are willing to pay the price to avoid illness. We believe that the palli chikitsak would be able to charge no more than the existing village practitioners for health care without pricing themselves out of the market. They would not reduce the price of medical care to the poor, but they would definitely increase the availability of services and improve the quality of care, so that complications due to improper techniques, mis-diagnosis and misuse of drugs would be decreased. We realize, however, that the whole question of availability of village health care, service charges, and accessibility to the poor must be examined in much closer detail during PP preparation.

There is no doubt that since it is curative care which provides the palli chikitsaks' income, curative care rather than preventive care will be their major concern. Nevertheless, their curriculum will stress preventive health care, so they will be able to explain concepts of disease prevention in conjunction with their curative care, and they will at least be able to serve as a good example to other villagers through their hygiene and eating habits. The government is trying to improve villagers' knowledge of preventive health in other ways. The Health Division's Union (township) level field workers, Family Welfare Workers, and the Population Division's Union field workers, Family Planning Assistants and Family Welfare Assistants, are all charged with offering preventive health services, such as vaccinations, health education, and assistance in village hygiene and sanitation. The Family Planning Division's field workers are also trained to provide villagers with basic maternal and child health care and nutrition information. The Health Division now plans to supplement activities of the FWWs through the use of village health volunteers, who are given some training in health education. A pilot project in six thanas is now underway experimenting with this concept. Still, these efforts are not nearly enough to make an impact.

The benefit to the palli chikitsak trainees themselves has significant secondary impacts. To the extent that the program upgrades the training of existing indigenous practitioners, it will be acceptable in the community setting and will improve the quality of health care in the villages without establishing competing practitioners. To the extent that women are trained as palli chikitsaks, access of health care to women will be greatly increased, because in a purdah society such as rural Bangladesh, it is difficult for women to come for treatment to male practitioners. In addition, these women will become role models for other village women, in that they show that women can be economically active and socially mobile.

Finally, the benefit to the Health Division will be that it will have a cadre of well-trained paramedic teachers who can continue palli chikitsak training until nationwide coverage has been established. It will also have an in-house capability to design paramedic curricula and training materials. This capability

will be necessary for carrying out annual refresher training and other special training courses for palli chikitsak and other paramedical categories.

The secondary benefit comes to the nation as a whole as a result of the increased productivity of its people due to better health. Another anticipated benefit over the long term is a reduction in fertility. Palli chikitsaks will receive training in family planning and will be able to provide family planning information and contraceptives to villagers.

D. Reasonable alternatives

There are two alternatives to the palli chikitsak program which might result in expanded health services to rural Bangladesh. The first would be expansion of the government outreach system through training and fielding of increased numbers of Family Wlefare Workers, opening and staffing Union Family Welfare Centers, and increasing the staff at Thana Health Complexes. The Health Division includes all of these in its assessment of the country's health needs, and substantial donor assistance has already been promised. But despite these efforts, USAID is skeptical of the government's ability to provide health services to the people who need them the most through the formal public health system. Even if health centers are established and staffed in each union, the accessibility of these services to rural people is still limited. Many unions are large, consisting of ten or more villages and an average 20,000 population. Transportation and communication within unios is often difficult. The government has been unable to ensure a steady flow of medicines and other medical supplies, even to the Thana level, let alone the Union level. Because of the government's inability to effectively monitor the flow of these supplies, misappropriation of drugs and medical supplies is a continuing problem and consequently health centers frequently lack vital medicines. While services are theoretically free of charge at government health centers and dispensaries, in practice all government practitioners charge for services. All these factors prevent the government health centers from becoming a primary health resource for villagers. The Health Division's field workers, FWWs, are similarly ineffective. Like most of the other government extension workers, the FWWs are largely unsupervised, have no

facilities for transportation, and since their jobs are secure, have no incentive for good performance. Given the unwieldiness and strength of the civil service, it is unlikely that these conditions will change.

The other option would be to concentrate on preventive health care, mainly through health education, through a program of training village health volunteers who would be community supported. The Health Division is experimenting with such a concept now, with WHO assistance. Many such pilot projects are already taking throughout Bangladesh under voluntary agency auspices. Those which are showing some success employ salaried health workers, not volunteers, and provide a degree of supervision and support not possible under Health Division's current staffing and budget. There has been no successful health project in Bangladesh which could provide services to rural villagers at a cost that is replicable nationwide without outside financial support.

Therefore, although the palli chikitsaks will charge a small amount for services, and although their emphasis will be on curative rather than preventive care, they offer the most reasonable alternative for extending basic health services to Bangladeshi villagers at a cost affordable to the Bangladesh government.

II. Relationship of the Project to the Mission Strategy and Host Country Priorities

USAID's Strategy, as outlined in the CDSS, is to support the Bangladesh Government's goal of foodgrain self-sufficiency through concentration on the three major objectives of increasing foodgrain production, reducing the fertility rate and increasing employment. Although health sector initiatives were not described in the CDSS, it stated that the BDG's goal implies more than just increased production, but encompasses achievement of major objectives in agriculture, rural development, population, and health.

Thus, although health care is not one of the three priority areas set out for AID assistance, it is consistent with the BDG's and AID's overall goals. The indirect impacts of improved health on productivity of labor and fertility

reduction through decreased child mortality are obvious. The Mission sees improved health care as a worthy goal in itself, because it contributes to an overall improvement in the quality of life for Bangladeshi villagers. In this particular case, we see a unique opportunity to assist the Bangladesh government with an innovative health care program which is wholly Bangladeshi conceived and initiated, and which recognizes the problems of implementing health care through the formal government system and attempts to utilize the private sector as an alternative.

When the palli chikitsak program was announced in the summer of last year, it met with wide criticism by the health donors. The government had been working with WHO in preparing a Country Health Programming Project Formulation, and the palli chikitsak concept had never been discussed in that context. The health donors were taken by surprise, they were concerned with the concept of private practitioners charging for services, and they felt that the government planned to implement the program too fast, without any test period. Several donors were approached for possible financial assistance, but none expressed any interest. Nevertheless, the government was determined. The Health Division designed a curriculum, prepared and published textbooks, located fifty Thana Health Complexes as training sites and reassigned the most qualified Thana medical officers to these THCs, and paid all costs for teachers' salaries, honoraria, student stipends, and supplies from its own budget. Additional funds for program expansion are included in this year's budget. The project has received strong backing by the President and the Deputy Prime Minister in charge of Health and Family Planning.

As all of this indicates, there is no question of government commitment to this program from the highest levels. The government is now concerned that in the hasty implementation of the program, the quality of training has suffered, and the Health Division plans to take a formal appraisal of the program during the next few months, make recommendations for program improvements, and slow down program expansion until needed changes have been made.

As pointed out on page 29 of the CDSS, the BDG's increased emphasis on rural services is apparent. The recent Country Health Programming exercise, the Alma Ata primary health care conference, and the follow-up Asia regional conference in Delhi have made a strong impact on Bangladesh health policy makers.

III. AID Policy Issues

1. A major implementation problem in the palli chikitsak training program thus far has been the use of Thana Medical Officers as trainers. In a Thana Health Complex, the three or four resident TMOs share training responsibilities. Training is additional to their other duties. The quality of training is not likely to be improved until teachers are assigned to each Thana Health Center with clearly specified training duties and no conflicting responsibilities for patient care. These individuals must be firmly grounded in teaching methodologies and training techniques, and must be committed to this assignment for several years. USAID has informed the BDG that a condition to this project will be the assignment of permanent teaching staff to each training center.

2. As has been mentioned in the beneficiary section above, before getting too far along in project design we need to know more about the indigenous health services which exist in villages, because to the villagers of these services, as the likely effect of placing another, albeit better qualified health practitioner in the villages on both service charges and beneficiaries reached.

3. This is a high-risk project. The first year of the palli chikitsak program's life has uncovered many problems, and the government's willingness to deal with these problems through assignment of teachers and curriculum reforms remain to be seen. Therefore the Mission suggests that annual incremental funding be utilized, with increments dependent upon project progress over the preceding year.

Annex B

AID/W Cable Modifying PID

MODIFIED STATEMENT OF WORK AS PER TELEGRAM OF APRIL 18, 1980

REF: A. DACCA 1872
B. STATE 097313

1. Health Division, Ministry of Health and Population Control, has studies and approved a revised scope of work for Palli Chikitsaks consultants:

Quote

I. Summary

The consultants will assess the implementation to date of the Bangladesh Government's Palli Chikitsaks program and make recommendations to Government (BDG) and to the Agency for International Devlopment (AID) concerning future resource allocations for the program.

II. Analysis

The consultants, through interviews in Bangladesh and a research of existing studies, will report on the current patterns of access to and utilization of existing rural health services. They will report on the rural population's perceptions of its health needs. They will report on these factors, including affordability which most determine the rural Bangladeshi's selection of a health practitioner for information and treatment. They will report on actual patterns of morbidity and mortality by age, sex, location, socio-economic status, season and other factors. They will report on the basic underlying causes of morbidity and mortality.
Based on their findings, the consultants' report(s) will address the following questions:

(a) To whom do rural people go for health services? How frequently? What are their alternatives? How far do they travel?

(b) What is their preferred source for health care? Do they commonly seek health care from more than one source? What is their order of preference and how are these sources selected?

(c) Do they seek health care in different ways depending on the type of seriousness of the illness or the sex or age of the person affected?

(d) How does type and amount of payment (cash or kind) differ from one kind of health practitioner to another?

(e) On average, what is the educational level and skill of various types of indigenous practitioners? Are they literate? How did they receive their training? Are most rural practitioners able to make a living solely through health care practice, or must they supplement their income in other ways? How? Can most rural communities support an additional practitioner?

(g) Are drugs and medical supplies available in rural areas? Are shortages frequent?

III. Report and Recommendations on the Palli Chikitsaks

The consultants will interview the BDG officials and Thana Health Complex physician-teachers who have participated in the initial two years of the palli Chikitsak program. Jointly with the BDG, the consultants will interview Palli Chikitsak graduates, randomly selected. Jointly with BDG, the consultants will interview villagers having access to a Palli Chikitsak graduate as well as villagers from whom no Palli Chikitsak graduate is yet available. Among questions to be addressed in their report on these surveys

will be:

(a) Are government-trained practitioners viewed as superior/inferior to and more/less accessible than other types of practitioners, particularly to the poor?

(b) Would existing practitioners be interested in upgrading their training? Under what circumstances?

(c) Are there rural women who are interested and able to participate in Palli Chikitsak training?

(d) Is a cooperative style for relations between the Palli Chikitsak and existing practitioners possible? How?

(e) What characteristics (sex, age, education, social status, marriage status, etc.) will allow the Palli Chikitsak to achieve maximum exposure to and acceptance by the rural population, particularly women and children?

(f) What is the likely relationship between Palli Chikitsak and government health extension workers (Family Welfare Workers, Family Planning Assistance and Family Welfare Assistants)?

IV. Report and Recommendations on Palli Chikitsak Training

Observe the on-going training and review existing Palli Chikitsak training curriculum. Advise as to the program needs with respect to:

1. Technical content especially related to relevance to villagers' needs
2. Presentation
3. Clinical Practice

4. Course Duration

5. Trainer--motivation and interest, training techniques and technical knowledge

6. Location

7. Teaching aid's self-instructional materials

8. Student's perceptions of their role as Palli Chikitsak and student satisfaction with training program.

Consultants should make recommendations for revisions in the training program which would increase its effectiveness. This may include recommendations regarding course content, presentation and length, selection of alternate trainers and training locations, and revision of selection criteria.

V. Program Needs of Implementing Agency

To implement a Palli Chikitsak training program on a national scale, it may be desirable for USAID to assist the Ministry of Health and Population Control to upgrade and expand certain management/ administrative functions. The consultants will explore with the Ministry its needs and recommend assistance where appropriate, focusing on the following functions:

1. Design of training curricula, production and procuremented training materials

2. Communications among Dacca and field offices

3. Logistics, esp. regarding flow of training material and supplies

4. Program planning and coordination with other para-medic training programs of the ministry and with complementary service programs of the ministry

5. Other aspects of administration which may affect project implementation.

VI. Reporting Requirement

The contraction will complete the work described above, prepare a draft report, submit the report to USAID/Dacca and allow time to discuss the paper with USAID Dacca and the BDG before leaving Bangladesh. END QUOTE.

2. Official letter of approval will be in hand next week at which time we will cable confirmation. AIL/W and contractor may begin to line up people and plan schedules.

3. Numbers of consultants: Ministry prefers team to be limited to three. Mission has anthropologist who can assist.

4. Timing: Ministry will accommodate as early as May. Ministry hopes each consultant's schedule be no more than eight weeks inclusive Item IV in scope. Overlapping is acceptable, e.g. staggered consultancies with one member remaining to complete report and discuss with USAID and BDG.

5. Consultants' qualifications: Ministry prefers as Chief or as a member a physician with prior foreign experience, preferably Islamic Asia, in similar para-medical training programs. Illustrative candidates would have qualifications of, for example, Dr. Jack Lasar, now PSC India USAID; Dr. Ernst Lauridsen, now Danida, Copenhagen; Dr. Steve Solter, last known to be with MSH, etc. Ministry defers to AID except for anthropologist Barker whom they recommend against but with no reason given. As noted above,

USAID anthropologist can assist. For paramedical training of this type there are a number of examples in poorest Asian Islamic nations and we think the level of expertise to be achieved by Palli Chikitsaks may be only marginally higher than expected in the Auxiliary Nurse Midwifery Training program in Afghanistan recently administered by James Frank, University of California, Santa Cruz. Contractor may wish to consult with Franks on suitable personnel or for consultations with Marie Farrell. USAID has no other comments to add to Reftel A.

6. Other considerations: Contractor's personnel should know of constraints during forthcoming four months, (A) Extremely hot and humid with consequent effects on energy and output, (B) Dawn to dusk fasting beginning mid-July. Given length of days this will be particularly debilitating; Government may shorten work day, but this will not affect USAID office hours.

Annex C

Logical Framework

PROJECT DESIGN SUMMARY LOGICAL FRAMEWORK

Project Title:	Palli Chikitsak Program 388-0055
Life of Project:	From FY 81 to FY 83
Total U.S. Funding:	$4,795,000
Date Prepared:	August 31, 1980

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Program or Sector goal: The broader objective to which the project contributes: Continuation of a nation-wide health care delivery program providing simple, curative health services to the rural villages of Bangladesh.	Measures of goal achievement: - Numbers of patients seen on a weekly basis by PC graduates - Comparatively greater numbers of women of child-bearing and child-rearing ages seen by PC graduates - Improved implementation of BDG PC Program - Reduced incidence (10% to 3%) on incorrect damaging treatment of patients by PC graduates - Appropriate use of local referral system.	AID mid-term and end of program field surveys: pre- and post-evaluation of one month training program for TMOs.	Assumptions for Achieving Goal Targets: - BDG commitment of personnel and financial support to project - AID commitment to rural poor through the use of existing programs and institutions.
Project Purpose (s): Development of National Training Center (NTC) to prepare Thana Medical Officers for role as PC trainers. Promote logistic and commodities support and quality control of PC program.	Conditions that will indicate purpose has been achieved: End of Project Status: - Completed training of 325 TMOs - Record books showing number of patients (women, men, children) seen by PC graduates.	- AID project monitoring; joint BDG/AID mid-term and final project evaluation - Annual reports to BDG - Progress reports to AID.	Assumptions for Achieving Purpose (s): - Meaningful transfer of learning will occur from exposure to teaching training measures used at the NTC level to the thana levels.

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
	- Reports of reduced incidence of incorrect/damaging treatment - Reports of appropriate use of referral - Proper use of manuals, audio-visual materials by TMOs.		- Utilization of role modeling theory as appropriate framework for teacher training strategy to educate TMOs - Availability of reference materials and proper equipment improves health providers' ability to deliver services.
Inputs: AID: - Technical Assistance - Training - Commodities support - Vehicles - Evaluation support BDG: - Technical assistnace - Logistics support - Overhead: operation and maintenance of project vehicle - Continued stipends to PC students, graduates.	Implementation Target (type and quality) - 28 work months - 8 TMO training months - 325 TMOs traines - 9 work months of formative and summative evaluation activities - 44,250 modified kits distributed to PC graduates - 44,250 BDG manuals distributed to PC graduates - Overhead (total contribution $365,800).	AID - AID contract monitor - AID project records, financial reports - Procurment shipping reports BDG - BDG government orders - BDG implementing organization reports.	Assumptions for providing inputs: BDG has made and is willing to make appropriate policy changes and will continue to have sufficient resources available.

Annex D

Financial Analysis Tables

TABLE D.1: USAID'S PROJECTED EXPENDITURES: FOREIGN AND LOCAL COSTS BY FISCAL YEAR ($000)

Use of Funds:	Reference Table	FY81		FY82		FY83		Total	
		FX	LC	FX	LC	FX	LC	FX	LC
1. Foreign Advisors and Consultants:									
Long-Term Consultants	D.2	315.0	62.2	300.2	65.6	199.0	33.1	814.2	160.9
Short-Term Consultants	D.3	28.7	6.6	-	-	-	-	28.7	6.6
2. National Personnel	D.4	-	7.3	-	8.8	-	4.4	-	20.5
3. Training Center and Office									
Equipment and Supplies	D.5	26.2	20.0	-	10.0		4.4	26.2	34.4
Space	D.6	-	7.4	-	26.1	-	12.6	-	46.1
4. Per Diem, Travel and Housing for:									
TMO Trainees and DHTOs	D.7	-	-	-	54.0	-	57.4	-	111.4
5. Equipment for THC	D.8	-	-	40.6	41.6	65.0	66.5	105.6	108.1
6. Manuals, Record Books and Equipment for PC Trainees	D.8	-	-	156.3	75.0	949.9	455.9	1,106.2	530.9
7. Evaluation:									
Short-Term Consultants	D.9	-	-	34.1	10.3	34.1	10.3	68.2	20.6
Other Evaluation Costs	D.10	-	-	38.6	7.1	38.6	7.1	77.2	14.2
8. Other Costs:									
Vehicles and Micro-computer	D.11	26.7	4.0	-	5.6	-	2.8	26.7	12.4
SUB-TOTAL		396.6	107.5	569.8	304.1	1,286.6	654.5	2,253.0	1,066.1
INFLATION AT 10%/YEAR ON FX AT 15%/YEAR ON LC		39.7	16.1	119.7	98.1	425.9	340.9	585.3	455.1
SUB-TOTAL		436.3	123.6	689.5	402.2	1,712.5	995.4	2,838.3	1,521.2
CONTINGENCY AT 10%		43.6	12.4	68.9	40.2	171.2	99.5	283.7	152.1
TOTAL		479.9	136.0	758.4	442.4	1,883.7	1,094.9	3,122.0	1,673.3

TABLE D.2: ESTIMATED COSTS FOR PROJECT ADVISORS* (ALL COSTS REQUIRE FOREIGN EXCHANGE EXCEPT WHERE NOTED)

I. Project Advisor # 1, Health Manager, Medical Doctor (28 person months, 9/81 - 12/83, with spouse and two school-age children)

	FY81	FY82	FY83
A. Personnel Compensation			
1. Basic Salary** ($40,000/year 1981)	$33,333	$42,000	$22,000
2. Differential Pay (25% of salary)	8,333	10,500	4,500
3. Terminal Leave			1,000
B. Personnel Benefits			
1. F.I.C.A. (Employer)	1,600	1,600	1,200
2. Educational Allowance	8,125LC	11,500LC	5,250LC
3. Temporary Quarter Allowance	2,530LC	-	-
C. Travel and Transportation of Persons and Things			
1. International Travel with 22 lbs. Excess Baggage for 3 Adults	4,000	-	4,000
2. In-Country Travel	850LC	1,150LC	575LC
3. Subsistence and Per Diem	1,300	1,725	850
4. Unaccompanied Baggage	1,150	-	1,150
5. Household Effects	6,900	-	6,900
6. Automobile	2,070	-	2,070
7. Storage	600LC	-	600LC
8. Rest and Recuperation Travel	3,450	3,450	-
9. Emergency Medical Travel	1,050	1,400	700
10. Visitation Travel	1,875	2,500	1,250
D. Rent and Utilities			
1. Residence, Rent and Utilities	6,900LC	9,200LC	4,600LC
E. Other Direct Costs			
1. Drapery and Upholstery Material	1,725LC	-	-
2. Residential Furnishings and Equip.	8,625	-	-
3. Miscellaneous	1,725	900	450
SUB-TOTAL	96,141	82,095	57,095
F. Indirect Cost (Contractor's Overhead) 100% of Base Pay	33,333	42,000	22,000
TOTAL	129,474	124,095	79,095

THIS TABLE IS CONTINUED ON THE FOLLOWING PAGE

TABLE D.2: CONTINUATION

		FY81	FY82	FY83
II.	Project Advisors # 2 and # 3, Health Educators (costs are per advisor, including spouse and two school-age children) (28 person months each, September 1981 to December 1983)			
A.	Personnel Compensation			
	1. Basic Salary** ($37,000/year for 1980	$30,833	$38,850	$20,400
	2. Differential in Pay (25% of salary)	7,708	9,713	5,100
	3. Terminal Leave	-	-	1,000
B.	Personnel Benefits (same as advisor # 1)	12,255	13,100	6,450
C.	Travel and Transportation (same as advisor # 1)	23,245	10,225	18,095
D.	Rent and Utilities (same as advisor # 1)	6,900	9,200	4,600
E.	Other Direct Costs (same as advisor # 1)	12,075	900	450
SUB-TOTAL		93,016	81,988	56,095
F.	Indirect Cost (Contractor's Overhead) 100% of Base Pay	30,833	38,850	20,400
TOTAL FOR EACH ADVISOR # 2 AND # 3		123,849	120,838	76,495
III.	TOTAL FOR THREE LONG-TERM ADVISORS	377,172	365,771	232,085

* Based on "Standard Costs for Contract with a U.S. Citizen for Personal Services Abroad" memorandum from Office of the Controller USAID/Dacca, Bangladesh, May 22, 1979. Estimates include an adjustment for price changes between May 1979 and September 1980 at the rate of 12% per annum.

** Includes a 5% salary increase for FY82 and FY83.

TABLE D.3: ESTIMATED COSTS FOR SHORT-TERM CONSULTANT* (ALL COSTS REQUIRE FOREIGN EXCHANGE EXCEPT WHERE NOTED)

		FY81
I.	Technical Advisor/Manuals, Medical Doctor or Nurse Educator (3.0 person months from October 1981 to December 1981)	
A.	Compensation @ $170/day or $850/week (5 days a week for 65 working days)	$11,050
B.	F.I.C.A.	750
C.	Overseas Differential (25% of Compensation)	2,763
D.	Travel and Transportation	
	1. Round Trip Ticket with 22 lbs. Excess Baggage	2,750
	2. In-Country Travel	600
	3. Subsistence	6,000
E.	Other Direct Costs (Insurance, Passport, etc.)	350
SUB-TOTAL		24,263
F.	Indirect Costs (100% of Compensation)	11,050
TOTAL		35,313

* See footnote * of TABLE D.2.

TABLE D.4: ESTIMATED COSTS OF NATIONAL PERSONNEL FOR TECHNICAL ASSISTANCE (ALL LOCAL COSTS)

Personnel:	Total Person Months	Salary/Month (Tk./$)	Dates of Employment	Number of Personnel	FY81	FY82	FY83	Total
1. National Counterpart to Health Manager (25% time)*	7.5	-	9/81-12/83	1	-	-	-	-
2. National Counterpart to Health Educators	28	3,800/253	9/81-12/83	1	$2,530	$3,036	$1,518	$7,084
3. National Counterpart to STC/Manuals	3	4,000/267	10/81-12/81	1	801	-	-	801
4. Secretary	28	2,000/133	9/81-12/83	1	1,330	1,596	798	3,724
5. Clerk	28	1,200/80	9/81-12/83	1	800	960	480	2,240
6. Driver	28	1,000/67	9/81-12/83	1	670	804	402	1,876
7. Programmer	24	3,000/200	1/82-12/83	1	1,200	2,400	1,200	4,800
TOTAL					7,331	8,796	4,398	20,525

* Salary paid by the Government of Bangladesh.

TABLE D.5: COST OF EQUIPMENT, SUPPLIES FOR TRAINING CENTER AND TECHNICAL ASSISTANCE OFFICE

	FY81		FY82		FY83		Total	
	FX	LC	FX	LC	FX	LC	FX	LC
A. Office:								
1. Desks (7 @ $150)		$1,050						$1,050
2. Lamps (9 @ $25) and Bookcases (4 @ $50)		345						345
3. Desk Chairs (7 @ $50)		350						350
4. Small Table and Two Chairs in Reception Area		75						75
5. Conference Table (for 8)		200						200
6. Chairs for Conference Table and Offices (10 @ $25)		250						250
7. Refrigerator (small)	300						300	
8. Filing Cabinets (2 @ $90)		180						180
9. Rugs, Curtains, Fixtures for Offices, Classrooms, Laboratory		1,500						1,500
10. Paint for Offices, Classrooms and Laboratory Once a Year for Two Years, Including Labor		200		200				400
11. Typewriters (Bengali and English) (2 @ $550)		1,100						1,100
12. Telephone and Utilities		3,500		4,000		2,000		9,500
13. Duplicating Machine: Manual	950						950	
14. Miscellaneous Supplies (Pencils, Paper, etc.)		800		800		400		2,000
15. Air Conditioners (4 13,400 BTU @ $770 and 1 19,600 BTU @ $970)	4,050						4,050	
SUB-TOTAL	5,300	9,550		5,000		2,400	5,300	16,950

TABLE is continued on the following page

TABLE D.5: CONTINUATION

	FY81		FY82		FY83		Total	
	FX	LC	FX	LC	FX	LC	FX	LC
B. Classrooms (for two classrooms)								
1. Blackboard, Erasers (2 @ $100)		200						200
2. Desks and Chairs (50 @ $50)		2,500						2,500
3. Lecturn (2 @ $100)		50						50
4. Screen (2 @ $100)	200						200	
5. Slide Projectors, Case, 10 Trays (2 @ $325)	650						650	
6. Overhead Projector	350						350	
7. Opaque Projector and Reproduction Equipment	700						700	
8. Projector Stands (2 @ $200)	400						400	
9. Air Conditioners, (Two 19,000 BTU @ $970 and One 13,400 BTU @ $770)	2,710						2,710	
10. Utilities		3,500		4,000		2,000		9,500
SUB-TOTAL	5,010	6,250		4,000		2,000	5,010	12,250
C. Laboratory (One Lab Used in Rotation by Two Classes)								
1. Human Models	2,000						2,000	
2. Patient Cots or Beds (4 @ $150)		600						600
3. Sink, Hot Plates, Basin		100						100
4. Stethoscopes (5 @ $20)		100						100
5. Sphygromometers (5 @ $25)	125						125	
6. Infant Scale		25						25
7. Adult Scale		100						100
8. Miscellaneous Equipment and Supplies (Bandages, Thermometers, Splints, Tongs, Cotton, Clamps, Pot, Soap, Antiseptic Solution, Razor, Syringes, Drugs, Books)		3,000		1,000				4,000
SUB-TOTAL	2,125	3,925		1,000			2,125	4,925

TABLE D.5: CONTINUATION

	FY81		FY82		FY83		Total	
	FX	LC	FX	LC	FX	LC	FX	LC
D. Additional Audio-Visual Materials								
1. Slide Duplicating Equipment	300						300	
2. 35mm Reflex Cameras (2) and Zoom Lens (1), 55mm Micro-Lens	2,000						2,000	
3. 50 Rolls Slide Film and Processing	300	300					300	300
4. Polaroid Camera and Film (Mini Print)	150						150	
5. Cassette Videotape Portapak (with Monitor, Camera, Recorder, Playback, Equipment, Batteries, Tapes, Transformers, Cabinents, etc.	11,000						11,000	
SUB-TOTAL	13,750	300					13,750	300
TOTAL (A - D)	26,185	20,025	10,000		4,400		26,185	34,425
TOTAL (FX + LC)	46,210		10,000		4,400		60,610	

TABLE D.6: RENTAL COSTS OF OFFICE SPACE, CLASSROOMS (ALL ITEMS ARE LOCAL COSTS)

	FY 81	FY 82	FY 83
I. Office Space, Classrooms, Laboratory			
A. Office Space (9/81 - 12/83)			
1. Three private offices, plus one office with second desk for temporary advisors, conference room, secretarial space for two people plus reception (1,200 square feet @ $0.50/square foot/month)	$5,940	$7,128	$3,564
2. Cost of modifying office space	1,500	-	-
B. Classrooms and laboratory (1/82 - 6/83)			
1. Two classrooms of 1,000 square feet each plus laboratory of 1,000 square feet (3,000 square feet @ $0.50/square foot)	-	18,000	9,000
2. Cost of modifying classrooms	-	1,000	-
Total of offices and classrooms	7,440	26,128	12,564

TABLE D.7: TRAVEL, PER DIEM AND HOUSING FOR TMO TRAINEES AND DHTOs (ALL LOCAL COSTS)

	FY 82	FY 83
I. Travel and per diem for TMOs		
A. Travel allowance (450 Tk/TMO = $30/TMO)	$3,750	$6,000
B. Daily allowance without lodging (75 Tk/TMO/day = $5/TMO/day or $150/TMO/month)	18,750	30,000
Subtotal (I)	22,500	36,000
II. Travel and per diem for district supervisors (20)		
A. Travel allowance ($30/DHTO)		600
B. Daily allowance without lodging ($150/DHTO)		3,000
Subtotal (II)		3,600
III. Housing for 40 students (3/82 - 6/83)		
A. 3 large houses with five to seven bedrooms, 2-3 people per room @ $600/month per house	18,000	10,800
B. three refrigerators (16 cu. ft. @ $600)	1,800	
C. personnel for housing (cook, chowkadar, mali, bearer, sweeper) ($300/month/5 employees per house)	9,000	5,400
D. housekeeper for three houses ((4,000 Tk/month = $267/month)	2,670	1,600
Subtotal (III)	31,470	17,800
GRAND TOTAL (I + II + III)	53,970	57,400

TABLE D.8: EQUIPMENT FOR THANA HEALTH CENTERS AND PALLI CHIKITSAK GRADUATES* (ALL LOCAL COSTS EXCEPT WHERE NOTED)

	FY 82	FY 83
I. Equipment for THC		
A. Set of slides (approx. 400 @ $0.25/slide = $100/THC)	$12,500	$20,000
B. Slide projector, case, trays (preferably battery operated @ $325/projector). In FX	40,625	65,000
C. Supplementary materials** ($200/THC)	25,000	40,000
D. Supplementary manuals (5 manuals/THC @ $7.50/manual $32.50/THC)	4,063	6,500
Total	82,188	131,500
II. Equipment for PC trainees*** with technical assistance		
A. Sphygnomometer to supplement MOH kit for practice ($25/sphygnomometer) In FX	156,000	949,875
B. Full set of MOH manuals ($3.50/set)	21,875	132,983
C. Technical assistance supplementary manuals ($7.50/manual)	46,875	284,963
D. Record books ($1/book)	6,250	37,995
Total	231,250	1,405,816

* See Table E.5 for the number of THC and PC trained per year. Projection # 2 is used. It is assumed that THC materials are distributed to THCs with trained Medical Officers.

** This is included in the budget to give the technical assistance team some flexibility as the curriculum and training evolve. The specific content of this item is unknown at this time. But could include, for example, an instamatic camera to allow the THC to develop its own reference file of slides.

*** FY 83 includes inventory for PC graduates in FY 84 and FY 85.

TABLE D.9: ESTIMATED COSTS FOR SHORT-TERM CONSULTANTS FOR EVALUATION (ALL COSTS REQUIRE FOREIGN EXCHANGE EXCEPT WHERE NOTED)

	FY 82	FY 83
II. Evaluation team, per person (1.5 person/months in June-July 1982-1983		
A. Compensation @170/day or 850/week (6 days/week for 39 working days)	$6,630	$6,630
B. F.I.C.A.	350	350
C. Overseas differential (25% of compensation)	1,275	1,275
D. Travel and transportation		
1. Round trip ticket (with 22 lbs. baggage excess)	2,750	2,750
2. In-country travel. In LC	450	450
3. Subsistence. In LC	3,000	3,000
E. Other direct costs	350	350
Total for Consultants	14,805	14,805
III. Total cost of evaluation team (3 person @ total of II. above)	44,415	44,415

TABLE D.10: ESTIMATED COSTS OF EVALUATION
(LOCAL COSTS EXCEPT WHERE NOTED)

	FY 82	FY 83
I. Evaluation team (short-term consultants)		
1. Direct costs, team of three. See Table D.9	$44,415*	$44,415*
II. Other direct costs of evaluation		
A. National personnel		
1. Statistician ($147/month; 7/82 - 7/83; 1 person month/year)	147	147
2. Three interpreters ($147/month; 6/82 - 7/82 and 6/83 - 7/83; 6 person months/year)	882	882
B. Field expenses for team		
1. Rental of three vehicles @ $1,100/month (inclusive of gasoline and driver)	3,300	3,300
2. Per diem for interpreters (3 people @ $6.67/day x 45 days/year)	900	900
C. Miscellaneous costs		
1. Key punching	250	250
2. Computer time	1,000	1,000
3. Material supplies	600	600
Subtotal of other direct costs (II)	7,079	7,079
Subtotal of all direct costs (I + II)	51,494	51,494
III. Contractor's overhead (75% of direct costs) In FX	38,620	38,620
Total	90,114	90,114

* $34,065 are Foreign Exchange costs.

TABLE D.11: OTHER ESTIMATED EQUIPMENT COSTS

	FY 81	FY 82	FY 83
I. Project vehicle			
1. Cost of vehicle. In FX	$15,000		
2. Maintenance and fuel ($5,000/year)	3,800	5,000	2,500
II. Motorcycles			
1. Two trailbikes 125 cc ($1,100 each). In Fx	2,200		
2. Fuel and maintenance ($300/year)	250	600	300
III. Micro computer for records of PC trainees, records of TMOs, evaluation (very small, table-top computer like APPLE, with hard and soft disc capacity, hard copy, TV monitor, transformer, paper and PASCAL, extended BASIC or FORTRAN capacity)	9,500		
Total	30,750	5,600	2,800

TABLE D.12: CURRENT BDG/MOH PROJECTED BUDGET FOR PALLI CHIKITSAK PROJECT* (100,000 Taka)

USE OF FUNDS	Total	1978-79	1979-80	1980-81	1981-82	1982-83	1983-85	1984-85
1. Furniture for Office of PD and Training Center and Hostel	186.83	28.98	57.40	28.70	42.75	14.35	14.35	-
2. Cost of Training Materials, Models, Charts, etc.	24.38	2.50	8.75	3.75	5.63	1.88	1.87	-
3. Cost of Printing Manual	33.00	33.00	-	-	-	-	-	-
4. Honoraria and Contingency for Manual Committee	1.50	0.50	1.00	-	-	-	-	-
5. Training Allowances for Trainees	780.00	30.00	90.00	120.00	165.00	180.00	195.00	-
6. Contingency for Trainees	78.00	3.00	9.00	12.00	16.50	18.00	19.50	-
7. Pay and Allowance of Others	706.75	28.70	82.95	110.08	142.78	164.35	177.50	-
8. Establishment and Honoraria for Guest Lecturers	-	-	-	-	-	-	-	-
9. Cost of Printing Certificate	3.30	3.30	-	-	-	-	-	-
10. Cost of Printing Refreshers Card	4.62	4.62	-	-	-	-	-	-
11. Cost of Vehicle for PD	1.75	1.75	-	-	-	-	-	-
12. Maintenance of Vehicle	1.80	0.30	0.30	0.30	0.30	0.30	0.30	-
13. Repair of Vehicle	.90	.05	.10	.15	.20	.20	.20	-
14. TA for Officer and Staff	1.50	.10	.28	.28	.28	.28	.28	-
15. Contingency for Office of PD	.36	.36	.06	.06	.06	.06	.06	-
16. Cost of Diagnostic Equipment	552.50	21.25	63.75	85.00	116.88	127.50	138.12	-
17. Honoraria for Palli Chikitsaks	780.00	-	30.00	90.00	120.00	165.00	180.00	195.00
18. Cost of Evaluation of the Training	6.00	1.00	1.00	1.00	1.00	1.00	1.00	-
19. Cost of Hiring House and Unforseen Expenditure	20.00	-	-	5.00	5.00	5.00	5.00	-
20. Installation of a Telephone	.10	-	.10	-	-	-	-	-
TOTAL	3,183.29	159.11	344.70	456.32	616.38	677.92	733.86	195.00

* For additional detail see BDG/MOH Palli Chikitsak Financial Plan.

TABLE D.13: CURRENT PROJECTED BDG/MOH BUDGET FOR PALLI CHIKITSAK PROJECT (AGGREGATED LINE ITEMS IN TABLE D.12) FY80-FY84 ($000)

USE OF FUNDS	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85
1. Program expansion*	nc	441.0	216.3	322.5	108.2	110.1	-	nc
2. Fixed cost of maintaining program at constant level**	nc	19.0	45.3	45.6	45.6	45.6	-	nc
3. Variable costs related to number of trainees***	nc	1,638.0	2,180.5	2,941.1	3,265.7	3,536.7	-	nc
(Number of PCs trained)		(7,500)	(10,000)	(13,500)	(15,000)	(16,250)	-	nc
4. Honoraria for previous year's graduates****	-	200.0	600.0	800.0	1,100.0	1,200.0	1,300.0	nc
Total	1,060.7	2,298.0	3,042.1	4,109.2	4,519.5	4,892.4	1,300.0	21,221.8

* Items 1 and 2

** Items 11, 12, 13, 14, 17 and 18

*** Items 5, 6, 7 and 14

**** Item 16
nc Not Calculated

TABLE D.14: PROJECTED PDG/MOH BUDGET FOR PC PROJECT WITH A ONE YEAR PROGRAM DELAY IN 1981, OMITTING ATTRITION

Use of Funds	FY 78	FY 79	FY 80	FY 81	FY 82	FY 83	FY 84	FY 85	Total
1. Program expansion	nc	441.0	-	216.3	322.5	108.2	110.1	-	nc
2. Fixed cost of maintaining program at constant level	nc	19.0	45.3	45.6	45.6	45.6	45.6	-	nc
3. Variable costs related to the number of trainees (Number of Trainees)	nc	1,638.0 (7,500)	1,638.0 (7,500)	2,180.5 (10,000)	2,941.1 (13,500)	3,265.7 (15,000)	1,904.4* (8,750)	-	nc
4. Honoraria for Previous Year's Graduates	-	200.0	600.0	600.0	800.0	1,100.0	1,200.0	700.0	nc
Total	1,060.7	2,298.0	2,283.3	3,042.4	4,109.2	4,519.5	3,260.1	700.0	21,273.2

* Calculated by multiplying the 1983 average variable costs per PC trained in the current budget (See Table E.13) times 8,750.

nc Not Calculated

Annex E

Economic Analysis

Table of Contents

I. Introduction

The primary purpose of the Bangladesh Palli Chikitsak Project is to bring simple allopathic curative health care to rural areas. To do this the project will provide one resident health practitioner, trained in simple curative care, for every village in Bangladesh. The health agent, called a Palli Chikitsak, or village medic, will establish a private practice to provide services for fees and is not to be a government employee. Training of the Palli Chikitsak (hereafter called the PC) is done by Medical Officers, with MBBS degrees, at Thana Health Centers throughout Bangladesh.

The PC Training program began in 1978/79 and is currently continuing to be financed and carried out by the Bangladesh Government. Primarily the proposed USAID participation would provide technical assistance to the Bangladesh Government for the streamlining of the curriculum, the design of a supplementary manual, and the training of the THC Medical Officers involved in teaching the PCs. The objective of the technical assistance is to increase the effectiveness of the PCs and, ultimately, to bring to rural areas safer, higher quality curative care than would be the case in the absence of the USAID assistance.

The economic analysis below provides calculations of the cost of USAID assistance per PC trained, and the cost of technical assistance per patient seen. An issue examined, using the cost calculations, is the need to delay the planned program expansion for FY80 by at least one year to allow the implementation of USAID technical assistance. The analysis also considers several questions that arise from a

consideration of the village-level micro-economic aspects of the project. These are questions regarding the distributional impact of the project and the adequacy of expected PC income.

II. Cost Effectiveness of the Technical Assistance

A. Program Timing

Because there is on-going and continuing PC training now taking place, yet USAID assisted curiculum and teaching improvements can not be implemented until mid-1982, when the goal of one PC per village is reached only a part of all practicing PCs will have the benefit of USAID expenditures. The analysis in this section provides estimates of the proportion of PCs affected by technical assistance and the cost for technical assistance per PC affected under alternative training schedules. Three schedules are considered. The three schedules project the number of PCs practicing using, alternatively, 1) the present planned expansion of the number of THC training units, 2) a one-year delay (in FY80) of the planned program expansion, and 3) a two-year delay (in FY80 and FY81) of planned program expansion.

A feature of all three projections is that they include corrections from the present BDG/MOH planned number of PCs by including an estimated allowance for PCs who enter the program but drop out during the training year and an allowance for attrition from practicing PCs. With all three schedules the effect of the adjustment is to increase the estimated cost and length of time needed to reach the goal of 65,000 practicing

PCs, or one per village. For each projection the number of PCs practicing each year is calculated as a total of 1) the number of previous year PCs less attrition from PCs who cease practice and 2) the number of new recruits less the number who drop out during the study. The attrition rate in all schedules is assumed to be .04, based on the percentage of PCs found practicing in a sample survey of trainees.[1] The dropout rate is assumed to be .08 and is based on the experience with the first year of the program for which it is estimated that 2,300 of the original 2,500 entrants have completed the training.

Tables E.1 through E.3 give the details of the calculations involved in the projections. The importance of the attrition and dropout adjustment is apparent from a comparison of the total number of practicing PCs estimated from the projections with the sum of trainees admitted (without attrition or dropout this sum would be the number of PCs practicing). Looking at Table E.1, without allowing for attrition, the goal of 65,000 practicing PCs would be reached in 1984 (FY83). However, allowing for attrition there will only be an estimated 56,077 practicing PCs in 1984, and the goal of 65,000 will not be reached until 1985 (FY84).

A second assumption underlying the calculations is that one teacher's training schedule will be established with a sufficient capacity to train 125 Medical Officers in 1982

---

1. The 1980 Palli Chikitsak Trainee Survey was a sample of 96 PCs from 24 thanas throughout Bangladesh. The survey is discussed and summarized in Annex G.

and 200 in 1983.[1] Table E.4 compares the total number of THC training programs (colum 1) with the number having trained TMOs. Given that each THC has a capacity of 50 students per year the number of students entering the program with and without the benefit of USAID technical assistance can be calculated directly (see Table E.5). Starting with the number of scudents entering the program each year with technical assistance, calculations, parallel to those in Tables E.1 through E.3 can be made to allow the projection of the number of practicing PCs benefitting from technical assistance.

Table E.6 summarizes the results of the projections and gives the total number and percentage of practicing PCs having completed the curriculum in a THC with a trained TMO. Looking at projection #1, without a delay in the program, the total number of practicing PCs benefitting from technical assistance will be 20,740 (in FY83) if the program is concluded with the admission of a total of 65,000 trainees, and if the program is extended to replace attrition the total number of practicing PCs having benefitted from technical assistance will be 30,817 (in FY84). As a fraction of total practicing PCs, the number with technical assistance is .37 at the scheduled completion of the program and .47 if the program is extended by one year to replace PCs lost through attrition and reach the goal of 65,000 practicing PCs.

---

1. Other formulations of the training center were considered, such as one smaller capacity center or two centers separated geographically. Projections made with the smaller capacity center clearly indicated that the slight savings in total cost were not sufficient to offset the delay, because the lesser number of TMOs trained yer year, in program implementation. Two centers are clearly impractical from both a logistic and cost standpoint.

Looking at projection #2, with a one-year delay, the number of practicing PCs with technical assistance increases to 26,598 after 65,000 PCs have been admitted and 38,326 if there is further training to replace attrition. The assisted fraction of all practicing PCs increases to .49 after 65,000 admissions and .59 with further training to replace attrition. With a two-year delay (projection #3) the number of PCs assisted increases to 31,143 without training to replace attrition and to 43,332 for the program with attrition replacement; the assisted fraction of all practicing PCs increases still further to .59 without attrition replacement and .67 with replacement.

The effects of delaying the program can also be measured in terms of the USAID cost per PC trainee assisted. The total number of PC trainees assisted, if the program stops after 65,000 admissions, can be calculated from information in Table E.5. Without a delay in the program the USAID cost per PC trainee assisted is $3,319,100 per 22,500 or 148. With a one-year delay the cost per trainee assisted falls to $111 and with a two-year delay the cost per PC trainee assisted falls to $92.

The cost per patient seen by assisted PC trainees during their first year of practice can also be calculated. Assuming that 92% of trainees finish the training and start practice and that the average number of patients seen per week is 43 or 2,236 per year (see Table E.16), the cost of technical assistance per patient contact is $.08[1] without a delay in

---

1. $164/(.92 x 2,236).

the program, $.06 with a one-year delay and $0.5 with a two-year delay.

The implications of the projections are that, given the fixed costs of the curriculum development and teacher training, a delay in the program is necessary to increase the number of practicing PCs affected and reduce the cost of the project per assisted trainee. Without a delay of at least one year in the expansion of the program the number of trainees affected is small enough that the expenditure for technical assistance may not be warranted.

III. Equity of the Palli Chikitsak Program

This section seeks to examine the probable effects of the PC Program on different classes within the average rural village in Bangladesh. To clarify the class distinctions used it is convenient to rank rural households in order of total consumption expenditure and designate the bottom 40% as the "poor" or lowest class, the next 40% as the "lower middle" class, the next 15% as the upper middle" class and the final 5% as the "high or wealthy" class.[1] Approximately the lowest one-third of the poor class is landless and the remaining two-thirds possess only minimal homestead land and so is functionally landless; the lower middle class possesses or cultivates sufficient land to provide for most or all of subsistence needs; the upper middle class possesses sufficient land to provide a modest marketable

---

1. These categories are examined in some detail in World Bank, "Bangladesh Current Economic Position and Short-term Outlook," March 21, 1980, annex II.

surplus and the upper or wealthy class earns a substantial part of total income as landlords.

Substantial evidence related to either the class from which most PC trainees come or the class of PC patients is not available. Primarily, reliance, in the analysis below, is placed on the responses to open-ended questions in a July 1980 random survey of THC trainers and recent PC graduates.[1] In addition, informal interviews were conducted with both trainers and PC graduates to examine the equity issues. Direct questions related to economic or class status were difficult to use and often elicited evasive or defensive, culturally expected, responses. Therefore much of what is reported below is subjective and impressionistic. Nevertheless, care has been taken to corroborate observations using several approaches to a given question and the results are felt to be qualitatively valid.

A. Distributional Effect of PC Services

1. What income groups do the Palli Chikitsaks serve?

A major objective of the PC Program is to bring static curative services to the poor majority of isolated rural area. An indication of whether or not the program is meeting this objective is given from the tabulations of the responses to the trainer and trainee surveys. Trainers were asked with population groups they felt would benefit most and which groups the least from the PC services. The

---

1. The 1980 Palli Chikitsak Survey is described in Annex G.

predominant response was clearly that the poor and lower middle class will benefit the most while the middle and upper class will benefit the least. In elaborating on their response to this question THAs explained that while upper income (upper middle and upper classes) groups might use the PC for emergency care, by preference and through ability to pay, the upper income groups use medical doctors whenever possible. In contrast, the lower middle income and poor groups, in the absence of PCs, use quacks and traditional village practitioners. They very poorest groups, unskilled landless laborers and the unemployed, go without any medical care. Sample surveys conducted in 1976-77 sustain the observation of the THAs and reveal that 30% of the rural population does not consult anyone.[1]

When asked in the survey why they had become PCs, most trainees gave an altruistic reason such as "to serve the poor of the village" as one of several reasons. A few of the respondents were asked, outside the survey, to describe their clients and in all cases responded that they were predominately poor. However, in contradiction to the ostensive attention given to lower income groups, 98% of PCs interviewed stated that payment is always made in cash Taka and payment in kind is not accepted.

---

1. Pierre Claquin, "Private Health Care Providers in Rural Bangladesh," Social Sciences and Medicine (in press) and Lincoln Chen, "Are there Barefoot Doctors in Bangladesh?" Social Sicences and Medicine (in preparation.)

Although the evidence cited above is scanty and the experience with the program is too short to justify an unqualified statement, the evidence is consistent in indicating that, if the fees are sufficiently modest, demand for the PC services can be expected to come largely from low and middle income groups. But it is probable that the very poorest group, without a stable cash income, will be served unevenly.

2. Are Palli Chikitsak Fees low Enough to Meet the Program Goals?

As assumption underlying the PC Program is that the Palli Chikitsak fees will be low enought to provide village access to allopathic care for common diseases. The argument is that, given their limited training, the PC will be viewed by the villagers as less qualified than doctors and will be forced to keep their fees low.[1] At the village level, although there are some MBBSs practicing, the major competition for the lower and the middle income clients is expected to come from traditional practitioners and quacks and PC charges would be expected, through competition, to be equal to, or perhaps only slightly more than, the charges of these alternative practitioners.

Estimates of the charges for PC services are obtained from responses to the survey of trainees. The first row of Table E.7 gives a breakdown of the average fees charged

---

1. USAID/Dacca, Project Identification Document, Palli Chikitsak Project, 1980.

by PCs for diarrhea and pneumonia, office and home visits. The PC fee can be compared with the charges for these same diseases made by other types of practitioners in the villages without Palli Chikitsaks as revealed in 1976-77 survey on medical manpower and facilities in Bangladesh. The results of this survey, adjusted for changes in prices between 1977 and 1980 are given in the remaining rows of Table E.7.[1] The comparison indicates that the average PC charges are less than for other types of qualified allopathic care and only slighly more than for other types of qualified allopathic care and only slightly more than for unqualified allopathic care and traditional practitioners. Thus, the level of PC fees is consistent with the predictions made by the designers of the program.

Weighted over all diseases and by the relative proportions of home and office visits, the average PC fee charged per patient is 5.9 Taka (see Table E.9). This average charge can be compared with estimates of the average annual household per capita health expenditure for different expenditure groups in rural areas to gain an appraisal of the ability of villagers to pay for PC services. Estimates of the 1979/1980 per capita rural expenditures are presented in Table E.12 and are based on a projection of results from the Bureau of

---

1. The results are summarized and discussed in P. Claquin "Private Health Care Providers in Rural Bangladesh."

Statistics household surveys for 1976/77 and 1973/74. An estimate of the proportion of health expenditures as a proportion of total household expenditure is used to derive the annual per capita health expenditures in each expenditure class (Column 5 of Table E.12). In comparing this amount with charges for PC fees and services it should be born in mind that the estimate of annual per capita health expenditure covers all aspects of health care and not just practitioners and medicine.

For the poorest 40% in rural areas, the average annual per capita health expenditure is 19 Taka or approximately three times the average PC fee. As an occassional expense the fee is a feasible expenditure. For the next 40% of households, the lower middle class, average annual per capita health expenditure is 37 Taka or six times the average PC fee. The fee is well within the average annual per capita household health expenditure of the lower middle class.

3. Are drugs available and affordable

For many illnesses the fees are a less important expense than the medicines. In the survey of trainees, an inventory of available medicines in the village was made. It was found that in almost all villages appropriate drugs for the common diseases to be treated as part of the PC Program were available. The charges for the drugs for treating a case of diarrhea, pneumonia or skin

diseases were also obtained in the survey. Comparing the average drug charges with the average fees in Table E.15 it can bee seen that the cost of drugs is several times the average fee. The combined cost of drugs and fee is given in the right hand column and is 36 Taka for a case of diarrhea, 27 Taka for a case of pneumonia and 30 Taka for the average patient seen.

Comparing this average total charge with the average annual per capita health expenditure of the poorest 40% it is seen that the total cost of treatment is more than 150% of the annual per capita health expenditures. The total cost of treatment may be prohibitive for the poorest group in the village.

Comparing the average total charge with the health expenditures for the average rural household in the lower middle class, it is found that the cost of treatment is almost 90% of the annual per capita health expenditure. For the average rural lower middle class household, treatment is feasible but still constitutes a substantial burden.

Finally, for the upper middle class, the average charge is 50% of annual household per capita health expenditures. For this group the PC charges are feasible.

In summary, considering only the distribution of health services within the village, the cost of drugs is high enough that the full service may be denied the lowest

income group even though the Palli Chikitsak fee is reasonably low. Thirty-five to 50% of rural households are headed by landless laborers and the discussion above indicates that for most of these families the total cost of curative care will remain out of reach.

The discussion above also indicates that, from the point of view of middle class rural household income and expenditures, the PC Program is a feasible means of bringing curative care to rural households which have previously not had access to trained allopathic practitioners. Analysis of results from sample surveys demonstrates that where it is available there is a demand for allopathic care at the village level; the major factor restricting coverage of rural population by allopathic care is availability rather than demand. Properly trained, the Palli Chikitsaks are not expected to reduce the cost of medical care substantially, but are expected to increase the availability and improve the quality of care at the village level so that mis-diagnosis and misuse of drugs will be decreased.

Thus, although the landless poor will, for the most part, continue to go unserved and the highest income groups will continue to use MBBS doctors, a previously unreached middle class will have greater availability of services. From this point of view the program will have a mildly positive effect on the distribution of services within the village.

B. The use of Palli Chikitsak Services by Women

An important objective of the PC Program is to increase the availability and use of curative care by women and children. Given the higher incidence of diarrhea and communicable diseases among children and the need for gynocological and obstetric care by women the requirement for medical care is expected to be disproportionately higher among women and children. But, because of cultural restrictions on the treatment of women by male practitioners and because of male dominance of the household, the distribution of benefits from the PC Program may not fall evenly over men and women. Data, from the survey of trainees, on the sex and age of patients is summarized in Tables E.16 and E.17. The proportion of patients seen who are male is .36, the proportion seen who are female is .23, and the proportion who are children less than five years old is .41. Assuming that, except for neonatal deaths, the proportion of morbidity and required PC visits by age group and sex is directly related to the proportion of mortality by age and sex, the expected proportions of males (five years and over), females (five years and over) and children (under five years of age) are .34, .34 and .31 respectively.[1] The proportions of patients from each of these categories can be compared with

---

1. Based on life table probabilities of dying weighted by population in age and sex groups. Note that this procedure greatly underestimates the health care needed by women by omitting obstetric requirements. Life table reference is Table 1.6d from Bangladesh Health Profile, 1977, MOH Bangladesh, Health Information Unit. Population data is from 1974 census.

expected proportion. Using a statistical test, it is found that the number of male visits to the PC is in proportion to need, the number of female visits is significantly less than needed, and the number of child visits is significantly more.[1]

In an attempt to bring more services to women, 20% of the PC training slots have been reserved for female practitioners. Records for the first two batches of trainees from a subset of nine of the thanas in the survey showed that the actual percentage of trainees who are female was only 10%. Examination of the data from the survey shows that while 22% of male PC patients are women, 37% of female PC patients are women. An implication of this finding is that, if the services to females are to be increased, a larger proportion of women should be admitted into the PC Program. It should be noted, though, that the proportionally greater number of female patients seen by women PCs does not offset the fact that male PCs see approximately twice as many patients per week.[2] Thus, if more women are to be treated, measures must be taken to increase the scale of female practices[3] as well as to increase the number of female trainees.

---

1. A t-test is used to compare the difference between actual and expected proportions. The value of the t statistic is 1.63, 3.64 and 4.9 for men, women and children respectively. A 5% significance level has been used.

2. The difference between the mean number of total patients seen per week by male and female PCs is significant at a 1% confidence level. (t=16.7)

3. This may be difficult because the smaller practices of women are likely to be due to cultural and social causes. For instance, one reason for the smaller practices of women may be the greater demands on female time within the household.

C. Distributional Effect of Palli Chikitsak Employment

A secondary objective of the Palli Chikitsak Program is to bring additional employment opportunities to rural areas. The question addressed in this section is whether or not the employment opportunities favor high or low income groups in the village.

1. Effect of Trainee Bond

As the program was originally designed each trainee was to be required to put up a 5,000 Taka bond as assurance that the trainee would practice in thana upon graduation. The security against the bond was to be land, cash or the word of a community leader. The requirement for the bond could act as an effective barrier against the entry of low and middle income groups into the program. To examine this possibility trainees in the survey were asked how the bond was put up. A tally of their responses shows that in practice the bond has not been a barrier to entry in the program. Twelve percent of the respondents replied that there was no bond or they did not remember signing the bond, 64% said either that they signed the bond or they knew about the bond, but that no collateral was required and only 24% of the respondents indicated that any security or non-family signature was required.

When questioned about the bond several THAs affirmed that the bond was not actually implemented in recruitment while others said that only a signature was required without any attempt to verify collateral. There were, however,

a few thanas where the bond seemed to have been implemented. It is concluded that the bond has not prevented entry into the program in most thanas but its uneven implementation across thanas may have had discriminatory effects in a few cases.

2. Who Becomes a PC?

Some assessment of the class background of the PC can be gained by looking at the educational level of the PC trainees. Forty-six percent of the respondents had an educational level of maltriculate or better. Given that 80% of rural residents are functionally illiterate and that an educational level of matriculate or above is usually only attained by the middle or upper classes the program cannot be expected to have positive effects in redistributing employment opportunities.

It can be mentioned, however, that in response to a question of their motives for becoming a PC several respondents stated that they had been unemployed or with insufficient income to support their families and had entered the program to gain income and security. Only a few respondents seemed to come clearly from the village upper classes with substantial surplus land or family backing. Perhaps the best indication of the class position of the respondents comes from the overall impressions of the Bangladeshi interviewers who, looking at at dress, mannerisms, confidence and other factors, assessed the majority of the PCs as coming from the lower middle class.

In summary, the program excludes the lowest classes but does not appear to be dominated by the upper class members of the community. Overall the distributional effects of the employment are assessed to be neutral.

IV. Can the Community Support the Palli Chikitsak?

The Palli Chikitsaks are intended to become self-supporting health practitioners who charge for service. By keeping the program private the government hopes to extend basic curative services to the villagers without incurring large recurrent cost budgetary expenditures or setting up bureaucratic structure that would be necessary for the technical supervision of 65,000 widely dispersed government employees.

For the program to be feasible, the Palli Chikitsak must be able to earn a sufficient living through the sale of their medical services to prevent their dropping out in search of alternative employment. To examine the adequacy of the PC income this section first provides estimates of present PC income and then looks at factors that are expected to affect PC income in the future as as the program expands.

A. Estimates of present PC income

Estimates of PC income can be obtained from the survey responses to questions concerning the average number of patients seen per week and the charges for services. Using a weighted average of the charges for diarrhea, pneumonia and skin diseases, home and office visits, it is estimated that the average charge per visit is 5.9 Taka. With an average number of patients

per week of 43 it is estimated that the average income from fees is approximately 250 Taka per week or 1,075 Taka per month.

Following the same procedure the estimated income from fees can be obtained by category of Palli Chikitsak. For women the estimated average income is 735 Taka per month. In contrast, the estimated income for men is 1,170 Taka per month. The difference in these figures primarily reflects the significantly smaller number of patients seen per week by female PCs (see Table E.16).

Looking at the differences between PCs who were previously quacks or pharmacists and PCs with other backgrounds, an estimated income of 1,261 is obtained for quacks and 1,038 is obtained for non-quacks. The higher income for quacks reflects not only large differences in the number of patients seen (Table E.18) but also some differences in the average charges (Table E.21).

Some check on these figures is obtained by looking at the fixed income that PCs would be willing to receive in lieu of the privilege of charging for services. Presumably the desired fixed income represents the opportunity cost, or income foregone, from the loss of the privilege of charging fees. A question of this nature was included in the trainee survey. The average response was 727 Taka per month. For men the average response was 753 Taka per month, while for women the average was 630 Taka per month. Dividing the sample between PCs who had previous

experience as quacks or pharmacists and others, the average desired fixed income in lieu of fees was 766 Taka per month quacks and 710 Taka per month for others. This information is summarized in Table E.22 and compared with the estimated income calculated from the product of fee charges and average numbers of patients. The two estimates of montly PC income are approximately consistent and are interpreted as indicating that monthly income for the average PC is in the range of 750 to 1,200 Taka per month.

PC income from fees is, in some cases, supplemented by additional sources of earned income. Thirty-two percent of the PC trainees surveyed stated that they had other, non-PC activities. The most common responses were farming on household plots (19%), and pharmacies (8%). A further supplement to income comes from the sale of medicine to patients. It is not possible to estimate the total Taka amount because the extent of mark up over purchase cost and the percentage of cases involving the sale of medicine are unknown. But, given the ready availability of medicines stoked by the PCs interviewed, a large percentage of patient visits may entail the purchase of medicines. Although no estimate of the Taka amounts are available it is probable that the value of home production and other activities comprises an important part of the monthly household income of PC families.[1]

---

1. Some support for this statement can be obtained by looking at the general distribution of land and income from village land studies for several areas in Bangladesh. Most village households, except for landless laborers, a class not expected to be frequent among the PCs, derive a substantial part of total income from household cultivation. See, for instance, Bangladesh Rural Advancement Committee, Resources Allocation in a Bangladesh Village, January 1980 (mimeographed).

In informal interviews, THAs were asked what they felt would be an "adequate" income for PC graduates. The responses were consistently the range of 750 to 1,000 Taka. Although adequacy of income is a subjective matter and it is still too early in the program to know if the present income will be sufficient to retain PC participation in the program, the estimated average PC incomes from health services are within the 750 to 1,100 Taka figures and, including supplemental income, the present average income of a PC is estimated to be well above 1,100 Taka.

B. Factors affecting future income of PCs

It is difficult to use the income estimates from the trainee sample survey to make a projection of future Palli Chikitsak income. Positively affecting income, the fact that the respondents have been practicing only five to six months means that the average weekly number of patients seen can be expected to grow further as the community gains confidence in their services and as their reputation spreads. Offsetting this, a negative effect on income can be expected from the increased competition with other PC graduates as the national programs expands in scale.

All trainers interviewed predicted that the present quacks and non-allopathic practitioners in the village would view the PCs as competitors and that a cooperative, referral framework would not arise. Papers by P. Claquin[1] and L. Chen[2] have set

---

1. P. Claquin, op. cit.

2. L. Chen, op. cit.

data clearly showing that villagers have a preference for allopathic medicine and, given a choice, would prefer trained practitioners. The constraint to greater use of trained practitioners is availability and high fees. Because the PCs are trained practitioners available at competitve fees, their practices are expected to gain in size partly at the expense of the quacks and traditional practitioners. But this will take for community acceptance (a possible reason for the larger present practices of PCs who were previously quacks. The fact that they already enjoy community acceptance and have less competition from other practitioners in the village may account for larger present practices of PCs who were previously quacks.

Competition between PCs can be expected to grow, and average PC comes to fall, as the number of practicing PCs approaches the goal of 65,000, or one PC for each village in Bangladesh. From the tabulation of responses to the trainee questionnaire, it is found that at present, the average PC makes home visits at a distance of up to four miles and has patients from more than one village. As the program expands, the catchment area can be expected to fall dramatically. Several PCs expressed alarm at the prospect of having a practice limited to their own village. With regard to the scale of the program, the interest of the villagers and those of the PC are in conflict. A smaller program will allow larger practices and larger fees for individual PCs; while a larger program will increase the accessibility of PCs and act to keep fees low.

Potentially, the scale of the program could be large enough that PCs would drop out of practice and resources used for their training would be wasted.[1] Whether or not one PC per village will allow a viable practice is difficult to establish but an attempt to answer the question can be made by considering the total health expenditure available in an average village. A 1973/74 household study estimated that the average rural household spends 4% of monthly income on health care. If this percentage has remained stable over time, then with the current (1980) estimated average monthly income of 560 Taka per rural household, it can be estimated that 22 Taka per month per household is currently spent on health care. With appromixately 225 households per village,[2] the average village will spend a total of 4,950 Taka per month on health care. This total covers expenditure for doctors, hospital care, clinics, medicine, health care products, traditional practitioners and quacks as well as Palli Chikitsaks. The breakdown of the total over these items is unknown but the total is large enough that, as the village's most immediate source of trained allopathic care, the average PC could be expected to earn an adequate income.

---

1. Because there is a possibility that the scale of the program will become too large, the adequacy of PC income should be monitored as part of a yearly evaluation based on a random sample of PC graduates. Program expansion could be made contingent on the results of the evaluation.

2. The rural population is estimated at 83,000,000 for 1980. With an average household size of 5,7, there are 14,561,404 households. Given that there are 65,000 villages in Bangladesh, it is estimated that the average village has 225 households.

TABLE E.1: DETAILS OF PROJECTION # 1: PROJECTED NUMBER OF PALLI CHIKITSAKS BY YEAR USING THE PRESENT TRAINING SCHEDULE*

Batch Number	Fiscal Year	Number** of THCs in Program	Number of Trainees Admitted	Number of Trainees Starting Practice	Number of Practicing PCs from Previous Year	Attrition	Total Number of Practicing PCs
1	78	50	2,500	2,300	0	0	2,300
2	79	150	7,500	6,900	2,300	92	9,108
3	80	200	10,000	9,200	9,108	364	17,944
4	81***	275	13,750	12,650	17,944	718	29,876
5	82	300	15,000	13,800	29,876	1,195	42,481
6	83	325	16,250	14,950	42,481	1,714	56,077
7	84****		12,137	11,166	56,077	2,243	65,000
8	85*****		2,826	2,600	65,000	2,600	65,000

* Assumes 8% loss during training and 4% attrition from practicing PCs.

** Each THC in the program has a capacity of 50 students. The number admitted is 50 times the number of THCs in the program.

*** Curriculum development and implementation of teacher training.

**** Phase down, some THC training programs shut down.

***** Maintenance phase, training continues indefinitely at this level to replace attrition.

TABLE E.2: DETAILS OF PROJECTION # 2: PROJECTED NUMBER OF PALLI CHIKITSAKS* WITH ONE YEAR DELAY OF PROGRAM EXPANSION IN FY 80

Batch Number	Fiscal Year	Number** of THCs in Program	Number of Trainees Admitted	Number of Trainees Starting Practice	Number of Practicing PCs from Previous Year	Attrition	Total Number of Practicing PCs
1	78	50	2,500	2,300	0	0	2,300
2	79	150	7,500	6,900	2,300	92	9,108
3	80	150	7,500	6,900	9,108	364	15,644
4	81***	200	10,000	9,200	15,644	626	24,218
5	82	275	13,750	12,650	24,218	969	35,899
6	83	300	15,000	13,800	35,899	1,436	48,263
7	84	375	16,250	14,950	48,263	1,931	61,283
8	85****		6,705	6,168	61,283	2,451	65,000
9	86*****		2,826	2,600	65,000	2,600	65,000

* Assumes 8% loss during training and 4% attrition from practicing PCs.

** Each THC in the program has a capacity of 50 students. The number admitted is 50 times the number of THCs in the program.

*** Curriculum development and implementation of teacher training.

**** Phase down, some THC training programs shut down.

***** Maintenance phase, training continues indefinitely at this level to replace attrition.

TABLE E.3: DETAILS OF PROJECTION # 3: PROJECTED NUMBER OF PALLI CHIKITSAKS* WITH TWO YEAR DELAY OF PROGRAM EXPANSION IN FY 80, FY 81

Batch Number	Fiscal Year	Number** of THCs in Program	Number of Trainees Admitted	Number of Trainees Starting Practice	Number of Practicing PCs from Previous Year	Attrition	Total Number of Practicing PCs
1	78	50	2,500	2,300	0	0	2,300
2	79	150	7,500	6,900	2,300	92	9,108
3	80	150	7,500	6,900	9,108	364	15,644
4	81***	150	7,500	6,900	15,644	626	21,918
5	82	200	10,000	9,200	21,918	877	30,241
6	83	275	13,750	12,650	30,241	1,210	41,682
7	84****	300	15,000	13,800	41,682	1,667	53,814
8	85*****		14,498	13,338	53,814	2,153	65,000
9	86		2,826	2,600	65,000	2,600	65,000

* Assumes 8% loss during training and 4% attrition from practicing PCs.

** Each THC in the program has a capacity of 50 students. The number admitted is 50 times the number of THCs in the program.

*** Curriculum development and implementation of teacher training.

**** Phase down, some THC training programs shut down.

***** Maintenance phase, training continues indefinitely at this level to replace attrition.

TABLE E.4: PROJECTED NUMBER OF THCs WITH A TRAINED MEDICAL OFFICER, USING A TRAINING CENTER WITH A CAPACITY OF 40 STUDENTS PER SESSION*

	Fiscal Year	Number of THC Training Programs	Aggregate Number of MOs Trained**	Number of THC Training Programs with Trained MOs
ALTERNATIVE 1:				
	78	50		
(no delay in training	79	150		
schedule)	80	200		
	81	275		
	82	300	125	125
	83	325	325	325
ALTERNATIVE 2:				
	78	50		
(one year delay in	79	150		
training schedule)	80	150		
	81	200		
	82	275	125	275
	83	300	325	300
	84	325	325	325
ALTERNATIVE 3:				
	78	50		
	79	150		
	80	150		
	81	150		
	82	200	125	125
	83	275	325	275
	84	300	325	300
	85	325	325	325

* There will be three sessions of 41 or 42 students each in the last half of 1982 and five sessions of 40 students in 1983. The first group of PC students affected by technical assistance enters in January 1983 (Fiscal Year 1982).

** Some MOs from THCs not yet brought into the program will be trained in 1983 under alternatives 2 or 3. No training takes place after December 1983.

TABLE E.5: TOTAL NUMBER OF PC TRAINEES ADMITTED PER YEAR AND THE NUMBER ADMITTED WITH TECHNICAL ASSISTANCE

	Projection # 1 (No Delay)				Projection # 2 (One Year Delay)				Projection # 3 (One Year Delay)			
	Without Attrition Replacement		With Attrition Replacement		Without Attrition Replacement		With Attrition Replacement		Without Attrition Replacement		With Attrition Replacement	
Fiscal Year of Training	Total Number Admitted	Number Admitted With Technical Assistance	Total Number Admitted	Number Admitted With Technical Assistance	Total Number Admitted	Number Admitted With Technical Assist.	Total Number Admitted	Number Admitted With Technical Assist.	Total Number Admitted	Number Admitted With Technical Assistance	Total Number Admitted	Number Admitted With Technical Assistance
78	2,500		2,500		2,500		2,500		2,500		2,500	
79	7,500		7,500		7,500				7,500		7,500	
80	10,000		10,000		7,500		7,500		7,500		7,500	
81	13,750		13,750		10,000		10,000		7,500		7,500	
82	15,000	6,250	15,000	6,250	15,000	6,250	13,750	6,250	10,000	6,250	10,000	6,250
83	16,250	16,250	16,250	16,250	15,000	15,000	15,000	15,000	13,750	13,750	13,750	13,750
84			12,137	12,137	8,750	8,750	16,250	16,250	15,000	15,000	15,000	15,000
85							6,705	6,705	1,250	1,250	14,498	14,498
TOTALS	65,000	22,500	77,137	34,637	65,000	30,000	79,000	44,205	65,000	36,250	78,248	49,498

TABLE E.6a: PROJECTED PROPORTION OF PALLI CHIKITSAKS AFFECTED BY USAID TECHNICAL ASSISTANCE UNDER ALTERNATIVE TRAINING SCHEDULES* WITHOUT ARRTITION REPLACEMENT**

		Projection # 1 (Present Training Schedule)				Projection # 2 (Expansion of Training Delayed One Year)				Projection # 3 (Expansion of Training Delayed Two Years)			
Batch Number	Fiscal Year	Total Number of PCs Starting Practice	Total Number of PCs Practicing	Total Number of PCs Affected by USAID Technical Assistance	Proportion of PCs Affected by USAID Technical Assistance	Number of PCs Starting Practice	Total Number of PCs Practicing	Total Number of PCs Affected by USAID Technical Assist.	Proportion of PCs Affected by USAID Technical Assistance	Number of PCs Starting Practice	Total Number of PCs Practicing	Total Number of PCs Affected by USAID Technical Assistance	Proportion of PCs Affected by USAID Technical Assistance
1	78	2,300	2,300	-	-	2,300	2,300	-	-	2,300	2,300	-	-
2	79	6,900	9,108	-	-	6,900	9,108	-	-	6,900	9,108	-	-
3	80	9,200	17,944	-	-	6,900	15,644	-	-	6,900	15,644	-	-
4	81	12,650	29,876	-	-	9,200	24,218	-	-	6,900	24,218	-	-
5	82***	13,800	42,841	5,750	.14	12,650	35,899	5,750	.16	9,200	35,899	5,750	.19
6	83	14,950	56,077	20,470	.37	13,800	48,263	19,320	.40	12,650	48,263	18,170	.44
7	84	-	-	-	-	8,050	54,382	26,598	.49	13,800	54,382	31,243	.58
8	85	-	-	-	-	-	-	-	-	1,150	53,357	31,143	.58

*The projections assume one teacher training center with a capacity of 40 students per session or 125 in 1982 and 200 in 1983.

**Table E.6a projections are made under the assumtion that there is a total of 65,000 admissions.

***Effective date of USAID assisted teacher training. The first TMOs are trained starting July 1982 and the first batch of students affected enters the program in January 1983.

Table E.6b: PROJECTED PROPORTION OF PALLI CHIKITSAKS AFFECTED BY USAID TECHNICAL ASSISTANCE UNDER ALTERNATIVE TRAINING SCHEDULES* WITH ATTRITION REPLACEMENT*

		Projection #1 (Present Training Schedule)				Projection #2 (Expansion of Training Delayed One Year)				Projection #3 (Expansion of Training Delayed Two Years)			
Batch Number	Fiscal Year	Number of PCs Starting Practice	Total Number of PCs Practicing	Total Number of PCs Affected by USAID Technical Assistance	Proportion of PCs Affected by USAID Technical Assistance	Number of PCs Starting Practice	Total Number of PCs Practice	Total Number of PCs Affected by USAID Technical Assist.	Proportion of PCs Affected by USAID Technical Assistance	Number of PCs Starting Practice	Total Number of PCs Practicing	Total Number of PCs Affected by USAID Technical Assistance	Proportion of PCs Affected by USAID Technical Assistance
1	78	2,300	2,300	-	-	2,300	2,300	-	-	2,300	2,300	-	-
2	79	6,900	9,108	-	-	6,900	9,108	-	-	6,900	9,108	-	-
3	80	9,200	17,944	-	-	6,900	15,644	-	-	6,900	15,644	-	-
4	81	12,650	29,876	-	-	9,200	24,218	-	-	6,900	21,918	-	-
5	82***	13,800	42,481	5,750	.14	12,650	35,899	5,750	.16	9,200	30,241	5,750	.19
6	83	14,950	56,077	20,470	.37	13,800	48,263	19.320	.40	12,650	41,682	18,170	.44
7	84	11,166	65,000	30,817	.47	14,950	61,283	33,497***	.55	13,800	53,814	31,243	.58
8	85	-	-	-	-	6,168	65,000	38,326	.59	13,338	65,000	43,332	.67

* The projections assume one teacher training center with a capacity of 40 students per session or 125 in 1982 and 200 in 1983.

** The projections assume that, to replace attrition, training continues after 65,000 admissions.

*** Effective date of USAID assisted teacher training. The first TMOs are trained starting June 1982 and the first batch of students affected enters the program in January 1983.

TABLE E.7: AVERAGE FEES FOR DIARRHEA AND PNEUMONIA BY TYPE OF HEALTH CARE PROVIDER (1980 Taka)

	Average Fee For Diarrhea		Average Fee For Pneumonia	
	Office	Home	Office	Home
Palli Chikitsak*	4.5	9	4	8
Qualified Allopathic**	10	14.5	6	8
Unqualified Allopathic	4.5	4.5	2.5	2.5
Homeopath	4.5	4.5	2.5	2.5
Ayurvedic	6	4.5	4.5	4.5

* From the Palli Chikitsak Training Survey, July 1980. Results are summarized in TABLES E.2 and E.3.

**From 1976-77 Survey of Medical Manpower. See P. Claquin, "Private Health Care Providers, Social Sciences and Medicine (in press), TABLE 4. The data is adjusted for price changes between 1976-77 and 1979-80, using an estimated inflation rate of .13. Estimates are rounded to the nearest .5 Taka.

TABLE E.8: AVERAGE PC FEES FOR DIARRHEA, PNEUMONIA, AND SKIN DISEASES BY SEX OF PC AND PLACE OF VISIT (IN TAKA)

	Diarrhea		Pneumonia		Skin Diseases	
	Office	Home	Office	Home	Office	Home
Male	4.1	8.3	3.7	8.1	3.0	6.2
Female	6.2	10.1	5.5	6.9	4.3	6.4
Both	4.4	8.8	4.1	7.9	3.2	6.3

TABLE E.9: AVERAGE PC FEE FOR DIARRHEA, PNEUMONIA, AND SKIN DISEASES BY SEX OF PC, WEIGHTED BY PROPORTION* OF PATIENTS SEEN AT OFFICE AND HOME (IN TAKA)

	Diarrhea	Pneumonia	Skin Diseases	Row Average**
Male	6.1	5.8	4.5	5.7
Female	7.2	5.9	4.9	6.3
Both	6.4	5.8	4.6	5.9

* See Table E.11 for proportion of patients in office and home visits.

** The weight is the proportion, by disease, of the total number of patients seen for the three diseases. See Table E.10.

TABLE E.10: CASES OF DIARRHEA, PNEUMONIA AND SKIN DISEASES SEEN BY AGE AND SEX OF PATIENT

	Men	Women	Children	Row Total	Row Proportion
Female PC (n = 19)					
Diarrhea	29	28	77	134	.59
Pneumonia	-	5	12	17	.07
Skin Diseases	25	27	26	78	.34
					1.0
Male PC (n = 76)					
Diarrhea	463	308	557	1328	.64
Pneumonia	56	30	115	201	.10
Skin Diseases	206	128	211	545	.26
					1.0
Total (n = 95)					
Diarrhea	492	336	634	1462	.64
Pneumonia	56	35	127	218	.09
Skin Diseases	231	155	237	623	.27
					1.0

TABLE E.11a: AVERAGE NUMBER OF PATIENTS BY PLACE SEEN AND SEX OF PC

	Place Seen		
	Home	Office	Total
Male (n = 78)	24.8	22.1	46.9
Female (n = 17)	19.5	7.6	27.1
Both (n = 95)	23.9	19.5	43.4

TABLE E.11b: PROPORTION OF PATIENTS BY PLACE SEEN AND SEX OF PC

	Place Seen		
	Office	Home	Total
Male	.53	.47	1.0
Female	.72	.28	1.0
Both	.55	.45	1.0

TABLE E.12: BANGLADESH: PER CAPITA HEALTH EXPENDITURE BY EXPENDITURE GROUP (CURRENT PRICES IN TAKA)

Expenditure Groups	Average Annual Per Capita Expenditure 1973/74* (1)	1976/77** (2)	1979/80*** (3)	Estimated Proportion Spent on Health**** (4)	Estimated Annual Per Capita Health Expenditure (5)
Bottom 40%	727	759	792	.024	19
Lower Middle 40%	1,070	1,110	1,151	.032	37
Upper Middle 15%	1,428	1,472	1,518	.041	62
Top 5%	2,126	2,171	2,216	.045	100
All Groups	1,020	1,070	1,122	.039	44

* Based on Household Expenditure Survey for 1973/74.

** Based on Household Expenditure Survey for 1976/77.

*** Projection of 1973/74, 1976/77 expenditure to 1979/80.

**** Information on proportional expenditure on health by income groups has been used to approximate proportional expenditure on health by expenditure groups. Derived from Bangladesh Health Profile, 1977, Health Information Unit of Health and Population Control Division, Ministry of Health, Dacca, Bangladesh, September 1978, Table 11A, page 105.

References: World Bank, Bangladesh Current Economic Position and Short-Term Outlook, March 21, 1980.
Bangladesh Bureau of Statistics, 1979 Statistical Yearbook.

TABLE E.13: AVERAGE COST OF MEDICINE FOR SELECTED DISEASES BY SEX OF PC (IN TAKA)

	Diarrhea	Pneumonia	Skin Diseases	Weighted Row Average
Male	31	21	13	25
Female	22	15	7	16
Both	30	21	12	24

TABLE E.14: AVERAGE COST OF MEDICINE FOR SELECTED DISEASES BY PREVIOUS EXPERIENCE OF PC (IN TAKA)

	Diarrhea	Pneumonia	Skin Diseases	Weighted Row Average
Quack	39	27	15	32
Non-quack	25	17	10	20
Both	30	21	12	24

TABLE E.15: TOTAL AVERAGE COST PER PATIENT VISIT INCLUDING BOTH MEDICINE AND FEES (IN TAKA)

	Fee*	Medicine**	Total
Diarrhea	6	30	36
Pneumonia	6	21	27
Skin Diseases	5	12	17
Average	6	24	30

* See Table D.2 and E.3

** See Table E.6

TABLE E.16: AVERAGE NUMBER OF PATIENTS SEEN PER WEEK BY SEX OF PC AND SEX AND AGE OF PATIENT

	Male ($\geq$ 5 years)	Female ($\geq$ 5 years)	Children ($<$ 5 years)	Total
Men (n = 79)	17.8	10.0	19.8	47.6
Women (n = 19)	5.3	8.6	9.6	23.5
Total (n = 98)	15.4	9.8	17.8	43.0

TABLE E.17: PROPORTION OF PATIENTS SEEN PER WEEK BY SEX OF PC AND SEX AND AGE OF PATIENT

	Male (≥ 5 years)	Female (≥ 5 years)	Children (< 5 years)	Total
Men (n = 76)	.37	.21	.42	1.0
Women (n = 19)	.23	.37	.41	1.0
Both (n = 95)	.36	.23	.41	1.0

TABLE E.18: NUMBER OF PATIENTS SEEN PER WEEK: QUACKS VERSUS NON-QUACKS

	Male	Female	Children	Total
Quacks (n = 26)	477	297	476	1,250
Non-quacks (n = 69)	926	664	1,220	2,810
Total (n = 95)	1,403	961	1,696	4,060

TABLE E.19: AVERAGE NUMBER PF PATIENTS SEEN PER WEEK: QUACKS VERSUS NON-QUACKS

	Male	Female	Children	Row Total
Quacks (n = 26)	18.4	11.4	17.9	47.7
Non-quacks (n = 72)	14.4	9.1	17.8	41.3
Both (n = 98)	15.4	9.8	17.8	43.0

TABLE E.20: AVERAGE PC FEES FOR DIARRHEA, PNEUMONIA, AND SKIN DISEASES BY PREVIOUS EXPERIENCE OF PC AND PLACE OF VISIT (IN TAKA)

	Diarrhea		Pneumonia		Skin Diseases	
	Office	Home	Office	Home	Office	Home
Quack	4.5	9.3	4.0	7.9	3.1	5.7
Non-quack	4.4	8.6	3.8	8.0	3.2	6.5
Both	4.4	8.8	4.1	7.9	3.2	6.3

TABLE E.21: AVERAGE PC FEE FOR DIARRHEA, PNEUMONIA AND SKIN DISEASES BY PREVIOUS EXPERIENCE OF PC, WEIGHTED BY PROPORTION OF PATIENTS SEEN AT OFFICE AND HOME (IN TAKA)

	Diarrhea	Pneumonia	Skin Diseases	Row Average
Quack	6.8	5.8	4.3	6.1
Non-quack	6.3	5.7	4.6	5.8
Both	6.4	5.8	4.6	5.9

Table E.22: ALTERNATIVE ESTIMATES OF PC MONTHLY INCOME BY SEX AND PREVIOUS EXPERIENCE

Type of PC	Product of Average Charges and Number of Patients/Week	Average Desired Fixed Salary in Lieu of Fees
By Sex:		
Men	1,170	753
Women	735	630
By Previous Experience:		
Quacks	1,261	766
Non-quacks	1,038	710
Total: (Men & Women or Quacks & Non-quacks)	1,075	727

Annex F

Qualifications of Staff and
Position Descriptions for PC Team

I. Technical Assistance

The technical assistance required for the Palli Chikitsak Program includes three long-term expatriates; one will serve as team leader and two will serve as health educators. Their services, in total, will provide 84 person months of consistent on-site support over the 16 months of the project beginning in September 1981 and ending in December 1983.

The project calls for a three-month, short-term consultant to assist in creating a supplementary manual, and three evaluation consultants at mid- and end of program points for six-week preiods, totalling 12 peron months (three consultants times six weeks times two evaluations). The manual consultant will work during the first three months of the project and the three evaluation consultants will conduct their studies during June-July 1982 and June-July 1983.

A national counterpart to the team leader will serve as counterpart to the National Palli Chikitsak Program Director. One long-term national is required to assist realization of program objectives and to strengthen the technical capabilities of local health educators.

One short-term (3 month) national will be required to assist in preparation of the manuals along with a programmer (24 months) and a secretary, (28 months).

The long- and short-term participant involvement proposed is necessary to strengthen further the national capability to plan, implement and evaluate educational health programs.

The contractor will assist in preparing documentation, recruitment, funding and placement of the long- and short-term expatriate consultants.

The BDG will be responsible for identifying and funding the long- and short-term national consultants, including those consultants required to assist in the mid-term and final evaluations.

II. Position Descriptions for PC Team

A. Team Leader

The team leader is proposed for 28 months and will serve for the duration of the project. He/she will work closely with the Ministry of Health through his/her national counterpart, the Director of the Palli Chikitsak Program, and with the involved offices and personnel of USAID. The leader will possess excellent oral and written communication skills and will have expertise and experience in implementation and administration of health programs in developing countries. He/she should be familiar with the basic elements of research, and principles of learning and teaching of health. During the project the team leader will plan and coordinate the services of long- and short-term consultants and all other project-related implementation and evaluation components.

Preferably the team leader should be a physician because of cultural expectations, but if this is not possible, an individual must be recruited who could implement, with credibility, a physician-type program requiring considerable physican project interaction.

B. Health Educator

The two health educators are proposed for a total of 56 person months or 28 months each, for the duration of the project. They will be responsible to the team leader and will work, on a daily

basis, with a national counterpart assigned to the project for the same duration of 28 months. One nurse practitioner is proposed who has skills in triage and physical assessment prepared at the Master's level preferrably in medical/surgical or community health. The second member has considerable education and experience in the development and use of health education materials, tests and measurements, curriculum design and classroom techniques. Preferably, this team member will have maternal and child health background in order to complement the skills of the nurse practitioner.

Both educators should have had some experience in developing countries, preferably in South Asia.

C. Programmer

One programmer is proposed to serve on the project from January 1982 until December 1983. He/she will have at least a Bachelor's degree in mathematics, statistics and/or computer sciences and will be familiar with the programming languages BASIC or PASCAL. The programmer will be responsible to the team leader, and will work closely with the evaluation STCs as well as with the long-term staff. He/she will be responsible for maintaining accurate accounting records, monitoring the ordering, distribution and receipt of commodities, and scoring and statistics on pre- and post-tests completed at the National Training Center.

D. Secretary/Clerical Staff

One full-time secretary and one full-time clerk will staff the project for 28 months. They will be ultimately responsible to the team leader but will provide secretarial and clerical services to the team and STCs involved in manual preparation and evaluation.

The secretary will possess excellent Bengali and good to excellent English in both written and oral communication. He/she will possess good interpersonal and organizational skills and will preferably be familiar with health-related terminology. He/she will be able to type at 45-50 words per minute, carry out basic numerical computations and develop an effective and efficient filing system.

The clerk will be responsible for filing, typing, relaying messages, assisting in preparation of teacher-made materials, ordering equipment, and basic accounting. He/she will be familiar with the postage system and with governmental documentation required for in and out-of-country procurement and delivery of commodities. Preferably he/she will be fluent in verbal and written Bengali and English.

Annex G

A Study to Assess Implementation Status of the Palli Chikitsak Program in Bangladesh

(This survey and the results derived from it were carried out by the HSI team during July-August 1980)

Table of Contents

Acknowledgements

Carrying out a research study in which involves collections of data in rural areas demands a great deal of cooperation, planning anc coordination. To carry out such a study during the monsoon and the holy days of Ramaden in such a short span of time, requires even more intensive planning and help of many people. Without the core support and commitment of the following people our study could not have been undertaken. Thanks is extended to:

Dr. Shamsul Islan, Director of the Palli Chikitsak Program, Dr. Kalilur Rahman, Deputy Director of the Palli Chikitsak Program, both of the Ministry of Health, Government of Bangladesh,

Mr. Charles Gurney, Ms. Joan LaRosa, Ms. Vivikka Molldrem, and Mr. John Dumm, US Agency for International Development.

Thanks is alo extended to the Research Assistants and Interpreters: Ms. Benila Claquin, Mr. M.D. Ali Ashraf, Mr. Nikhil Chandra Ray, Mr. Dirag Chambugong and Mr. Shahado Zamman; and to Ms. Jennifer Beckett our excellent linguist and typist.

Finally, special thanks is extended to the patient, resourceful and resonsive Thana Health Administrators and Palli Chikitsak graduates and studen s, all of whom were willing to share their time and concerns with us.

List of Tables

List of Figures

I. Introduction

In 1978, the Government of Bangladesh initiated the Palli Chikitsak Program, a curative health delivery program. The target recipient population is the rural poor living in Bangladesh villages. To implement the program, a cadre of village men and women, one from each village, are trained in simple curative health care. They serve their communities as private practitioners and derive income on a fee-for-service basis. The practitioners are known to the village as village medics or Palli Chikitsaks (hereafter referred to as PCs[1]).

Purposes of the Palli Chikitsak Program

The overall purposes of the program are to:

A. "Prepare doctors for the rural areas who would have knowledge of: 1) general hygiene; 2) disease cure; 3) minor surgery; and 4) population control."[2]

B. Support "people's participation in [the] public health system."[3]

C. "Providing modern and scientific allopathic medical science training to the numerous existing quacks, hakims, kabirajs and homeopaths."[4]

D. Prepare an "educated and competent doctor from the community itself."[5]

---

1. Project Identification Document for Palli Chikitsak 388-0055, USAID, 1980, p. 5.
2. Palli Chikitsak Training Curriculum, Government of Bangladesh, p. 1.
3. Ibid.
4. Ibid.
5. Ibid.

E. Prepare "PCs (65,000 in number) [to] work as change agents in the fields of public health, population control and family planning in the 65,000 villages of the country. They would have vast influence in the fields of public health and population control."[1]

F. "Create a cadre of PCs based on the consideration of different factors like the pattern of [the] socio-economic structure of the country, economic condition[s] of the rural population, new concept/s/ of 'Appropriate Technology and creation of some economic opportunities for the teaming rural population.'"[2]

G. Establish the "PCs within the overall network of Health Services. They will be directly supervised and will have full time opportunities to develop their professional competence."[3]

II. Rationale

The PC Program was created to operate within the context of the current health conditions and needs of rural Bangladesh. Essentially, the need was and is seen to exist at the curative level in order to reduce the most common health problems including: malnutrition, diarrhea/dysentery, upper respiratory tract infection, fever, parasites and other infectious diseases. It is believed that although programs to improve water, sanitation, immunization and health education are in effect, some basic health problems will continue. The PC

---

1. Ibid., p. 2.
2. Ibid.
3. Ibid.

Program is viewed as the "readily available, 24 hour, static, curative" component to complement the three other interventions currently being implemented, namely: improved water and sanitation, immunization, and health education.

Because it is a village level program it can address the issue of transport and accessibility--major factors which impede the least mobile--the poor, women, and children. Government centers are reportedly open "only eight hours a day and [then] staffs are not available for after hour service or home visits except in their own private practices."[1]. It was reasoned that because the PCs are known to the village people their services would be more fully utilized. They speak the same language, and they share similar values and beliefs. Some of the PCs have been and will be selected from the ranks of village quacks, individuals who have already been in practice in the village.

The affordability of the fees to be maintained by the PCs would be assured because it was felt that the villagers would recognize the limited range and extent of PCs' medical capabilities; so that because the PC would perform at a technical level, the fees for services would be kept low enough to attract and retain village clients.

III. The Palli Chikitsak Program

A. The Curriculum

The PC Program is a one-year, full-time, comprehensive, curative, health training program at the technical level. Theoretical and clinical components are taught to secondary school graduates by Thana Medical Officers who use curriculum materials created by

---

1. Project Identification Document for Palli Chikitsak 388-0055, USAID 1980, p. 5.

2. See Appendix A for detailed list of subjects and hour allocation.

physicians specifically for the program.

The curriculum components include: general sciences, anatomy and physiology, pharmacology, physical assessment, first aid, etiology and treatment of common diseases, food and nutrition, population control, vegetable growing, and content related to rural development and leadership.

B. Recruitment of Students

Students are recruited from the village to which they will return to practice. In addition to being recommended by the Union Council for the program, a commitment to complete the program is required in the form of a 5,000 Taka bond. Seats for women and indigenous practitioners (20% for each group) are reserved in an effort to upgrade and enhance the participation of these groups. A selection committee composed of THAs, Union Council Chairmen and a representative of the district Civil Surgeon select the candidates.

C. Living Arrangements and Follow-up Supervision

Students study and reside in the rural area at the Thana Medical Center where patients are referred daily. A government stipend of 100 Taka per month continues throughout the student experience and for one calendar year after graduation. Books and lodging are also provided during the study year.

Successful completion of the program requires passing grades on two examinations held at the end of each six-month semester. Graduates receive a certificate and are eligible to practice upon receipt

of final grades. Subsequent supervision of the PC by several of workers, including the Thana Health Administrators, Medical Assistants, Assistant Health Inspectors, Lady Family Welfare Visitors and Thana Health and Sanitary Inspectors is presently under consideration. Further, measures to assure quality control include attendance at a monthly meeting at the Thana Health Center and the maintenance of a Blue Book where THA comments would be recorded. License renewal would occur after completion of a refresher course every two years.

D. Expected Behaviors of Palli Chikitsak Graduates

Specifically, upon completion of the program, the graduate would be expected to:

1. Provide treatment for the common diseases to the rural population;
2. Advise the rural people on general hygiene;
3. Provide both children and adults with immunization services;
4. Provide general advice on nutrition;
5. Advise on personal health (effects of smoking, irregularity, bad effects of long nails and hair, benefits of cleanliness, etc.);
6. Provide extensive advice on population control and regularly supply family planning materials;
7. Do small surgery of boils; etc., and provide promary treatment of broken limbs and fractures;
8. Assist in enhancing the knowledge of hygiene of the school children;
9. Refer complication patients and ensure follow-up;
10. Participate in integrated rural development.[1]

---

1. Palli Chikitsak Training Curriculum, Government of Bangladesh, p.5.

The first batches of 50 students were admitted to 50 Thana Health Centers in all districts in January 1979. These groups completed one year of training and wrote their final examinations in December 1979. It was anticipated that each would begin private practice about March 1980, upon receipt of their licenses. Thus, it was estimated that by August 1980 approximately 2,500 graduates PCs would be delivering curative health services in 2,500 Bangladesh villages. The goal of the project is to train enough PCs in order to provide one practitioner for each of the country's 65,000 villages, and to complete the process by 1985.

IV. Purposes of the Study

Two overall purposes of this study were established. They are: to assess the implementation, to date, of the PC Program; and to make recommendations to the Government of Bangladesh (BDG) and the Agency for International Development (USAID) concerning future resource allocations to the program.[1, 2] Specifically, the areas assessed in this study were:

A. Nature and extent of implementation of the PC Program including selection of trainees, curriculum content, duration, presentation, theoretical and practical components, student and teacher perceptions and satisfaction, and use of materials and equipment;

---

1. Telegram, American Embassy, Dacca, Bangladesh, Palli Chikitsak, 12065: N/A, 4/18/80, page 1.

2. Scope of Work, Palli Chikitsak, 388-0055, Project Implementation.

B. Selected demographic characteristics of PC graduates and the relationship of these factors to exposure and acceptance by the rural population;

C. The relationship between PCs and other government health extension workers;

D. Selected characteristics of patients seen by the PC graduate;

E. PC graduates' level of clinical performance; and

F. The role of women as potential and actual PC practitioners and the use of PCs by women patients.

V. Definition of Terms

For the purposes of this study the following terms are defined:

A. PC Graduate is defined as an individual who has successfully completed one year of training as a Palli Chikitsak and who has received the Government of Bangladesh certificate of graduation.

B. Trainee questionnaire is an instrument designed to gather information related to PC graduates' characteristics, perceptions about their educational experiences, and post-training behaviors and practice. It is an instrument with a standardized procedure for administration, collection and scoring.

C. A Thana Health Administrator (THA) is a BDG medical doctor who is responsible for all medical activities in the thana and therefore for the PC training program.

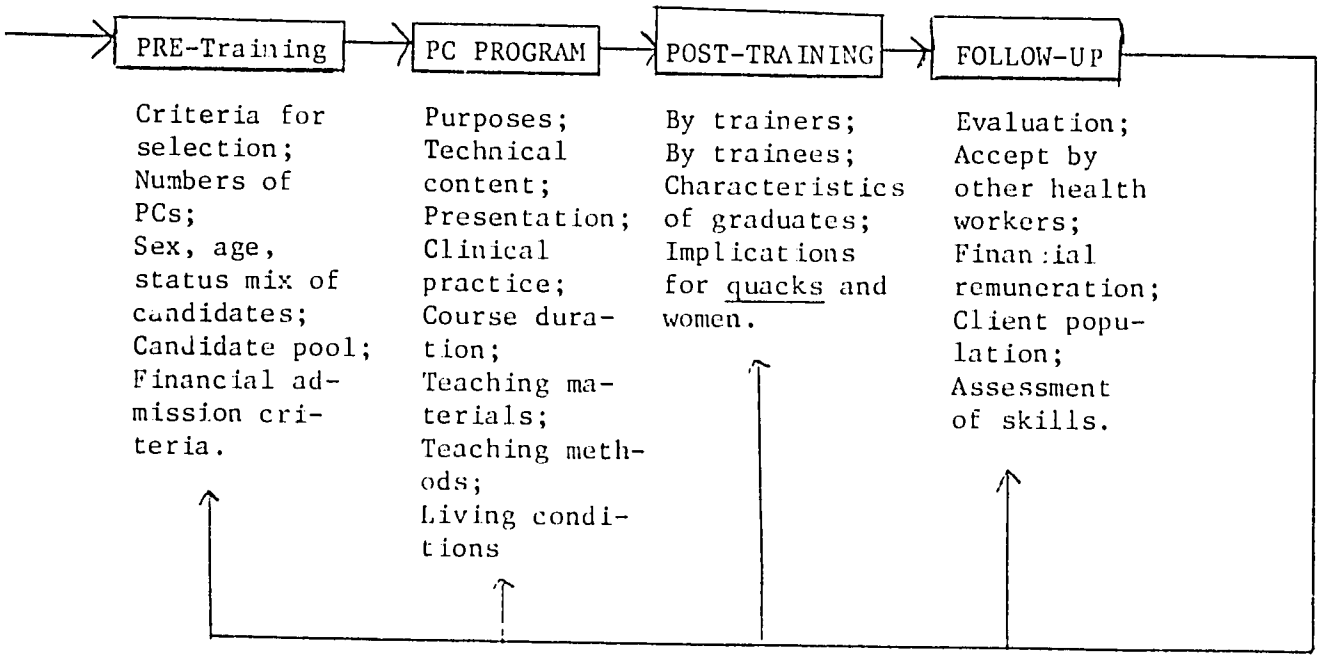
D. Trainer questionnaire is an instrument designed to gather information related to PC teacher characteristics, perceptions and opinions related to PC students, curriculum and program. It is an instrument with a standardized procedure for administration, collection and scoring.

E. Curriculum was conceived of as all aspects of study and/or living which affects the learner through his/her course of study.

VI. Conceptual Framework of the Study

To assess pre-training, program, post-training and follow-up aspects of the program, a curriculum systems framework was used. Both formative and summative evaluation components were included in the assessment. The components of the model are illustrated in Figure 1.

Figure 1: SCHEMATIC MODEL FOR ASSESSING PROGRAM IMPLEMENTATION



VII. Research Design

The design undertaken was essentially a verbal, descriptive survey to gather data related to selected formative and summative components No attempt was made to gather pre- and post-program data due to severe constraints of time and difficult communications.

VIII. Analysis of Data

To analyze the curriculum data and perceptions of the program by the trainers and PC graduates, descriptive statistics and percentages were used. To assess the relationhips between trainer and trainee characteristics and selected aspects of program implementation, and to assess the relationship between selected demographic characteristics of the PC graduates and clinical performance t-tests were used.

IX. Methodology

A. Setting

Bangladesh is divided into four administrative divisions, 21 districts (provinces), 65 sub-divisions, 356 rural thanas (counties), and approximately 3,700 rural unions (townships), each with 10 to 20 villages. The BDG Health Division had a 100 to 300 bed hospitial in each district and small hospitals in the sub-divisional towns. The rural health outreach program begins at the thana level. The thana health facility is a Thana Health Center of Complex (THC), a combined inpatient and outpatient facility, staffed by one to four physicians and paramedical personnel. The THC serves an average population of 200,000 with clinical health and family planning services. There are

about 10 unions in every thana.[1]

The settings for the study included 24 Thana Health Traning Centers selected randomly from the original 50 THCs, and the village homes of four PCs per selected thana.

Data f - the study was collected from July 14 through July 31, 1980, in the 24 randomly selected thanas throughout Bangladesh (see figure 2). Because of heavy monsoon rains and the observance of Ramaden, it was anticipated that PCs would be available at their homes for interviews. Prior to initiation of data collection, a pilot study (see section E below) was conducted in order to assess the suitability of two instruments created for data collection.

B. Procedure

Before approaching the THA, the Civil Surgeon of the district was visited and notified of the purposes of the study. After the THA was interviewed, a requested list of thana PC graduates was compiled. PC home villages were then sought out with the help of graduates and Thana Health Center staff. No PC knew in advance of the impending visit.

C. Sample

In order to collect the data, two groups of respondents were included: they were the THAs and the PC graduates of the program. Of the 50 thanas offering PC training in 1979, a simple, random sample of 24 thanas were seledted, and the THA of that thana was interviewed. in each thana four PCs were chosen who, by virtue of their membership in that randomly selected thana, were to be

---

1. Project Identification Document for Palli Chikitsak 388-0055, USAID 1980, p. .

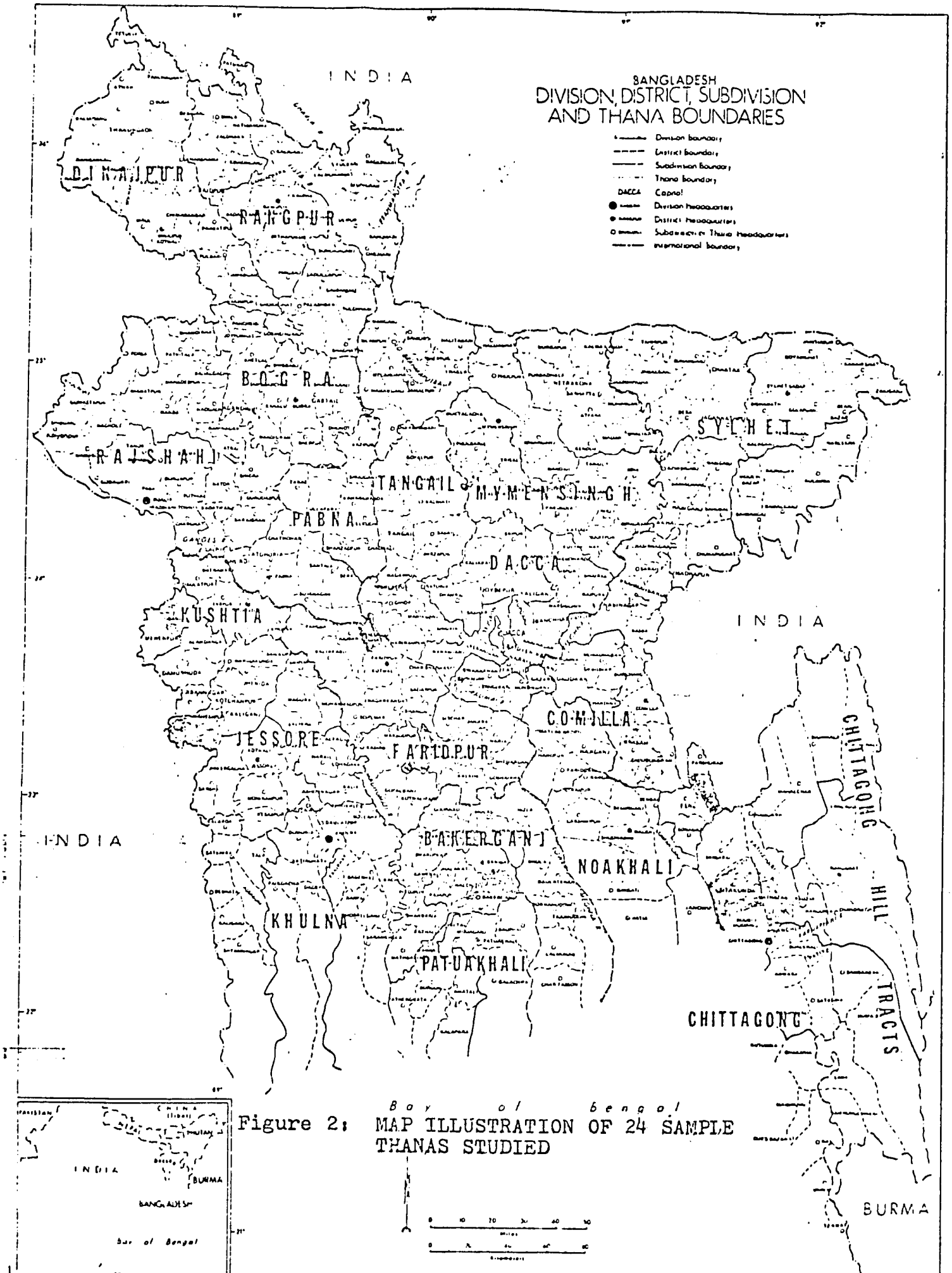


Figure 2: MAP ILLUSTRATION OF 24 SAMPLE THANAS STUDIED

included in the sample. Thus, a total of 24 THSs and the 96 PCs representing 24 thanas were to be included in the final samples.

Since the program was initiated in 1978, one class has graduated. Thus, the only criteria for interview of the THA was that they have had some exposure to the program and preferably that they have had firsthand experience in working with the PC Program. Only the PC students who had successfully completed both examinations and were currently practising were included in the sample. Because women and other minorities were supposed to represent 20% of each batch of 50 students, efforts were made to include a similar representation among the interviewees. Thus, of every four PCs interviewed, one was to be a female.

D. Instruments

1. Trainer Questionnaire

To gather data related to trainer characteristics and perceptions, an interview schedule, the Trainer Questionnaire, was created (see Appendix B).

The Trainer Questionnaire is a non-standardized, combined, open-ended and forced-choice instrument of 24 items with seven additional items relating to personal characteristics of the trainer. The entire instrument takes approximately 30 to 60 minutes to complete, with variations in time due primarily to English facility of THA.

The overall purpose of the instrument is to assess the THAs' perceptions of the program, particularly as it related to the following areas: a) purposes and outcomes of the PC

Program: b) potential population served; c) areas of strength and weakness; d) assessment of usefulness of written materials; e) trainer preparation; f) receptivity of community to the program; g) financial viability; and h) suggestion for improvement. The conceptual framework for the questionnaire was the Curriculum Guide which lists the areas outlined above. A content analysis of the guide was completed and the major subject areas were cross-checked for inclusion in the items. Thus, face and content validity of the instrument were estabished.

No formal attempts to establish a reliability coefficient were made; however, two interviewers achieved 90% agreement on the items during a pilot study conducted for this purpose.

All respondents were assured confidentiality, and stress was placed upon personal perception as a result of experience with the program. All respondents were told that their help was being solicited in order to improve the existing program.

2. Trainee Questionnaire

A second instrument, the Trainee Questionnaire, was created to gather data related to PC graduates' demographic characteristics, perceptions and experiences (see Appendix C).

The Trainee Questionnaire is also non-standardized. It consists of 44 forced-choice and open-ended items covering four sections including: Demographic Data; Items of Training of the PC; Practice Experience; and Case Studies. Its framework is the Curriculum Guide with emphasis placed on the practical

application of theory learned. Three case studies of villagers with common illnesses are presented in order to elicit the respondents' probable behavior when confronted with such circumstances. The appropriateness of treatment and medications, including dosage, is assessed along with the respondents' judicious use of the physician and/or hospital referral system.

A content analysis of the Curriculum Guide was completed and items concerning the training of the PC were included. A similar procedure to that employed for the Trainer Questionnaire was used for assessing consistency of the instrument. Two interviewers achieved 85% agreement on the 44 items. However, this consistency must be noted with caution for the individual interviewed in the pilot was not the PC graduate himself (see section E below). The questionnaire format was found to be suitable in that other villagers with language patterns similar to those of the PC were able to respond to the level and language used, at least in the one pilot test instance. The instrument takes approximately 40 to 60 minutes to complete.

The respondents were assured anonymity before answering questions and were told that their help was being solicited in order to improve the existing program.

E. Results of Pilot Study

In order to assess the two instruments, a pilot study was conducted in Dhamrai Thana near Dacca. The following factors were examined: language level and work usage, reliability, time and appropriateness of the questionnaire format for both the THA and the PC graduates.

One THA was interviewed by two interviewers and one instrument was tested, in the village, on the PC's family, using the trained interpreters. (The PC visited was unavailable for interview because he was making a home visit at the time of the pilot.) Dhamrai Thana was considered to be an appropriate test site for the pilot because that thana had the same staffing pattern and population of other thanas in the country. Further, the PC graduates were selected by the same criteria as were candidates from the other thanas in Bangladesh.

The THA appeared comfortable with the forced-choice as well as with the open-ended items.

After data was collected, the investigators and interpreters met and reviewed both instruments, item by item. Ambiguous terms were removed, redundant items eliminated and reorganization of several sections was completed.

X. Results

A. Sample

1. Trainers

The final sample of Thana Health Administrators consisted of 25 male physicians representing one thana each. The physicians had a mean age of 35, with a modal age of 28 years. The average number of years of medical practice was 6.6 years for the group. Four, or 16%, identified areas of specialization including: nutrition and family planning (one), obstetrics and gynecology (one), and surgery (one).

The number of hours a week spent in professional practice varied considerably from a lower limit of 60 to a high of 112. The average number of hours per week spent on total professional activities was 69.8 hours with 70 hours listed most frequently (see Table 1)

Table 1: YEARS OF PRACTICE, HOURS OF PRACTICE PER WEEK AND HOURS SPENT ON TRAINING OF PCs

Age	Average Number of Years of Practice	Average Number of Hours of Professional Practice per Week	Average Number of Hours Spent on PC Training	% Hours Spent on Training of PCs
Under 40	5.6	70.9	13.7	19
Over 40	8.8	66.9	10.1	15

The number of hours devoted to PC training activites also varied considerably, with on physician rendering a low of two hours of teaching per week and four rendering 18 hours per week. The average number of hours was 13.7 per week for physicians over 40 and 10.1 hours per week for physicians under 40, representing, on the average, 19% of the over-40 physicians' time and 15% of the under-40 physicians' time.

2. Trainees

Ninety-eight graduate PCs from 24 thanas comprised the final trainee sample. Seventy-nine men, ranging in age from 18 to 53 were interviewed along with 19 women who ranged in age from 19 to 35. The mean age for males was 21.7, for females 23.8

Of the men, 46, or 58.2%, were married and 33, or 41.8%, were single. None were reported to be widowered. Of the women, 19, or 100%, were married.

Collectively, for both males and females, the mean number of live children was 1.25 (see Table 2).

Table 2: AGE, MARITAL STATUS, YEARS OF SCHOOLING AND NUMBERS OF LIVE CHILDREN OF MALE AND FEMALE GRADUATES

Sex	Average Age	Marital Status M	Marital Status S	Average Years of Schooling	Average Number of Live Children
Male	21.7	58.2%	41.8%	12.2	1.9
Female	23.8	100.0%	0.0%	16.0	1.7

For female PCs, the mean number of live children was 1.7 with a mode of 5; for males, the average was 1.9 with a mode of 8.

The data showed that all PCs interviewed had completed at least 10 years of schooling, with the greatest frequency occuring at the IA level (46), the second greatest frequency at matric level (43) and three at BA level.

Prior to training as PCs, the graduates were involved in a variety of working situations. Twenty-six (26.5%) were quacks, 20 were students, 13 had pharmacy experience and 12 were farmers. Other listed areas included: business, social work, teaching, union board membership and homeopathic practice.

According to the Curriculum Guide, students "will have to execute bonds of Taka five thousand or of land of equal value

or of any wealthy person [sic] indicating that they will work in their respective unions for at least 5 years."[1]

Eleven of the respondents were aware of the need for a bond, but did not execute one. Forty-nine executed bonds themselves, and 20 depended on family members and union chairmen; two council were also listed. The remainder (7.2%) did not remember or were unaware of the stipulation.

B. Trainers' Perceptions of the Palli Chikitsak Program

1. Objectives of the Program

As listed on pages one and two, seven objectives of the PC Program were included in the Curriculum Guide sent to each Thana Health Administrator. To assess the THAs' awareness and understanding of the purpose each trainer was asked:

"As you see it, what are the purposes of the PC Program?" The responses were varied, with the majority of answers focusing on the recipients of care, namely the village rural poor. Twenty-three, or 92%, indicated that the major purpose was to provide curative care to rural poor. Other responses included: a) family planning; b) immunization; c) primary health care; d) nutrition; e) government policy; f) health facilities to interior; g) preventive care; h) sanitation; i) new cadre of quacks; j) epidemic cases of illness; k) first aid; and l) PCs as change agents.

No mention was made of the following objectives as outlined in the Curriculum Guide: a) support participation in the public health system; and/or b) prepare competent doctors. Only one

---

1. Palli Chikitsak Training Curriculum, Government of Bangladesh, p. 21

respondent was the training as creating economic opportunities for the rural poor.

The Curriculum Guide enumerates ten specific behaviors which the graduate will be able to perform (see page five). Although the program is intended to reflect a curative focus, six out of ten statements could be classified as preventive, having to do with anticipatory health teaching, immunizations, and family planning advice.

The question was asked:

> "In your view, what medical activities will the PC be able to carry out upon completion of his/her program?"

Seventy-four answers were received with 46, or 62%, having to do with treatment. Additional responses included: a) having a kit of common drugs; b) prepare barefoot doctors; c) prescribe medicine; d) sanitation; and e) population planning.

Finally, most THAs saw the program as one of which is useful and one which would provide "qualified doctors for the rural poor" who never see any type of health workers. They viewed the programs as best meeting the needs of the poor and creating employment for rural health workers.

2. Supervision of the Palli Chikitsaks

The Curriculum Guide lists at least five categories of people who might supervise the PC. However, 17, or 68%, of the THAs saw themselves as immediate supervisors. Thana Health and Sanitary Inspector was listed 11 times, and Assistant Health Inspector listed once. Two THAs noted, with concern, that because the PCs were not government employees, they had to answer to no one.

3. Areas for Program Improvement

When asked:

"What aspects of the program need improvement?"

a wide variety of answers were elicited. The overriding concern related to the length of training which was seen as "too short to teach an entire medical curriculum." Seven THAs expressed frustration because, as they saw it, the expectation was to prepare physicians in one year instead of five. Thus, one suggestion was for longer training (one felt the training duration should be two years). Of equal importance was the concern for improved facilities: a) a separate hotel with appropriate latrine and eating facilities; and b) adequate classroom space. The second most frequently reported suggestion was the concern for texts for each student, audio-visual equipment, and training materials. The present location of the training (at the THC) was acceptable if separate living quarters for students could be erected.

4. Thana Health Administrators' Assessments of Teaching Materials

The THAs were asked their view of the following items: a) usefulness and extensiveness of the curriculum Guide; b) rating of PC Manuals; c) difficulty level of manuals for students; and d) rating of audiovisual material. Extent of use of the Curriculum Guide ranged in ratings from always (11), to sometimes (10), to never (4).

The THAs were asked their views of the content of the curriculum for a year; 44% reported that it was too extensive, 36% felt it was about right, and 20% felt that it was not extensive enough.

THA ratings of the Medical, Surgical and Midwifery Manuals are presented in Table 3 along with the ratings of the audio-visual materials and Curriculum Guide. From Table 3 it can be seen that some of the THAs had not received the manuals, but of those received, they were most frequently rated as average.

Table 3: THAs' RATINGS OF MANUALS, AUDIO-VISUAL TEACHING MATERIALS AND CURRICULUM GUIDE

	Rating			
	Excellent	Average	Poor	Did Not Receive
Medical Manual	4	14	3	4
Surgical Manual	3	14	4	4
Midwifery Manual	2	13	4	6
Audio-visual Materials	7	7	5	3
Curriculum Guide	3	6	4	2

To the question:

"How difficult do you think the manuals are for the students?" 32% responded that the manuals were difficult, 32% rated them about right, and 16% rated them as easy. Twenty percent either did not receive them and/or did not use them.

5. Evaluation of Palli Chikitsak Students by Thana Health Administrators

All PC students were evaluated on their theoretical knowledge through a pencil and paper essay examination. The written

examination,[1] according to the Curriculum Guide, is to contain items relating to the following areas: a) anatomy and physiology; b) drugs and pharmacology; c) microbiology; parasitology and pathology; d) medicine; e) surgery; f) nutrition; g) population control and family planning; h) child health; and i) female diseases and maternal welfare.

However, one written examination sampled consisted of four overall questions dealing with selected diseases, complications in maternity and gnyecology, and definitions related to population contron (see Appendix E). The majority of thanas evaluated student performance at the end of both semesters while five evaluation at the end of one semester only. No formal clinical assessment was completed in any thanas, nor were any records kept of number and/or types of clinical cases seen. Blue books of activities were not maintained by the PCs during or after training, even though the Curriculum Guide notes emphatically "maintenance of this Blue Book is compulsory for the Palli Chikitsaks."[2]

The Curriculum Guide reflects a curriculum projecting between 600 and 700 hours of theory and 540 hours of clinical or practical training. These hours are divided so that each day theory classes are given for four hours, clinical practice for three. Classes are held five and one-half days each week

---

1. See Appendix D for Palli Chikitsak Examination and Scoring, Appendix E for an example of one final written Palli Chikitsak Examination with its English translation.

2. Palli Chikitsak Training Curriculum, Government of Bangladesh, p. 21.

for eleven months of the year. Thus, 38.5 hours of classes are to be held each week, which yields a yearly grand total of 1.925 hours, 685 hours over the total number of hours in the curriculum. However, several THAs indicated that no clinical experience was offered, and the investigators' experience was that classes in some thanas were over during the early afternoons. This observation was confirmed by the graduate PCs, whose major concern was their lack of clinical training.

6. Teacher Training for the Thana Health Administrator

Ninety-six percent of the THAs received no formal preparation for the PC Program, although all but one indicated an interest in and need for training. Areas specifically requested were: a) use of group methods; b) evaluation methods; c) how to give classroom presentations; and d) strategies for teaching in the field. The THAs mentioned the difficulty of translating their lectures into Bengali and noted the time this activity consumed. However, all three investigators found that although 100% of the administrators felt the 100 Taka received every one or two months for their time was insufficient, 72% indicated future interest in teaching in the PC Program and 20% indicated a desire for modifications to increase their teaching load.

7. Selection of Palli Chikitsak Trainees

The majority, or 84%, of the administrators felt that 50 students per class was an acceptable, manageable number, although two opted for a wider pool of recruits from which final candidates could be selected. The greatest discrepancy among

the trainers centered on the recruitment of quacks. Five respondents felt that because of the quacks' prior experience and level of knowledge upon entry into the program, quacks derived more from the experience. Further, it was believed that quacks are known to the community and develop a clientele with relative ease. The administrators also noted that the quacks' margin for error would be reduced as their educational level increased. However, two THAs indicated that the quacks in their respective thanas "were practically illiterate" and experienced considerable difficulty in comprehension and reading. Mention was made of the changes needed to recruit candidates with fewer language barriers, and one suggested that women be eliminated.

C. Trainees' Perceptions of the Palli Chikitsak Program

1. Status of Graduate Palli Chikitsaks

Of the 98 PC graduates interviewed, the majority (80) had completed their training in December 1979. According to the guide, candidates would be awarded certificates for practice in their own thanas. Of the 98 interviewed, 70% were practicing by February 1980 and 91% were practicing by June 1980.

When asked:

"Why did you choose to become a PC?"

79, or 8o%, said they wished to help poor people of the villages. Twenty-three listed financial concerns and 21 responses reflected interest in learining and interest in medical care.

Of the 98 PCs interviewed, 88 were receiving their montly 100 Taka post-training allowance and 10 were not. Upon completion of the program PCs, according to the guide:

> will have to attend their nearest Thana Health Complexes at least once a month where they will attend patients, discuss about the treatment of different diseases and health problems. They will maintain a Blue Book where the THA will record his remarks on a regular basis regarding their attendance, activities.[1]

Forty-eight had not attended any meetings, seven had attended sometimes, 20 had always attended, and three gave no response. Those who had not attended reported they had not done so because none were held.

2. Palli Chikitsaks' Perception of the Training Program

All graduates were asked to rate the training they received in the selected topic areas, the length of the training, the teaching methods used, and the teaching methods preferred.

a. Topic Ratings

Teaching of diseases was rated excellent by 40, average by 50 and poor by none. Treatment classes received ratings of 41, 54 and one, respectively. Medicine classes showed a similar scoring to Treatment, with scores of 42, 52 and three respectively. Family Planning received 38 excellent ratings, 47 average ratings and 10 poor ratings. Pregnancy and Delivery classes received the lowest rating with 35 excellent, 35 average and 25 poor (see Table 4).

---

1. Palli Chikitsak Training Curriculum, Government of Bangladesh, p. 8.

Table 4: PC TRAINERS' RATINGS OF CURRICULAR TOPICS

Topics	Excellent		Average		Poor	
	F*	%	F	%	F	%
Diseases	40	41	58	59	-	-
Treatment	41	43	54	56	1	.01
Medicine	42	43	52	54	3	.03
Family Planning	38	40	47	49	10	10
Pregnancy/Delivery	35	47	35	37	25	26

*Frequency

b. Length of Program

None of the students felt that the program was too long. Eighty-seven were concerned about its short duration, and 11 felt it to be about right. All three investigators found that studens verbalized their concern about the need for additional learning and placed special emphasis on field work and practical experience. These aspects were seen as sorely lacking and inhibiting clinical performance.

c. Teaching Methods

From a view of teaching methods used, all thanas employed the lecture method with 66 using discussion as well. Films and slides were unavailable and textbooks had not been received in one-third of the thanas.

Field work, even though limited, was used in 71 thanas, yet this methodology was seen by 62 as the best teaching method to facilitate learning, followed by text-books, 40, and finally lectures, 36.

Although the majority, or 72, of the graduates were satisfied with their teachers, some noted the need for a variety of individuals who had different teaching styles, experiences and areas of expertise.

Each investigator informally observed the on-going teacher training at some of the THCs. Students shared their concerns about the program and, in two instances, wrote collective letters to voice their concerns (see Appendix F). All asked what would become of them and voiced their wish to join government service. Some shared their financial concerns and indicated that they could not live on 100 Taka per month.

3. Work Experiences of Graduates

When asked:

"How many hours a day do you work as a PC?"

considerable variation occurred in the responses. Hours ranged from two hours to 15, with an average number of 13. Patients were either seen at the PC's place of work or at the patient's home, with the percentage seen at the PC's place of work per week reported to be slightly higher than home visits made per week (PC place of work = 2,267, average = 23.9; patient home = 1,852, average = 20.3).

When the total number of female patients seen per day were compared with the total number of male patients seen, number of males was greater than the number of female patients. In a typical week 478 children were seen by all PCs. Also in a typical week the average for men, women, and children were 17.6, 9.5 and 14.0 respectively.

Of interest to this program is the future recruitment of female PCs. When total numbers of men, women and children seen by female PCs was compared to the total numbers seen by male PCs per week, it was found that there was a difference of 24.1. It was found that men saw an average of 47.6 patients per week. Women saw and average of 23.5 patients per week. This difference was found to be statistically significant ($t = 16.7$; $df = 96$; $> .01$).

The responses related to the relative frequency of illnesses seen reflected those which ususally occur during monsoon season. The most frequently occurring illnesses were reported to be, in rank order: diarrhea, skin diseases, and pneumonia.

Although 53 hours of curriculum is devoted to female physiology and diseases and maternal welfare, only 26 out of 96, or 26%, had performed deliveries, with 70% indicating they had performed none.

The concern for assurance of a minimal level of safety was identified by the investigators as particularly important to the relative success of the program. Thus, three questions explored the number of patients referred in a given week, the types of illnesses and/or conditions referred and the referrants

to whom patients were sent. Slightly more than half (51) of the respondents never referred a patient; of those who did, the following disorders/illnesses were listed: a) diarrhea; b) deliveries; c) injuries; d) fractures; e) pregnancy; f) ascites; g) cought/t.b.; h) cancer; i) malaria; j) tetanus; and k) diptheria. Most of these presenting health problems are, indeed, appropriated for referral, and, in all probability occur in most villages. Yet 51% of the respondents did not see fit to refer them.

The most frequent person/place for referral was the THA/ Medical Officer (54) and hospital or rural health center (31).

Thirty-four, 35%, of the respondents did not supply medicine to their patients. A list was elicited from those who did, and in-stock medications were noted. Drugs of wide variety were mentioned including: antibiotics, carminative, anti-inflammatory agents, antipyretics, sedatives, stimulants, anthelmentics, antacids, anti-histamines, anti-malarials, oxytocic drugs, anti-coagulants, and anti-diarrheal medications. Clearly, drugs are plentiful, and are available from PC graduates and/or from the local pharmacies.

4. Financial Considerations

Eighty-five percent of the patients who were seen by the PCs were either from their own union or living within a five mile radius of the PC. If home visits had to be made, the bicycle was the most frequently mentioned method of transport along with walking, and use of the rickshaw. Some PCs, of course, used several means for an individual visit. For office or place of work visits, PCs charged either 2.5, 5, or 10 Taka,

and slightly more for home visits, with 5, 15, and 20 Taka reported most frequently.[1] All three investigators found that, on the whole, PCs were uncomfortable discussing their fees. Some reported their inability to charge because many clients were relatives; and because some villagers saw the PCs as having been trained by the government, they felt a public service was being rendered and did not warrant payment. Five PCs received some payment in kind, which usually consisted of fruits and vegetables grown by their patients.

Seventy-nine respondents reported a willingness to work on a salary by the Union Council, if they could be assured 750 to 1,000 Taka per month.

5. Assessment of Basic Patient Curative Skills

To assess the PCs behavior when confronted with a patient problem, three vignettes were created: a) an eight month pregnant pre-eclamptic patient; b) a two year old with diarrhea; and c) a child with unilateral pneumonia. The PC was asked what he/she would do when confronted with these situation. The resonses were categorized by the investigators as: a)correct; b) partially correct; c) incorrect/neutral; or d) incorrect/ damaging.

To the pre-eclamptic patient vignette 65, or 66%, were correct; 7, or 7%, were partially correct; 9, or 9%, incorrect/neutral;

---

1. See Economic Analysis section for more extensive discussion of PC charges for place of work and home visits.

and 17, or 17%, were incorrect/damaging.

To the vignette concerning the child with diarrhea 50, or 51%, were correct; 26, or 27%, were partially correct; 17, or 17%, were incorrect/neutral; and 5, or 5%, were incorrect/damaging.

To the pneumonia vignette, 82, or 84%, were correct, 5, or 5%, partially correct; 3, or 3%, were scored as incorrect/neutral; and 8, or 8%, as incorrect/damaging.

IX. Discussion of Findings

In this section an attempt will be made to integrate the results of findings from the two samples (trainers and trainees), and to discuss these findings within the context of the overall framework of the Palli Chikitsak Program. Also, in this section, the investigators' subjective responses as well as the hard and soft data obtained will be included.

Again, the framework for discussion below is the overall systems approach to curriculum design as discussed on page seven and as illustrated by the schematic representation on the same page.

A. Pre-training Considerations

The stated criteria for selection of students were that students" 1) come from the village in which they would practice, i.e. that they be village residents; 2) be selected by the THA with a Union Council recommendation; 3) present secondary school certification; and 4) be required to post a 5,000 Taka bond. Twenty percent of the seats were to be reserved for women, 20% for quacks.[1]

---

1. Project Identification Document for Palli Chikitsak 388-0055, pp. 5-6

All of the respondents came from the villages in which they were practicing. But, the resulting familiarity of the PC with his/her village brought mixed blessings. If the PC was formerly a quack, his ability to practice appeared to be enhanced. Further, some PCs appeared to lack self-esteem and confidence about their skills which was reflected in their inhibitions in discussing their fees. But the notion that one would seek health care from a former child observed growing up in one's own village placed some villagers in an awkward position. The benefits of this stipulation are derived from the fact that the PC is familiar with his/her own people, he/she will probably wish to remain a resident of the village of origin, and the acceptance process will be shorter for a PC who formerly lived in the village than for one who came from another area. Therefore, the benefits of maintaining this criterion appear to override the perhaps transient liabilities it presents.

Considering that the candidate was to be recommended by the Union Council and that a 5,000 Taka bond was to be executed, the investigators raised questions related to the socio-economic background of the candidates. On first glance, these criteria suggest a middle class candidate; yet the data reveal that in some instances no bonds were in fact executed. Nevertheless, the fact that almost half were responsible for their own bonds led the investigators to conclude that the program does not draw from a pool of poor village candidates.

B. Other Criteria for Selection

Interviews with trainees, trainers, and some current in-training students were held. Most felt that if housing, latrine and better living accomodations could be realized, the current number of 50 students per class would remain an acceptable number. Clearly, given the present

methodology of lecturing for theory classes, the number is adequate. However, it is dubious that any meaningful clinical or field work experiences can be supervised for 50 students in a given afternoon, unless other approaches to clinical experiences are used.

One approach to assessing the wisdom to increase the percentages of quacks and women in the selection criteria was to assess whether or not and what extent these graduates are practicing, and to whom they are rendering their services. Further, the trainers' perception of these two groups would be central to this issue.

Given the historical experience of the quacks in the village, and the traditional use by villagers, as well as data findings, the advantages of increasing their participation appears to outweigh the disadvantages which were listed as their limited facility in language and speed of learning. If a larger pool of candidates could be created and the program were streamlined, more discrimination in selection could be exercised and learning would be facilitated.

All women were reportedly practicing and rendering their services to all sexes and age groups. However, based on the data of male to female clients seen by all PCs, it appears that females, particularly those of child-bearing and child-rendering ages, could receive greater exposure to health care if more female PCs were available to render services, and if those female practitioners could be motivated to expand their practices. Thus, efforts to increase female recruitment seem warranted. If this were done, considerations for living accommodations at the THC would have to be taken into account.

The number of children a PC had was not a factor in affecting the number of patients seen, thus no restriction about family size as a criterion for selection appears to be necessary. Further, no significant relationship between age and number of clients seen existed, thus, no restraint appears necessary.

C. Program Findings

The PC Program was implemented to serve as a training program to teach basic curative care. Its purposes are listed on pages one and two of this report, and the expected behaviors of the graduates are listed on page five. Upon closer examination of the expected behaviors, one notes that 60% of them deal with preventive measures, including: immunization services, health teaching on hygiene, health and nutrition and participation in rural development. The curriculum includes 10 hours on vegetable growing, poultry raising, duck farming, pisciculture and cattle raising and 10 hours on knowledge of socio-economic conditions, rural development and leadership. Fourteen additional hours are devoted to health prevention and promotion. It appears that a first step toward improving the program would be a clarification and concise definition of the basic purpose of the program and articulation of the content areas absolutely required to meet the objectives appropriate to a technician type of program. Confusion was reflected in the THAs' mixed lists of purposes (preventive, promotive, curative), and in their forcefully verbalized frustrations about volume of content to be covered. In addition, some THAs saw the program as an MBBS education collasped into the time frame of one year. That is, what they were

teaching was not for a technical-level, content-specific, basic preparation in curative care. Rather, they attempted to teach what they had been taught at a professional level. This is understandable, for all but two THAs had no preparation or pre-training instruction about the program. Some serious concerns were shared by very conscientious TMOs and THAs who reported receiving indications of gross malpractice and negligence by some of their former students, now graduate PCs. This perception was supported by the study findings which showed 10% incorrect/damaging responses to case study items. The combined misunderstanding of the program coupled with negative feedback to the trainers could result in a deterioration of commitment and in a seriously altered teaching/learning environment for all concerned.

A second major area for improvement centers on the student's misconceptions about the purposes of the program. Some saw the experience as an opportunity to enter government service and, in turn, as a pathway to financial security. Some view themselves as bona fide physicians who feel it beneath them to refer cases to more qualified doctors and THAs.[1] As discussed on page 27, some reflected a high level of discomfort in discussing their fee-for-service structure, the pivotal area upon which their program exists--that is, the structure of private practice. In turn, this discomfort and lack of confidence may have inhibited them from charging clients and the concomitant feelings of financial insecurity.

---

1. This misunderstanding extends outside the student PC group as well, evidenced by a clipping noted in a July 1980 Chittagong newspaper (see Appendix G).

Disillusioned students at several thanas talked with the investigators and in some instances included lists of conerns (see Appendix F). Financial security ranked as top priority.

D. Course Duration and Technical Content

As can be seen in the section on results, most students and THAs saw the program's one year duration as too short to cover the material. (Yet it should be noted that some students had no clinical experience at all, it should be noted that some students had no clinical experience at all, and in some thanas students were still waiting for the teachers at 10:30 or 11:00 a.m.) It seems, in the investigators' view, that given the educational level of the student, a time frame which clearly outlines technical-level content, guaranteed hours of theory taught as anticipated, and appropriate field work experiences, a one-year technician course is suitable. Areas of content appear to be comprehensive, but improvements would include: 1) streamlining of absolute number of disorders/diseases taught; 2) omitting selected content not consistent with the ultimate expected behaviors of the graduates; and 3) inclusion and/or amplification of the following areas:

a) Observation, interviewing and physical assessment skills;

b) Appropriate use of referral sources;

c) Use and misuse of drugs including consideration of route of administration, accurate dosage and duration (particularly divided dosage for children), appropriateness of drug usage in treatment, side effects and contra-indications of drugs;

d) Managerial aspects of patient with emphasis on:

i) Establishment of fee schedules;

ii) Intensive discussion of ethical issues;

iii) Concern for safety-factors.

e) Relationship with and use of available community health resources;

f) Methodology for keeping accurate and timely records.

E. Teaching Methodology

The most frequrently reported method of teaching of theory was the lecture method. Both students and teachers verbalized the need for field work, noting concern for the diminished patient population due to the replacement of patient beds with student housing in the center. Faculty requested assistance in learning how to conduct a discussion, evaluate students, and prepare classroom presentations; and students concurred on the desirability of these skills in their former teachers. Given the variability in the PC student body, the use of a variety of teaching modalities is imperative for transfer of learning to occur. Visual illustrations, models, field trips, and teacher-made audio-visual materials as well as a simple, carefully prepared manual to supplement the MOH manuals would enhance learning.

Clinical learning of field experience appears to create the greatest challenge for curricular improvement. Alternative approaches to the study of actual patient problems are sorely needed given the constraints of an uncontrollable and inconsistent flow ow patients with relatively unpredictable disorders. The limited and carefully planned use of models, culture-specific videotapes and slides might be on approach to providing 50 students daily field experience to study specific but limited types of patient problems.

F. Living Conditions

The issue of living conditions and the creation of an atmosphere for learning was discussed more by the THAs than by the students. Specifically, the need for separate student quarters, awary from the patient population, was mentioned by at lease half of the THAs. This concern was shared both for the student PCs' comfort as well as from a concern for patient space. Further, by reducing center beds, clinical cases for student learning were eliminated.

Spaces for eating, sleeping and learning were often one space which served all three purposes. A separate study/learning center to accommodate 50 students would facilitate learning and serve as a dining area for students away from the patient areas. Separate latrines to accomodate classes of 50 students are sorely needed.

G. Post-training Findings

All PC graduates interviewed had returned to their villages and 91% were practicing. All interviewed used their homes as a place of practice, a few also maintained separate pharmacies. In their homes, the PCs maintained the kits received during training, some had their training manuals and some kept on hand a stock of drugs which they used for treatment. Most practitioners made home visits traveling by any or a combination of means including foot, bicycle, boat, and rickshaw. Some indicated the need for bicycles which would facilitate travel considerably.

Of the women practitioners, all reported they were seeing patients, but in three cases two of the investigators did not believe that the reported activities reflected actual behavior. Generally the women were extremely shy and lacking in self-confidence. At times their responses were controlled by relatives' prompting.

For the most part, quacks appeared involved, busy and self-confident. They verbalized appreciation for their educational experience and tended to rate the training as excellent.

As noted in the results section, 91% of the PC graduates were in active practice as of July 1980, and were seeing, on the average, 22.1 patients per day. The most frequently reported charge was between 2 and 10 Taka per place of work and between 5 and 20 Taka for home visits. Thirty-one percent kept records of patients seen, and men ranked the highest followed by children, the women.

Although levels of receptivity by the community and other health workers were unavailable at this early date, about half of the THAs saw the graduates as potential threats or competition to the practices of the other indigenous practitioners and half viewed the graduates as a welcome addition to poor rural villages. Future studies are required to assess accurately the community impact of the program and exploration of the desirability to reduce the final number of trainees per area.

It is the belief of the investigators that the concept of a paramedic in private practice is a viable one and should not be supplemented by government funds. It is a unique and new concept which will require interpretation and a realization that one's income is a function of performance which requires competence, effort and continuing desire to improve effectiveness. Reinforcement of these qualities through government-sponsored programs of adequate initial training and of continued monitoring will serve as motivators for the PCs already in practice. The need for careful monitoring of graduate PCs is further verified by the results of the case studies presented to the practitioners.

Particularly the misuse of medications and the relative lack of judgment in handling sick children reflect definite areas for alterations in delivering care before additional serious errors are made. Further, community acceptance will be, at least in part, a function of the demonstrated level of skill of the PC graduate.

XII. Summary, Conclusions and Recommendations

A. Summary

After launching a countrywide program in 1978 to train village people to provide curative care to rural villages, the Government of Bangladesh is eager to improve the plan known as the Palli Chikitsak Program.

The present study is an attempt to assess the program, to address questions of concern related to selection criteria of candidates, program components, facilities, equipment and personnel needs, perceptions of trainers and PC graduates, and follow-up of actual outcomes of the program. Thus, an overall curriculum assessment was undertaken by the investigators. Curriculum was conceived of all aspects of study and/or living which affects the learner throughout his/her course of study.

To conduct the assessment, two pencil and paper, self-made instruments were created, tested (through a pilot study) and administered to 24 THAs and 98 PC graduates. The sample of THAs was selected randomly and the PCs were included by virthe of their presence in the randomly selected thana.

Trained interpreters accompanied the three investigators during three weeks of July 1980, at which time 98 unannounced visits were made to the PCs in their village homes.

The data was summarized, tabulated, coded, analyzed and discussed in relation to the specific areas of Government of Bangladesh/USAID interest.

Findings, conclusions and recommendations were then shared with government officials and project administrators of USAID.

B. Conclusions

On the basis of literature reviewed, persons interviewed, thanas and villages visited, and analysis of all research findings, the following conclusions are presented.

Overall, the PC Program is viewed as a dynamic, creative, socially useful and relevant program designed to meet a need among a poor, deprived and remote substrata of population. Founded on the principles of fee-for-service and private practice, the program promotes an urgency for learning useful information and seeking approaches to enhance one's effectiveness. Even the most casual on-looker cannot ignore the sense of pride and interest of the graduates; nor can it be minimized that the hard data reflects an overwhelming perception that the training program was just too short. In another respect, then, an incidental but most important effect of the program was the generation of feelings of motivation, involvement and personal investment in one's activities and development.

Like any new program invloving so many people, change and progress occur on several levels and at varying rates. The investigators noted these milestones, finding some in greater evidence than others.

First, the basic structure of the program is in place and is being implemented. Second, 150 Thana Training Centers have been

established at which one batch of 2,500 students has completed a year of training and a second batch of 7,500 is in training. And, third, graduates are practicing and serving the target population with relative degrees of success.

1. Recruitment

Students admitted to the program, for the most part, meet admission criteria, although the enforcement of the need to execute a bond appears uneven in its implementation and dubious in importance. The need for intense recuitment efforts aimed at women and quacks would further ensure health care to more child-bearing and child-rearing women--the group found to be the least often served by the graduate PCs.

2. Curriculum

The overall curriculum and supporting materials are viewed as evolving in philosphy, purposes, and or terminal behaviors of the graduates, course content and theoretical and clinical application of required materials. This is as it should be. Clearly, the content is too extensive for a one year training program so that considerable measures should be taken to streamline the curriculum and purposes, and realign theory and clinical hours into a sequenced, carefully defined series of manageable time frames for implementation.

To effectively train the unanimously agreed upon number of 50 students per batch, and to accomodate the learning environment to the unpredictable and seasonally-dependent clientele, alternatives to providing effective field experiences are urgently needed. Methodologies using simple technology are necessary to fill a critical gap in the training.

3. Follow-up and Quality Control

Concerning the actual practices of the graduates, it is concluded that the present system of a one year stipend of 100 Taka per month and no other government funding is and will be an effective way of assisting the new graduate to enter private practice. It is further concluded that the initiation of additional funding would undermine the implicit motivational assumptions which serve as incentives for growth and learning.

To encourage the implementation and continuation of sound health care delivery learned during training, a source of guidance and support at the district level should be provided. This source might most appropriately be the District Health Training Officer or the Additional Civil Surgeon who would have had an intensive orientation to the PC Program. He would receive explicit instructions concerning the expectations of the graduate, ways to elicit village feelings of satisfaction or dissatisfaction with performance and the recording of essential components of a register to be kept on all patients. Further, the district officer would provide updated health-related litertature and information on Thana Health Center meeting activities to keep the graduate current and informed. To assure the public of a minimum level of safety and to assure quality control, intensive efforts are required. Evaluation instruments and competency-based clinical exercises should be created, evaluated and standardized for use in all all thanas. Basic levels of acceptable practice must be established and enforced throughout the program. The ultimate

reputation, success, relative cost-effectiveness and longevity of the program are directly related to the expertise and effectiveness of the PC graduate. Emphasis on efforts to assure quality control must be extended to include specific course content reltated to referral sources, ethical issues and conditions presenting high margins of safety.

4. Needs for the Future

a. Teacher Training

To fully implement this program, the investigators have concluded that available resources should be committed at the level of training for the trainers. It is, indeed, difficult to teach in the field without having had exposure to role models who can clearly demonstrate how to maximize available learning opportunities. PCs were found to be enthusiastic, responsive and impressionable. The active and purposeful use of medical officers as role models who are highly competent and ethical practitioners would perhaps better serve to meet program objectives than the use of other possible strategies.

A one-month, intensive training program for medical officers from each thana would clarify the philosphy, purposes and scope and limitations of the training. Action-oriented, participative learning sessions would actively involve the medical officers in how to prepare a well-delivered lecture, use of slides, use of live patients, and how to create well-constructed evaluation instruments. Practice experience in contemporary

classroom techniques, and the use of culture-specific tapes would be incorporated. Thus, topics for such a training exercise would include: lecture techniques, evaluation techniques, teaching methods, physical assessment, observation and interviewing techniques and the essential components in clinical teaching and evaluation.

Given materials and personnel support as well as teacher training opportunities, the quality of the teacher-student learning experiences can be enhanced and can serve a multitude of student learning styles.

b. Materials

Streamlined student manuals are required along with videotapes of selected patient-centered topics to show medical officers how to teach interviewing, observation and physical assessment. Situational ethics vignettes are needed to assist medical officers in an effort to heighten the level of moral and ethical behavior of the PCs when in the practice setting, particularly concerning referral.

The center for learning must be as effectively managed and maintained as, in turn, the thanas of each medical officer should be. The managerial aspects of maintaining a clean, aesthetically pleasant learning environment will be actively communicated to the participants.

C. Recommendations

On the basis of the above findings and conclusions, the following series of recommendations are made:

1. Pre-admission criteria

a) Each annual batch of students be maintained at 50;

b) The number of women and quacks be raised from 20 to 25% so that they represent 50% of each batch; considerable effort must be made to fill this quota which is presently less than 10% for women;

c) A written commitment to return to the village upon completion of the course be submitted by each candidate prior to acceptance. The requirement to execute a bond be eliminated;

d) An academic achievement level of matriculate be maintained as entrance criteria to the program. If, on personal interview, a woman or quack candidate appears capable of handling the program, admission criteria be relaxed.

2. Program Components

a. Curriculum

i) The overall philosphy, framework objectives and course content be reviewed in order to identify clearly the specific behaviors expected of the PC graduate;

ii) From these revisions, quarterly goals for student achievement be identified followed by creation of course content to meet those goals;

iii) Content be divided among the quarters of the year, giving consideration to volume of content, mix of theoretical and clinical experiences, opportunities for reinforcement of learning, and introduction of content which proceeds from the simple to the complex;

iv) The program maintain its length of one year with more reasonable and fully-utilized hours in each day;

v) Medical officers receive assignments to teach clinically as they do for theory. Provisions be made for recording of student achievements in clinical practice without which progression is impeded.

b. Teaching Materials

i) A short, pragmatic, well-developed and aesthetically appealing supplementary text be created, tailored to the level of the PC student, course scope and objectives of the community;

ii) Simple equipment be purchased to product colored slides for simple but effective illustrations. Videotapes be created in Bangladesh to teach physical assessment, observation and interviewing techniques, and identification of common disorders of patients;

iii) Each thana be equipped with basic materials outlined above to enhance teaching and learning opportunities.

3. Evaluation, Follow-up

a. An overall evaluation plan be created which emphasizes competencies gained rather than material taught. Modules of learning experiences, for theory and practice be devised to assure learning in the absence of live patients for practice;

b. District Health Training Officers who would monitor PC graduates after graduation receive a one-week training course at the teacher training center to orient him to the program, need for record keeping, and his role in program continuity and implementation;

c. The 100 Taka allowance be continued contingent upon review of records kept and interviews conducted by the District Health Training Officer;

d. Modified PC kits be distributed to each graduate. Each kit would contain the essential materials required to provide first aid, and obtain vital signs.

4. Training for Teachers

a. A centrally located National Palli Chikitsak Teacher Training Center be created which would accommodate two classes at a time of 20 medical officers each. The center would serve as a model demonstration site for both excellence in building maintenaance, cleanliness, and management. The center would be equipped with essential audio-visual equipment to be used in the training of the trainers and with the types of equipment which is available at the thana level. Living, dining, classroom and laboratory facilities would be provided along with hand washing and latrine facilities.

b. A physician team leader be assigned to manage the entire national project using the services of a national counterpart assigned for the duration of the project. This person would be responsible for overall planning, allocation of resources, coordination of teacher training center activities, supervision of District Health Training Officers, preparation of reports and completion of appropriate research documentation.

c. Short-term consultants, working with national counterparts, provide on-site teacher training in selected areas of required expertise while simultaneously training national counterparts to carry out these activities for the duration of training. Such selected areas would include:

i) Use and creation of audio-visual materials;

ii) Evaluation techniques;

iii) Methodologies for teaching and learning, i.e., use of role playing, discussion techniques, critical incident and/or case study approaches.

d. Two long-term health/educational consultants to work with a national counterpart to coordinate and supervise the completion of manuals, audio-visual materials, distribution to Thana Health Centers and provision of consultation at the thana level.

References

Aziz, K.M.A. "Present Trends in Medical Consultation Prior to Death in Rural Bangladesh." Bangladesh Medical Journal, 6:11 (1977) pp. 53-58.

Chen, L. and Sardar. "Are There Barefoot Doctors in Bangladesh?" (In preparation.)

Chia, M. "Rural Health Center Inpatient and Outpatient Services." WHO SPY (mimeographed), 1977.

Claquin, P. "Private Health Care Providers in Rural Bangladesh." Social Science and Medicine (in press).

Nutrition Survey of Rural Bagladesh 1975-1976. Institute of Nutrition and Food Science, University of Dacca, December 1977.

Palli Chikitsak Training Curriculum. Government of Bangladesh.

Planning Commission. The Second Five Year Plan 1980-1985. Government of Bangladesh, Dacca, Bangladesh, 1980.

Project Identification Document for Palli Chikitsak 388-0055. USAID, 1980

Scope of Work, Palli Chikitsak, 388-0055, Project Implementation.

Telegram American Embassy, Dacca, Bangladesh, Palli Chikitsak, 12065; N/A, 4/18/80.

USAID Background Paper: Rural Health in Bangladesh. No date reported.

WHO Country Health Programming (CHP), Bangladesh. Dacca, April 1, 1977.

Appendix A

Palli Chikitsak Curriculum
Course Content and Duration
Detailed Syllabus and Hours

Appendix A

Palli Chikitsak Curriculum
Course Content and Duration;
Detailed Syllabus and Hours[1]

Course Contents and Duration		Hours
I.	Theoretical lectures	600 (may be extended up to 700)
A.	Course orientation	5
B.	General science (physics, chemistry and biology)	15
C.	General anatomy and phsyiology	50
D.	Microbiology, parasitology and physiology	30
E.	Action, reaction and dose of medicine	50
F.	Methods of recording disease, history, check up of patients, knowledge about common medicines, preparation of mixture, ointment, push injection, use of gauze, bandage, splint and use of simple surgical equipment, immunization, laboratory test and special investigation knowledge	75
G.	Disease science (common diseases of rural areas, health and population problems)	260
H.	Surgery	30
I.	Female diseases and maternal welfare	30
J.	Medical, surgical and emergency first aid	25
K.	Different symptoms, diseases and conditions which may necessitate the PCs to refer patients to the hospitals	10
L.	Vegetable growing, poultry raising, pisciculture, cattle raising	10
M.	Knowledge of socio-economic conditions, rural development and leadership	10
	Total	600
II.	Practical	540
	Grand Total	1,140

1. Palli Chikitsak Training Curriculum, Government of Bangladesh, pp. 11-18.

Detailed Syllabus and Hours	Hours
I. Orientation	5
II. General Science (physics, chemistry, biology)	15
III. General anatomy and physiology	50
A. Human being from foetus	3
B. Orthopadi [sic]	5
C. Muscles	5
D. Heart, veins and arteries	6
E. Lungs and respiratory systems	5
F. Digestive systems	5
G. Urinary systems	5
H. Skin	3
I. Brain and nervous systems	3
J. Others (gland, reproduction system)	10
IV. Medicine science	50
A. Types of and differences between medicines	3
B. Benefits of common medicines	10
C. Antibiotics	5
D. Medicine for food-related diseases	9
i. Antacid ii. Laxative iii. Medicine for worms	
E. Medicine for anaemia	3
F. Others	15
i. Medicine for heart diseases ii. Medicine for respiratory tract iii. Medicine for bone joints diseases iv. Medicine for poisonous actions	
G. Precauations about medicines and side effects of medicine	5
V. Theory of virus, parasitology, general pathology (general pathology -- inflammation, necrosis, oedoma, gangrine death, etc.)	30

VI.	Recording diseases -- history, methods of examination of diseases, various laboratory tests and general knowledge about special investigation	75
VII.	Disease science (major diseases of rural areas, health and population problems)	260
	A. Sound health, medical ethics, Bangladesh Health Services	2
	B. Introduction to diseases, nature and causes of diseases	8
	i. Infection	
	ii. Hereditary	
	iii. Metabolic	
	iv. Degenerative	
	v. Neoplastic	
	vi. Stress, strain	
	vii. Nutritional deficiency, etc.	
	C. Diseases of rural areas	170
	i. Malnutrition and anaemia	10
	ii. Worms	15
	iii. Infectious deiseases	25
	iv. Other diseases	85
	a. Lungs and respiratory systems disease	10
	b. Intestinal system diseases	10
	c. Heart diseases and high blood pressure	10
	d. Skin and bone diseases (5 + 10)	15
	e. Ear, nose, throat and general eye diseases	10
	f. Kidney and gall bladder diseases	10
	g. Nervous systems and general mental diseases	5
	v. Nursing	5
	vi. Others (other diseases, homicide, suicide, etc.)	10
	D. Diseases of mothers	10
	E. Child health and child diseases	20
	F. Disease prevention -- immunization	5
VIII.	Hygiene	
	A. Epidemiology -- disease statistics and some theories	3
	B. Environmental hygiene (housing, latrine, ventilation and water)	15
	C. Personal Hygiene, personal habits	2

	D. Food and nutrition science	2
	E. Promotive health care (health education, maternal and child welfare, etc.)	10
	F. Disease prevention and control of major infectious diseases	10
	G. Population control and family planning	20
IX.	Surgery	30
	A. Introduction	2
	B. Inflammation and treatment	5
	C. Wounds and treatment	10
	D. Burns and treatment	3
	E. Others	10
	i. Cancer ii. Piles iii. Hernia iv. Hydrosil v. Ulcer vi. Ligation vii. Vasectomy, etc.	
X.	Female diseases and maternal welfare	50
	A. Female sex organ	5
	B. Menstruation	5
	C. Pregnancy (normal and problems)	15
	D. Delivery (problems and solutions)	10
	E. General diseases of female sex organ	10
	F. Others	5
XI.	General medical and surgical emergencies and first aid	20
XII.	Various symptoms, diseases and conditions which will indicate the Palli Chikitsaks to refer patients to appropriate doctors and hospitals	10

XIII.	Vegetable, poultry, duck farming, livestock and agricultural development	10
XIV.	Socio-economic conditions, rural development and leadership	10

Practical — Total 540 (may be more)

Anatomy, physiology through different models, charts identification of different common drugs and chemicals, in-door, out-door, dispensary, laboratory, maternity and child health, family planning, immunization, food adulteration and health education section (including immunization in the field).

Gathering disease and patient's history, observing treatment and nursing methods, writing prescriptions, preparation of mixture and ointment. Distribution of medicine, laboratory test -- stool, urine, cough, blood, etc. -- sterilization procedure, use of common surgical equipment. Delivery and IUD insertion (especially for women trainees), pushing injection, vaccination, measurement of blood pressure, artificial breathing, first aid, minor fracture reduction, use of splint, cleaning of wounded areas, etc.

Appendix B

Trainer Questionnaire

Appendix B

PALLI CHIKITSAK PROGRAM
Questionnaire-Trainer

Purpose: The purpose of this instrument is to gather data concerning the experiences and perceptions of the Trainers regarding the Program and the Trainees.

Directions: Tell the Trainer that you are interested in learning of his experiences with the P.C. Program. Tell him you are there to listen carefully so you can make recommendations to make the Program better.

Tell him that he will not be identified, so you hope he will express his feelings freely.

Do not leave any items blank.

Section I: Demographic Data

1. Age ____; 2. Sex ____ (M) ____ (F); 3. Area of Specialization _____;

4. Year of graduation _____ (years)

5. Have you taken any additional course(s) in how to teach

	Number	Course	Length (Mos.)
a.	_____	_____	_____
b.	_____	_____	_____
c.	_____	_____	_____
d.	_____	_____	_____

6. How many hours do you work per week, including all professional activities? _____

7. How many hours in a week are you involved in training P.C.? _____

Section II: Perceptions of P.C. Program:

1. As you see it, what are the purposes of the P.C. Program?

   a. _____ d. _____

   b. _____ e. _____

   c. _____ f. _____

2. In your view, what medical activities will the P.C. able to carry out upon completiton of his/her program (please be specific).

   a. _____ e. _____

   b. _____ f. _____

   c. _____ g. _____

   d. _____ h. _____

3. After training, who do you see as the direct supervisor of the P.C.?

   a. _____ medical assistants
   b. _____ assistant health inspector
   c. _____ Lady Family Welfare Visitor
   d. _____ Thana Health and Sanitary Inspector
   e. _____ Thana Health Administrator
   f. _____ All of these

4. In your view, which population will the P.C. help the most? _____

   _____

5. In your view, which population will the P.C. help the least? _____

   _____

6. You have had experience teaching one complete batch of students. What are the best aspects of the Program?

   a. _____ c. _____

   b. _____ d. _____

7. What aspects of the Program need improvement?

   a. _____

   b. _____

   c. _____

8. How would you rate the usefulness of the Curriculum Guide you received?

   a. _____ Excellent; b. _____ Average; c. _____ Poor; d. _____ Did not recieve

9. To what extent do you use the Guide in preparing your lectures?

   a. ____ always; b. ____ sometimes; c. ____ never.

10. Medical Manual:

    a. ___ excellent; b. ___ average; c. ___ poor; d. ___ did not receive

    Surgery Manual:

    a. ___ excellent; b. ___ average; c. ___ poor; d. ___ did not receive

    Midwifery Man:

    a. ___ excellent; b. ___ average; c. ___ poor; d. ___ did not receive

    A-V/Teaching Materials:

    a. ___ excellent; b. ___ average; c. ___ poor; d. ___ did not receive

11. How difficult do you think the Manuals are for the Students?

    a. ___difficult; b. ___ about right; c. ___ easy; d. ___ do not use

12. In your view, the content of the curriculum for a year is:

    a. __ too extensive; b. __ about right; c. __ not extensive enough

13. The P.C. Curriculum obviously requires considerable teacher training. What kind of preparation did you receive?

a. _____ none

b. _____ classes

c. _____ seminars/conferences to review curriculum

d. _____ intensive training

14. What kind of training do you feel would improve your teaching skills (please read aloud to trainer)

a. ___ none, they are adequate

b. ___ making examinations

c. ___ classroom presentation

d. ___ use of A-V materials

e. __ use of group methods

f. __ evaluation methods

g. _____

_____

15. Obviously, you have many talents to offer the community. Is the P.C. teaching activity one in which you would like to ?

a. ___ continue

b. ___ discontinue

c. __ modify to reduce teaching responsibility

d. __ modify to increase teaching responsibility

16. In your view, how will the P.C. be received by other health practitioners in their area?

a. _____

b. _____

c. _____

17. How frequently are examinations held by the Thana?

a. ____ end of first semester only

b. ____ end of second semester only

c. ____ end of both semesters

d. ____ no examinations have been given

18. What do you record in the Blue Book? (ask each, then /)

a. ____ atttendance

b. ____ activities

c. ____ type of cases seen

d. ____ skill in performance

e. ____ understanding of theory

f. ____ not used

19. What suggestions do you have concerning selection of trainees (rank in order of importance)?

a. #1 _____

b. #2 _____

c. #3 _____

d. #4 _____

e. #5 _____

f. #6 _____

20. What suggestions for improvement do you have concerning the number of students in each batch (rank in order of importance)?

a. #1 _____

b. #2 _____

c. #3 _____

d. #4 _____

e. #5 _____

f. #6 _____

21. What changes would you make in the timing/scheduling of the Program? (such as: spending 6 months in training then out to field for six months, or all theory then all field training, etc.)

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

22. What suggestions do you have for improvement regarding the location of the training?

a. _____ d. _____

b. _____ e. _____

c. _____ f. _____

23. How regularly do you receive payment?

a. ____ once a month c. ____ every three months

b. ____ every two months d. ____ have not been paid

24. Considering the work you must perform, do you consider the payment

a. _____ more than adequate

b. ____ sufficient

c. ____ not enough

Appendix C

Trainee Questionnaire

Appendix C

Draft #3
7/12/80
Page 1
Trainee

PALLI CHIKTSAK PROGRAM
Questionnaire Trainnee
Graduate

Purpose: The purpose of this instrument is to gather information about the trainees characteristics, learning experiences and preparation, performance and clientele serve.

Directions: Use the exact wording as written the first time you ask a question. If the trainee does not understand, reword but be sure to keep to the same meaning of the question.

Introduce the session by saying that you have learned that he/she is currently practicing as a Palli Chikitsak (P.C.). Wait for answer. Say, "We are interested in making the training better, so we would be grateful if you would help us by answering some questions".

Be sure to say, "Your name will not be recorded, and you will not be identified".

Do not leave any items blank.

Section I: Demographic Data (Characteristics)

1. _____ 2. Age _____ 3. Sex _____ (M) _____ (F)

4. Marital status: a. ____ Single

b. ____ Married

c. ____ Widow

5. Number of Children _____

6. Number of children alive:

a. ___ 0 - 11 months

b. ___ 1 - 4

c. ___ 5 - 9

d. ___ 10 - 14

e. ___ 15 - 19

f. ___ 20 - 24

7. When did you complete your training as a P.C.?

_____ _____
(Month) (Year)

8. When did you begin working as a P.C.?

_____ _____
(Month) (Year)

9. How many years of schooling have you completed?

a. _____ 8y
b. _____ 9y
c. _____ 10y
d. _____ Matric
e. _____ I.A.
f. _____ B.A.

10. What type of work did you do before you became a P.C.?

a. _____

b. _____

SECTION II: Training of P.C.

11. Why did you decide to become a P.C.?

a. #1 _____

b. #2 _____

c. #3 _____

12. How was the bond put up?

a. _____

b. _____

13. How would you rate the training you received about:

	Excellent	Average	Poor
a. Diseases	_____	_____	_____
b. Treatment	_____	_____	_____
c. Medicine	_____	_____	_____
d. Family Planning	_____	_____	_____
e. Pregnancy/delivery	_____	_____	_____

14. Was the length of the training

a. ____ too long; b. ___ too short; c. ____ about right.

15. In your training program, you were taught by:

a. _____ lecture
b. _____ discussion
c. _____ films
d. _____ slides
e. _____ text books
f. _____ field work

16. Which methods helped you best to learn

a. _____ lecture
b. _____ discussion
c. _____ films
d. _____ slides
e. _____ text book
f. _____ field work

17. If you were to be trained again, would you want the same teachers?

a. _____ yes; b. _____no

Reasons _____

_____

_____

SECTION III: Practice Experiences:

18. How many hours a day, on an average, do you work as a P.C.?

_____

19. What other activities do you have in addition to your medical practice?

a. _____ none

b. _____ other

_____

_____

_____

20. Do you maintain a register on your patients? If yes, the following question should be obtainable from the register.

a. _____ yes

b. _____ no

21. Is the following information recorded?

	Yes	No		Yes	No
Name of patient	___	___	Address	___	___
age	___	___	diagnosis	___	___
sex	___	___	treatment	___	___
			follow-up	___	___
			referral	___	___

22. How many patients did you see last week?
(Multiply the average number of patients seen a day by seven)

Enter here _____

23. Among the _____ patients you saw last week, how many were seen at:

a. Place of practice _____

b. Home visit _____

24. Among the patients seen last week how many were

adult men # _____ % _____

adult female # _____ % _____

under 5
children # _____ % _____

25. Last week, how many cases did you see of:

	Men	Women	Under Five Years
a. Diarrhea/Dysentry	___	_____	_____
b. Pneumonia	___	_____	_____
c. Skin Diseases	___	_____	_____

26. Do you do deliveries ____ ____
(yes) (no)

27. How many deliveries have you performed in the last month?

_____

28. Are your patients

a. _____ only from the union

b. _____ mostly from the union

c. _____ about 50/50 from the union and the neighborhood

d. _____ mostly from outside the union

29. How much do you charge for:

Diarrhea:	Consultation	Medicine
Place of your practice		
Home visit (3 miles)		

30. Pneumonia:

	Consultation	Medicine
Place of your practice		
Home visit (3 miles)		

31. Skin Diseases:

	Consultation	Medicine
Place of your practice		
Home visit (3 miles)		

32. How far was the most remote home visit you made? _____

How did you go there? _____

33. Of the number of patients you saw last week, how many did you refer? _____

34. To whom did you refer them?

a. _____

b. _____

c. _____

d. _____

35. Which types of diseases did you refer?

a. _____

b. _____

c. _____

d. _____

36. Do you attend monthly meetings at the Thana Health Center?

a. ____ always; b. ____ sometimes; c. ____ never.

37. Do you supply the medicine to your patients yourself?

a. ____ yes; b. ____ no; c. _____ sometimes.

38. List the medicines available during the interview. (Please look at drugs yourself.)

a. _____	e. _____	i. _____
b. _____	f. _____	j. _____
c. _____	g. _____	k. _____
d. _____	h. _____	l. _____

39. Are you presently receiving the 100 Taka montly allowance from the government?

_____ yes _____ no

SECTION IV: CASE STUDIES

40. Shakila is a 22 year old woman. She is eight months pregnant. She has a BP 150/100 and albumin in her urine. What do you do?

_____

_____

_____

41. Ali is two years old. He has had diarrhea for four days. On examination, he is dehydrated, his pulse is 120/mm. and weak, what do you do?

_____

_____

42. Shika is three years old and has unilateral pneumonia. What medicine do you use?

_____

What dose? _____

For how long? _____

43. If you could not charge for your services would you be willing to work for the union council for

a. _____ 500 Takas

b. _____ 750 Takas

c. _____ 1000 Takas

44. What percentage of your income do you receive in kind?

_____

Appendix D

Palli Chikitsak Examination
Content and Scoring

Appendix D

Palli Chikitsak Examination
Content and Scoring[1]

First Semester Examination

Examination	Hours			
	Theoretical	Practical	Performance in Class	Total
A. Anatomy and pysiology	100 (50+50)	50	25	125
B. Drugs and pharmacology	50	50	25	125
C. Microbiology, parasitology and pathology	50	50	25	125
Total	200	150	75	425

Second Semester Final Examination

Examination	Hours			
	Theoretical	Practical	Performance in Class	Total
A. Medicine	150	100	50	300
B. Surgery	50	50	25	125
C. Nutrition	50	-	25	75
D. Population control and family planning	50	-	25	75
E. Child health	50	50	25	125
F. Female diseases and maternal welfare	50	50	25	125
Total	400	250	175	825

1. Palli Chikitsak Training Curriculum, Government of Bangladesh, pp. 21, 22.

Appendix E

An Example of One Final Written
Palli Chikitsak Examination
with English Translation

Appendix E

Palli Chikitsak Final Examination

ষ্টেট মেডিকেল ফেকালটি অব বাংলাদেশ।
সমাপনী পরীক্ষা- পল্লী চিকিৎসা শিক্ষা কোর্স, ডিসেম্বর, ১৯৭৯ ইং।
মোট নম্বর- ১০০
সময়- ৩(তিন) ঘন্টা।

বিঃ দ্রঃ প্রত্যেক প্রশ্নে সমান নম্বর। ১ নং ও ২নং প্রশ্নের উত্তর এক খাতায় লিখিতে হইবে। ৩ নং এবং ৪ নং প্রশ্নের উত্তর অন্য খাতায় লিখিতে হইবে।

দ্বীতিয় পএঃ- সাধারন পুষ্টি, জনস্বাস্থ্য পরিচার পরিকল্পনা, জনসংখ্যা নিয়ন্ত্রন, মাতৃত্ব ও শিশু স্বাস্থ্য এবং প্রীরোগ

১। পুষ্টিহীনতা কাহাকে বলে? বাংলাদেশের প্রধান প্রধান পুষ্টি সমস্যা উল্লেখ কর। অপুষ্টি জনিত রোগের কারন ও লক্ষনের বিবরন দাও।

২। জনসংখ্যা নিয়ন্ত্রন কি? পল্লী চিকিৎসক হিসাবে জনসংখ্যা নিয়ন্ত্রনে তোমার ভূমিকা কতটুকু? জন্ম নিয়ন্ত্রের পদ্ধতি গুলি উল্লেখ কর।

অথবা -

গর্ভের লক্ষন গুলি কি কি? প্রসবউত্তর রক্তক্ষরনের কারন ও চিকিৎসা বর্ণনা কর।

৩। সংক্ষিপ্ত টিকা লিখঃ-
(ক) এ,বি,এইচ, (খ) জন্ডিস (গ) ~~ইচ্ছাশক্তি~~ বন্ধ্যাত্ব (ঘ) ঋতু স্রাব (ঙ)গর্ভপাত
(চ) এক্লামশিয়া (ছ)ডিম্বানুবাহী নলে গর্ভ।

৪।(ক)সদ্যজাত শিশুর কি কি যত্ন নিতে হবে বর্ণনা কর।
(খ) ১ মাস, ৬ মাস ও দেড় বৎসরের শিশুর খাদ্যতালিকা প্রস্তুত কর।
(গ) যোনিপথের রক্তপাতের কারনগুলি কি কি।

অথবা -

মেনষ্ট্রোয়েল ডিজঅর্ডার কয় প্রকার এবং ডিজ মেনোরিয়ার চিকিৎসা লিখ।

ষ্টেট মেডিকেল ফেকালটি অব বাংলাদেশ ।
সমাপনী পরীক্ষা- পল্লী চিকিৎসা শিক্ষা কোর্স, ডিসেম্বর, ১৯৭৯ ইং ।

মোট নম্বর- ১০০
সময়- ৩ (তিন) ঘন্টা ।

বিঃদ্রঃ প্রত্যেক প্রশ্নে সমান নম্বর । ১ নং ও ২ নং প্রশ্নের উত্তর এক খাতায় লিখিতে হইবে । ৩ নং এবং ৪নং প্রশ্নের উত্তর অন্য খাতায় লিখিতে হইবে ।

প্রথম পত্রঃ- বিষয়- মেডিসিন এবং স্যারজারী ।

১। উদরাময় (ডাইরিয়া) রোগের কারন কি কি ? একুইট ব্যাসিলারী এবং এমোবিক ডিসেনট্রির মধ্যে পার্থক্য কি কি এবং তাহাদের চিকিৎসা কি ।

২। রিউমাটিক জ্বর বলিতে কি বুঝ ? উহার কারন কি, উহার লক্ষন ও চিহ্নগুলি বর্ণণা কর । রিউমাটিক জ্বরের জটিলতা কি । উহার চিকিৎসা কি কি ।

অথবা-

টাইফয়েট রোগ কি ভাবে মানুষের শরীরে বিস্তার লাভ করে । ইহার লক্ষন কি কি ? ইহার চিকিৎসা প্রনালী বর্ণণা কর ।

৩। (ক) হাড় ভাংগা কত প্রকার ও কি কি? প্রসারিত হাতের উপর পড়িয়া গেলে কোন কোন হাড় ভাংগিতে পারে? কলিজ হাড় ভাংগায় হাতের আকৃতি কি রূপ হয় ।

(খ) পাকস্থলীর আলছার ও ডিওডিনামের আলছারের মধ্যে পার্থক্য কি কি ?

৪। আমাদের দেশে চোখ উঠার কারন গুলি কি কি ? সাত দিনে বাচ্চার চোখ উঠিলে কি ভাবে পেনেসিলিন ফোটা দেওয়া হয় লিখ । এনিক সাপুরেটিভ অটাইটিচ মিডিয়ার চিকিৎসা লিখ ।

অথবা-

এ্যাকিউট অটাইটিচ মিডিয়ার সংগা, লক্ষনসমূহ, চিকিৎসা ও উহার কারনে জটিলতাগুলি বিশদভাবে লিখ ।

Examination I

I. What are the courses of diarrhea?

What are the differences between bacillary dysentery and amoebic dysentery?

II. What is rheumatic fever?

What are its causes, its symptoms, its complications, its treatment?

or

What are the mechanisms of transmission of typhoid fever in the human body?

What are its symptons and its treatment?

III. A. What are the different types of factures?

If you fall on an extended hand, what type of fracture will result?

What is the shape of Colles fracture?

B. What are the differences between gastric and duodenal ulcers?

IV. A. What are the courses of conjuctivitis?

If a patient has had conjunctivitis for seven days, how do you give him penicillin drops?

B. Treatment of acute supperative otitis media?

or

Define acute otitis media.

What are the symptoms, the treatment and the complications?

Examination II

I. Define malnutrition.

What are the main nutritional problems in Bangladesh?

What are the causes and symptoms of malnutrition?

II. What is population control?

What is the role of a PC in population control?

What are the different methods of family planning?

or

What are the symptoms of pregnancy?

What are the causes of postpartum hemorrhage?

What is its treatment?

III. Write short notes on:

A. Anti-partum hemorrhage
B. Twins
C. Sterility
D. Menstruation
E. Abortion
F. Eclampsia
G. Ectopic gestation

IV. A. What care should be given to a newborn child?

B. Describe the food chart at:

1. One month
2. Six months
3. One year and a half

C. What are the causes of vaginal bleeding?

or

What are the different types of menstrual disorders?

What is the treatment of dymenorrea?

Appendix F

Letters from PC Students
(Bengali and English Translation)

Bhatinda

To the Project Director of the Palli Chikitsak Course

Subject: Request to solve the PC problems

Sir,

As PC students we are presenting our requests. We are facing many difficulties and we are apprehensive of the future.

Here are our demands:

1. After completion of training, we would like to get the government Grade 6.

2. Non-government PC training institutes should be shopped.

3. Possibility of a direct access to the Medical Assistant training program.

4. Each ward or union should have only one PC.

5. Licensing should be for good instead of having to be renewed every other year.

6. We should have the right to receive legally recognized medical certificates.

7. We should be given a blood pressure instrument of a 200 Taka value.

8. Our allowance should be 300 Taka per month.

9. Our official title should be doctor with the right to mention it before our names.

Please consider our request.

Yours obediently,

Dated 17/7/80

TO

The respectable, adviser of Palli-Chikit-shak of Bangladesh.

Madam,

We are the students of Kalihaty Palli Chikit-Shak-shikkha-Kendra of Tangail District. We are becoming Doctors of rural areas, from the help of your finance. We have very much responsibility for the development of our country people. You know that our country is very poor in the world. It is unable to bear expenses of our study on our govt. We hope that your country will help financially for the purpose of rural Doctor's of Bangladesh.

Our demands.

No. 1 For the permanent Govt. job.

No. 2 We require a permanent "drug license".

No. 3 Please increase our monthly stipend.

No. 4. We want for the extension of our course.

So, we therefore pray and hope that your govt. will fulfill our demands. Many thanks to you.

Yours obediently,

The students of Kalihaty
palli chikitshak shikkha Kendra
Tangail

dated: 27th July 1980

Appendix G

Chittagong Newspaper Clipping
July 1980

Appendix G

On Village Doctors

One can notice the existence of training centers for the so-called village doctors. How is it that after a 6-month course a certificate is issued? As the government has already created medical colleges, it is meaningless to have the so-called village doctors. As there is already a registration system for physicians, the issuing of the PC certificate will be valueless.

We are requesting the government to stop the training of the so-called village doctors to protect the country for quack doctors and to contribute to the formation of real doctors.

Askar Ibne Sheik
3rd Year Medical Student
Rangpur Medical College
Rangpur

Annex H

Topical Summaries of Manual in:
Surgery

Palli Chikitsak Course Content

Surgery Manual

1. Malignant tumors

2. Finger boil

3. Head injury

    a. Scalp injury
    b. Fracture of cranial bone
    c. Vault bone fracture
    d. Basal bone fracture
    e. Concussion
    f. Compression
    g. Intra-cranial tension

4. Gland pathology

5. Shock

6. Burger's Disease

7. Dry gangrene

8. Wet gangrene

9. Gas gangrene

10. Boil

11. ENT anatomy and physiology

    a. Septal deviation
    b. Rhinitis
    c. Epistaxix
    d. Polype
    e. Sinusitis
    f. Otitis media

        -Acute otitis media
        -Chronic suppurative otitis media

    g. Acute tonsilitis and sore throat
    f. Foreign bodies in ear, nose, throat

12. Breast abcess

13. Breast tumor

14. Hernia

15. Peptic ulcer

    a. Epigastric pain
    b. Stomach ulcer
    c. Acute peptic ulcer

16. Duodenal ulcer

17. Perforated peptic ulcer

18. Pylorix stenosis

19. Intestinal obstruction (peritonitis)

20. Gall bladder diseases

21. Acute appendicitis

22. Cancer of the intestine (carcinoma of the large intestine)

23. Hemorrhoids(piles)

24. Anal fistula

25. Boil of the perineal area

26. Chronic cholecystitis

27. Haematuria

28. Stone in the urinary tract

29. Neoplasm of the kidney

30. Adeno carcinoma

31. Prostate pathology

32. Urethra stricture

33. Hydrocele

34. Penis (phymosis)

35. Paraphymosis

36. Cancer of the penis

37. Stress fracture

38. Simple fracture

39. Compound fracture

40. Complicated fracture

    a. Upper limb
    b. Clavicle fracture
    c. Supracondylar fracture
    d. Coller fracture
    e. Dislocation
    f. Dislocation of joint
    g. Osteomyelitis
    h. Rib fracture

41. Wound

42. Tetanus

43. Gas gangrene

44. Hemorrhage

45. Tourniquet

46. Eyes

    a. Disease of the eyelids
    b. Conjunctivitis
    c. Chronic Dacryocystits
    d. Keratitis
    e. Corneal ulcer
    f. Iritis
    g. Glaucoma
        - Primary glaucoma
        - Secondary glaucoma
        - Congenital glaucoma
            - Acute congestive glaucoma
            - Chronic simple glaucoma
    h. Cataract
    i. Vision test