

A RETROSPECTIVE REVIEW OF MATERNAL AND CHILD HEALTH SERVICES AT THE ALBERT SCHWEITZER HOSPITAL IN RURAL HAITI¹

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The Albert Schweitzer Hospital in Deschapelles, Haiti, has been providing a wide range of maternal and child health services to the people of its rural district for the past 25 years. The general overview of those services contained in this article is expected to provide useful information for health administrators and institutions seeking to extend health care services to rural areas.

Introduction

Meeting the health needs of mothers and children in the developing world offers one of the most perplexing and challenging experiences in the field of international health care. Although mothers and children make up a majority of the population in the less technically developed areas of the world, they remain the most vulnerable groups affected by disease and death from preventable causes (1).

Mothers and children in rural Haiti generally exhibit the basic health patterns of those in other less developed parts of the world. Among young children the frequency of infection and communicable diseases is high. Malnutrition is a common problem confronting the children of rural Haiti, and one could describe it as being endemic for this population. The main maternal problems are easily linked to undernutrition and poor or nonexistent prenatal care. Infectious diseases complicate pregnancy and elevate the risks already inherent in home deliveries, which often receive little or no effective care.

The Albert Schweitzer Hospital in Deschapelles, Haiti, is a 150-bed institution founded by Dr. and Mrs. William Larimer Mellon. The hospital serves a rural area with a population of approximately 100,000 that covers approximately 158 square miles. When the hospital opened in 1956 it was capable of providing most of the major medical services usually available at a hospital in a "developed" country, with the exception of an obstetric service for routine deliveries. This is still true today; that is, only operative deliveries and those where complications are anticipated take place in the hospital.

Numerous special services for mothers and children have been added over the years, but these began to achieve much greater potential with the opening of the hospital's Community Health Department in 1967. This department has carried out many preventive health programs and services designed to accommodate these groups' special health needs.

Neonatal Tetanus Control

Perhaps the most dramatic maternal and child health service initiated by the hospital was its campaign against neonatal tetanus. Immunization efforts and programs for the education of pregnant women and midwives had clearly lowered the incidence of neonatal tetanus during the first 10 years of the hospital's existence, but the disease still posed a formidable problem in this section of rural Haiti.

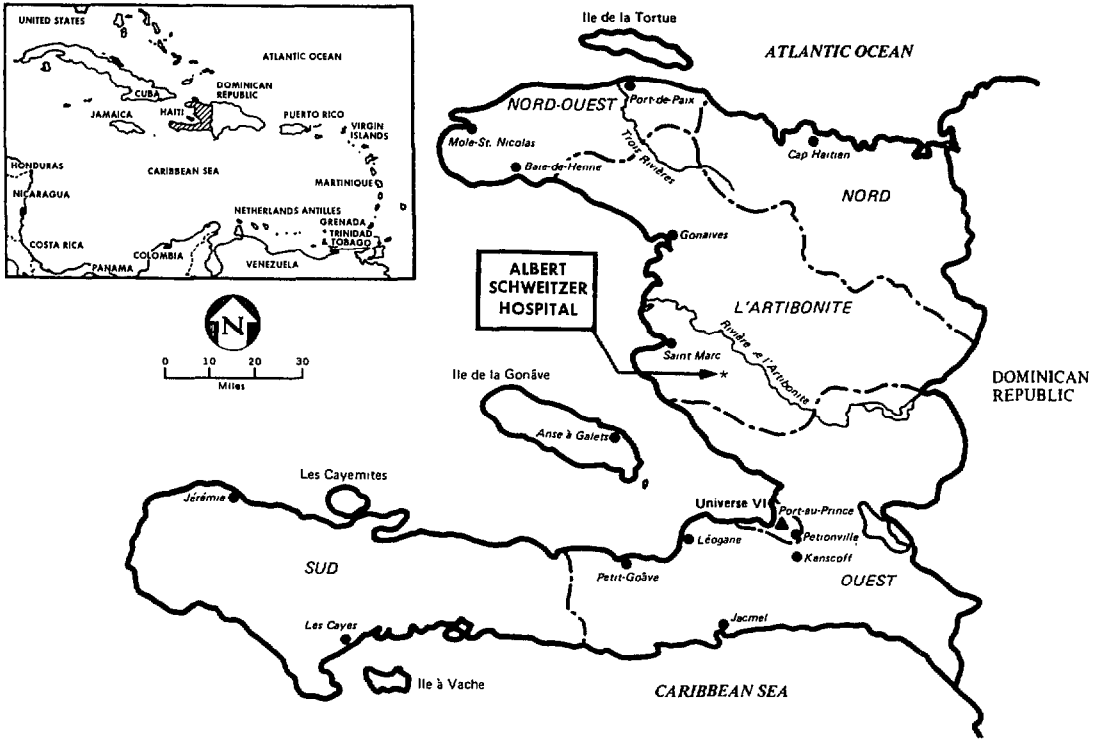
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Figure 1. A map of Haiti showing the location of the Albert Schweitzer Hospital at Deschapelles.



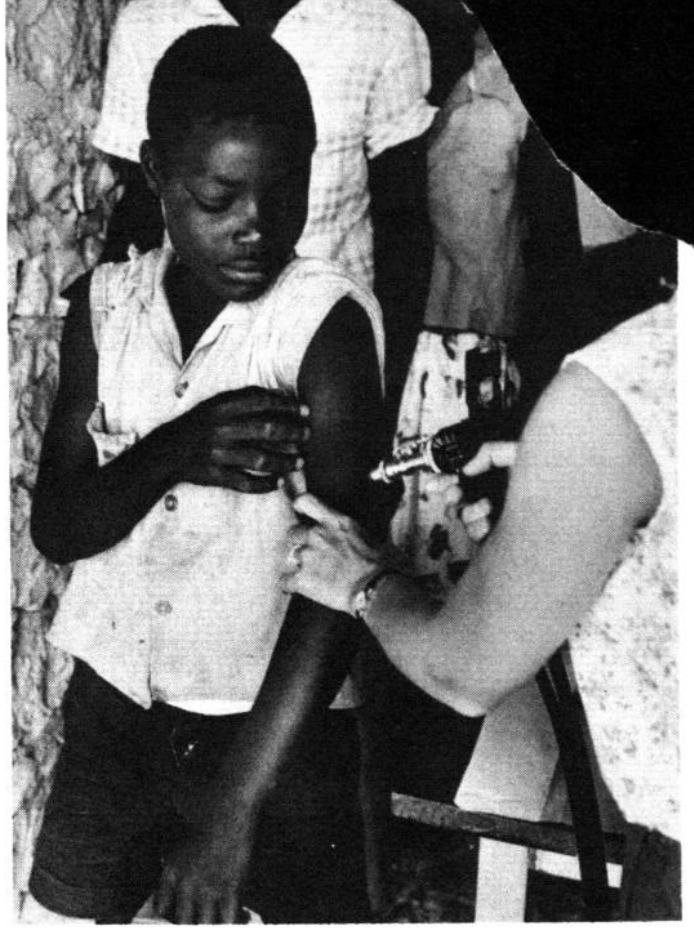
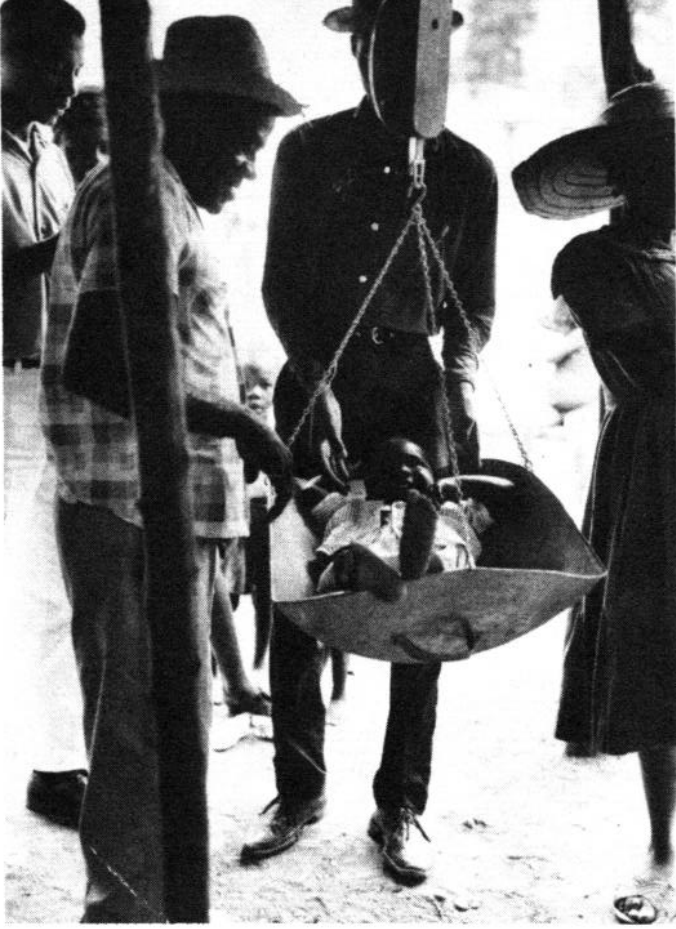
In 1966, the year before the hospital's Community Health Department developed its mass immunization campaign against tetanus, 447 newborns with tetanus were admitted to the hospital. Of this number, 219 came from the district normally served by the hospital. Overall, 212 of the newborns admitted with tetanus that year died (2).

In 1967 the hospital began to develop programs especially designed to control neonatal tetanus. Communities were immunized systematically. By establishing outdoor immunization clinics at the hospital and at major marketplaces in the hospital district, and by working with traditional midwives, these programs caused the incidence of neonatal tetanus to decline sharply (3). The outlying areas beyond the hospital district also began to benefit as more and more childbearing women were reached by these immunization activities. In 1979 only 24 cases of neonatal tetanus

were admitted to the Albert Schweitzer Hospital, and only one of these cases afflicted a newborn delivered in the hospital district. In all, there were seven fatalities associated with these hospital admissions. Hospital admissions of patients other than newborns with tetanus have also declined progressively, and this decline is evident among both hospital district and contiguous nondistrict populations. Overall, the impact of tetanus control and the development of new programs for dealing with the health problems of the people have buoyed public confidence in all the services available through the hospital system.

Surveillance, Treatment, and Prevention of Malnutrition

Malnutrition has remained the most frequently occurring health problem among children in the hospital district. Because of the



Photographs showing some of the activities described at the Albert Schweitzer Hospital.



consistently high prevalence of nutritional diseases in the rural Haitian population involved, a number of programs and services have been established over the years to meet that population's recognized needs. These include the following:

1) *The nutrition clinic.* In 1966 a special pediatric clinic began operating that was designed to provide outpatient care for children with malnutrition. This was based on a cooperative effort by the Community Health Department health educators and the pediatricians working in the same area. Histories were taken, physical examinations were performed, weights were recorded, and the children's progress was discussed. Clinic activities also included nutrition education, demonstrations of proper foods, and prescription of food or milk supplements.

2) *Courtyard education.* In 1970 the hospital set aside a special section of its grounds for providing health education in nutrition and other matters of concern to mothers and children. The ensuing program, carried out by the hospital's health education unit, sought to provide information about health and disease in language acceptable to and understandable by the people. This courtyard education program provided mothers with information about the foods available during different seasons and enabled them to better understand these foods' nutritional value and importance for growth and development. The mothers were also given instruction and demonstrations relating to food preparation. The courtyard program also included education for the mothers on the subjects of family health, general hygiene, tetanus, tuberculosis, and family planning.

In addition, the courtyard health education unit introduced special education for mothers of children under two years of age. This service, called "early child care," provided information about breast-feeding, weaning diets, the dangers of bottle-feeding, and the introduction of supplemental food.

In general, the health educators conducting this courtyard program used two approaches.

These were (a) an individual or small-group approach for those referred from the hospital's screening areas, clinics, and wards to the courtyard program; and (b) a community approach through which the health educator would go to a community and work with the people to help in finding solutions for their problems.

3) "*Weigh-ins.*" This method of nutritional surveillance, begun in October 1968, has been found effective as an instrument for monitoring the nutritional status of children between the ages of six months and six years. The method involves weighing the participating children every three months and plotting their weights on a growth chart kept by the mother.

This allows the extent of any existing malnutrition to be assessed using the Gómez classifications. Children who fail to gain weight or who show weight loss or edema can then be referred to the proper service for food supplementation or investigation and treatment of possible medical problems. This nutritional surveillance activity has permitted initiation of early corrective and preventive therapy for children living in the hospital district.

4) *Nutrition recovery centers.* These centers (sometimes called "mothercraft centers") first began operating in the Schweitzer Hospital District in September 1967. The facilities used were renovated houses that provided the same atmosphere as families' homes within the community. Centrally located in villages within the hospital district, they were equipped to handle groups of people with enough space left over to store supplies. Using the Gómez classifications as a standard of measure, children identified as having grade III malnutrition were given priority for admission to the centers.

Each center was capable of accommodating 30 to 35 children, and a child might come to the center for a period of three to four months. During this time the child's mother would work at the center, helping with the shopping, food preparation, and cooking. In general, there were six to eight centers operating at any given time. Old centers were closed and others

were opened at new locations in accordance with evaluations of community need.

The nutrition recovery centers did not prove to be a completely successful means of controlling clinical malnutrition. King et al. (4) established that a number of the children admitted to such centers failed to respond to therapy because, in addition to their malnutrition, they had health problems of a nature not amenable to management solely by the improved sanitary environment and food received at the center. Other reasons for failure were: (1) some mothers failed to learn what they needed to know at the centers, because of learning disabilities or disinterest; (2) some mothers learned but were not motivated to take the further steps needed to change their child care habits at home; (3) some mothers lacked the financial resources needed to implement what they had learned; (4) in some cases the mother was not the person who cared for the children, so her training at the center had very little impact at home; and (5) in some cases community support was lacking (4, 5, 6).

The goals of the nutrition recovery centers were to permit the child to recover from malnutrition and to provide the mother with nutrition education that would help her to care for her affected child, her other children, and her future children. After 11 years of operation, the last of these centers was closed in 1978.

5) *The three-day center at Deschapelles.* This center utilized a house near the hospital. Food was prepared in the same manner as at the nutrition recovery centers, daily food expenses per person were within the same limits, and the nutrition education provided was the same. However, the three-day center differed from the standard nutrition recovery centers in that mattresses and spacing were provided for overnight lodging of five mothers and their respective children, who were selected and referred by the hospital pediatricians. They stayed in the center for three days, during which time the mothers helped prepare eight meals for themselves and their children and

learned what foods their children should be fed. This arrangement permitted two groups of five mothers and their children to be accommodated each week.

At the end of the three-day period each child was discharged with a package of powdered milk; arrangements were also made for the child to return to the center in one week for reevaluation. Subsequent return appointments were set at progressively longer intervals of one, two, four, and eight weeks. During revisits the mother participated in a review of what she had been taught about nutrition, again watched the preparation of a typical meal, ate with her child, received additional instruction, and returned home with her child in the early afternoon. The child was weighed by a supervisor and examined briefly by a physician on each visit.

Unfortunately, this method did not prove an effective one for dealing with young child malnutrition. When the mother came with her child from the hospital pediatric clinic to this modified nutrition center, she often came with medication prescribed by the pediatricians. This medication was administered to the child by its mother during her stay at the center. Because of this, mothers may have tended to credit the medicine, rather than the center's balanced diet, for any improvement in the child's condition. Also, the child only had time during the three days for some reduction of edema and perhaps some improvement in emotional response. Hence the mother did not learn from the powerful demonstration that her child had recovered completely while receiving no special treatment except a balanced diet—a demonstration that would normally occur at a standard nutrition recovery center.

The mothers attending the three-day center came from widely scattered localities in the hospital district. Therefore, in contrast to the situation prevailing at the standard centers, the teaching was not reinforced by neighbors who had learned the same things about recovery from malnutrition. Furthermore, the mothers were more difficult to locate if they missed a follow-up appointment.

Clinicians' involvement with the center

diminished as time passed, due to increased clinical duties at the hospital. Sometimes children who were too malnourished or sick were inappropriately referred to the three-day center, and sometimes children had to be readmitted to the hospital from the center. The facility was closed in June 1970 after three years of operation.

6) *Nutrition intervention and case follow-up program.* The aims of this program, like that of any nutrition program, are to eradicate malnutrition and promote good nutrition (7). The program, which began in 1979, also seeks to keep children from needing admission to the already-crowded hospital by providing frequent home visits for malnourished children and those at risk of becoming so in the hospital district.

A child is referred from the outpatient clinic by a pediatrician who believes the child needs prompt and special attention short of hospitalization. Typical examples might include a nursing infant whose mother has just died, or a child previously admitted to the hospital for kwashiorkor who again exhibits grade III malnutrition.

When the patient is referred to the Community Health Department, the public health nursing service makes home visits, provides food supplementation as indicated, and gives intense nutrition education to the person caring for the child. This program has also provided home nursing visits for a few children with other special health problems—including one child with diabetes, one with chronic nephritis, and about 10 with sickle cell disease.

Reports of visit findings are sent to the referring physician and are entered in the child's medical record. Some referrals have been made to this program by the chief of the weigh-in team, who has identified children meeting the program's criteria for special care. If the program fails to improve a child's nutritional status, that child is referred back to the pediatric clinic. A plan for expanding the nutritional aspects of this program went into effect in October 1980.

7) *Treating malnutrition: Pediatrics Ward II and Ward III.* Children with the most severe

cases of malnutrition and its associated complications must be admitted to the hospital for treatment. In pediatric Ward II a separate fourteen-bed room is used for these seriously ill malnourished children. Rarely, in seasons when the incidence of severe malnutrition is unusually high, a child admitted for kwashiorkor or marasmus may have to be temporarily put in one of the other pediatric rooms; or a child may have to be isolated because of a contagious complication. Each month malnutrition is the greatest cause of pediatric admissions at the hospital, and the mortality rate can be as high as 25 or 30 per cent.

After undergoing treatment according to a much-revised regimen (a standard protocol with individual variations), and after recovering sufficiently, the child is transferred to Ward III. This ward, a special recuperation-education section of the hospital connected by a breezeway to the main hospital building, was opened in June 1970. The ward, designed to accommodate 30 to 32 children, allows for extended recuperation in a less costly setting. The personnel managing the facility on a daily basis are one auxiliary, an assistant auxiliary, and a cook. The recovering children's parents also participate actively in the work and upkeep of the ward. The food is prepared in a traditional manner and cooked with charcoal in an outdoor kitchen unit.

When the child is admitted to pediatrics (Ward II), one parent (preferably the mother) is expected to stay in Ward III for two days, sleeping, eating, and receiving instruction in the ward. During this period the parent receives intensive nutrition education while helping with the ward chores and spending time with the child in Ward II. Throughout the child's hospital stay, the parent comes in for one day per week to help and to learn about proper child feeding, good choices in buying foods, and general basic principles of child care. The foods prepared in Ward III are made of the least expensive products purchasable in the marketplace that offer all the nutrients needed to support growth and health—these being a cereal, a vegetable, and bean sauce (the liquid remaining after beans

have been cooked). Another regular part of the diet is reconstituted powdered milk fortified with vegetable oil and sugar. Occasionally, small amounts of meat and fish are added to the pot.

In December 1979 an organized "mental stimulation" program was begun. A local woman was employed and trained to provide mental stimulation for the Ward III children by means of simple homemade materials and games. The parents have been encouraged to participate and to engage in such activities at home to promote their children's mental as well as physical recovery.

Because of the low cost involved, a child can stay in Ward III recuperating for four or five weeks (after an initial one or two weeks in Ward II) at very little expense. Physicians make formal weekly rounds and informal daily visits to Ward III. If a child becomes ill while in Ward III, that child is transferred back to the pediatric service for remedial care.

Other Maternal and Child Health Services

School Programs

Immunization. In 1962 an organized school-child immunization program was started for the thirty-odd established schools in the area surrounding the hospital. Four to five thousand students generally participated in the program, the numbers involved depending partly on the number of schools functioning in any given year.

In 1967 this program became a part of the services provided by the Community Health Department. Since then, this specific program for school immunization (and health education) has gradually been phased into the Community Health Department's mobile team activity.

School Health Education. In the 1970s the Community Health Department became involved in school health education. A health education unit was designed to assist teachers with developing their health education skills while using materials already available to

them. In addition, the health education unit provided the teachers with new health information, simple factual manuals, and visual aids. The program required many visits by health educators to schools in the district, and difficulties were encountered because the teachers lacked any strong foundation in health education. Introducing new materials often resulted in a breakdown of communications between the schools, teachers, and health educators. The program was terminated after several years of unsuccessful effort.

Immunization Activities

Soon after the hospital opened, immunization days were begun at the pediatrics clinic. Later, immunizations were given in all clinics and wards to any patients who needed them and were not too sick to receive them. In 1970 free immunization clinics were set up in the hospital courtyard. Every available occasion—during periodic weigh-ins, mobile team visits, census-taking in the villages, etc.—was used as an opportunity for checking vaccination status and administering immunizations.

At present we do not see cases of diphtheria coming from the hospital district, and few cases of pertussis or poliomyelitis occur among children who live within the district. In 1979 one child was born in the hospital district who was diagnosed as having neonatal tetanus. This one case can be compared to 219 cases of tetanus identified at the hospital in 1966. Much of the change in the case rates of neonatal tetanus, pertussis, diphtheria, and poliomyelitis can be attributed to the development of a community health department working in conjunction with the hospital to initiate programs and services to combat these diseases. To offset the high incidence of neonatal tetanus, pregnant women were immunized—thereby conferring protection on their newborns. Midwives working in the hospital district were taught sterile techniques of cutting the umbilical cord, and education seminars were held that were designed to make the pregnant mother more aware of

sterile conditions during the delivery of her child.

In 1968, the Community Health Department organized a full-scale immunization campaign in the hospital district. Women over 10 years of age were given tetanus toxoid injections. On a one-time basis, each woman was to receive three injections of the vaccine in order to be completely immunized. As can be seen from the dramatic drop in neonatal tetanus cases, this immunization campaign was effective. From 1968 to 1979 approximately 777,542 doses of tetanus toxoid were given to residents of the hospital district.

The immunization campaign was also directed against diphtheria, pertussis, poliomyelitis, typhoid, measles, and tuberculosis. The estimated numbers of vaccine dosages provided against these various diseases in 1968-1979 are as follows: DPT-DT, 265,873 doses; polio vaccine, 40,824 doses; typhoid vaccine, 26,250 doses; and BCG, 57,004 doses. The statistics on measles vaccinations are incomplete. Typhoid vaccinations were discontinued in 1974.

Prenatal and Postnatal Care

Not long after the hospital opened, a clinic was started to provide women with prenatal and postnatal care. (Since there has never been a formal obstetric service at the hospital, pregnant women have been referred to hospital-trained traditional midwives for delivery services.) Either a physician or a registered nurse has been responsible for managing the clinic. Consultations are routinely available from the doctors in the medical and surgical services. Prenatal activities performed at the clinic include appropriate laboratory tests, weighing, blood pressure measurement, assessment of general health status, and monitoring of the pregnancy's progress. A postnatal visit by the mother and her baby is scheduled for six weeks after delivery. Tetanus immunization is always a prime consideration at the clinic. Special attention is given to diagnosis and management if tuber-

culosis is suspected in the pregnant patient, and special efforts are made to see that her newborn receives proper care.

During their clinic visits, pregnant women living in the hospital district routinely receive education in nutrition, hygiene, family planning, the danger signs of pregnancy, and immediate newborn care.

Family Planning

Developing a system of family planning that would be reasonable and acceptable for the rural population living in the hospital district requires an investment of time and effort. The problems most often encountered in the family planning process relate specifically to religion, taboos, misinformation, and the desire for a large family to help work the land. The greatest underlying problem is the high mortality rate among infants and children, which places an added premium on the creation of large families.

The hospital's family planning program has gradually increased its use of community education to reach the population and try to gain acceptance of the real necessity of spacing and limiting births. This community education has been disseminated by dispensaries, mobile health team workers, public health nurses, and physicians.

Family planning education is usually given individually, but some is provided to small groups of patients attending the tuberculosis and nutrition clinics.

The obstetric (prenatal and postnatal) clinic affords a logical place for the initiation of family planning, especially during the postnatal visit. Women and their partners are referred to the family planning clinic or to the health educators for information and discussion of contraceptive methods. It should be noted, however, that the need to plan smaller families and to space pregnancies at greater intervals involves a change in existing cultural patterns that will be accepted only after appropriate and understandable information is provided for the general population. Moreover, significant changes in behavior cannot be ex-

pected until infant and child mortality are further reduced.

The Midwives' Program

Midwives (traditional birth attendants) are an integral part of rural Haitian culture and prestigious members of their communities. The profession is often handed down from mother to daughter, or from grandmother to granddaughter.

The Albert Schweitzer Hospital has organized and registered the midwives serving surrounding areas. These birth attendants, also known as "*femmes-sages*," have been trained in health care during pregnancy, proper procedures during labor and delivery, the need for special attention to sterile handling of the umbilical cord, and hygiene of the newborn. They are also provided with silver nitrate ampules for preventing gonococcal ophthalmia in the babies.

Midwives are taught the importance of having the mother immunized against tetanus for the purpose of preventing tetanus in the newborn. If the mother has not had a complete, verified, and sufficiently recent tetanus immunization, the midwives have been instructed to send the baby to the hospital for cord cutting and an injection of tetanus antitoxin. They have also been taught to send all babies they deliver to the hospital to receive a BCG injection on the day of birth or the next day.

The hospital provides the midwives with special boxes for carrying their sterile supplies. These sterile supplies are replenished at monthly meetings that serve as forums for discussion and continuing education. Any complicated pregnancies encountered are accepted into the hospital as emergencies.

Cord-Cut Unit

This special unit employs an auxiliary who is usually supervised by a nurse (L.P.N.). The unit is located in an enclosed area of the hospital courtyard.

Babies are brought to the unit with their placentas attached for umbilical cord-cutting—or for recutting if the cord was improperly cut in the first place. BCG vaccination and silver nitrate prophylaxis are given to all babies. The babies are also weighed, and their weights are recorded in a permanent ledger along with their names and dates of birth. In addition, a health card is made out for each baby that will provide a record of immunizations and weights. Tetanus antitoxin is given when the mother's immunization status against tetanus is inadequate or unknown. Babies whose mothers fall into this category also receive a shot of procaine penicillin. Babies who appear sick are referred immediately to the pediatric clinic.

Low Birth-Weight Project

It has been shown that small newborns delivered in tropical countries need special care (1). To meet this need, in 1979 the Albert Schweitzer Hospital (through the Community Health Department) developed a special home nursing program for low birth-weight babies. This program focuses on these babies' nutritional and health care needs, giving special emphasis to the need for breast-feeding and adequate maternal nutrition.

To help the economically deprived rural population cope with the needs of low birth-weight infants, parents receive instruction about food selection and budgeting. In a limited number of cases food supplementation is provided.

This program has involved a great deal of time and diligent effort by the public health nursing service. However, it has meant that the survival of low birth-weight babies is no longer left to chance. Data from the first year of the program's operation show encouraging results in terms of the growth, weight gain, and general health of low birth-weight infants.

Dispensaries and Health Agents

Over the past three years the hospital has extended its health care system through devel-

opment of three dispensaries managed by auxiliaries trained and supervised by the community health and hospital staff. The auxiliaries provide primary health care to residents in various parts of the hospital district.

Forty-four health agents work in conjunction with the auxiliaries. These agents moni-

tor the health status of the hospital district population. People in need of medical attention are referred to the dispensary or hospital for care. Overall, the dispensary auxiliaries and health agents have proven themselves of great help in carrying forward the programs described in this report.

SUMMARY

Various programs and services established over the 25-year history of the Albert Schweitzer Hospital in Haiti have been directed at improving the health status of mothers and children living in the rural district that it serves.

The long-term effects desired from these programs and services have not always materialized. For example, efforts directed at changing the prevailing pattern of malnutrition have not had a dramatic impact on the morbidity and mortality associated with newly-discovered cases. Today malnutrition remains the principal public health problem in the hospital district, although progress

has been made in hospital treatment of established cases, in the pediatric clinics, and in the community programs.

At the same time, implementation of immunization (especially tetanus control), health surveillance, health education, and improved tuberculosis control activities have produced gratifying reductions in overall maternal and child morbidity and mortality in the Schweitzer hospital district. We hope that this brief account of our experiences will be helpful to others encountering similar problems in their work to improve the health status of people living in developing areas.

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