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NIGER

**SYSTEMS ANALYSIS OF THE VILLAGE
HEALTH WORKER PROGRAM**

GOVERNMENT OF NIGER
MINISTRY OF PUBLIC HEALTH
PROGRAMMING AND STUDIES DIVISION
HEALTH CARE FACILITIES DIVISION

SYSTEMS ANALYSIS OF THE VILLAGE HEALTH WORKER PROGRAM

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PREFACE

Over the past decade, national and international commitment to extending basic health services to underserved urban and rural populations in developing countries has led to major investment in primary health care (PHC) and child survival program strategies. However, these programs continue to face persistent problems with underutilization of services, lack of knowledge and acceptance of home-based interventions, and at times, inadequate quality of services provided. Typically, program managers lack specific information about how service delivery activities and support functions such as supervision, are routinely carried out.

While surveys and evaluations have tended to focus on measuring program inputs (such as training and supplies), outputs (such as number of services delivered) and impacts (such as changes in morbidity rates), relatively little attention has been devoted to analyzing the performance of the activities that produce a given outcome. Yet, opportunities to improve the effectiveness of PHC and child survival programs at the operational level clearly depend on strengthening these service delivery and support processes.

Responding to the need for better information on the process of service delivery, the Agency for International Development has launched, through the Primary Health Care Operations Research (PRICOR) Project, a major international effort to document and analyze the activities of PHC programs in developing countries. PRICOR was established in 1981 under a cooperative agreement with the AID Office of Health to help developing countries improve their PHC and child survival programs through practical, decision-oriented management studies and operations research. In its second phase, a major PRICOR objective is to develop new and innovative ways of identifying and diagnosing discrete problems in the process of service delivery that will lead to measurable improvements in program performance.

PRICOR staff are now refining and applying a systems analysis approach that allows program managers to accurately describe how key components of the PHC program actually operate and to identify the specific weak points and bottlenecks that impede effective delivery of PHC services at the peripheral level. The systems analysis relies on direct observations, key informant interviews, limited surveys, and other rapid assessment methods to provide decisionmakers with a comprehensive picture of program strengths and failures. By shifting the focus from input and outcome measures to process indicators, systems analysis provides concrete data that lead to tangible improvements, through immediate corrective action or short, problem-solving studies.

The **PRICOR Country Report** series presents the efforts of PRICOR staff and investigators from collaborating institutions to apply in some dozen countries practical methodologies for observing and measuring how PHC service delivery activities are being carried out. This volume presents PRICOR country study activities conducted in Niger by the Ministry of Public Health, Programming and Research Studies Division and the Division of Health Care Facilities.

Niger was one of the first countries to establish village health teams in the 1960s. Today, some 25 years later, over 13,000 VHWs are providing services in 45% of Nigerien villages. Experience has shown, however, that VHW presence in a village does not guarantee health status improvements. Problems in team functioning have been recognized for some time but not documented. Until recently, in fact, only minimal information had been available on VHW task performance and activity levels. In 1988, the Ministry of Public Health, with PRICOR and USAID support, undertook this systems analysis to document current structures and functions and lay the groundwork for reform.

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ACRONYMS

NGO	Non-governmental Organization
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
PRICOR	Primary Health Care Operations Research
SS	Sugar-salt Solution
USAID	United States Agency for International Development
VHT	Village Health Team
VHW	Village Health Workers
WHO	World Health Organization

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EXECUTIVE SUMMARY

INTRODUCTION

In October 1988, the Ministry of Public Health/Niger initiated a study on the functioning of its Village Health Worker Program with technical assistance from PRICOR and financial assistance from USAID. The study was completed in June 1989. Preliminary results were presented and discussed at a workshop in Niamey between June 12 and 16, 1989.

The objective of this study was to analyze the functioning of village health teams to strengthen worker task performance and support systems. The systems analysis focused on five principal activities: diarrhea and malaria treatment, maternal health, nutrition, and water and sanitation. Researchers also studied training, supervision, and drug supply. To complete its analysis, the research team interviewed male and female village health workers (secouristes and matrones), mothers, community key informants, supervisors and heads of medical centers. Using checklists derived from PRICOR's Primary Health Care Thesaurus, they observed diarrhea and malaria treatments, pre- and post-natal consultations, group education sessions, training courses, and supervision encounters. Data were collected over a two month period in three of Niger's seven provinces.

VILLAGE HEALTH ACTIVITIES

An important goal of the systems analysis was to see if VHWs perform the tasks for which they are trained and, if so, how well. Ministry of Public Health documents indicate that secouristes are to:

- advise fellow community residents on nutrition, well maintenance, and water treatment and conservation
- provide other health education
- treat common illnesses and traumas
- manage drugs and supplies
- act as liaison between the village and public health facilities.

Matrones are to:

- educate the public on hygiene, nutrition, and other health matters
- detect and monitor pregnancies
- assist in normal deliveries and refer abnormal ones
- give postnatal care
- provide information on family planning options and infertility problems.

Lacking reliable records of treatments administered and sessions organized, analysts queried health workers and mothers to determine which of these tasks were regularly performed. According to the

secouristes themselves, half had treated diarrhea during the week prior to interview and 40% malaria. Fifteen percent had performed a water and sanitation task during the same period. Matrones (in addition to childbirth services) cited food demonstrations and talks about nutrition (33%), prenatal consultations (16%), and diarrhea treatments (13%).

Both matrones and secouristes are to conduct group education sessions and home visits, and many say they do. By self-report, 43% of secouristes and 50% of matrones visited homes in the week before study, and 18% and 14% respectively conducted group sessions. Secouristes most often discussed water and sanitation (88%) and nutrition (19%) during the group sessions that we observed, while matrones emphasized nutrition (33%), childbirth (21%), and prenatal consultation (20%).

Interviews with knowledgeable observers as well as our own findings nevertheless indicate that secouristes generally emphasize curative care and matrones, immediate post childbirth assistance. Little activity is apparent in prenatal consultation, nutrition, and water and sanitation. The emphasis given during training to preventive and educative activities does not evidently correspond with field realities.

Village health teams officially comprise two secouristes and two matrones, but fewer than half of those observed in February and March 1989 were fully staffed. The average team had only 1.6 secouristes and 1.7 matrones, while 20% had only one worker of each type. Absences were especially common among sampled villages in Tahoua. The team studied only villages thought to have at least one secouriste and one matrone, thus national averages are likely to be lower.

In summary, the most important problems with VHW activities are:

- (1) the high rate of VHW absence or abandonment
- (2) low activity levels on the part of many workers
- (3) the long list of assigned tasks, many not adequately performed.

Diarrhea Treatment

The official Ministry of Public Health training guide, reinforced by a 1986 technical note, states that all village health workers, including matrones, are to be trained in diarrhea treatment. Most of those surveyed (100% of secouristes and 78% of matrones) had, in fact, been trained, although much smaller proportions (64% and 40% respectively) had had a refresher course in 1987-88. Recent technical changes and the need for frequent skill reinforcement argue for further training.

Diarrhea treatment activities are supervised by dispensary nurses, yet visits are infrequent (an average of 1.2 times in 1988) and may not even touch on diarrhea (53% of observed encounters).

One third of mothers of recent diarrhea cases had consulted a secouriste for treatment and 9% a matrone. Judging by our observations and by mothers' own reports, the treatment and advice they received was far from perfect but better than nothing. During observed treatments, three quarters of VHWs recommended a home mix oral rehydration solution, 40% of which provided the correct concentration of both sugar and salt. Only two recipes of 80 had a dangerous concentration of salt. Prepackaged sachets were recommended much less often, largely because they were unavailable, but recipes were better when they were recommended. (Disturbingly, 69% of mothers reported that VHWs had actually recommended discredited charcoal/ganidan remedies rather than oral rehydration during the most recent previous episode, suggesting that workers know correct treatments but do not routinely recommend them.)

Both patient counselling and group education were observed to be weak and ineffective. Matrones, though technically less correct than secouristes, appear to be better communicators. Mothers told interviewers that their principal information source for ORT was the dispensary nurse (30%), rather than the secouriste (13%) or the matrone (2%). Matrones were more important sources than secouristes for information on sugar-salt (18% vs. 11%), but still less important than nurses (21%).

Despite these largely negative results, analysts concluded that village health workers had made important first steps toward diarrhea control by informing the population about oral rehydration and by recommending generally acceptable solutions. Rural dispensaries, while an important information source (especially for pre-packaged salts), treat relatively few diarrhea cases outside their immediate neighborhood and will continue to do so until transportation systems improve. In the near future, emphasis should be placed on VHW training, supervision, and supply.

Problems requiring early resolution include:

- (1) the lack of ORS packets in most villages
- (2) the neglect of anti-diarrhea activities during supervision visits
- (3) poor patient counselling, especially by secouristes
- (4) the poorly defined roles of matrones.

Malaria Treatment

Secouristes, but not matrones, also treat malaria, a seasonally prevalent condition in Niger. (Chloroquine-resistant as well as normal varieties have been reported.) Workers are trained to detect and promptly treat fever cases, to educate the public about malaria, and to promote chemoprophylaxis for pregnant women.

Observers noted that secouristes did not adequately question and examine fever patients and thus failed to develop good case evaluations. Treatments administered were also inappropriate in about half the observed cases, the remainder being potentially dangerous because insufficient, incomplete, or excessive. Excessive dosages were of particular concern because of possible toxicity. Only 11% of mothers with children under one reported using chemoprophylaxis during their most recent pregnancy.

Secouristes have potentially significant impact on malaria because a majority of mothers consult them for fever and obtain chloroquine from them. Chloroquine shortages and poor treatment practices vitiate effectiveness, however, and may even endanger patients. Weak supervision and supply systems partly explain poor performance and should be strengthened.

This analysis identified significant problems in:

- (1) secouristes' insufficient knowledge and skills in clinical evaluation and malaria treatment
- (2) the extremely low level of chemoprophylaxis by pregnant women
- (3) the absence of chloroquine in most secouristes' kits
- (4) Irregular and incomplete supervision.

Maternal Health

Matrones' training in maternal health focuses on prenatal consultation, childbirth, and postnatal care. Forty-four percent of those interviewed said they did prenatal consultations, 95% that they assisted deliveries, and 68% that they provided postnatal care. A few matrones not doing prenatal consultations said they referred pregnant women to dispensaries or other ambulatory care facilities. The few matrones who do not assist deliveries do give postnatal care, especially in nomadic areas.

Analysts highlighted the low proportion of matrones offering prenatal consultation and the poor task performance of those who did. Only 12% of recent mothers sought prenatal care from matrones, while 20% went to a rural dispensary.

Two of matrones' most important tasks are to attend labor before delivery and to provide sanitary care of the umbilical cord. One third of recent mothers reported that they had called a matrone before delivery, one third afterwards, and one third not at all. Matrones expressed concern about mothers' failure to call them before delivery. They also complained about women's lack of motivation to seek prenatal care and about technical difficulties with the management and referral of complicated deliveries.

Ninety-five percent of matrones reported that they always used a new razor blade to cut the umbilical cord, and 86% of recent mothers thought that this had been done in their case. Seventy-six percent of mothers thought that the matrone had supplied the blade, but the majority of matrones' kits that we inspected lacked new blades.

Group education and home visits are matrones' opportunity to influence family practice, yet few conduct them. Only 45% said they ever led group sessions, including 13% who did so in the week before study. Sixty-five percent of matrones said they visited homes including a third who had done so in the past week.

Ministry of Public Health midwives accompanied dispensary nurses in only 19% of observed supervision visits. Midwives can potentially offer great assistance to matrones, but apparently miss at least this opportunity to do so.

Significant problems to be addressed include:

- (1) the low proportion of women attending prenatal consultation
- (2) the poor quality of matrones' prenatal exams and advice
- (3) mothers' failure to call matrones before delivery
- (4) the absence of new razor blades in matrones' kits
- (5) inadequate care of the umbilical cord.

Nutrition

Both secouristes and matrones are trained to provide nutrition education and demonstrate food preparation, but matrones are more active. Though most matrones perform nutrition tasks, only half considered them important. One third of matrones told interviewers that they had conducted a nutrition demonstration or discussion during the week before study.

Supervisors generally considered teaching of weaning puree to be the most important nutrition activity, but 23% complained that local matrones did not do enough. Most nurses supervised nutrition work during observed visits but failed to discuss the identification of malnourished children.

Managers need to address problems relating to:

- (1) the passivity of VHW educational efforts and neglect of subjects other than weaning puree
- (2) lack of follow-up for malnourished children.

Water and Sanitation

Secouristes spend 22% of their training time, and matrones 33%, on water and sanitation. Training focuses on:

water hygiene: settling, filtration, cleaning of utensils, protection of wells; and

environmental health: sweeping, fencing around animals, construction of latrines, destruction of trash.

Analysts found only one matrone (of 95) who claimed to work in water and sanitation (though a much larger proportion discussed the subject in educational sessions). Secouristes, on the other hand, virtually all cited activities in environmental health and hygiene, especially public sanitation and well protection. Almost all (99%) said they organized sweeping sessions, 37% water purification activities, and 8% trash disposal. Nearly one third promote well boring or fencing, half organize sweeping of the area around the well, and 16% separate drinking water from other water.

Even though workers promote clean water and hygiene, mothers do not follow their lead. Sixty-seven percent said they did nothing to prepare drinking water, and 69% were unaware of any village well-protection activities. This apparent lack of impact may be due to secouristes' poor explanations or to villagers' lack of interest. Fewer than 40% of mothers said they had ever attended a group education session, but a comparable figure for men is not available.

Water and sanitation activities are much less frequently supervised than other activities. For secouristes as well as for matrones, water and sanitation activities are not considered to be sufficiently important in relation to other activities. Only three supervisors out of 27 observed the sanitary conditions of the village.

Problems needing priority attention include:

- (1) the weakness of health education activities
- (2) poor maternal implementation of VHW advice
- (3) limited water and sanitation activities.

Training

The systems analysis found a serious discordance between the allocation of training hours and the tasks that VHWs eventually perform. Analysts estimated that secouristes spend well over half of their working time on curative care, yet only 27% of training hours are so allocated. Likewise matrones concentrate heavily on labor and delivery roles yet spend only 28% of training time on the much broader topic of

maternal health. Although the training guide clearly states objectives and methods, it provides few technical details and many of these are out of date. Few trainers have access to good didactic or audiovisual materials.

VHW knowledge and skills deteriorate over time, especially when not reinforced through routine supervision and visits to the dispensary. Technical recommendations on diarrhea and malaria treatment have changed considerably in the last three or four years. Update and refresher courses are clearly required, yet do not often occur.

The common practice in Niger is to organize comprehensive 10-day refresher courses every three years, rather than shorter more frequent courses on specific subjects. Lack of funds, and the large number of VHWs, have excessively lengthened the interval between initial and refresher training. Only half of secouristes and matrones attended a training or refresher course in 1987-88.

To summarize, analysts found serious problems in:

- (1) the lack of training for instructors
- (2) the discordance between training time allocations and work actually performed in the field
- (3) the paucity and inaccuracy of technical detail in the training curriculum
- (4) the excessive use of non-participatory teaching techniques with limited opportunity for supervised practice
- (5) the infrequency of refresher courses.

Drug Supply

Analysts studied drug supply by inspecting VHW medical kits, interviewing workers, and conducting village focus groups.

Secouristes and matrones receive initial drug supplies without charge upon completion of training. They then sell and repurchase chloroquine and aspirin but distribute most other products without charge; medical centers are to restock free drugs. VHW drug kits were found to be lacking many basic drugs, both free and fee-paying. Only 24% of secouristes had ORS packets, for example, and only 48% chloroquine. Only 42% of matrones had razor blades.

There is no uniform supply system but rather a range. Some dispensaries have cooperative pharmacies, while groups of villages may have pharmaceutical warehouses. Supply points for VHWs are clearly insufficient and inappropriately managed.

Analysts also highlighted drug pricing problems. Only certain State pharmacies give VHWs a 20% reduction for restocking. Retail drug prices, moreover, vary from one village to the next because some VHWs set prices as they see fit.

Village councils members do not see drug supply as their problem, preferring to leave responsibility to VHWs. Most said that kits belonged to VHWs who should restock them when and how they wished. Most also felt that VHWs should manage drug sale receipts.

Thus, limited analysis of VHW drug supply systems found problems in:

- (1) the lack of discount prices for restocking
- (2) inadequate community storage facilities
- (3) variations in retail prices
- (4) poor management of medicine kits.

Supervision

Properly conducted, supervision provides essential technical support, boosts worker morale, and shows villagers the importance of VHW work. Supervision is vital to team functioning yet rarely occurs.

By ministerial guideline, each worker should be supervised every three months; in reality, supervisors visited the average VHW 1.2 times in 1988. The reason most frequently given for not following the official schedule was lack of a vehicle (52%). Gasoline reserved for supervision visits, however, is not always used for that purpose. No supervisor claimed lack of time as a reason for not supervising, suggesting that poor management and lack of precise objectives at both the dispensary and medical center levels may be partly responsible. Nurses recognized the importance of regular and frequent supervision, 74% saying that they would like to supervise monthly.

Nurses supervising secouristes most frequently looked at diarrhea (68%), malaria (52%), and water and sanitation activities (40%). For matrones, they particularly supervised childbirth (81%) and nutrition (77%), only rarely touching on prenatal and postnatal care. No nurse supervised all relevant technical activities.

Analysts noted that most supervisors do little more than meet with the health worker, inspect his or her medicine kit and notebook, and discuss a few questions (generally raised by the supervisor). No supervisor observed a malaria treatment, a group education session, or a home visit, and only one watched a diarrhea treatment. Fifty-seven percent complained of weak community support, yet only 10% met with the public and only 23% discussed community support with supervisees. Under half of supervisors and 20% of VHWs asked any questions.

The following problems merit attention:

- (1) the lack of training for supervisory roles
- (2) the need to develop and use supervisory checklists
- (3) failure to follow established supervision schedules or to develop feasible alternatives
- (4) the fact that supervisors do not routinely observe village health conditions as a means of assessing VHW performance
- (5) the omission of important technical subjects during supervision visits
- (6) the "police" nature of many supervision visits.

Community Support

VHW effectiveness depends on community acceptance as well as technical performance. Community development workers and nurses are supposed to orient new villages to VHW objectives and selection criteria before asking them to nominate trainees, but analysts found that many villagers did not understand program goals and had not followed recommended selection criteria. Nurses are supposed to introduce new trainees officially to their communities to ensure that residents understand their functions, but in fact, many secouristes and matrones started work without the population being aware of their arrival or of their new responsibilities.

Secouristes and matrones are not formally paid, but mothers often give in-kind gratuities for childbirth assistance. Drug-sale income must be used to resupply medicine kits and does not produce a surplus. Villagers may misunderstand, nevertheless, especially in localities where dispensaries distribute medicine free of charge.

VHW prestige and morale depends on community financial and psychological support, but these are often withheld. Most residents do not accept responsibility for secouriste presence or performance or for drug supply. Secouristes may be less well supported than matrones, most of whom had been traditional midwives and thus integrated into village culture. Most villagers feel that the official health services, not they, are responsible for resolving numerous VHW problems. These, according to study findings, include:

- (1) communities' failure to respect VHW selection criteria
- (2) the weak effort generally made to involve local residents
- (3) lack of appropriate community introductions for newly trained workers
- (4) misunderstanding of the principle of volunteer work and non-remuneration.

CONCLUSION

Niger's village health program no longer receives the central and provincial support it once did, and clearly suffers as a result. Only donors finance training and supervision, and the several supply systems that exist are poorly managed. Provincial coordinators in charge of village health teams cannot take an active role. These problems are not unique to Niger; the question is whether they can be fixed.

Though finding weak support systems, the analysis also documented useful VHW work and potential contributions to community health (especially in peripheral areas away from health facilities). Though nurses inform more mothers of oral rehydration, VHWs reinforce messages, supply some ORS packets, and more often than not teach adequately correct ORS recipes. Mothers frequently consult secouristes for fever, and half of those who do receive a correct dose of chloroquine. Matrones have started the long process of changing traditional birthing practices, contributing to now near universal knowledge that newborn umbilical cords should only be cut with new razor blades (though change in practice is less certain). Village health workers educate their fellow villagers in public meetings and in homes; and whatever the quality of this education, it does sensitize the population to new ideas.

The systems analysis thus raises hopes as well as questions. The hopes are that the program will continue to provide a few basic services for deprived populations and begin to modify traditional practices. The questions, more numerous perhaps, are:

- How should program management be restructured and responsibility distributed within the Ministry of Public Health?
- Are VHW tasks and training curricula sufficiently adapted to workers' capacities and village needs? If not, what revisions are needed?
- Can and should certain decisionmaking authority be decentralized? Is it essential, for example, that VHWs in every region perform the same tasks and attend the same training courses? Or might regional health and resource variations sometimes necessitate local solutions for local problems?
- How can managers ensure VHWs adequate technical support, through supervision, refresher courses or other low cost means? Or is improvement not possible without additional resources? Where might such resources come from?
- How can supply and logistic support be improved?
- Can this type of a program be based solely on volunteer work? If not, what alternatives are possible? Can VHWs be motivated and compensated without giving them official salaries?
- And finally, can Niger, once a pioneer in village health, again show the way by resolving managerial problems and improving quality of care? Or are the program weaknesses that Niger and so many other countries face inherent in the village health worker approach and thus beyond reasonable hope of solution?

1.0 INTRODUCTION

Niger was one of the first countries to establish a village health team program. Since 1964, this program has sought to help rural people care for their own health, to improve access to modern health care, and to increase knowledge about - and ability to maintain - good health.

Today, some 25 years later, over 13,000 male secouristes and female matrones serve 45% of Nigerien villages. Their presence, however, has not yet had demonstrable impact on community health. Problems in team functioning have been recognized for some time but not documented. Only minimal information has been available on task performance and activity levels. In 1988, the Ministry of Public Health, with PRICOR and USAID support, undertook this systems analysis to document current structures and functions and to lay the groundwork for reform.

This report summarizes study objectives, methodologies, and results. It explains the program's historical evolution and describes worker tasks and activity levels in detail. It then analyzes task performance, first by technical intervention (diarrhea and malaria treatment, maternal health, nutrition, and water and sanitation), then by support system (training, supervision, drug supply, community participation, and higher level support).

2.0 BACKGROUND

2.1 Historical Evolution

Nigerien health policy before independence was largely curative. Sovereignty regained, the policy was reoriented to prevention and rural health care. Interim Development Plans since 1961 have promoted health care for the entire population, using mobile units and preventive services.

In 1962, a French group called the Institute for Research and Application of Development Methods (IRAM) helped the government create the Service for Rural Animation (community development). Community extension agents began to visit villages and camp sites to discuss development issues, soon finding that health problems were paramount. Rural populations perceived two overriding problems: high maternal and neonatal mortality, and inability to work due to illness.

By 1964, national development plans were describing the training of public health workers as an essential step in the reorientation of government policy toward community health. The first group of village health assistants, called "public health worker-hygienists," were trained the same year. They were to:

- give simple care
- refer cases beyond their skills to health facilities
- make rural populations aware of hygiene and health problems
- motivate people to cooperate with health services in immunization and education.

Early training focused on districts with significant rural development activity: Tessaoua and Dakoro in the province of Maradi, Matameye and Magaria in Zinder, and Tillabery in the province of Niamey.

Training of maternal care providers (matrones) began in Dakoro in 1966 in response to high maternal and neonatal mortality and the lack of elementary hygiene during childbirth. Planners also sought to change a tradition in which birth attendants assisted mothers only after delivery, burying the placenta

and caring for the newborn but not assisting in labor. The majority of newly trained matrones had been traditional midwives. The goal was to train them to:

- detect and monitor high risk pregnancies
- use aseptic materials
- promptly evacuate women in difficult labor
- detect and prevent childhood malnutrition.

Planners used the same approach as before: extension agents helped villagers select and recruit candidates, then supervised them after training. Encouraged by early health status improvements in Dakoro and Tessaoua, managers subsequently expanded the program within these provinces and to new regions.

"Health study days", initiated in the 1970s, offered a forum for multi-disciplinary discussion and reflection on health services and played a decisive role in evolution of the village health program. Participants in the 1976 health study days formalized the composition, selection criteria, and tasks of village health teams, and agreed on their training curriculum.

A national conference in 1980 standardized VHW training, as well as evaluation and supervision activities. Henceforth, all workers were to be trained in six of eight primary health care components: 1) nutrition, 2) water supply, 3) maternal and infant health including family planning, 4) treatment of common illnesses and traumas, 5) education on prevalent health problems, and 6) essential drug supply.

Now one of Niger's principal health services, the Village Health Worker Program is supported by administrative, traditional, and religious authorities as well as by several donors. As of March 31, 1989, 13,110 village health workers served 4458 villages.

TABLE 1

VHW DISTRIBUTION BY PROVINCE

Number of Covered Villages	Secouristes		Matrones		
	Trained	Active	Trained	Active	
Agadez	142	234	223	158	113
Diffa	288	439	374	424	355
Dosso	769	1346	1084	1308	1130
Maradi	805	1374	1196	1672	1477
Tahoua	693	1059	917	1371	1264
Tillabery	881	1526	1221	1449	1255
Zinder	880	1615	1259	1483	1242
Total	4458	7593	6274	7865	6836

2.2 Financing

District governments, assisted by public contributions, financed initial VHW medical kits but passed this function to the USAID-supported Rural Health Improvement Project in 1978. From then until 1987, project funds financed nearly 80% of training activities, refresher courses, and supervision. Other donors and non-governmental organizations have also financed VHW activities. The Nigerian Government manages the program and provides most personnel.

The Ministry of Public Health has been unable to finance the Village Health Worker program since 1987, relying on donors to support whatever training and supervision activities have occurred. Though following national training guidelines, activities have been decentralized to provincial and district levels and not centrally reviewed. By 1988 the time had come to review and synthesize local experiences.

2.3 Village Health Team Management Structure

The Nigerian government manages the Village Health Worker Program at four levels. At the **central** Ministry of Public Health level, the VHT unit in the Health Care Facilities Division plans, coordinates, and monitors VHW activities. VHW coordinators in Niger's seven **provincial** Divisions of Health implement activities at that level, while medical center physicians, nurses and mid-wives train and supervise workers in the country's forty **districts**. At the **dispensary and medical post** level, male nurses manage and supervise the teams in their area (total of 238).

3.0 STUDY OBJECTIVES AND METHODOLOGY

3.1 Introduction

The Ministry of Public Health (Divisions of Health Care Facilities and Programming and Studies) initiated this study in October 1988 with technical assistance from PRICOR¹ and financial support from USAID. Work on the first phase (to be followed by operations research) was completed in June 1989.

In doing systems analyses, PRICOR intensively observes worker task performance at peripheral health units to quickly reveal and quantify service delivery and support problems. Data collection is guided by detailed task lists and corresponding indicators derived from the Primary Health Care Thesaurus², a compendium of such tasks now used in over a dozen countries.

3.2 Objectives

The Niger systems analysis sought to document village health worker performance and provide a quantitative basis for management improvements. Researchers were particularly interested in the ways in which village health workers conduct day-to-day activities, and in the impact of training and supervision at all levels.

¹PRICOR (Primary Health Care Operations Research), a USAID centrally funded project which provides technical assistance to governments and NGOs in 13 countries to identify and solve problems in primary health care programs.

²The Primary Health Care Thesaurus lists activities, tasks and subtasks that comprise the service delivery and support systems of a specific intervention. It also includes detailed quantitative indicators for each activity.

3.3 Methodology

3.3.1 Global Analysis

Analysts first studied readily available data from national and provincial levels, donors, and other national health programs. USAID, the World Bank, UNICEF, CARITAS, CARE, Dutch and Belgian groups, and such NGOs as Lutheran World Relief and the Nigerian Red Cross, were all contacted. Researchers particularly studied VHWs' present situation and donor financing sources and policies. Information thus collected set the context for field observation and problem analysis.

Analysts identified five technical interventions and related support systems for further study: diarrhea and malaria treatment, maternal health care, nutrition, and water and sanitation, plus training, supervision, drug supply, and community and higher level support.

3.3.2 Systems Analysis

Using the MOPH training guide and the Primary Health Care Thesaurus, analysts identified key VHW activities, tasks and sub-tasks and developed quantitative indicators to measure their performance. Information was to be gathered from village health workers, the mothers who use their services, other villagers, and supervising dispensary nurses.

Three sets of data collection instruments were drafted and field tested:

- 1) Questionnaires for male and female village workers, mothers of children under five, supervising nurses, and village council members and chiefs
- 2) Observation instruments for service delivery and support activities: malaria and diarrhea treatment encounters, maternal health care, health education, supervision, and training
- 3) Guides for open discussion ("focus groups") with village men and women.

Additional data on financing, logistics, supervision, training, and management information systems were to be collected through unstructured interviews and document reviews.

3.3.3 Data Collection

Data were collected in three provinces - Dosso, Tahoua and Maradi - selected to represent Niger's cultural, socio-economic and geographic diversity. Three districts within each province (a total of nine) and three dispensaries within each district (total 27) were then chosen, as well as two of the village health teams affiliated with each dispensary (total 54). Only villages more than ten kilometers from dispensaries were chosen. (See the annex for a list of study sites.)

Study teams used rigorous random sampling techniques to select village mothers. Provinces, districts, dispensaries and villages were selected purposively (non-randomly), however, in order to control costs and ensure representation of program variants. Only villages known to have functioning health teams were included in the sample. Results thus give a positively biased picture of VHW performance.

Instruments were pretested in Tillabery province and then revised. Data collection started on January 24th and ended on April 4th, 1989.

Analysts interviewed seven mothers with children under five in each village (a total of 378) in addition to available securistes and matrones (84 and 95 respectively). They met with the village chief or a council representative and organized separate discussions with village men and women. Trained health professionals on the teams observed diarrhea and malaria treatments, health education sessions, and maternal health care. Nurses in each of 27 dispensaries were asked to supervise one village health team and were then interviewed after observation. (See Table 2). The research team spent a total of two days in each village.

TABLE 2

List of Data Collection Instruments

INTERVIEWS WITH:

Secouristes	(n= 84)
Matrones	(n= 95)
Mothers (7 per Village)	(n= 378)
Key Informants	(n= 54)
Supervisors	(n= 27)
Medical Center Chiefs	(n= 9)
Extension Agents	(n= 2)
Midwives	(n= 3)

OBSERVATIONS OF:

Malaria Treatments	(n= 81)
Diarrhea Treatments	(n= 134)
Prenatal Consultations	(n= 17)
Deliveries	(n= 2)
Postnatal Care	(n= 30)
Health Education	(n= 163)
Supervision Visits	(n= 51)

'OPEN' DISCUSSIONS WITH THE VILLAGERS

4.0 VHT TASKS AND ACTIVITIES

4.1 Tasks and Activities

Ministry of Public Health documents indicate that securistes are to:

- advise fellow community residents on nutrition, well maintenance, and water treatment and conservation
- provide other health education
- treat common illnesses and traumas
- manage drugs and supplies
- act as liaison between the village and public health facilities.

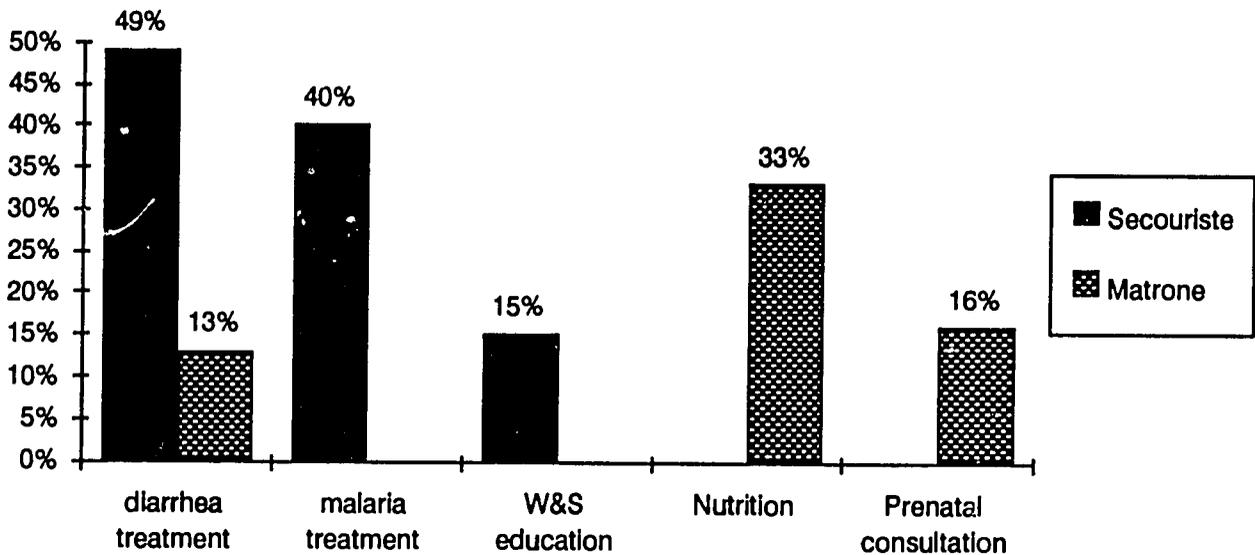
Matrones are to:

- educate the public on hygiene, nutrition, and other health matters
- detect and monitor pregnancies
- assist in normal deliveries and refer abnormal ones
- provide postnatal care
- provide information on family planning options and infertility problems.

Which activities do VHWs actually perform and how often? Lacking reliable records of treatments administered and sessions organized, analysts asked workers and mothers. Workers answered three questions: (1) Do you conduct this activity (often, seldom)? (2) Do you consider this activity important? (3) Did you conduct this activity during the last week? Mothers were asked (4) about their use of VHWs for treatment and as a source of health information.

The responses to questions (3) and (4) are probably the most valid for identifying frequent activities. Among securistes, 49% had treated diarrhea and 40% malaria during the week prior to study, while 15% had organized a group education session on water and sanitation (Figure 1).

FIGURE 1
PERCENT OF VHWS WHO CARRIED OUT SPECIFIC ACTIVITIES DURING PREVIOUS WEEK



In addition to delivering babies, matrones reported that they had demonstrated food preparation and discussed nutrition (33%), conducted prenatal consultations (16%), and treated diarrhea (13%).

Both matrones and securistes are to conduct group education sessions and home visits, and many say they do. By self-report, 43% of securistes and 50% of matrones visited homes in the week before

study, and 18% and 14% respectively conducted group sessions. Secouristes most often discussed water and sanitation (88%) and nutrition (19%) during the group sessions that we observed, while matrones emphasized nutrition (33%), childbirth (21%), and prenatal consultation (20%).

TABLE 3
Proportion of VnWs who conduct Group Health Education Sessions,
by Subject

Subject	Secouriste (n=84)	Matrone (n=94)
Water and Sanitation	88	0
Nutrition	19	33
Malaria	12	0
Diarrhea	8	6
Delivery		21
Prenatal Consultation		20
Postnatal Care		11
Weaning		20
Importance of treating illness	7	3
Discussion of VHW role	2	
Do Not Conduct Sessions	4	42

Interviews with knowledgeable observers as well as our own findings nevertheless indicate that secouristes generally emphasize curative care and matrones immediate post childbirth assistance. Little activity is apparent in prenatal consultation, nutrition, and water and sanitation. The emphasis given during training to preventive and educative activities does not appear to correspond with field realities.

4.2 Mothers' Use of Services

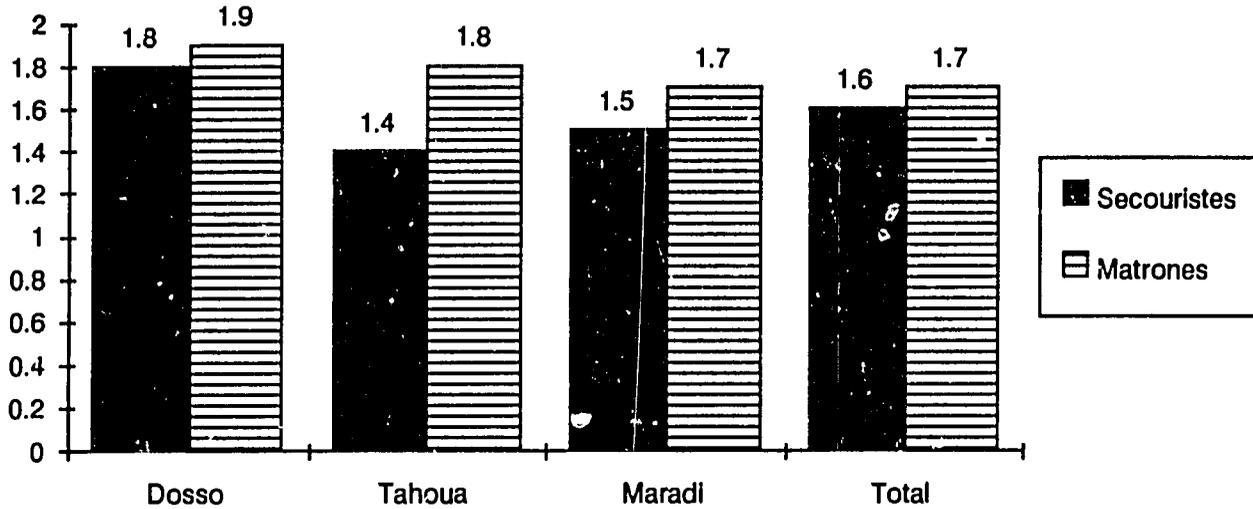
How do mothers use health worker services and how do they benefit? One third told interviewers that they had consulted a secouriste, and 9% a matrone, during a recent diarrhea case. Thirteen percent had learned of ORS from a secouriste and 2% from a matrone; on the other hand, many more learned of sugar salt solution from matrones than from secouristes (19% vs. 11%). Fifty-six percent of mothers consulted secouristes for recent fever cases, 91% of this subgroup obtaining chloroquine.

Thirteen percent of mothers with children under one consulted a matrone prenatally, and two thirds asked a matrone to assist them at some point during childbirth. Only 35% called a matrone before the child was actually born, however. Matrones have, thus, only partially overcome traditional preferences for unassisted delivery.

Village health teams officially comprise two secouristes and two matrones, but fewer than half of those observed in February and March 1989 were fully staffed. The average team had only 1.6 secouristes and 1.7 matrones (Table 4), while 20% had only one worker of each type. The team studied only villages thought to have at least one secouriste and one matrone, thus national averages are likely to be lower.

TABLE 4

AVERAGE NUMBER OF VHWS PRESENT IN VILLAGES



4.3 Summary

Lack of valid records made it difficult to measure VHW activity levels, but available evidence indicates that workers perform most assigned tasks, if only occasionally. Training curricula and official documents emphasize education and prevention, but most actual VHW work appears to be curative or linked directly with childbirth. Planners need to reassess the relationship between officially assigned tasks and worker capabilities and interests. The significant problems appear to be:

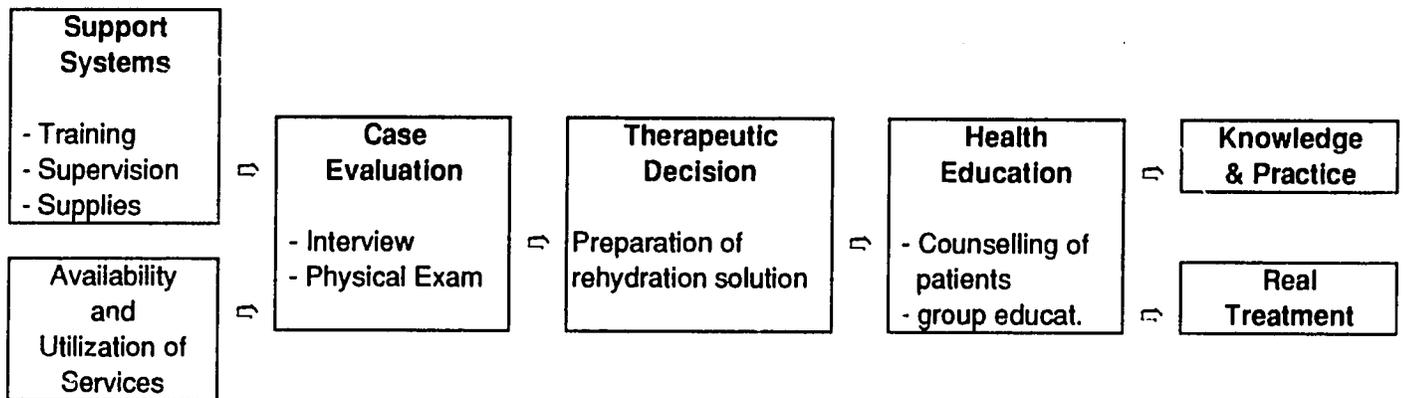
- (1) the high rate of VHW absence or abandonment
- (2) low activity levels on the part of many workers
- (3) the long list of assigned tasks, many not adequately performed.

5.0 DIARRHEA TREATMENT AND EDUCATION

Figure 2 below shows the principal components in the diarrhea treatment "system", namely, support from higher levels, community participation, treatment procedures, health education, and maternal knowledge and practices.

FIGURE 2

MODEL OF DIARRHEA TREATMENT SYSTEM



5.1 Support Systems

5.1.1 Training

The official Ministry of Public Health training guide, reinforced by a 1986 technical note, states that all village health workers, including matrones, are to be trained in diarrhea treatment. Most of those surveyed (100% of secouristes and 78% of matrones) had, in fact, been trained, although much smaller proportions (64% and 40% respectively) had had a refresher course in 1987-88. Recent technical changes and the need for frequent skill reinforcement argue for further training.

5.1.2 Supervision

Frequent and technically adequate supervision improves worker task performance and boosts morale, while infrequent supervision and neglect of key technical subjects suggests to workers and villagers alike that VHW work is unimportant. To better assess supervisory support, we recorded the number of supervisory visits that had occurred in the prior year and arranged and observed one supervisory visit to each of 27 village health teams.

We found that each VHW was visited an average of 1.2 times during 1988. In only 27 (53%) of 51 observed supervisions, moreover, was diarrhea treatment discussed at all. Even though matrones and secouristes have the same diarrhea treatment responsibilities, supervisors raised the subject in only 39% of observed matrone supervisions, compared to 68% for secouristes. No supervisor directly observed the preparation of an oral rehydration solution or the treatment of a patient.

5.1.3 Logistics

The Nigerien Government, WHO, and other groups, promote prepackaged ORS sachets to replace sugar-salt solutions because of widespread "dosage" problems in home-mixes. Twenty-four percent of observed secouristes and 4% of matrones had ORS packets in their kits, a result that diarrhea program

staff found encouraging because distribution had only recently started. Sixty-nine percent of secouristes and 36% of matrones, moreover, told interviewers that they had packets from time to time.

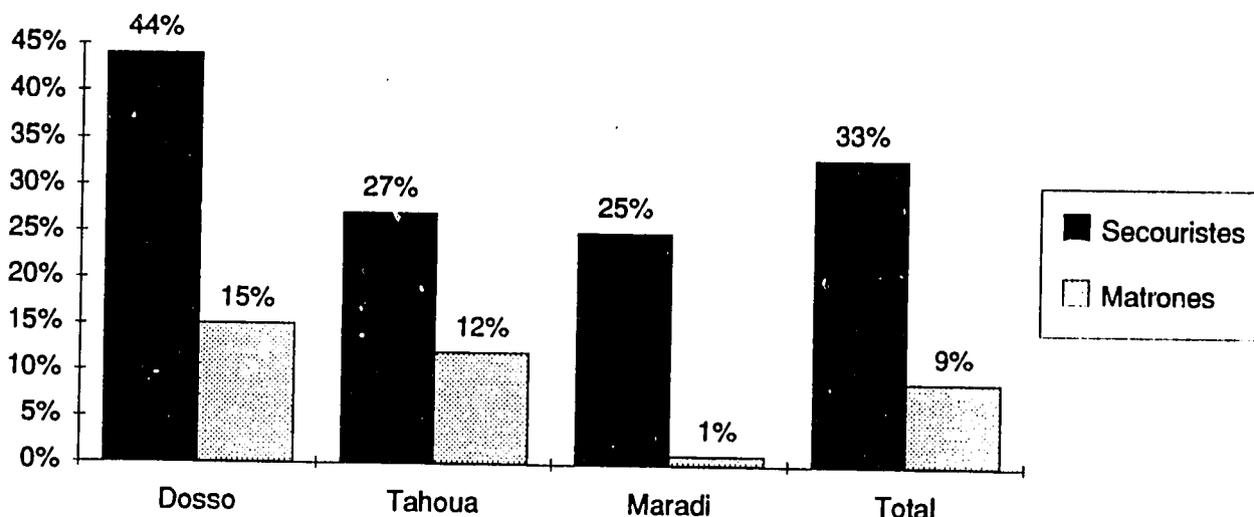
5.2. Service Delivery

5.2.1 Use of Services

VHWs cannot treat diarrhea unless mothers consult them. Fifty-eight percent of 378 mothers reported a diarrhea case during the past two weeks in a child under five. One third of these mothers sought advice from a secouriste and 9% from a matrone. (A few consulted both.) Fifty-two percent of mothers did not seek any help. As Figure 3 shows, proportions seeking help varied by province.

FIGURE 3

PROPORTION OF MOTHERS WHO USED VHW SERVICES FOR THE TREATMENT OF DIARRHEA



5.2.2 Physical Exam

VHWs should ask mothers about case history and treatment and examine the child for dehydration. Only a minority of those observed did either: only 42% raised any questions and fewer than 10% did a physical exam.

5.2.3 Preparation of the Rehydration Solution

Analysts studied types of treatments recommended by observing VHWs at work and by interviewing mothers of recent cases. Interestingly, results obtained by the two methods were very different. Seventy-six percent of workers recommended a home mix while analysts watched, but only 15% had reportedly done so in mothers' homes. Observers saw only 3% of workers recommend the now discredited charcoal/ganidan remedy, yet 69% of mothers said that that was what they had been told to use for a recent episode. (Reported and observed proportions for ORS were nearly equal, 19% and 17% respectively.) Sample variation of this magnitude is unlikely; rather workers must know what they are to do but nevertheless prefer to recommend charcoal/ganidan when unobserved.

Interestingly, mothers report that matrones are much more likely than securistes to recommend a home mix or other rehydration solution. Forty percent of the relatively small number who consulted a matrone, compared with 11% of those consulting a securiste, were told to use home mix.

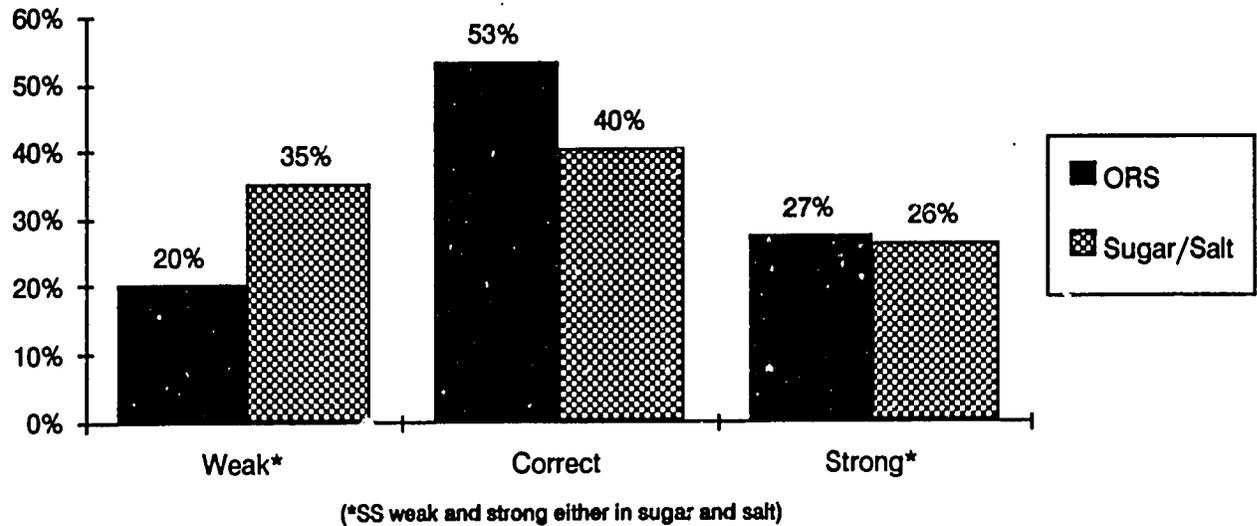
TABLE 5

ADVICE SOUGHT & RECEIVED, AND TREATMENT ADMINISTERED FOR RECENT DIARRHEA CASES, ACCORDING TO MOTHERS						
PERCENT (N=220) WHO CONSULTED SECOURISTE: 33% MATRONE: 9%						
	ADVICE RECEIVED BY MOTHERS BY SOURCE OF ADVICE			TREATMENT ADMINISTERED BY MOTHERS, BY SOURCE OF ADVICE		
	SEC (N=64)	MAT (N=10)	TOTAL (N=74)	SEC (N=64)	MAT (N=10)	NOBODY (N=121)
ORS	17%	30%	19%	19%	50%	1%
SUGAR/SALT	11%	40%	15%	9%	30%	2%
CHARCOAL/ GANIDAN	69%	0	60%	34%	0	1%
TRADITIONAL TREATMENT	0	30%	4%	11%	40%	35%
NOTHING	6%	0	5%	8%	0	48%

We also observed the quality of recommended ORS recipes. Half (53% for ORS and 40% for the SS solution) had correct dosages of water, salt and sugar. Secouristes gave the correct recipe more often than matrones. Only 3% had a dangerous concentration of salt (Figure 4).

FIGURE 4

ORS RECIPES RECOMMENDED BY VHWS



5.2.4 Health Education

Patient counselling and group health education were both considered weak. Only 23% of observed securistes told mothers how much and often to give oral rehydration. Matrones spoke to mothers more often than did securistes (40% vs. 12%).

Interviewed at home, 50% of mothers recognized an ORS packet and 62% said they had heard of sugar-salt solution, but VHWs were not their chief informants about either. Only 8% of securistes and 6% of matrones conduct group education on diarrhea. Thus, 13% of mothers learned of ORS from a securiste and 2% from a matrone; 11% and 18% respectively learned from them of sugar-salt solution. By contrast, 30% of mothers (virtually all of whom lived more than 10 kilometers from a dispensary) had learned of ORS, and 21% of sugar-salt, from nurses. While VHWs as a whole had contributed little to maternal knowledge, matrones seem to be making a greater effort (especially for sugar-salt).

5.2.5 Mothers' Knowledge/Practice

VHW recommendations aside, 9% of mothers reported that they had treated recent diarrhea with ORS and 6% with sugar-salt. Thirty-five percent gave charcoal/ganidan, and 27% administered another traditional treatment. Thirty-two percent did nothing. Workers' influence on mothers can be seen in the fact that almost everyone who administered ORS, sugar-salt, or charcoal/ganidan had been told to do so by a VHW, whereas most of those who administered traditional remedies or did nothing had not consulted anyone (see Table 5).

Mothers interviewed immediately after observed treatment usually remembered the VHW's advice, even when it was wrong. Most mothers told the interviewer that they were going to follow this advice.

5.3 Summary

Secouristes and matrones make many mistakes in treating diarrhea, yet the study found positive contributions that on balance outweigh the shortcomings. Working in difficult settings with little support, secouristes and matrones have started the long process of educating villagers about effective diarrhea treatment, giving information that is adequately correct though not perfect. They complement dispensary nurses: though nurses may be important as information sources for oral rehydration, they will never be able to treat more than a minority of sick children. VHW efforts need extensive (and expensive) support but have potentially significant benefits.

Problems requiring early resolution include:

- (1) the lack of ORS packets in most villages
- (2) the neglect of anti-diarrhea activities during supervision visits
- (3) poor patient counselling, especially by secouristes
- (4) the poorly defined role of matrones.

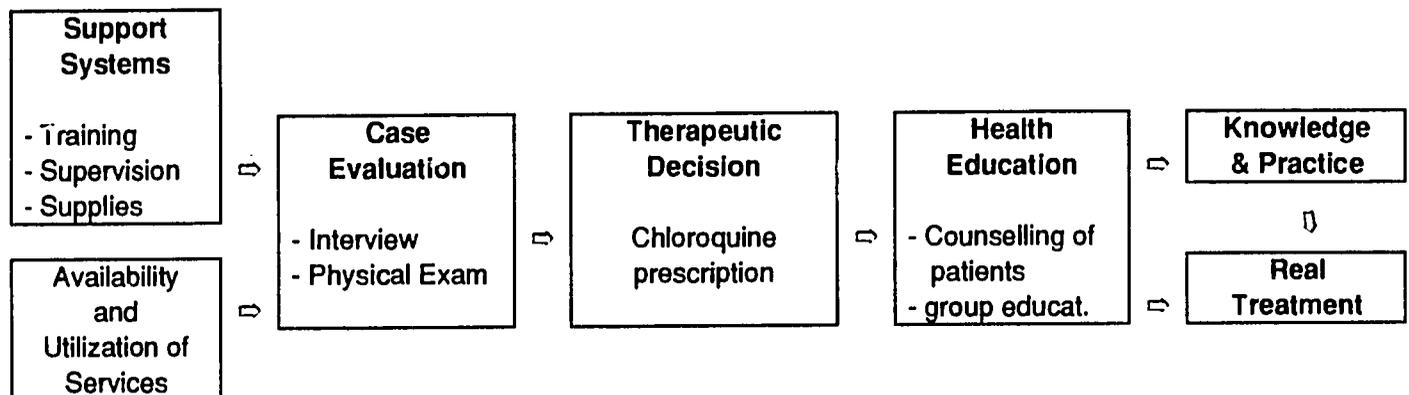
6.0 MALARIA TREATMENT AND EDUCATION

6.1 Support Systems

The malaria treatment "system", depicted in Figure 5, includes four principal components: training, supervision and supply support; patient treatment; health education; and maternal knowledge and practices. Analysts observed secouristes treat fever and interviewed secouristes, mothers, and supervisors.

FIGURE 5

MODEL OF MALARIA TREATMENT SYSTEM



6.1.1 Training

Secouristes (but not matrones) are trained to recognize fevers, administer chloroquine, and refer cases accompanied by other signs. Both secouristes and matrones should promote chemoprophylaxis for pregnant women. Preventive measures are mainly taught during environmental health training.

6.1.2 Supervision

Observed during pre-arranged visits, thirteen of twenty-five supervisors tested secouristes' treatment knowledge or discussed other malaria subjects. Prevention and environmental control were rarely discussed.

Supervisors seemed unaware of important malaria treatment problems in their areas. Observers found that 57% of secouriste medical kits had little or no chloroquine, and 66% of secouristes told interviewers of supply problems; yet only 37% of supervisors reported difficulties. Supervisors were only slightly more aware of treatment quality problems.

6.2 Service Delivery

6.2.1 Use of Services

Fifty-six percent of mothers of children with recent fever had sought secouriste help, and 91% of this subgroup got chloroquine from them. Few mothers felt any need to go to a dispensary, though 10% eventually did go because of persistent fever.

Secouristes are not trained to precisely diagnose fever but rather to recognize and treat simple cases, and identify and refer more serious ones. The PRICOR team observed 81 treatments.

6.2.2 Interview

Sixty-five percent of secouristes asked mothers about fever, but none asked about such other symptoms as chills, convulsions, or headache, or about prior treatment, even though they had been taught to do so. A disturbingly large proportion of secouristes did not ask any questions at all.

6.2.3 Physical Exam

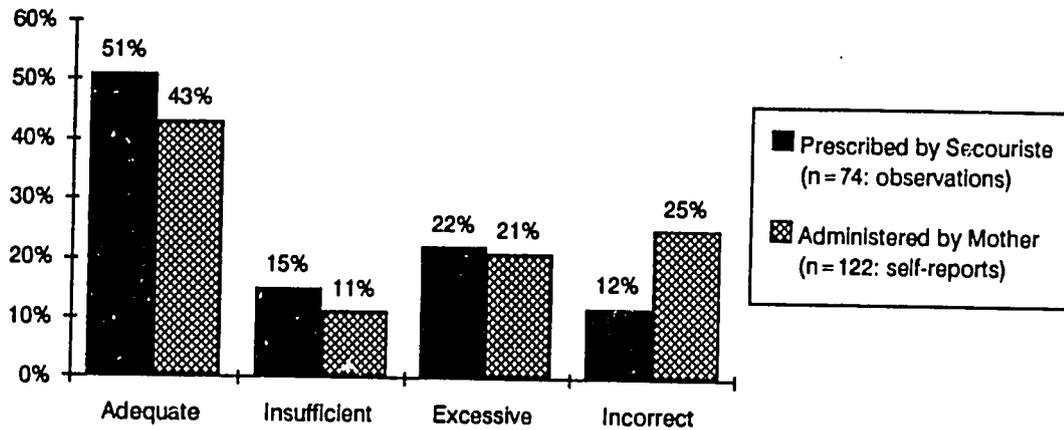
The minority (35%) of secouristes who did any physical exam evaluated body temperature (30%) by touching the forehead and sometimes (22%) did other tests. Only two checked for neck stiffness, a sign of meningitis. None of the observed exams could be considered adequate by established technical norms.

6.2.4 Prescribed Treatment

Prescribed chloroquine dosages were judged to be adequate in 53% of observed treatments, insufficient in 12%, excessive in 22% and poorly distributed in 13%. Mothers of recent fever cases reported actual usage in similar proportions. (See Figure 6.)

FIGURE 6

CHLOROQUINE DOSAGE PRESCRIBED BY SECOURISTES AND ADMINISTERED BY MOTHERS



6.2.5 Other Instructions

Thirty percent of observed secouristes encouraged mothers to return if illness worsened, but few said more. The most commonly given messages concerned the importance of complete treatment (5%) and symptoms of more serious pathology (lethargy - 0%, persistent fever - 3%, convulsions - 3%).

6.2.6 Health Education Sessions

Observed malaria education sessions most often covered destruction of mosquito breeding sites (53%), medication to treat fever (45%), and signs and symptoms of malaria (43%). Secouristes rarely discussed such important topics as early treatment and chemoprophylaxis for pregnant women. (See Table 6).

TABLE 6

Malaria Topics Talked About During Health Education Sessions (N=41)	
Destruction of breeding sites	53%
Effective medication for treatment	45%
Signs and symptoms of malaria	43%
Sources of medication	33%
Chemoprophylaxis	10%
Treatment Schedule	10%
Need for medical care	53%

6.2.7 Mothers Knowledge and Practice

Interviewed immediately after treatment to assess their understanding of health worker advice, 14% of mothers reported different prescriptions than those actually given. Asked about possible complications of malaria, mothers who responded at all mainly mentioned persistent fever. Inadequate secouriste instructions account for these poor findings.

Interviewed in their homes, 53% of mothers of recent fever cases reported having treated their child with chloroquine, 81% obtained from secouristes.

Despite the poor quality of observed education, 80% of mothers knew that fever indicated malaria, although only a few mentioned such other symptoms as headache (21%), joint pain (23%), and chills (12%). Eighty-three percent of mothers knew that chloroquine was an effective treatment. Most women (72%) had not used chloroquine during their last pregnancy, and only 11% had followed official advice to prophylax weekly.

6.3 Summary

Assessment of mothers' attitudes suggests that secouristes significantly affect community malaria responses. Those interviewed felt positively about secouristes, consulting them frequently for malaria treatment, usually obtaining chloroquine from them, and not traveling to dispensaries for further treatment. Positive attitudes make it all the more important that secouristes recommend technically correct treatment, have adequate chloroquine supplies, correctly refer serious cases to dispensaries, and promote chemoprophylaxis. Matrones must promote prophylaxis as well.

Analysts identified significant problems in:

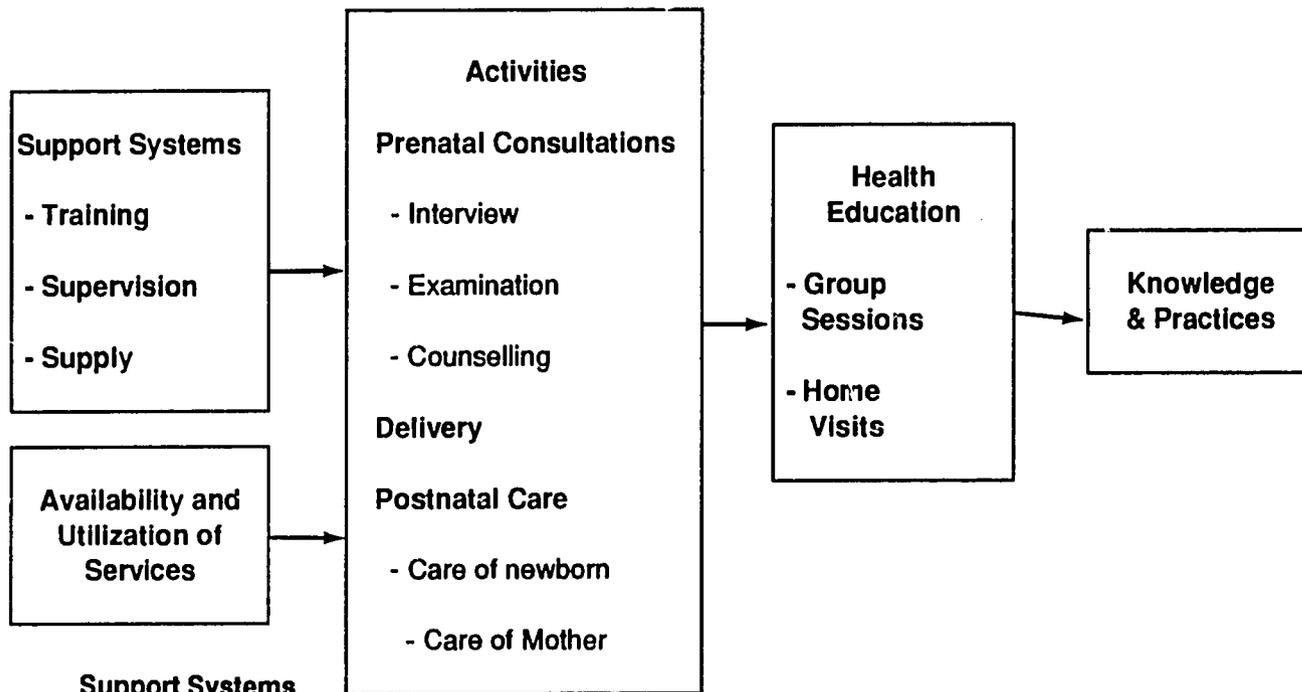
- (1) secouristes' insufficient knowledge and skills in clinical evaluation and malaria treatment
- (2) the extremely low level of chemoprophylaxis by pregnant women
- (3) the absence of chloroquine in most secouristes' kits
- (4) irregular and incomplete supervision.

7. MATERNAL HEALTH

Matrones' most important responsibility, maternal health care focuses on prenatal consultation, safe childbirth, and post-natal care (Figure 7).

FIGURE 7

Model of Maternal Health System



7.1 Support Systems

7.1.1 Training

Secouristes, like matrones, are trained in maternal health, though clearly this work is less important for them. Twenty-eight percent of matrone training hours, and 12% of securistes', are dedicated to maternal health concerns.

7.1.2 Supervision

Nurses supervising matrones usually touched on maternal health, though far more (81%) supervised labor and delivery tasks than prenatal and postnatal care (under half each); about half inspected matrones' medical kits. Government midwives, matrones' chief potential source of technical advice, participated in only 19% of observed supervisions.

Asked how they evaluated matrones' work, 44% of supervisors said they checked birth records and 26% that they tested knowledge. Though half the matrones told PRICOR of delivery problems, few discussed them with supervisors during observed visits. Only three supervisors discussed prenatal consultation and one difficult deliveries. Supervisors appear to be relatively isolated from matrones' working conditions.

7.2 Service Delivery

Despite serious practical difficulties, analysts succeeded in observing seventeen prenatal consultations, portions of two deliveries, and thirty postnatal care sessions. They also interviewed matrones, mothers and supervisors.

7.2.1 Frequency of Activities

Forty-four percent of matrones reportedly do prenatal consultations, 95% deliveries, and 68% postnatal care. A few do not offer prenatal consultation themselves but refer pregnant women to dispensaries or ambulatory care facilities (Table 7). In nomadic areas some matrones do not assist deliveries but do give postnatal care. Matrones report births by recording them in their notebooks (or asking a literate person to do so).

TABLE 7

Maternal Health

Maternal Health Activities by Matrone (n=95)		Practices by mothers who delivered in the past year, (n = 169)						
Prenatal Consultation & Delivery	27%	Prenatal Consultation		Total	Dosso	Tahoua	Maradi	
Delivery & Postnatal Care	51%	Matrone	12%	Matrone (before delivery)	35%	39%	44%	22%
Prenatal Consultation, Delivery & Postnatal Care	17%	Dispensary	20%	Matrone (after delivery)	31%	15%	25%	52%
		Medical Center	1%	Midwife/nurse	1%	0	2%	0
		No Prenatal Consultation	67%	No assistance	33%	46%	29%	26%

7.2.2 Prenatal Consultations

The purpose of prenatal consultations is to detect women with current or past pregnancy complications and to encourage proper nutrition and other good prenatal practices. Matrones should ask questions, examine mothers-to-be physically, and offer advice.

Observed prenatal consultations were mediocre,³ averaging only 2.5 minutes. Thirteen of seventeen matrones checked only the foetal position. Five checked for only one sign of complication and two did not conduct an exam at all. Altogether only two matrones conducted complete exams, including checks for anemia and edema. During observed consultations, 82% of matrones asked no questions, and 71% gave no advice. No one was advised to obtain antitetanus vaccine or malaria prophylaxis. Only one

³Interpretations of these data should consider that matrones already knew their clients well and were likely to be aware of the woman's family situation, previous pregnancies, etc. This undoubtedly influenced the type of questions asked. The average matrone had visited the client 4.3 times before the observed consultation, not including the many who had visited nearly every day.

matrone advised a woman to summon her prior to delivery. Confirming their poor understanding, 39% of matrones could not explain the purpose of prenatal consultations.

Perhaps not surprisingly, only one third of 169 recent mothers (child under one) had sought a prenatal consultation, 20% from a mid-wife or dispensary nurse and 12% from a matrone (Table 7). Four percent had been referred for complications. Mothers receiving prenatal consultation had an average of 3.6 each.

7.2.3 Deliveries

Two of matrones' most important childbirth tasks are to attend labor before delivery and to provide sanitary care of the umbilical cord. Analysts interviewed mothers and matrones but for obvious scheduling reasons, were only able to partially observe two deliveries.

One third of recent mothers reported that they had called a matrone before delivery, one third afterwards, and one third not at all (Table 7). Matrones expressed considerable concern about mothers' failure to call them during labor. Matrones also complained about women's lack of motivation to seek prenatal care and about technical difficulties with the management and referral of complicated deliveries.

Ninety-three percent of recent mothers said that a razor blade had been used to cut the umbilical cord, 86% believing that it had been new. Seventy-six percent thought that the matrone had supplied the blade. Ninety-five percent of matrones said that they routinely use new razor blades, 82% of which they purchase themselves.⁴ The matrone conducting one of two observed deliveries, however, asked the mother for a blade and was about to use the dirty one given her when observers intervened. Interview responses indicate that both matrones and mothers know what they should do, but observations were insufficient to confirm correct practice.

7.2.4 Postnatal Care

Matrones should return soon after delivery to wash the newborn, care for the umbilical cord, monitor maternal health, and provide needed care. Thirty observed matrones mainly washed the newborn (83%) and tended the umbilical cord (50%). Seventy-seven percent asked no questions; 83% did not even wash their hands before handling the baby; and 90% gave no care or advice to the mother.⁵

7.2.5 Health Education

Group education and home visits are matrones' opportunity to influence family practice, yet few do so. Only 45% said they ever led group sessions, including 13% who did so in the week before study. Thirty-four percent of matrones leading group sessions discussed maternal health (20% prenatal care, 21% deliveries, and 11% newborn care). Observed sessions averaged 4.3 minutes.

Sixty-five percent of matrones said they visited homes including a third who did so in the week before study.

⁴Women had been told during prenatal consultations at certain dispensaries that they should buy the blade themselves, while in other regions the matrones were considered responsible for its purchase.

⁵Matrones only wash primiparous women, leaving the washing of multipares to the family. Failure to wash the mother is thus not necessarily a good indicator of the general quality of matrones' postnatal care.

7.3 Summary

Analysts found that fewer than half of matrones offered prenatal consultation and judged most to be of poor quality. The minority of mothers who seek consultations prefer to go to a dispensary. More than 60% of mothers call matrones for childbirth but only a third before delivery. Most matrones' kits lack razor blades (see Figure 13), possibly endangering infant survival.

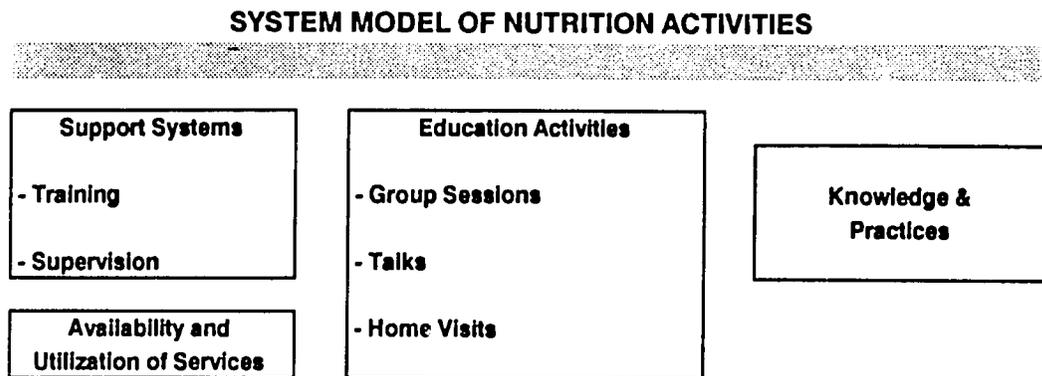
Significant problems to be addressed include:

- (1) the low proportion of women attending prenatal consultation
- (2) the poor quality of matrones' prenatal exams and advice
- (3) mothers' failure to call matrones before delivery
- (4) the absence of new razor blades in matrones' kits
- (5) inadequate care of the umbilical cord.

8.0 NUTRITION

Both securistes and matrones are trained to provide nutrition education and demonstrate food preparation, but matrones do so more than securistes. Figure 8 models nutrition activities.

FIGURE 8



8.1 Support Systems

8.1.1 Training

Securistes spend 19% of training hours on nutrition and matrones 28%, concentrating on knowledge of food groups and balanced diet (especially for young children), food preservation, food taboos, correct weaning practices, and child malnutrition. Workers are trained to identify malnourished children, to advise mothers, and to refer serious cases to the dispensary.

8.1.2 Supervision

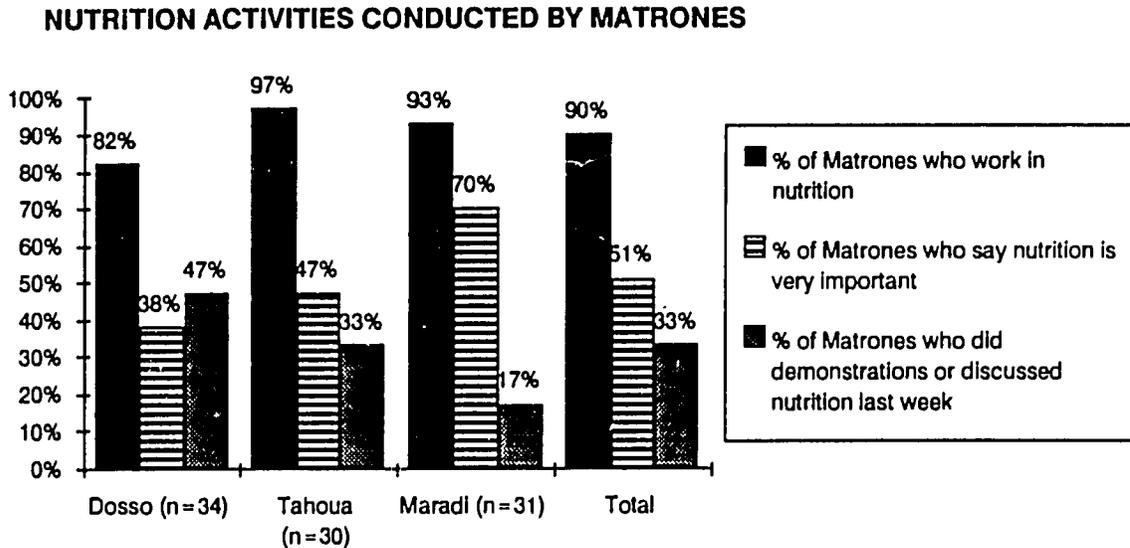
Most nurses supervised nutrition work during observed visits but failed to discuss the identification of malnourished children.

8.2 Service Delivery

8.2.1 Frequency of Activities

Supervisors generally considered teaching of weaning puree to be the most important nutrition activity, but 23% complained that local matrones did not do enough. Matrones reported otherwise, 85% claiming to give nutrition demonstrations and 75% talks (Figure 9). Demonstrations, usually given in homes, involve preparation of weaning puree, feeding of a young child, and nutrition discussion. Matrones commonly recommend millet (96%), sugar (85%), nuts (53%), and black eyed peas (50%), as well as eggs (38%), vegetables (31%), meat (21%), and oil (10%).

FIGURE 9



In groups, matrones reportedly discuss the role of foods in the body (55%), food groups (41%), prevention of deficiency-related illnesses (28%), food taboos (6%), and food preservation (4%).

Observers confirmed matrones' reports. Forty-two percent of matrones' group sessions concerned nutrition, most often balanced diets for children and preparation of weaning puree. Observed sessions lasted only a few minutes, leaving no time for interaction between matrones and mothers.

8.3 Summary

Nutrition education is passive and perhaps excessively focused on weaning puree. Supervisors seem unaware that malnourished children are present when they visit VHWs' villages. Managers need to address problems relating to:

- (1) the passivity of VHW educational efforts and neglect of subjects other than weaning puree
- (2) lack of follow-up for malnourished children.

9.0 WATER AND SANITATION

9.1 Support Systems

9.1.i Training

Secouristes spend 22% of their training time, and matrones 33%, on water and sanitation. Training focuses on:

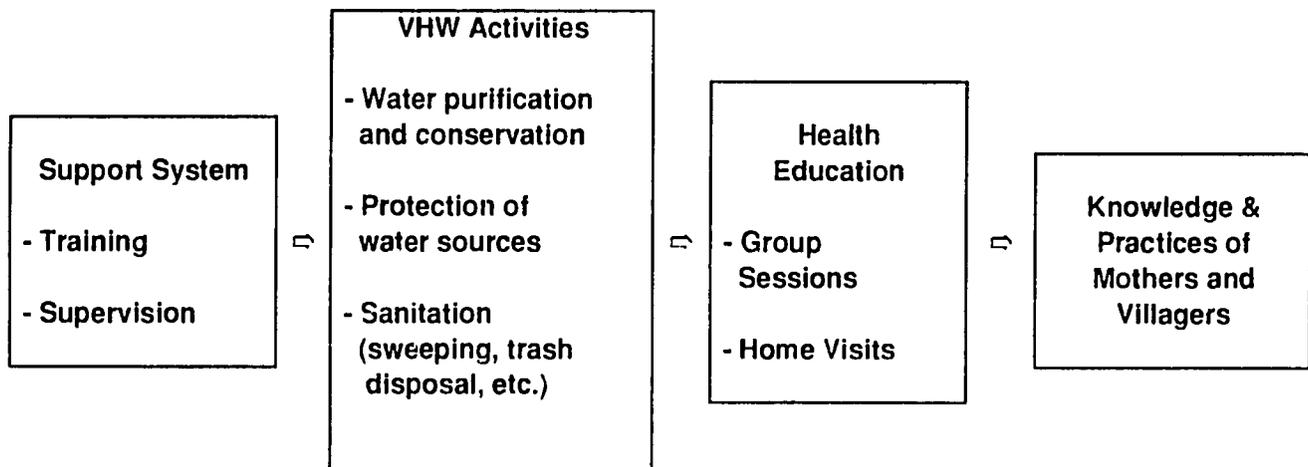
water hygiene: settling, filtration, cleaning of utensils, protection of wells; and

environmental health: sweeping, fencing around animals, construction of latrines, destruction of trash.

Figure 10 models these activities.

FIGURE 10

MODEL OF WATER AND SANITATION SYSTEM



9.1.2 Supervision

Forty percent of nurses supervised secouristes' water and sanitation activities, and 35% matrones', during observed visits, most commonly asking workers about knowledge of hygiene and how to make water potable.

Interviewed later, 74% of nurses said that VHWs' work could be assessed by observing village health conditions; yet only 33% said they ever did this and even fewer (11%) were seen to do it during observed visits. Forty-four percent claimed that they observed group education sessions, but analysts did not see this either.

9.2 Service Delivery

9.2.1 Frequency of Activities

Analysts found only one matrone (of 95) who claimed to work in water and sanitation (though a much larger proportion - see below - discussed the subject in educational sessions). Secouristes, on the other hand, virtually all cited activities in environmental health and hygiene, as shown in Table 8.

TABLE 8

Secouristes Activities in Water and Sanitation (n=84)	
Village Sweeping Sessions	99%
Sweeping the area surrounding the well	49%
Purification of the water	37%
Fencing the well	29%
Separation of drinking water from water for other uses	16%
Trash Disposal	8%
Fencing for animals	7%
Construction of Latrines	4%

9.2.2 Health Education

Self-reports notwithstanding, 71% of matrones discussed water and sanitation (even more than maternal health) during observed group education sessions. The comparable proportion for secouristes was 76%. Table 9 enumerates themes.

TABLE 9

Water and Sanitation Issues Talked About During Health Education Sessions		
	Secouristes	Matrones
Sweeping	74%	60%
Protection of water springs	53%	1%
Water conservation and purification	45%	33%
Fencing the wells	22%	5%
Personal hygiene	15%	12%
Construction of latrines	10%	2%

Forty-eight percent of mothers told analysts that secouristes make home visits, often discussing water and sanitation. Eighty-five percent of this subgroup reported a visit during the last month, 45% of which dealt with hygiene and related topics.

9.2.3 Mothers' Knowledge and Practices

Even though workers promote clean water and hygiene, mothers do not follow their lead. Sixty-seven percent said they did nothing to prepare drinking water, and 69% were unaware of any village activities to protect wells (see Figure 10). This apparent lack of impact may be due to secouristes' poor explanations or to villagers' lack of interest. Fewer than 40% of mothers said they had ever attended a group education session, but a comparable figure for men is not available.

TABLE 10

Proportion of Mothers Reporting Home and Village Water and Sanitation Activities	
Conservation/purification of water	
Cover Water	37%
Decantation of Water	24%
Cloth filtration	15%
Boil Water	13%
Sieve filtration	11%
Other Activities	
Fencing the wells	15%
Tree trunk fencing around the well	6%
Sweeping around the well	5%

9.3 Summary

The general ineffectiveness of village education activities is particularly reflected in water and sanitation, with our study finding little evidence that mothers practice VHW advice. Problems needing priority attention include:

- (1) the weakness of health education activities
- (2) poor maternal implementation of advice
- (3) limited water and sanitation activities.

10.0 TRAINING

Initial VHW training occurs at medical centers or dispensaries and lasts 15 days. The same training guide is used for both initial and refresher courses.

Analysts assessed initial and refresher training by observing one course of each type and by interviewing workers.

10.1 Training Curriculum

The official training guide was developed in 1980 and revised in 1984. While clearly defining objectives and evaluation methods, the guide does not reflect current technical approaches in nutrition, diarrhea

and malaria treatment. VHW responsibilities as a whole, moreover, need to be redefined, with care taken not to overload workers by adding tasks from several health programs. Table 11 shows the distribution of training hours for secouristes and matrones.

TABLE 11

DISTRIBUTION OF HOURS IN VHW TRAINING PROGRAM

	Secouristes		Matrones	
	Number of hours	%	Number of hours	%
Promotion of correct nutrition	22	19	26	28
Water hygiene	12	10	17	18
Environmental health	14	12	14	15
Maternal and child health (family planning included)	14	12	26	28
Treatment of common illnesses and traumas	32	28	-	-
Health education	13	11	6	6
Study of the environment	6	5	2	2
Management	2	2	2	2
Total	115		93	

There appears to be a serious discordance between the allocation of training hours and the tasks that VHWs eventually perform. Analysts estimated that secouristes spend well over half of their working time on curative care, yet only 27% of training hours are allocated to this. Likewise matrones concentrate heavily on labor and delivery roles yet spend only 28% of training time on the much broader topic of maternal health. Training can only lead workers in new directions if villagers support its objectives AND supervisors regularly and consistently reinforce key lessons. Neither happens in Niger. Under current circumstances, the program should either accept and address villagers' felt need for curative care and childbirth services OR greatly strengthen workers' skills in health education and community development. The likely solution may combine approaches.

A second training problem is that class sizes, sometimes over 80, exceed Ministry norms.

10.2 Teaching Methods

Few VHW instructors have been trained for their roles. Most attempt to teach by engaging trainees in dialogue yet fail to generate a response. Few use didactic materials, because they are in short supply and because they do not know of, nor how to use, what is available. In some cases, the official training guide is not even used. Commendably, some trainees are given learning materials on diarrhea treatment and maternal health, but other materials are scarce. Trainers observed in one course did not have a good command of the trainees' language.

10.3 Refresher Courses

VHW knowledge and skills deteriorate over time, especially when not reinforced through routine supervision and visits to the dispensary. Technical recommendations on diarrhea and malaria treatment have changed considerably in the last three or four years. Update and refresher courses are clearly required, yet do not often occur.

Based on a single training guide, the curriculum for refresher courses is identical to that for initial training. The common practice is to organize 10-day courses covering all topics every three years rather than shorter, more focused, courses as needed. Funding shortages and the large number of VHWs make it difficult to meet even the three year target, prolonging training intervals.

Figure 11 and Table 12 show that half of securistes and matrones attended a training or refresher course in 1987-88. The program's dependence on small-scale donor financing since 1986 makes this a commendable but perhaps unrepresentative result (given the way study sites were selected). Sizable inter-regional differences reflect financing differentials.

FIGURE 11

VHW'S WHO WERE TRAINED OR RETRAINED DURING 1987-88

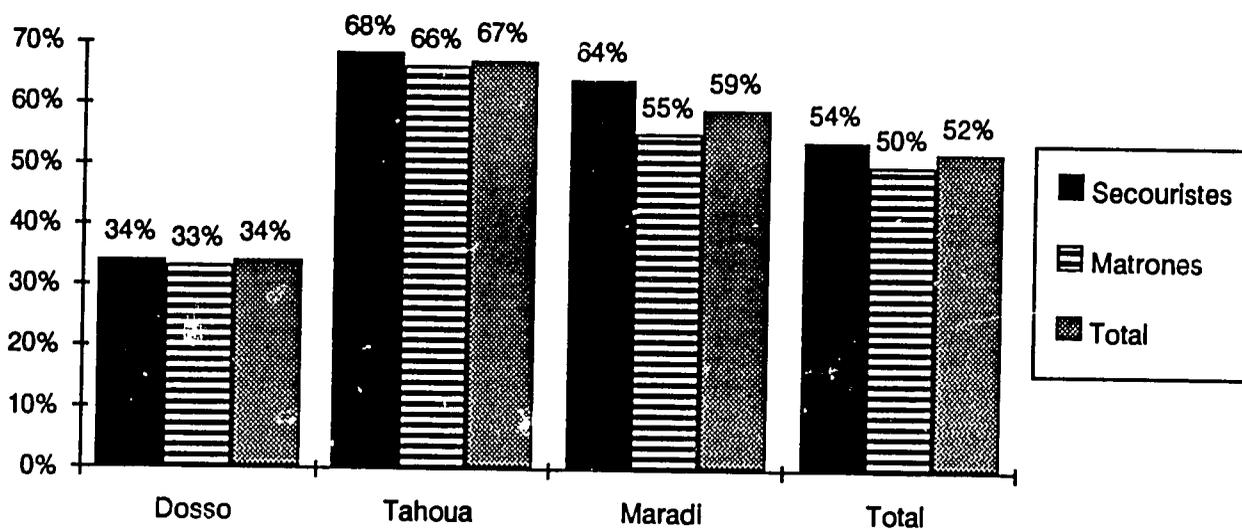


TABLE 12

VHW TRAINING

District Province	Median Year of Training		Percent Trained /Retrained In '87-'88		
	SEC	MAT	SEC	MAT	TOTAL
1) Dosso	'79	'80	34%	33%	34%
Logo	'79	'80	33	30	32
Gaya	'82	'83	55	70	62
Dogon Douchi	'78-'79	'80	17	8	12
2) Tahoua	'85	'86	68	66	67
Tahoua	'86	'86	80	88	83
Tchintabaraden	'85	'86	40	43	42
Bouza	'84	'86	70	64	67
3) Maradi	'80	'80-'81	64	55	59
Dakoro	'80	'81	38	44	41
Tessaoua	'81-'82	'78-'79	88	40	61
Madarounfa	'82	'81	67	80	74
Total			54	51	52

To summarize, analysts found serious problems in:

- (1) the lack of training for instructors
- (2) the discordance between training time allocations and work actually performed in the field
- (3) the paucity and inaccuracy of technical detail in the training curriculum
- (4) the excessive use of non-participatory teaching techniques with limited opportunity for supervised practice
- (5) the infrequency of refresher courses.

11.0 DRUG SUPPLY

Analysts studied drug supply by inspecting VHW medical kits, interviewing workers, and conducting village focus groups. More extensive study was not undertaken because of plans for a concurrent World Bank-supported study.

VHWs are given their initial drug supply without charge when they complete training. Reflecting functions, matrones and secouristes get different kits (see Table 13). Users pay for chloroquine, aspirin, and other tablets (except in the nomadic regions of Agadez province and Tchintabaraden district) as well as for ORS; secouristes are then to purchase and stock replacements. Solutions such as collyre and mercurochrome are to be distributed free of charge and restocked by medical centers.

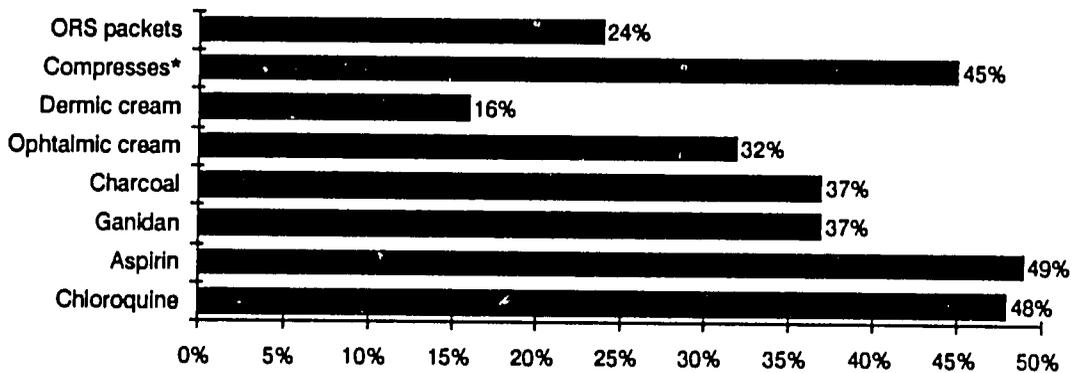
TABLE 13

Contents of VHW Kits (Received at the end of training)	
Secouriste	Matrone
1 box of aspirin 1 box of chloroquine ORS 2 tubes of ophthalmic cream 1 tube dermic cream 500 ml. of methylene blue 500 ml. alcohol 500 ml. boric acid one compress pack cotton bandages sparadrap 3 eyedroppers and bottles 2 pairs of pliers 1 pair of scissors 1 notebook 2 pens	500 ml. alcohol Bottle of argyrol - 1% 2 eyedroppers and bottles 500 ml. mercurochrome 1 pack of compresses cotton bandages sparadrap linen 2 washcloths apron 2 drawsheets 1 pack of razor blades 1 brush 2 bars of soap 2 notebooks 2 pens

Figures 12 and 14 show that fewer than half of observed kits contained fee-paying products. Of particular concern were the low proportions recorded for ORS packets (24%), chloroquine (48%), and new razor blades (42%). Figures 13 and 15 show that products to be restocked by medical centers were also in short supply, causing some VHWs to buy these materials.

FIGURE 12

PROPORTION OF SECOURISTE KITS CONTAINING PURCHASED ITEMS



*Are also distributed by the medical center

FIGURE 13

PROPORTION OF SECOURISTE KITS CONTAINING FREE ITEMS

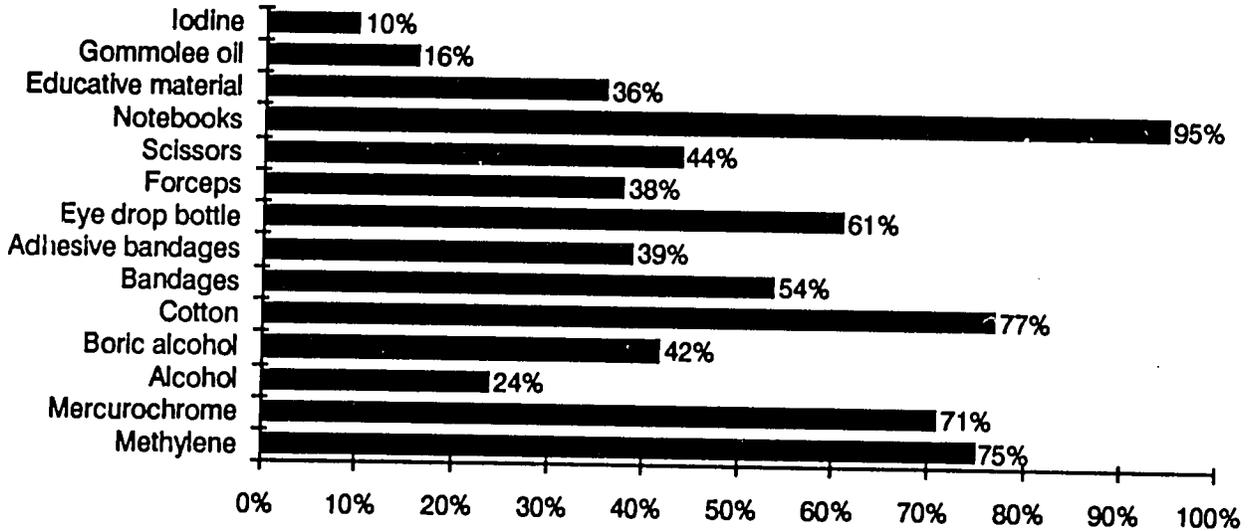


FIGURE 14

PROPORTION OF MATRONE KITS CONTAINING PURCHASED ITEMS

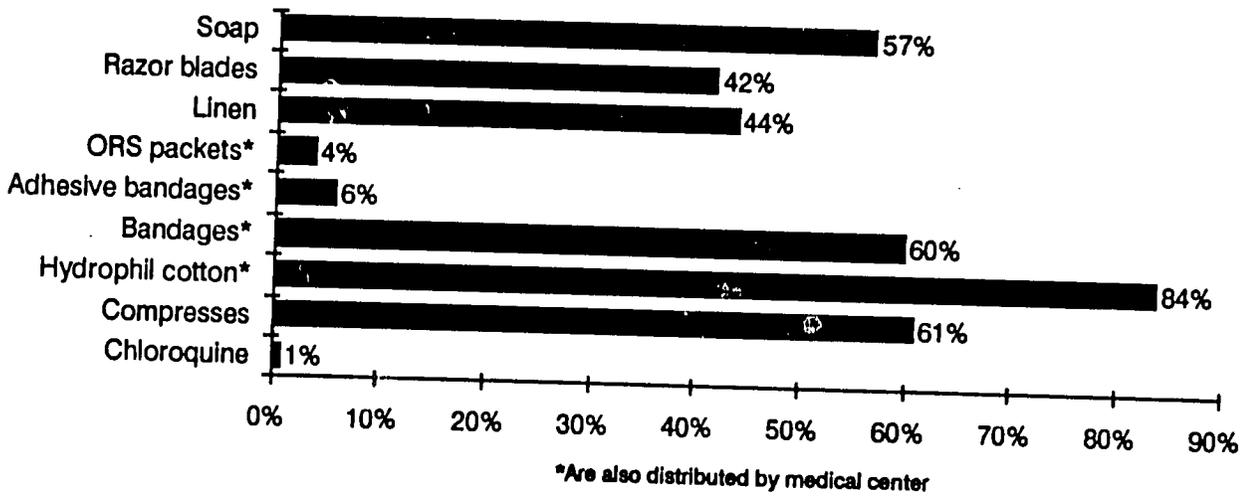
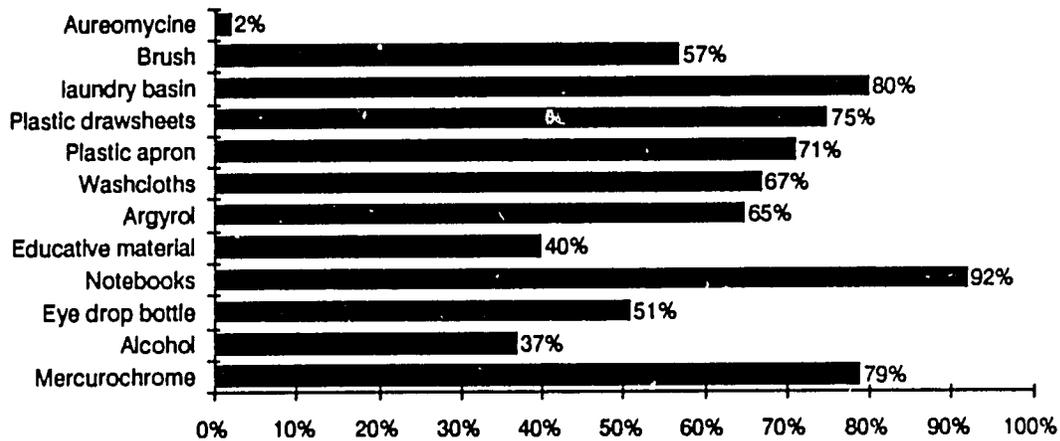


FIGURE 15

PROPORTION OF MATRONE KITS CONTAINING FREE ITEMS



11.2 Supply Problems

There is no uniform supply system but rather a range. Some villages with dispensaries feature cooperative pharmacies, while groups of villages may have pharmaceutical warehouses. Supply points for VHWs are clearly insufficient and inappropriately managed. Even if fee-paying products are available, those meant to be distributed free of charge may not be.

Analysts also highlighted drug pricing problems. Only certain State pharmacies give VHWs a 20% reduction for restocking. Retail drug prices, moreover, vary from one village to the next because some VHWs set prices as they see fit.

Village councils members do not see drug supply as their problem, preferring to leave responsibility to VHWs. Most focus group participants said that kits belonged to VHWs who should restock them when and how they wished. Most also felt that VHWs should manage drug sale receipts.

11.3 Summary

Limited analysis of VHW drug supply systems found problems in:

- (1) the lack of discount prices for restocking
- (2) inadequate community storage facilities
- (3) variations in retail prices
- (4) poor management of medicine kits.

12.0 SUPERVISION

Analysts studied supervision by observing pre-arranged supervision encounters in 27 villages, one for each dispensary. They also interviewed supervisors, securistes and matrones.

12.1 Supervision Objectives

Proper supervision is vital to VHW performance. Its purpose is to monitor VHW activities and provide needed technical and moral support. Not all supervisors promote these objectives, however, 63% telling interviewers that they give technical advice, but only 44% recognizing the importance of moral support.

A 1986 training guide identifies three important supervisory functions: 1) discussion with local authorities; 2) observation of village health conditions; and 3) observation of VHW task performance. Only five of twenty-seven nurses said they had been trained in supervision, however.

12.2 Supervision Structure

Village health workers are supervised by dispensary nurses, of whom 42% (in this study) had state diplomas and 58% were state certified. Those interviewed had completed training between 1965 and 1988, but 38% had been in their current position less than six months. The number of village health teams supervised by a single nurse varied from four to forty-four.

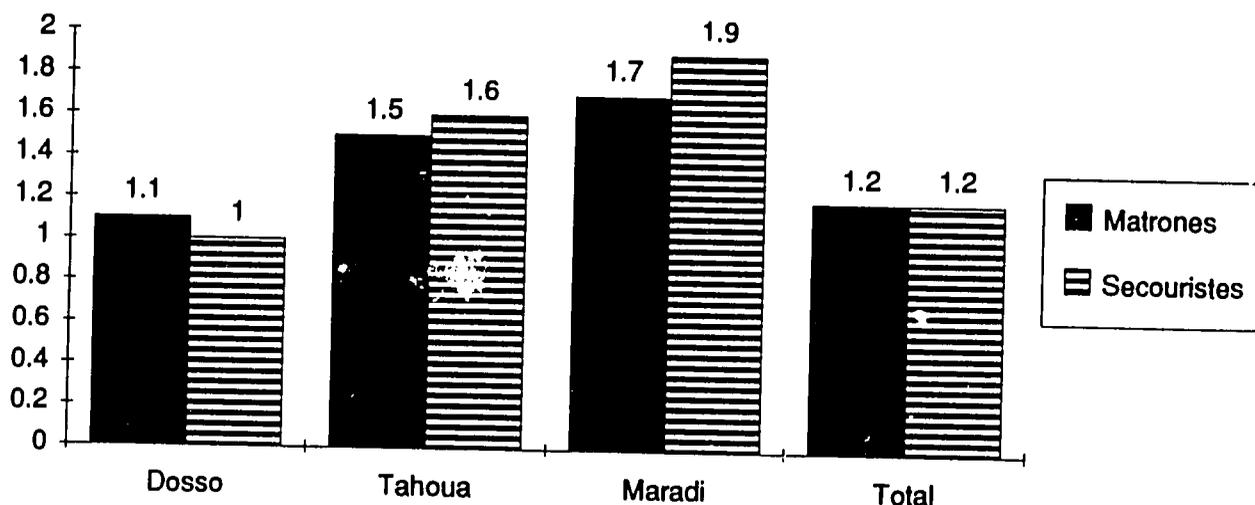
12.3 Frequency of Supervision

Ministry norms require dispensary nurses, accompanied by a medical center representative, to supervise village health teams every three months. Few were able to do so in 1988. Seventeen of twenty-seven nurses told interviewers that they had no supervision schedule. Of the remainder, four claimed to follow a monthly schedule that had previously been in force when dispensary nurses had mopeds.

Eighteen (67%) of the nurses reported that they had made only one round of visits in the past six months, while two had made no visits at all. According to VHW notebooks, the mean number of supervision visits per worker in 1988 was 1.2 (see Figure 16).

FIGURE 16

AVERAGE NUMBER OF SUPERVISION VISITS IN 1988



The reason most frequently given for not following the official schedule was lack of a vehicle (52%). Gasoline reserved for supervision visits, however, is not always used for that purpose. It is the chief of the medical center or his assistant who have access to transportation, and often the dispensary nurse is not informed in advance about scheduled visits, or told reasons for cancellation. Forty percent of dispensary nurses said they conducted supervision visits alone.

No supervisor claimed lack of time as a reason for not supervising, suggesting that poor management and lack of precise objectives at both the dispensary and medical center levels may be partly responsible. Nurses recognized the importance of regular and frequent supervision, 74% saying that they would like to supervise monthly.

12.4 Content

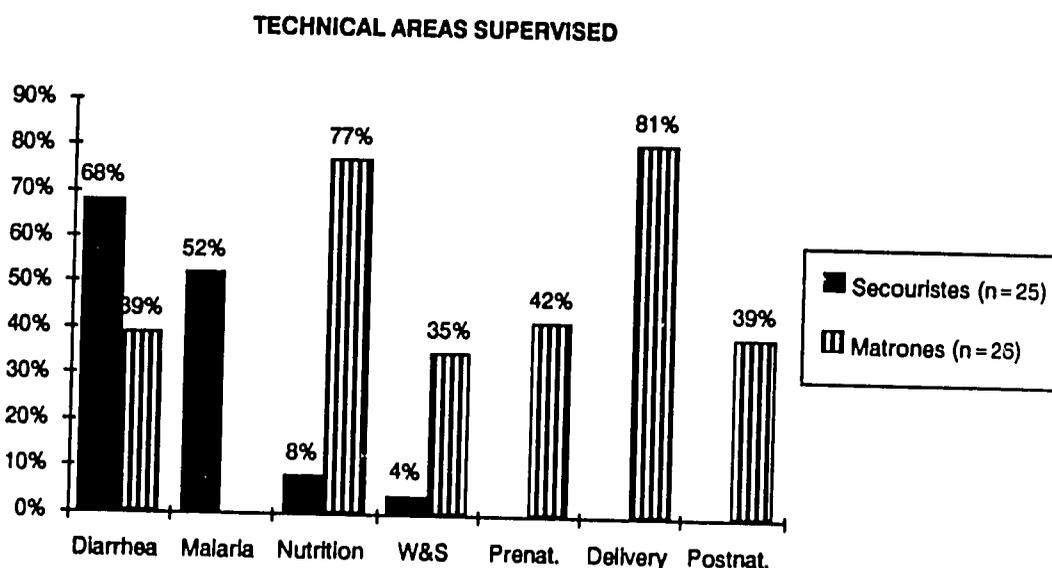
Most nurses suggested that VHW work could be assessed by observing group education, surveying village health conditions, and questioning residents, but a large majority, nevertheless, admitted that they did not routinely do these things.

In fact, observers noted that most supervisors did little more than meet with the health worker, inspect his or her medicine kit and notebook, and discuss a few questions (generally raised by the supervisor). No supervisor watched a malaria treatment, a group education session, or a home visit, and only one saw a diarrhea treatment. Fifty-seven percent complained of weak community support, yet only 10% met with the public and only 23% discussed community support with supervisees. Under half of supervisors and 20% of VHWs asked any questions.

Seventy-five percent of nurses did not use a supervision sheet, complicating any long-term follow-up. The principal information written in workers' notebooks was the date of the supervision visit.

Figure 17 shows that nurses supervising securistes most frequently looked at diarrhea (68%), malaria (52%), and water and sanitation activities (40%). For matrones, they particularly supervised childbirth (81%) and nutrition (77%), less frequently touching on prenatal (42%) and postnatal (39%) care. No nurse supervised all relevant technical areas.

FIGURE 17.



These pre-arranged visits, averaging 26 minutes each, were conducted in a research environment and may even have been better than normal.

12.5 Summary

Nurses supervise village health workers at long and irregular intervals. They lack the means for supervising more often and have no clear sense of purpose or technique.

The following problems merit attention:

- (1) the lack of training for supervisory roles
- (2) the need to develop and use supervisory checklists
- (3) failure to follow established supervision schedules or to develop feasible alternatives
- (4) the fact that supervisors do not routinely observe village health conditions as a means of assessing VHW performance
- (5) the omission of important technical subjects during supervision visits
- (6) the "police" nature of many supervision visits.

13.0 COMMUNITY SUPPORT

VHW effectiveness depends on community acceptance as well as technical performance. Acceptance reflects the worker's position in the village, the way in which he or she was selected, and the nature and degree of community support. Attempting to learn more, analysts interviewed village chiefs, council members, mothers, and health workers, and held open discussions with local men and women.

13.1 Selection

Community development workers and nurses are supposed to orient new villages to VHW objectives and selection criteria before asking them to nominate trainees. To the extent possible, those selected should be literate, willing to perform voluntary service, not travel frequently, and exhibit high values. The entire village should participate in selection.

Analysts found to the contrary that many villagers did not understand program goals and had not followed recommended selection criteria. Most villages used democratic selection procedures but often ones highlighting the village leader's role. In four villages, the securiste was the village chief, and in three others his son. Many securistes still leave the country to work, sometimes for long periods.

Nurses are supposed to officially introduce new trainees to communities to ensure that residents understand their functions, but Table 14 shows that this was not always done. A large number of securistes and matrones started work without the population being aware of their arrival or of their new responsibilities.

TABLE 14

VHW'S INTRODUCED TO THE VILLAGE AFTER THEIR TRAINING			
Province	Secouristes (%)	Matrones (%)	Total
Dosso	97	94	95
Tahoua	72	55	63
Maradi	50	50	50
All Areas	73	66	69

13.2 Remuneration

Secouristes and matrones are not formally paid, but mothers often give in-kind gratuities for childbirth assistance. Drug-sale income must be used to resupply medicine kits and does not produce a surplus. Villagers may misunderstand, nevertheless, especially in localities where dispensaries distribute medicine free of charge.

Residents in only six of fifty-four villages said they helped securistes do fieldwork during the rainy season to partially compensate them for health service. Seventy-eight percent of matrones said they were only sometimes rewarded for childbirth, usually in cash (25-1200 francs, the equivalent of \$0.08 to \$4.00), or cash and kind, but sometimes (7%) in kind only. Compensation satisfied 68% of matrones, but 13% considered it inadequate. Residents reportedly compensated 26% of matrones for other services in addition to delivery.

13.3 Summary

VHW prestige and morale depends on community financial and psychological support, but these are often withheld. Most residents do not accept responsibility for securiste presence or performance or for drug supply. Secouristes may be less well supported than matrones, most of whom had been traditional midwives and thus integrated into village culture. Most villagers feel that the official health services, not they, are responsible for resolving numerous VHW problems.

These problems, according to study findings, include:

- (1) communities' failure to respect VHW selection criteria
- (2) the weak effort generally made to involve local residents
- (3) lack of appropriate community introductions for newly trained workers
- (4) misunderstanding of the principle of volunteer work and non-remuneration.

14.0 HIGHER LEVEL SUPPORT

Secouristes and matrones are ultimately supported and supervised by medical center heads and provincial health directors. Interviewees in these positions invariably agreed that the number of new trainees exceeds the system's follow-up capacity. The central government has been unable to finance training or followup since 1986, leaving these to small donor projects and other organizations. Many village workers have essentially been abandoned. The number being trained must be coordinated with existing or projected follow-up capacity.

Senior managers often cite scarce human, financial and logistic resources (especially gasoline, vehicles, and drugs) as reasons for poor VHW support. Several suggested that medical centers identify someone to take charge of village health teams or that the number of nurses be increased at dispensaries serving many villages. Many argued for precise supervision schedules and greater supervision resources. A supervision guide is also needed.

To prevent misappropriation of funds and frequent lack of medicines, the establishment of village management committees was proposed.

