PD-ABA-468

COUNTRY ASSESSMENT

COMBATTING CHILDHOOD COMMUNICABLE DISEASES (CCCD)

KINGDOM OF SWAZILAND,

MAY 23-30, 1983

Country Assessment Team

Kingdom of Swaziland
Ministry of Health

USAID/Swaziland

Centers for Disease Control

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SUMMARY

In May, 1983, a team of representatives of the Swaziland Ministry of Health and Social Welfare, USAID and the Centers for Disease Control conducted a CCCD assessment of primary health care activities in the Kingdom of Swaziland. This assessment included a review of plans for primary health care outlined in the Swaziland Fourth National Development Plan, and discussions with Ministry of Health representatives from national training institutions, the health education unit, the public health unit, and the malaria control unit. Based on this assessment, a proposal for CCCD activities over the four year period 1984-1987 was developed.

Swaziland has a well established primary health care system. A decentralization of health planning and management from the central Ministry of Health to District Health Teams is planned during the next five year period. This will require extensive manpower training and reorientation toward primary health care. Nine key Ministry of Health personnel are currently undertaking post-graduate training outside Swaziland, and plans for in-country training of national health personnel from all levels of the health care system are being developed. The national health information and nutrition surveillance system is being redesigned and computerized to obtain the age- and disease-specific information required for evaluation and management of primary health care activities.

Immunization services and activities for the control of diarrheal diseases are completely integrated within the primary health care system, and each have a national coordinator whose job is to manage and solve problems at the central Ministry level which assure that peripheral, integrated services function smoothly. The Expanded Program on Immunization has reached 76% of all fixed health facilities, and requires continued cold chain equipment and training to ensure its expansion over the next five years. Oral rehydration therapy activities, which have recently begun, require training/reorientation of all health personnel, from national policy makers to physicians and nursing staff. Malaria control activities, though not so well integrated within the primary health care system as EPI and diarrheal disease control, are being restructured for more complete integration. This integration, planned during the next five years, will require reorientation of malaria workers to integrated primary health care concepts.

Proposals for CCCD activities in Swaziland to assist the government in completing its decentralization and strengthening its primary health care system are based on these needs. They include support for extensive manpower development at all levels of the health care system, from national nurse/trainers and nurse/coordinators to traditional healers and chiefs. They also include support for operational research, to assist the Ministry of Health in developing methods of primary health care delivery applicable to Swaziland. Certain commodities are also proposed, such as cold chain equipment for the EPI, computer accessories for the national health information and nutrition surveillance system, vaccines, ORS packets, supplies, and vehicles for training and supervision of primary health care workers. Proposed CCCD activities over the next four years have been projected at a total cost of E 1,398,000, the equivalent of $U.S. 1,398,000.

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ACKNOWLEDGEMENTS

The CCCD Assessment Team wishes to thank Mr. T.J.M. Zwane, Principal Secretary, Ministry of Health, and the staff of the Ministry of Health for their generous support during the conduct of the field work for the CCCD Assessment. In particular, we would like to thank Dr. Mike Owen, Deputy Director of Medical Services; Mrs. Edith Ntawne, Matron, Public Health Unit; Ms. Maggie Makhutu, Principal, Institute of Health Sciences; Ms. Dumisile Nxumalo, Chief, Health Planning Unit and Dr. Wardlaw, Medical Director, Raleigh Fitkin Memorial Hospital, who gave graciously of their time and permitted their staffs to do likewise.

We would also like to express our appreciation to USAID/Swaziland for its generous cooperation. Our understanding of the Swaziland health sector was enhanced enormously by the many hours devoted by Dr. Charles Debose, USAID Regional Health Development Officer.

The support of USAID supported Rural Water Borne Disease Control Project team members provided invaluable insight into the Swaziland health system. In addition, Ms. Catherine Conolly, health statistician, significantly contributed to our understanding of the health information system.

The list of persons who assisted with the assessment effort goes beyond those named above. There are many others from both the mission health sector and the Ministry of Health.

Finally, this assessment would not have been possible within the time allotted without the warm welcome extended to our team by Dr. Z. M. Dlamini, Director of Medical Services, whose personnel and staff in the health sector were always available to assist.

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1.0 Introduction

1.1 CCCD in Africa

1.1.1 Scope of Project

The Combatting Childhood Communicable Diseases Project (CCCD) is a major cooperative effort of African nations, WHO and other nations, to reduce childhood mortality, disability and morbidity in Africa through improved prevention and control of childhood infectious diseases. CCCD is a specific response of CDA (Cooperation for Development on Africa) to the World Health Organization's request for increased technical cooperation in support of primary health care programs in Africa.

Assessments of current health status in Africa identify children under the age of five years at exceptional risk of morbidity and mortality. Of all children born each year in Africa, it is estimated that 25% will die before their fifth birthday. Millions more are debilitated or permanently disabled by disease.

The high risk of death and disability is 20-25 times higher than that among children born in developed countries and represents an unacceptable level of human suffering. The basic causes reflect the complex interaction of undernutrition, infectious diseases and economic underdevelopment. The priority and importance of economic development to the long-term improvement in health cannot be overlooked. A firm government commitment to integrated primary health care, with encouragement of community-based initiatives to prevent and control infectious diseases, can significantly improve child health during the next ten years. Integrated primary health care with preventive and curative services and community-based initiatives is the basic philosophy of the CCCD Project.

1.1.2 Purposes of the Project

The CCCD Project seeks to provide a regional mechanism for strenghthening the ability of African health institutions, whether national or regional, to identify priority childhood infectious diseases. It seeks to improve their ability to design, implement and evaluate appropriate integrated strategies for prevention and control of these diseases.

Three categories of childhood disease for which effective control technology exists have been assigned priority in the Project. These are the vaccine preventable diseases, acute diarrheal disease and malaria. These priorities are based on estimates of under-five mortality from the major infectious diseases in Africa. The Project is not limited to these elements. It may be expanded to include other diseases which are important causes of childhood morbidity and mortality in certain nations, such as meningitis, yellow fever or yaws.

The CCCD Project makes available two types of technical cooperation; regional and bilateral (country-specific). Any African nation choosing to participate in CCCD can request one or more of the following regional activities:

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- training in planning and management of CCCD-related activities
- training development/promotion
- health education/promotion
- operational research
- CCCD health information system

In addition, certain countries will receive bilateral assistance. The U.S. currently plans to provide bilateral assistance to 12 countries during the first seven years of the project. It is expected that other CDA countries will provide bilateral assistance during the same time period to other countries in the African region. U.S. bilateral assistance is projected for 48 months in each of 12 countries, and has begun in two countries in 1982. Any country receiving bilateral assistance must comply with the USAID 25% host country contribution rule.

The regional activities are totally donor funded, have no recurrent cost implications and are not subject to the host country contribution rules. An African country may receive assistance from the regional component, from the bilateral component, or from both.

1.1.3 Project Design

Under the CCCD Project, a regionally funded Participating Agency Service Agreement (PASA) was executed in 1981 between USAID and CDC. The PASA provides funds for CDC teams to participate in country assessments in selected African countries.

The objective of the assessments is to determine the current health situation in candidate countries, to assess their current plans and strategies for primary health care, to identify available and required resources, and to specify, as appropriate, specific external assistance needs. The final country assessment report should contain the information necessary to enable development of a project grant agreement if a country is selected for U.S. bilateral assistance through CCCD.

2.0 Country Assessment for the Kingdom of Swaziland

2.1 Method of Assessment

In May 1983, an assessment of current and proposed primary health care activities in the Kingdom of Swaziland was conducted by a team consisting of the following members:

- representatives of the Ministry of Health, Kingdom of Swaziland
- regional health development officer, USAID/Swaziland
- technical officer, Centers for Disease Control
- medical epidemiologist, Centers for Disease Control

After initial meetings with the deputy director of medical services and other key representatives of the Ministry of Health, the team met with small working groups from the following Ministry of Health programs:

- Maternal and Child Health Care
- Health Planning, Surveillance and Statistics
- Expanded Program on Immunization
- Control of Diarrheal Diseases
- Malaria Control
- Institute of Health Sciences
- Nutrition Surveillance
- Health Education

In addition, the team met with representatives of WHO, UNICEF, Save the Children Fund (London) and the private (mission) health sector including the Raleigh-Fitkin Memorial and Good Shepherd Hospitals. Field trips were made to Central Drug Stores and the EPI Vaccine Depot in Manzini, and to a rural health center. In individual and group discussions the team reviewed current geographic and demographic information, disease surveillance reports, the national development plan and Ministry of Health plans related to primary health care. Based on these discussions and review of the various documents, an assessment of the feasibility of these plans, and of government committment to supporting the activities they outline, was made. Taking into consideration needs over the next four years, as outlined in the plans, the teams designed a four year proposal for cooperation through CCCD.

2.2 Geographic and Demographic Data

2.2.1 Geographic Data

The Kingdom of Swaziland is a geographic region bounded by the Republic of South Africa to the north, west and south and by Mozambique to the east. It has a land surface area of 17,364 square kilometers, and an average altitude of 700 meters. The Kingdom is divided into four distinct topographical regions with altitudes as follow:

Table 1: Topographical Regions and Altitudes, Kingdom of Swaziland

Region	Altitude (meters)
Highveld	1300 +
Middleveld	700 +
Lowveld	200 +
Lubombo	600 (average)

The climate of the Kingdom varies with altitude, with a mean minimum temperature in the highveld of 10.8°C and a mean maximum temperature in the lowveld of 29.6°C. During the winter months of June and July, freezing temperatures occur at the higher altitudes. Rainfall varies considerably from year to year, and is maximum during the months of October to March.

The road network is good, and most major roads in the economic center (the Mbabane-Manzini corridor) are paved to connect this region with the eastern

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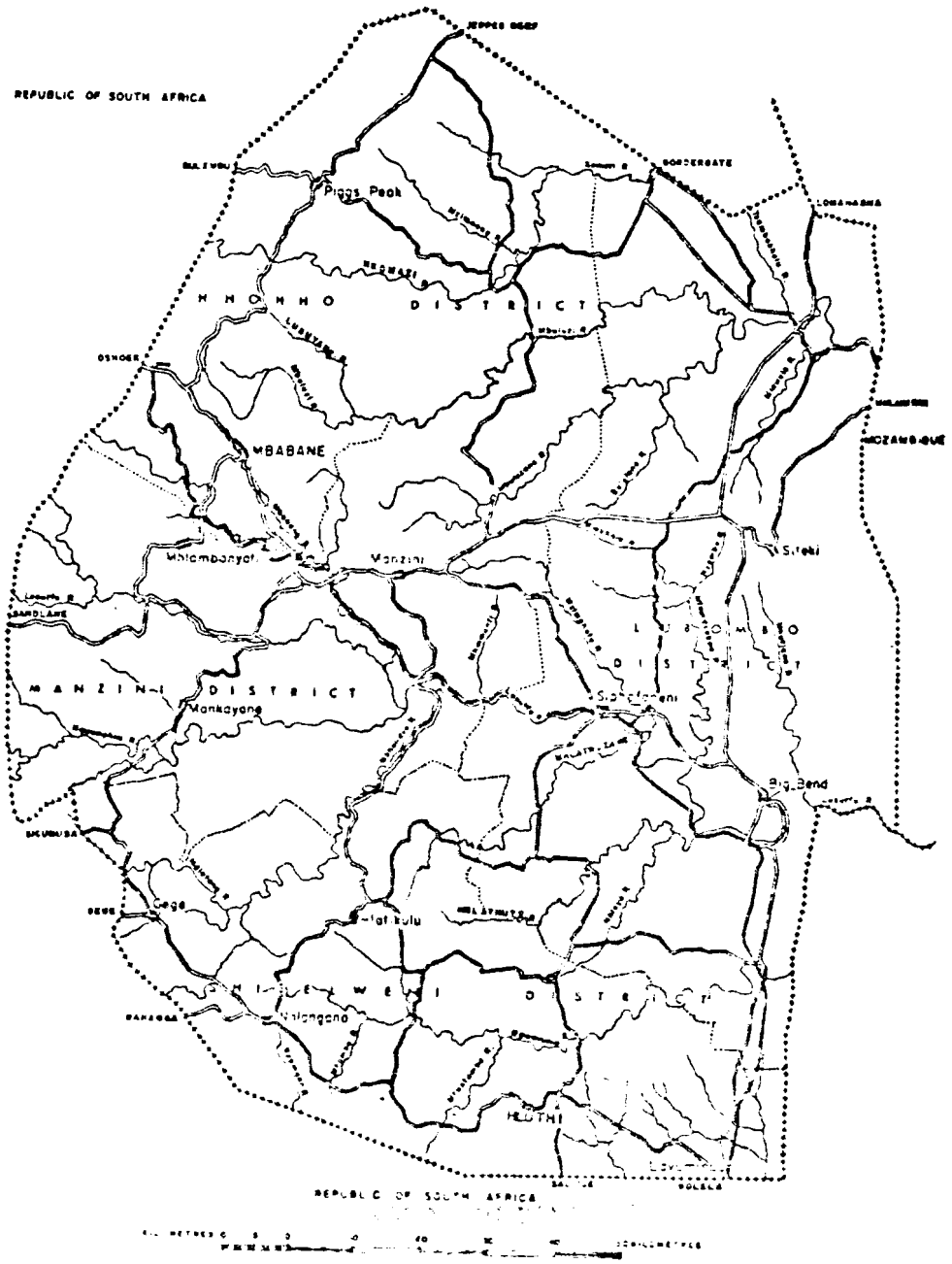
coal fields and the west. Other roads are gravel, and passable in all but the heaviest rains. A railway system for goods only connects the Kingdom with the port of Maputo and the national airline connects with major cities in many nearby countries.

A telephone network exists in all urban regions and in many rural communities, and is widely used for communication. A map of the Kingdom of Swaziland is found in the following figure:

Figure 1: Map of the Kingdom of Swaziland:

SWAZILAND



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2.2.2 Demographic Data

The most recent national census was conducted in 1976 at which time the population of the Kingdom was estimated at 494,534. The current annual growth rate is 2.8% and the estimated 1983 population is approximately 600,000, of which 40,000 live in Mbabane, the capital city, and Manzini, the commerical center. The estimated 1983 population by district is shown in the following table:

Table 2: Estimated 1983 Population by District, Kingdom of Swaziland

District Name	Estimated 1983 Population
Hhohho	161,960
Manzini	169,295
Shiselweni	142,160
Lumombo	126,579

Population density in the Kingdom is low, an average of 28.5 per square kilometer. Apart from the 2 major urban centers with populations over 10,000, the rest of the population (88%) lives in villages of less than 10,000 population and in individual homesteads of 8-12 extended family members.

The age distribution of the population concerned with the CCCD Project, based on the 1976 census, is as follows:

Table 3: Age Distribution of Population, Kingdom of Swaziland, 1976 Census

Age Group (Years)	Percentage of Population (%)
Less than 1	3.9%
1-4	14.1%
5-14	29.7%
15-45 (women)	21.9%

The following are official estimates of vital statistics for the Kingdom:

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Table 4: Estimated Vital Statistics, Kingdom of Swaziland, 1983

Vital Statistic	Estimated Rate
Crude Birth Rate	44-51 per 1,000 general population
Crude Death Rate	17-19 per 1,000 general population
Infant Mortality Rate	125-150 per 1,000 births
1-4 Year Mortality Rate	20-25 per 1,000 children 1-4 years old
Maternal Mortality Rate	Unknown
Life Expectancy at Birth	44-48 years

2.3 Organization of Health Services

2.3.1 Infrastructure and Organization

Health services in the Kingdom of Swaziland are provided by a variety of organizations and individuals:

- Government
- missions and other non-profit voluntary agencies
- industry
- private physicians
- traditional healers

The Ministry of Health sets Government health policy, coordinates health related activities within the country, and provides direct health services. The Government provides 50%-60% of all health services, which are heavily weighted towards curative medicine, and encourages non-Government health services. It maintains an especially close relationship with the mission-sponsored health system, and recently has begun to finance approximately 80% of recurrent costs of mission health facilities including salaries of personnel.

Health planning and management are administratively quite centralized, though the Ministry is currently in the process of decentralization, giving more responsibility to newly created District Health Sectors. Government health facilities include four general hospitals, two specialty hospitals (tuberculosis and psychiatric), seven urban-based public health units and 34 rural health centers and clinics. In addition, the Ministry of Health maintains and operates a central public health laboratory and a tuberculosis laboratory.

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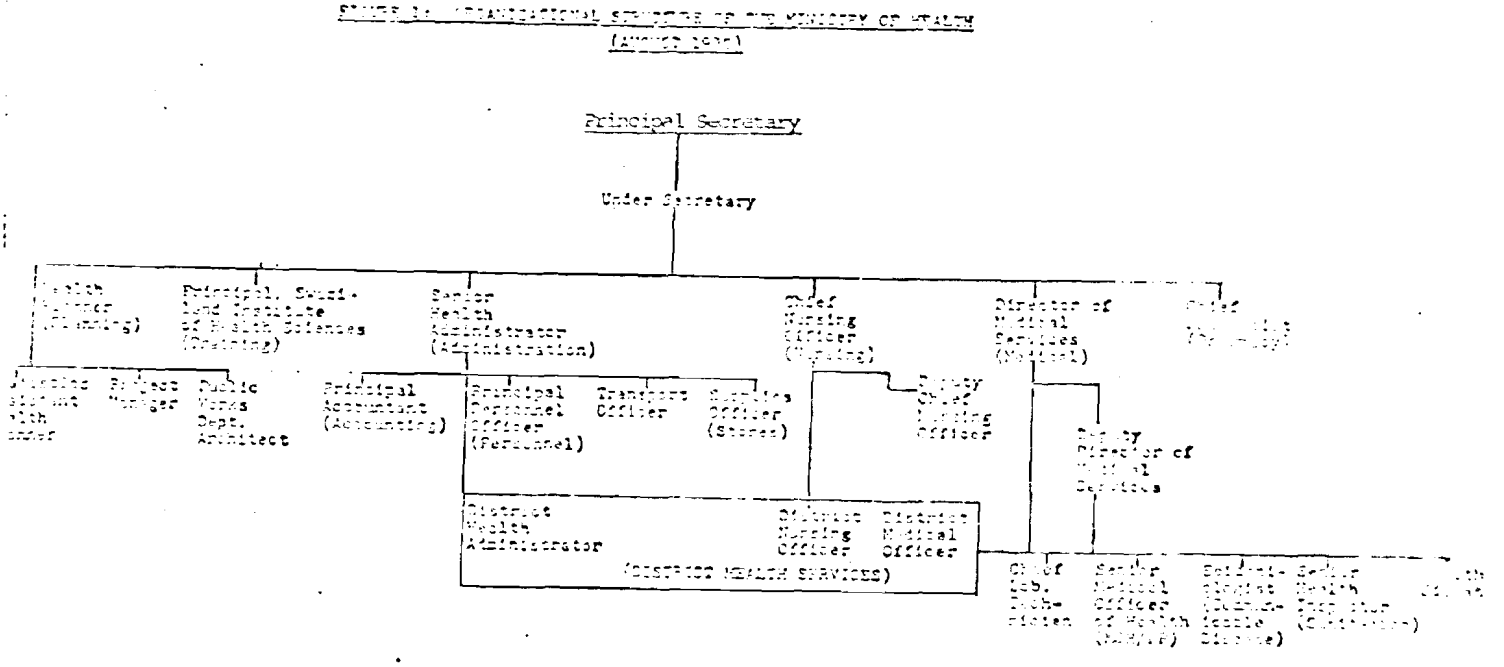
Mission and other non-profit facilities, which provide the second largest percentage of both curative and preventive services within the Kingdom, maintain two general hospitals and 29 rural clinics.

Five major industries in Swaziland provide one physician each and medical services for approximately 12% of the population, and other industries provide some health services, mainly curative, for their employees. Industry maintains one general hospital and 21 outpatient clinics in company towns.

There are 20 private physicians in practice in Swaziland, mainly in the Mbabane-Manzini corridor. Private traditional healers are numerous, and number approximately 5000, or 1 per each 120 population. Traditional healers are located in both urban and rural regions, and are widely sought for their curative powers.

The organizational structure of the Ministry of Health is shown in the organigram below. Under the present development plan, health planning and implementation will be decentralized to the district level by the development of District Health Teams which will be responsible for many of the planning and management functions now done at Ministry headquarters, and the organizational structure will be re-designed to reflect this move toward decentralization.

Figure 2: Organizational Structure of the Ministry of Health, Kingdom of Swaziland



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2.3.2 Distribution of Health Care Services

The present Government and mission health facilities are well distributed throughout the rural regions. It is estimated that 60% of the population has access to (lives within 8 kilometers of) a health facility. Many facilities lack adequate staff, and are limited in the services they can offer. Equipment and supplies, including medications, are often lacking. There is one hospital in each of the four districts, but about 60% of all general hospital beds are located in the Mbabne-Manzini corridor. The following table lists general hopsitals by hospital type and location:

Table 5: General Hospital Inpatient Beds by District and Hospital Type, Swaziland, 1982

District	Type of Hospital	Number of Hospitals	Number of Beds Maternity	Other
Hhohho	Government	2	35	320
	Mission	-	-	-
	Industry	1	-	70
Manzini	Government	1	8	31
	Mission	1	40	273
	Industry	0	0	0
Shiselweni	Government	1	20	180
	Mission	0	0	0
	Industry	0	0	0
Lubombo	Government	0	0	0
	Mission	1	13	87
	Industry	0	0	0
Total		7	116	961

An additional 250 inpatient beds, of which 91 are for maternity, are located in rural clinics and private clinics in the major urban region. Outpatient services are provided at both hospitals and clinics, as shown in the following table:

Table 6: Outpatient Facilities by District and Type, Swaziland 1982

District	Government	Mission	Industry	Private	Total
Hhohho	9	9	4	12	34
Manzini	12	10	6	21	49
Shiselweni	15	4	-	2	21
Lubombo	9	8	11	3	31
Total	45	31	21	38	135

2.3.3 Health Manpower

The following table lists the health personnel working in Swaziland as of January 1980. On this table it can be seen that the nurse/midwife is the backbone of the Swaziland health care system, representing 59% of all health professionals, and that there is a heavy reliance on expatriate professional staff such as doctors, dentists and pharmacists.

Table 7: Health Manpower, by Sector, Kingdom of Swaziland, 1980

Category of Manpower	Government		Non-government		
	National	Expatriate	National	Expatriate	Total
Doctor	8	14	12	60	94
Dentist	1	0	2	10	13
Pharmacist	2	1	0	24	27
Dispenser	15	0	0	2	17
Nurse/Midwife	301	0	248	84	633
Lab Technician	3	1	6	8	18
Lab Assistant	3	2	33	0	38
Radiographer	4	0	2	4	10
Physiotherapist	0	1	2	2	5
Occupational Therapist	0	0	0	0	0
Health Inspector	2	0	0	0	2
Health Assistant	42	0	0	0	42
Nutritionist	1	0	0	0	1
Nursing Assistant	84	0	47	0	131

Recently, with the assistance of UNICEF, the Ministry of Health has begun to train and support another category of health manpower not listed in the preceding table. This category is the Rural Health Motivator (RHM), village health workers who are selected by communities to provide basic health information and education. The RHM, an individual with little or no formal education, is given eight weeks of training near his own homestead, and then is responsible for motivation/education of approximately 40 homesteads. Presently about 400 RHM's have been trained. They are supervised by clinic nurses, and receive E20 ($U.S. 20) per month from the Ministry of Health as incentive pay for their part-time work.

2.3.4 Manpower Development

National training of health personnel is conducted in three institutions, one of which is government. The other two training institutions are supported by the non-government mission hospitals. Following are descriptions of these training institutions, and the category of personnel they train:

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- Swaziland Institute of Health Sciences:

  a modern, well equipped training center in Mbabane which trains registered nurse/midwives, health inspectors, health assistants and technicians, and dental auxiliaries; also offers a one year post graduate course in nursing diagnostics and public health; has been supported by USAID in the past (construction, equipment, post-graduate training of staff).

- Raleigh-Fitkin Memorial Hospital:

  a 300 bed mission hospital in Manzini which trains nurse/midwives, nurse anesthetists, nurse dispensers and laboratory assistants.

- Good Shepherd Hospital:

  a 100 bed mission hospital in the Lubombo District which trains nurse assistants.

All other health personnel, including physicians, are trained outside of Swaziland because there is not sufficient demand to make their training in country cost-effective. Regional training institutions in other Southern Africa countries are important resources for external training.

2.3.5 National Health Budget

In fiscal year 1983-1984 the total Ministry of Health recurrent budget is estimated at E10,362,000 which represents approximately 8% of the total recurrent budget of the Government of Swaziland. The 1983/1984 estimated Ministry of Health Budget is shown on the following page. Since 1979-1980, the percentage of budget consumed by curative services has decreased from 67% to 51%, while that for preventive services has increased from 12% to 15%. The increase in the percentage of the budget devoted to preventive services reflects the Ministry of Health objectives as outlined in the Fourth Plan of Development reviewed in Section 3.1.

Table 8: Ministry of Health Estimated Budget, 1983-1984, Kingdom of Swaziland

Activity	Cost (E Swazi)	Percentage of Total Ministry of Health Budget
Minister's Office	66,000	0.6%
Ministry Administration	3,136,000	30.3%
Medical Support Services	323,000	3.1%
Preventive Medicine	1,537,000	14.8%
Curative Medicine	5,300,000	51.2%
Total	10,362,000	

1E Swazi = $U.S. 1.00

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2.3.6 Central Medical Stores

At present medicines, vaccines and other medical supplies are bought on tender from manufacturers and wholesalers in neighboring countries and in Europe, or are provided by external donors. They are stored in a warehouse in Manzini which is loaned to the Ministry of Health by the Swaziland military forces. Storage of medications and supplies is by category, in approximately 15 small storerooms. Vaccines, which are not stored in Central Medical Stores, are stored in an EPI Depot which is discussed in Section 3.2 of this assessment.

Hospitals from the entire country, both private and government, replenish their stocks on a regular basis with their own vehicles. Government health facilities in rural regions are supplied regularly by one of the two vehicles which are maintained by Central Stores. All medications and supplies are provided to hospitals and health facilities at cost, which is sometimes quite high due to transport costs to the Kingdom. A formulary of approximately 300 drugs is maintained. There are occasional ruptures in stock, either due to inability of shippers to meet deadlines or to insufficient ordering at the beginning of the fiscal year. Last year, 1982, there was a rupture of chloroquine supplies during the peak season of malaria transmission and of ORS packets during the diarrheal disease season.

The Government recognizes the problems associated with managing Central Medical Stores, and has provided for a consultant (USAID sponsored) to evaluate the current management system of Central Stores and to make recommendations for a more efficient system. Other external donors are being sought to help in construction of a new Central Medical Stores warehouse.

2.3.7 Health Information System

The national health information system in the Kingdom of Swaziland has recently been re-designed to collect disease- and some age-specific information which will improve the monitoring and evaluation process for the EPI, CDD and other CCCD target diseases. Additional age-specific information for diarrheal diseases and for the EPI diseases is being collected through a recently instituted sentinel system based in regional health centers. Surveillance reports are sent to the central Ministry statistics unit each month from private (including mission) hospitals, government hospitals, and other health facilities. In 1981, 51% of all expected reports were received from government and private hospitals to give records of 29,147 admissions and 748 deaths. During this same year, 100% of expected reports of outpatient visits were received from government clinics and 80% from private (mission) clinics to give records of 1,431,847 outpatient visits.

The national health information system is completely computerized using two Sirius computers, and collects information about the number of immunizations and MCH activities, as well as about disease etiology. A hospital-based surveillance system based on medical records is planned and requires training for 2 medical records clerks. Though no information for management support, such as information about the distribution of health care staff or about the inventory of health institutions, is collected, it is planned that a new system will include this information. A regular newsletter is seen as an important means of feedback to all health care providers, but is not yet

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published because of lack of funds. A part-time expatriate programmer (USAID funded) helps with programming the computers, but his contract is scheduled to end in 1984.

2.3.8 Major Health Problems and the CCCD Target Diseases

Until 1982, age and disease-specific information was limited to the traditional groupings of diseases by system. During the last year of this system, 1981, the top ten causes of outpatient morbidity among all age groups were as listed below:

Table 9: Top Ten Causes of Morbidity, Outpatient Reporting, Kingdom of Swaziland, 1981

Cause (all ages)	Number	Percentage of Total Outpatient Visits
Diseases of the Respiratory System	71,063	19.2%
Infective and Parasitic Diseases	38,977	10.5%
Diseases of the Digestive System	37,828	10.2%
Diarrheal Diseases Under 5	32,893	8.9%
Diseases of Ill Defined Symptoms or Other	31,795	8.6%
External Causes of Injury	27,657	7.5%
Diseases of Genito-Urinary System	25,528	6.9%
Diseases of the Skin and Subcatenous Tissues	25,049	6.7%
Diarrheal Diseases Over 5	20,546	5.5%
Diseases of the Circulatory System	16,492	4.4%

In 1982, with the revision of the National Health Information System, more specific information about infectious diseases became available. Among the 753,385 outpatient visits reported in 1982, eight frequently reported infectious diseases were as follow:

Table 10: Eight Frequently Reported Infectous Diseases, Outpatient Facilities, Kingdom of Swaziland, 1982

Infectious Disease	Number of Cases (all ages)	Percentage of Total Outpatient Visits
Diarrheal Diseases Under 5	80,541	10.6%
Sexually Transmitted Diseases	38,787	5.2%
Measles	9,185	1.2%
Tuberculosis	3,059	less than 1%
Malaria	1,249	less than 1%
Whooping Cough	806	less than 1%
Tetanus	378	less than 1%
Acute Polio	66	less than 1%

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Among 5,566 hospital admissions (all ages) for infectious disease in 1982, the following percentages were due to the CCCD target diseases:

Table 11: Percentage of hospital admissions (all ages) for infectious diseases due to CCCD Target Diseases, Kingdom of Swaziland, 1982

Disease	Total Admissions	Percentage of Total Infectious Disease Admissions
Gastroenteritis	3,322	59.7%
Measles	540	9.7%
Malaria	90	1.6%
Whooping Cough	2	less than 1%
Tetanus	8	less than 1%
Neonatal Tetanus	19	less than 1%
Poliomyelitis	2	less than 1%

From these two tables, it is clear that the certain EPI diseases, diarrheal disease and malaria are important causes of morbidity in Swaziland. Mortality reporting from 1981 hospital admissions among children under five years of age likewise confirms the importance of the CCCD target diseases. Among the 225 reported hospital deaths among children 0-4 years of age in 1981, 38.2% were due to gastroenteritis, 4.4% due to measles, 3.1% due to tetanus and 11.6% classified as malnutrition. Though malnutrition as such is not a CCCD target disease, it is the result of a complex interaction of feeding habits, food availability and repeated infections of childhood. The interventions of EPI and CDD throughout the Kingdom should have an impact on the high percentage of deaths classified as malnutrition.

Malaria is not reported as an important cause of hospital mortality, and is estimated to affect approximately 2.3% of the population at risk, those inhabitants of the lowveld. In 1981, of 30,780 blood films examined for malaria parasites in Swaziland, 337 (1.1%) were positive for malaria.

3.0 National Policy Regarding Primary Health Care

3.1 Fourth National Development Plan, 1983-1987

3.1.1 Primary Health Care Policy as Outlined in the Fourth National Development Plan

The objectives outlined in the Health Sector Component of the Fourth National Development Plan of Swaziland, 1983-1987, which is currently being drafted by the Ministry of Health, are:

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- to decrease infant and child morbidity and mortality, especially by immunization, diarrheal disease control and prevention of malnutrition
- to provide services that promote child spacing and decrease population growth.

The core of the health policy as outlined in the Fourth Plan is that "primary health care, as defined in the WHO Alma-Ata Declaration, is the most effective and least costly strategy by which to achieve these objectives". The five priority categories of activity listed in the Plan as the means of meeting these objectives are:

- manpower development and training in primary health care
- provision of safe water and sanitation
- provision of maternal and child health services, particularly immunizations and oral rehydration
- health education and nutrition promotion
- communicable disease control, with particular emphasis on tuberculosis.

Specific activities under these broad categories are proposed in the plan as follow:

- training 400 rural health motivators, 63 health assistants, and 500 traditional healers in basic primary health care principles
- providing in-service training for the 800 rural health motivators which already exist, and for 700 mid-level health workers
- organizing 68 community health committees
- constructing pit latrines at 15,000 rural homesteads (39% of all homesteads in the Kingdom)
- protecting 100 springs
- training 15 additional public health nurses and in-service training for approximately 50 clinic nurses
- increasing vaccination coverage so that 80% of all newborns are completely immunized by the age of 12 months
- decreasing by 75% annual mortality among children from diarrheal disease by using oral rehydration
- improving the nutritional status of children by promoting breast feeding and providing growth charts
- decreasing by 80% all persons who are infectious for tuberculosis
- decreasing the prevalence of malaria from 2.3% to 0.5% among the population at risk
- recruiting and training 4 district health educators, 4 assistant educators and 1 graphic artist
- improving logistics support for drug supply
- decentralizing management of health services

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3.1.2 Feasibility of Primary Health Care Policy as Outlined in the Fourth National Development Plan

The Government of Swaziland is committed to integrated primary health care, and has provided rural health motivators to more than 400 communities to date. Foreseeing the need for higher education of its health care adminstrators, managers and trainers, the Government is presently making available 9 key health personnel for long-term overseas training at the post-graduate level and has in the past assured the training of 7 others. Foreseeing the need for qualified mid-level health staff, it has established and staffed the National Institute for Health Sciences with USAID assistance.

The Kingdom is small in geographic area, with most of the population living in single homesteads of 8-12 people each, not in communities as in many other African nations. Despite lack of close community as is offered by villages, each group of homesteads is unified and closely associated through a traditional chief who commands authority over the group. It is estimated that 69% of all homesteads are within 8 kilometers of a fixed health center; roads throughout the Kingdom are passable in all seasons. It is estimated that 80% of homesteads have a radio and thus access to health education programs which are regularly aired. Previous experience in Swaziland has convinced the Ministry that traditional chiefs, traditional healers, and radio health education can serve as important means of promoting preventive services. The recently established health education unit has as one of its objectives to design better means of using these three resources for primary health care promotion.

Realizing recurrent cost implications, the Government of Swaziland encourages the private sector in health services, and 40%-50% of all health services are delivered by the private sector which includes missions, private industry and private practicioners. The Government has also instituted a small fee for services: 30¢ for outpatient visit in hospital clinics, 20¢ for all other outpatient visits and 50¢ for purchase of a family health card which entitles a child to all MCH preventive services including the primary series of vaccination. Fees for hospitalization are higher.

By establishing the Institute of Health Sciences and a health education unit, and by providing candidates for post-graduate training from among its key planning, management and training personnel, the government has helped to assure the health manpower it will require during the next several decades. Further, the small size of the country, its excellent road network and strong traditional chiefdoms assure that motivation for and access to primary health care services is possible. Finally, by encouraging the private sector and by maintaining a policy of fee-for-services, the government has helped assure meeting recurrent costs and providing for continued supply and gradual expansion of health services within the framework of primary health care. The fact that the health policy as outlined in the Fourth National Development Plan adheres to WHO recommendations for primary health care should ensure maximum success at minimum cost.

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3.1.3 Government Commitment to Primary Health Care as Outlined in the Fourth National Development Plan

The Fourth National Development Plan is presently in draft form, and provides specific activities which it envisages as possible during the next five years. A firm base for these activities has already been established during the Third National Development Plan. During the Third Plan, a national training facility was established for training of nurses, sanitarians and dental health staff. The facility has been completely staffed with qualified trainers, most of whom are Swazi nationals with post-graduate degrees. A health education unit has been established which is currently studying methods of incorporating traditional healers, traditional chiefs and other community members into the motivator group which encourages mothers to seek approriate preventive and control services. A safe water project has begun which supplies both safe sources of water and health education, and the government has made arrangements for assistance in designing a plan for decentralization of health management and planning activities to the district level. USAID has heavily supported all of these activities in the past, and will continue to support them to a lesser extent over the next four years. Each of these projects has been successful because of the government commitment to provide its required support and to meet recurrent costs.

Drug procurement in the past has been lacking in coordination and expensive, with frequent ruptures of stock. The government is presently arranging for assistance in restructuring this inefficient procurement and distribution system. External donors, in particular USAID, have been called upon to assist with designing a drug/supply management system.

These activities themselves attest to the strong commitment of the Government of Swaziland to primary health care. Government commitment in financial terms has been discussed in Section 3.1.2. By judicious use of external donors, and willingness to meet recurrent costs, the government has made progress in preparing the way for successful implementation of the activities outlined in the Fourth National Development Plan.

3.2 National Expanded Program on Immunization

3.2.1 Description of Program

The Government of Swaziland, in cooperation with the Save the Children Fund (London) and UNICEF, began an Expanded Program on Immunization in November, 1980. The strategy of the Program at first included two major activities:

- provision of vaccinations at all fixed health facilities within the Kingdom
- provision of vaccinations to groups of homesteads without access (over 8 kilometers from fixed centers), by mobile vaccination teams.

The mobile strategy is currently being phased out as the backlog of unvaccinated children is decreased, as more fixed health facilities are constructed and as mothers become motivated to seek vaccinations at fixed health centers.

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A national EPI coordinator, who is directly responsible to the physician in charge of the Public Health unit and integrated primary health care activities, has been trained in a WHO course for national program managers of the Expanded Program on Immunization. During 1982, a mid-level EPI management course was conducted for health workers in the Kingdom.

The vaccine offered in the Swaziland EPI, and the target ages of vaccination, adhere to the WHO recommendations. All vaccinations are given with disposable needles and syringes, and though no fee is charged for vaccination, mothers are encouraged to buy a family health card (50¢) to record vaccinations and other MCH services provided to their children. The following table shows the vaccination schedule for the Kingdom:

Table 12: Vaccines, Age at Vaccination and Number of Doses of Vaccine Recommended, Expanded Program on Immunization, Swaziland, 1983

Vaccine	Age and Number of Doses
BCG	one dose, at birth or as soon thereafter as possible
DPT, Polio	three doses with a minimum one month interval, beginning at age 3 months or as soon thereafter as possible
Measles	one dose, at age 9 months or as soon thereafter as possible
Tetanus Toxoid	two doses during pregnancy with a minimum one month interval

The objective of the National Expanded Program on Immunization is stated in the draft of the Fourth National Development Plan: to increase, by 1987, vaccination coverage so that 80% of all newborns are completely immunized by the age of 12 months. No specific morbidity or mortality reduction targets have been established for the EPI diseases, though the general objective of the Fourth Development Plan is to decrease childhood and infant morbidity and mortality.

In 1982, of approximately 212,000 doses of vaccine administered by the EPI, 28,500 (14%) were administered by mobile teams. The following table shows the number of vaccinations adminstered in 1982 by both the mobile and fixed strategies:

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Table 13: Vaccinations, by Dose and Location of Administration, Kingdom of Swaziland, 1982

Vaccine	Fixed Facility	Mobile Team	Total
BCG	23,095	5,956	29,051
DPT[1]	20,275	3,407	23,682
DPT[2]	18,020	2,676	20,696
DPT[3]	16,431	1,994	18,425
DPT[4] (booster)	6,559	1,059	7,618
Polio 1	20,971	3,211	24,182
Polio 2	18,062	2,440	20,502
Polio 3	17,800	1,825	19,625
Polio 4 (booster)	1,042	0	1,042
Measles	14,721	2,501	17,222
Tetanus Toxoid 1	20,232	2,546	22,778
Tetanus Toxoid 2	6,293	904	7,197
Total	183,501	28,519	212,020

Approximately 72,000 disposable syringes and needles were used in the Kingdom during 1982, for both curative and preventive (EPI) services.

Presently, of the fixed facilities which are envisaged for vaccination activities by the EPI, 16 of 66 (24%) remain to be supplied with a refrigerator/freezer, and then a phased-in replacement of old cold chain equipment will begin. Because of the availability of bottled gas in Swaziland, all cold chain equipment supplied at present is gas-fueled, or electric in the major urban areas with reliable power supply. Two cold chain technicians have been trained and are currently maintaining refrigerators and freezers throughout the country. The national vaccine depot, located in Manzini because of its proximity to the international airport, contains approximately 100 cubic feet of refrigeration space in three individual units and 60 cubic feet of freezer space, also in three different units. There is an 8 KVA generator with automatic start-up in case of power failure.

In addition to the health clinic and other fixed health staff, sixteen persons work fulltime with the EPI under the supervision of the national coordinator, a government nurse. All sixteen of these individuals are paid with funds of

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the Save the Children Fund (London), and eleven of them make up two mobile teams which are currently being transformed into training and supervision teams as the mobile vaccination strategy is phased out. The salaries of these eleven employees, and the remaining 5 who are cold chain workers, is $U.S. 50,000. Save the Children Fund will begin a phase out of its support to EPI, including the salaries of these individuals, in 1984. The Government of Swaziland acknowledges the need to provide positions and salaries for these individuals in its future budget. UNICEF, which provides most of the vaccines, will continue to provide vaccines through 1986.

National Vaccination Coverage was estimated among children age 12-23 months in a national survey in 1982. A total of 28% of children surveyed were completely vaccinated (proper number of doses, intervals and ages). The following table gives vaccination coverage by district:

Table 14: Vaccination Coverage by District, Children 12-23 months of Age, Swaziland,1982

District	No. of children	% of children with cards	DPT 1	DPT 2	DPT 3	POLIO 1	POLIO 2	POLIO 3	Measles	BCG	Fully vaccinated
Shiselwani	49	63.3%	63.3%	55.1%	30.6%	63.3%	57.1%	30.6%	28.6%	69.4%	22.4%
Hhohho	63	73.0%	92.1%	79,4%	60.3%	92.1%	77.8%	44.4%	58.7%	92.1%	36.5%
Lubombo	49	73.5%	55.1%	49.0%	32.6%	61.2%	46.9%	30.6%	23.6%	87.8%	22.4%
Manzini	49	67.3%	69.4%	55.1%	32.6%	69.4%	53.1%	28.6%	42.9%	77.5%	28.6%

There has not been a comprehensive evaluation of the National Expanded Program on Immunization in Swaziland to date, though one is planned for June 1983, at which time the central management, vaccination coverage and impact on childhood diseases will be evaluated by a national and international team.

The national EPI coordinator sees the need for CCCD collaboration over the next four years. In particular, there is a need for training of more nurses in national EPI management, planning and training methodologies. There is also the need for EPI training of public health nurses who will soon be based as district nurse/trainers on the decentralized District Health Teams, for training of more national cold chain repair technicians, and for training of national trainers of rural health motivators and other health staff in EPI methodologies. Also, the national EPI coordinator sees the need of CCCD collaboration to strengthen the national health information system in order to provide the information needed for evaluation of the impact of EPI, and to provide certain equipment such as refrigerators, vehicles and re-usable

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needles, syringes and sterilization equipment. Operational research in how best to motivate mothers to seek vaccination services for their children is seen as a prime necessity for a successful EPI, and the recent hospitalization of five children for pulmonary tuberculosis, all of whom are under the age of five years and have BCG scars, indicates a possible need to study the efficacy of BCG in Swaziland.

3.2.2 Feasibility of the National Expanded Program on Immunization

The National Expanded Program on Immunization has been based on the recommendations of WHO, and consistently follows these recommendations except that disposable needles and syringes are used, rather than re-usable needles and syringes. The EPI has reached 76% of its envisaged extension of cold chain equipment to both government and private (mission) fixed health centers. It now remains to increase the motivation of mothers to seek vaccination services, and to improve national vaccination coverage. It also remains to improve surveillance of the EPI target diseases, both through the existing national health information system and by activities such as survey and health center-based sentinel surveillance. All of these activities are presently feasible, and can be accomplished through continued use of the Government budget and the external support committed by the traditional EPI donors in Swaziland.

Save the Children Fund (London) will be phasing out its support to EPI over the next several years, and it remains for the Government to provide posts and salaries for the sixteen workers whoses salaries are paid by this organization. The government will need to assure that funds are available for the training envisaged in EPI as well, from the Rural Health Motivator to the national management and planning staff. Provision of salaries is thought feasible by Government representatives who were interviewed by the assessment team, and support for training would seem feasible and appropriate through the CCCD project.

EPI is one of the few primary health care services in the Kingdom of Swaziland for which no fee for services has been established, though mothers are encouraged to purchase a family health card at the time children are vaccinated. Representatives of the National EPI have foreseen, however, that eventually a one time fee, for which the child would be eligible to receive all vaccinations, may be required. They have also seen the need to introduce re-usable needles and syringes, and have budgeted for them and the required sterilization equipment as a means of keeping down recurrent costs.

Logistics and supply required for EPI will be markedly improved after the projected reorganization of Central Medical Stores, which is planned to begin with a USAID funded consultant over the next several months.

Because of the present state of expansion of the cold chain and vehicles, which requires only minimal addition to reach maximum expansion and then replacement as required, and because of the Government's realization of the need to provide posts and salaries for the EPI personnel now paid from external funds, continuation of the EPI should be highly feasible. The EPI, by following precisely the WHO recommendations for childhood immunization, should assure maximum success at minimum cost. This should permit steady progress toward an increase in national vaccination coverage, and Health for All by the Year 2000.

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3.2.3 Government Commitment to the National Expanded Program on Immunization

To date, three years after the beginning of the Expanded Program on Immunization in Swaziland, slow but steady progress has been made in achieving the long-term goals of immunization coverage:

- 28% of all children aged 12-23 months have had a complete series of EPI vaccinations at the proper ages and with the proper interval between doses

- 39% of all children aged 12-23 months have had one dose of measles vaccine after the age of 9 months

- 82% of all children aged 12-23 months have had one dose of BCG vaccine

Progress in cold chain expansion and in expansion of other equipment has likewise been steady, so that 76% of all government and private (mission) fixed health centers have the capability of storing vaccine and administering them according to EPI policy. National coordinators, managers, planners and repair technicians have been trained, and trainers and supervisors of Rural Health Motivators are presently undergoing the necessary re-training. These facts in themselves attest to the strong commitment of the Government of Swaziland to the Expanded Program on Immunization. Government commitment in terms of financial support have been discussed in Sections 3.2.1 and 3.2.2 of this assessment. By judicious use of external donors, a successful EPI has been established. Full Government commitment in financial terms can only be evaluated after the 1983 national budget for EPI activities has been established, and the outcome of the sixteen employees now funded by the Save the Children Fund is known.

3.3 National Control of Diarrheal Disease

3.3.1 Description of Program

Diarrheal disease in Swaziland is recognized by all health workers as an important cause of morbidity and mortality. In 1982 alone, diarrheal disease among children under 5 years of age was responsible for 10.6% of all outpatient visits (all ages), for 59.7% of all infectious disease admitted to hospitals, and for 38.2% of all hospital deaths among children under 5 years of age. In Swaziland, morbidity and mortality from diarrheal disease appear to be higher during the summer months of December, January and February.

The use of oral rehydration therapy as the primary intervention for diarrheal diseases in the Kingdom is limited to certain hospitals only, where physicians are convinced of its value. Physicians at other hospitals have not yet accepted its use, and still rely heavily on antibacterial medications and intravenous rehydration.

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Packets of ORS are not produced in Swaziland, and are supplied by UNICEF. Presently home preparations of ORS are not advocated but study of their feasibility is being planned. In 1982, a total of 300,000 packets of ORS was supplied to the Swaziland health services.

Assuming that all of these packets were used for treating children under the age of 5 years, a total of 2.6 packets were used per child (Table 15).

Table 15: Estimated Use of ORS Packets by Children under 5 Years, Swaziland, 1982

Estimated Population, 1982	% Population less than 5 years old	1982 Population less than 5 years old	Total ORS packets used in 1982	Total Packets used per child less than 5 yrs old
600,000	19%	114,000	300,000	2.6

If, as stated by WHO, each child in Swaziland requires approximately 4 packets of ORS each year (2 per episode), 456,000 packets, instead of the 300,000 packets used, or 1.5 times as many packets, would have been required in 1982. During this same year, 30,000 liters of i.v. solution were provided to patients of all ages. No intravenous solutions are prepared in Swaziland, but they are available thorugh the Central Medical Stores to all hospitals and health clinics.

During the past year the Government of Swaziland has been making preparations for a National Control of Diarrheal Diseases (CDD) Program. These preparations come at a time when a rural water borne disease control project, relying heavily on health education, is well underway and community awareness of diarrheal disease is at a high level. Preparations made during the past year include:

- developing a proposed five year national plan for the control of diarrheal diseases in collaboration with a WHO consultant

- evaluating the nature and extent of diarrheal diseases in Swaziland and making recommendations for improved diarrheal disease surveillance in collaboration with a consultant from the American Public Health Association

- training of one national CDD manager at a WHO training course for national CDD managers

- training of two national nurse/trainers in oral rehydration methodology at the ICCDRB in Dacca (Bangladesh)

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- developing health education materials to assist rural health motivators in teaching mothers about diarrheal diseases and oral rehydration/correct feeding practices

- adding questions to a national nutrition survey planned for late 1983 to determine diarrheal disease morbidity and mortality rates

- providing a national target of 75% reduction in diarrheal disease mortality among children by using oral rehydration

Representatives from the public health unit of the Ministry of Health recognize the need for a national CDD Plan and program coordinator, and have nominated a nurse to serve as coordinator of CDD activities who is responsible to the physician-director of the unit. They envisage CCCD support as appropriate collaboration for better assessing the importance of diarrheal disease morbidity and mortality in Swaziland, for convincing physicians, nurses and other health staff of the benefits of oral rehydration, for assisting in developing national training materials and for finalizing and implementing the proposed national five year plan for CDD. In addition to preventing mortality among children, they see a special need to strengthen national diarrheal disease surveillance so that it is sensitive enough to detect cholera among returning migrant workers and their families.

3.3.2 Feasibility for a National Control of Diarrheal Diseases Program

Health education for preventing diarrheal diseases has been conducted in rural Swaziland since 1981 under a national rural water borne disease control project, and awareness of diarrheal disease is at a high level among rural populations. Acceptance of further health education about oral rehydration/feeding practices should be feasible and readily accepted by these populations. One national physician has been trained in planning and management of a national CDD Program, and two national nurse/trainers have had extensive training in the use of ORS in a region highly endemic for diarrheal disease. These individuals will be qualified to finalize and manage the proposed five year plan for CDD, and to assist with the reorientation of health personnel to the strategy of oral rehydration. Use of ORS as the primary treatment for diarrheal disease with dehydration has been accepted in the larger hospitals in Swaziland, and its use is taught in the national and private nursing/allied health schools, thus providing a cadre of health personnel with training in line with the proposed national five year plan for CDD. A national nutrition survey is planned which will provide baseline nutrition information and rates for diarrheal disease morbidity and mortality among children under 5 years, permitting better planning of ORS requirements. Health education materials are being developed and are already being used by rural health motivators to encourage mothers to accept the use of oral rehydration solutions. Traditional chiefs, healers and birth attendants have been contacted, and are willing to participate in similar motivation activities, thus increasing the probability of community awareness and acceptance of measures which will decrease diarrheal disease morbidity and mortality.

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The above activities provide a solid base for the proposed national plan for CDD. The fact that these activities follow WHO recommendations for the control of diarrheal diseases should ensure maximum success of a national CDD program at a mimimum cost and integrated with other primary health care activities of the Kingdom.

3.3.3 Government Commitment to the Control of Diarrheal Diseases

Commitment of the Government of Swaziland to establishing a sound national five year plan for CDD can be seen in the preparatory, training and other activities outlined in Sections 3.3.1 and 3.3.2. Through judicious use of external donors, the government has developed a sound plan and strategy for the control of diarrheal diseases, and has assured a continuous supply of ORS packets to begin control activities on a national scale.

No national budget exists at present for CDD activities in Swaziland, and Government commitment in financial terms can only be evaluated after the proposed national five year plan has been finalized and a budget prepared.

3.4 National Malaria Control Program

3.4.1 Description of Program

Since 1945, a National Malaria Control Program has been coordinated through the Manzini Public Health Office. The Program is presently funded mainly by WHO, which also provides malaria advisors who are based in Maputo. The strategy of malaria control activities in Swaziland, as recommended by the WHO team, relies on two basic activities:

- residual-DDT spraying in households in zones at risk (the lowveld, population 110,000)
- weekly chloroquine prophylaxis of all individuals living in zones at risk

Since the early 1940's, when the prevalence of individuals with positive malaria smears in the lowveld was found to be approximately 25%, the prevalence has decreased to 2.3% in 1982. The objective for malaria control, as outlined in the draft of the Fourth National Development Plan, is to further decrease this prevalence to 0.5% by 1987.

In 1978, 1,500 cases of malaria were confirmed by smear, and among these 57 deaths from malaria were reported, to give a case fatality rate of 3.8%. No age-specific information about mortality or morbidity was analyzed at this time, but control efforts were increased in 1979.

Last year, 1982, there were 7 deaths from malaria reported from one hospital which serves the lowveld, and among them 2 were among children less than 5 years of age. The coordinator of the National Malaria Control Program feels that clinical malaria is more common among young adults than among children, and that transmission of the parasite markedly decreases during the winter months of June, July and August. Presently, 22% of blood smears from children and adults with fever in the lowveld contain malaria parasites.

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The 1982 budget for malaria control activities, which is combined with the schistosomiasis control budget, was E 103,000. Approximately 40% of this money was spent on malaria control to provide such items as:

- DDT
- chloroquine (300,000 tablets of 300 mg each in 1982)
- pumps/spray equipment

The WHO contribution in 1982, used almost exclusively for purchase of DDT, was E 30,000.

Presently, there are 28 health assistants working in the National Malaria Control Program, supervised directly by the national coordinator, a malariologist with the Program since the early 1960's. These workers are responsible for residual spraying, and for weekly distribution of malaria prophylaxis during seasons of risk. The 1982 consumption of chloroquine tablets, based on records of Central Medical Stores which had a rupture in chloroquine stocks in mid-year 1982, was 300,000--less than 1/2 tablet for each inhabitant of Swaziland, or 3 tablets per inhabitant of the lowveld. It is clear that the goal of prophylaxis of each individual living in the zone at risk has fallen short in 1982.

The WHO advisors from Maputo have studied both the vector and the malaria parasite in Swaziland, and have detected no resistance of vectors to DDT or of parasites to chloroquine. The neighboring nations of Mozambique and the Republic of South Africa have not reported any resistant parasites to the knowledge of the Director of Malaria Control in Swaziland.

Malaria control activities are presently being integrated into other primary health care activities, and the health assistants working in malaria control will require additional primary health care training. They also require a means of transport which will permit them easier access to the homesteads in the lowveld, and in-service training if they are to improve their surveillance activities to assure that information about childhood mortality, including that from malaria, becomes available. In particular, the coordinator sees the need to study several aspects of malaria and its control in Swaziland such as:

- the effectiveness of training of Rural Health Motivators (RHM's) in malaria detection, reporting and treatment

- the prevalence of malaria and the malaria associated mortality rate among children

- the effectiveness of a presumptive treatment scheme as compared to the present scheme of prophylaxis, to be used if resistance to the parasite is detected in Swaziland or its neighboring countries.

3.4.2 Feasibility of the National Malaria Control Program

Malaria does not appear to contribute significantly to national infant and childhood mortality rates based on the present passive surveillance reports

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from hospitals serving the zones at risk. Systematic study in the lowveld is required, however, to better define the risk of malaria mortality, and to develop alternative strategies of control should there be a decision to change the present prophylaxis strategy.

The fact that the prevalence of malaria has decreased from 25% in the 1950's to the present level of 2.3% suggests that the existing strategy of vector control and chemoprophylaxis is feasible; the fact that only 3 chloroquine tablets per inhabitant of the lowveld were used in 1982 from government stocks (private purchase levels of malaria medications are not known) suggests that vector control by residual spraying may be the more effective and more feasible of the two strategies presently used.

Because no vector or parasite in Swaziland is presently known to be resistant, based on studies of the WHO malaria advisors based in Maputo, the present strategy will be continued as WHO recommends. Surveillance must be improved, however, to ensure that resistant strains of either the vector or the parasite are immediately detected should they appear.

3.4.3 Government Commitment to the National Malaria Control Program

The 28 health assistants assigned to the National Malaria Control Program and the annual recurrent budget of E 102,000 (1% of the national budget for preventive services) made available for malaria and schistosomiasis control activities, attest to the commitment of the Government of Swaziland to malaria control in the lowveld where an estimated 17% of the entire population lives. Present discussions about involving Rural Health Motivators in the National Control Program, as well as the Government concern tht surveillance must be improved through development of better means of case detection, attest further to the government commitment to the National Malaria Control Program.

3.5 Other National Programs Relevant to Primary Health Care

3.5.1 Proposed National Nutrition Survey

3.5.1.1 Description of Proposed Survey

Unofficial reports from clinics and hospitals thoughout the Kingdom suggest that malnutrition, especially undernutrition, is a major health problem of children under the age of 5 years. Hospital mortality information from 1982 supports this; among 225 hospital deaths among children under the age of 5 years reported in 1982, 11.6% were classified as malnutrition. Recently, probably in part due to the severe drought conditions in Southern Africa, it is felt that more children are being admitted to hospitals with acute protein-calorie undernutrition, and the government feels it is urgent to establish the nutritional status of children under five years of age.

During the past month, USAID funds have become available to conduct a national nutrition survey which was designed in 1982 by a medical epidemiologist and a statistician from the Division of Nutrition (CHPE) of CDC, Atlanta. The survey was designed to:

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- identify differences in nutrition status by the 4 administrative districts and company town areas

- provide information on the nutrition status of the peri-urban population

- provide information for planning nutrition programs

- provide statistically valid baseline data to compare with ongoing clinic-based MCH surveillance

- provide demographic characteristics of homesteads and selected indicators which will be useful for planning nutrition intervention programs.

The proposed survey will include:

- weight (Salter scale)
- height (measuring board)
- arm circumference
- skinfold thickness (20% subsample)
- examination for pedal edema
- hemoglobin (20% subsample of mothers and children)
- infant feeding practices
- socio-economic and demographic factors
- point prevalence of overall illness, and of specific illness associated with diarrhea and fever

Children 3-59 months of age will be examined, mothers interviewed, and hemoglobin determined on a subsample of children and pregnant or lactating women. Sampling within each universe (4 administrative districts and company towns) will be of 30 clusters of 30 children (30-50 homesteads) each. Because the rural population lives in discrete homesteads, not in communities, five months is projected to complete the survey, even though the country itself is small. The budget for the survey is approximately $U.S. 250,000.

3.5.1.2 Relationship of Proposed National Nutrition Survey to CCCD

The National Nutrition Survey in Swaziland, which is proposed to begin before the end of 1983, will conduct interviews of mothers living in approximately 7,500 homesteads to obtain information about children aged 3-59 months. Retrospective surveys, based on the same sampling procedure, have been proposed as a means of establishing baseline estimates of infant and under five mortality, about crude birth rates, and about specific mortality from such childhood diseases as neonatal tetanus, diarrheal diseases and measles. They have also been proposed as a means of establishing an estimate of baseline morbidity from such diseases as diarrheal diseases of childhood.

In the United Republic of Cameroon in 1976, the addition of 3 questions to a USAID funded national nutrition survey provided an estimate of infant mortality, under five mortality and of measles-specific mortality and measles case-fatality rates among village popultions. Rates established were similar

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to rates which had been estimated from the 1976 national census, and from investigation of measles outbreaks. The three questions added to the nutrition survey in Cameroon were:

- did any of your living children under the age of 5 years have measles (local word) since last Christmas or Ramadan (during the preceding 12 month period)

- did you have a child under the age of 5 years who died during the preceding 12 month period (since Christmas or Ramadan)

- if you had a child under five years of age who died during the preceding twelve month period, did this child die with measles (local word).

Similar, but more disease-specific questions and questions about chloroquine and ORS utilization were added to a survey of similar design in the Sine-Saloum region of Senegal in 1982. Results of this survey are currently being analyzed, and a copy of the questionnaire used is attached in Appendix 1. A national survey of similar design, to determine the incidence of neonatal tetanus, was conducted recently in Malawi, and results being verified by the Ministry of Health suggest an annual incidence of 12 per 1,000 live births in Malawi.

The questionnaire for the Swaziland National Nutrition Survey has been field tested, and takes a maximum of 50 minutes to complete (excluding measuring, weighing, collecting blood and examination). It is felt by the national survey coordinators that this time will decrease to about 40 minutes once the interviewers become familiar with the questionnaire during training for the survey.

The CCCD assessment team proposes that certain questions about mortality and utilization of health services or medications such as ORS and chloroquine (in the lowveld) be included in the National Nutrition Survey. It recommends a review of the questionnaire with an epidemiologist familiar with retrospective survey methodology for mortality determination, and inclusion of certain key questions which might add a maximum of 5 minutes to the interview, but provide baseline information which could be used to evaluate CCCD activities in Swaziland. Because the sampling methodology of the survey permits actual baseline determination in each of the four districts, impact of childhood prevention and control measures on nutrition and mortality from the CCCD target diseases could be evaluated in some, or in all of these same districts four years after the beginning of CCCD activities. Such a reassessment, which would require a similar, though less detailed survey including weighing, measuring and interviewing, would be compatible with CCCD activities.

4.0 Proposal for CCCD in the Kingdom of Swaziland

4.1 Summary of Assessment and Proposed CCCD Activities

The Kingdom of Swaziland has committed itself to decentralized health planning and management, and to integrated primary health care as a means of achieving

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Health for All by the Year 2000. Within its primary health care activities, the Government consistently adheres to the WHO recommended policies for the control of childhood diseases and for maternal and child health care. With the establishment of the National Institute for Health Sciences in Mbabane, the Government has assured training of the health personnel which form the backbone of the health system, the nurse/midwife and nurse paracticioner. Other manpower must be developed as well, such as nurse assistants, health assistants, sanitarians, and the fundamental Rural Health Motivator. Targets for training or re-training by 1987 include:

- approximately 1,200 Rural Health Motivators
- 63 health assistants and health inspectors
- 500 traditional healers and chiefs
- 700 mid-level health workers including nurses, nurse assistants and other primary health care staff
- 65 physicians

Training responsibilities of the 3 existing nursing or nurse assistant training schools in the Kingdom require that tutors at these schools are up-to-date on management and planning for primary health care activities. Re-training of the remaining health staff requires support for regional courses or workshops, and in some cases refresher courses for tutors of these training activities.

Proposals to assist the Government of Swaziland in completing its targeted training through support from CCCD include:

- long-term training of 2 nurse tutors in CCCD related training methodology, best acquired through a 2 year program leading to an MPH
- short-term training of 12 national tutors in planning and management of CCCD-related activities
- short-term training of 8 district nurse/trainers in mid-level planning and management of CCCD-related activities (projected for placement during the next five years as decentralization of health planning and management to the districts is accomplished)
- support for regional retraining of the following in CCCD-related activities:
  - 1200 Rural Health Motivators (1 week)
  - 63 health assistants (including malaria workers and latrine promoters) (1 week)
  - 500 traditional healers and chiefs (2 days)
  - 300 mid-level health workers (nurses, nurse assistants, etc.) (1 week)

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- 10 health record clerks (1 week)

Childhood disease control activities related to the CCCD Project such as EPI, CDD and Malaria Control, will be completely integrated within the primary health care system by the end of 1987, as more Rural Health Motivators are trained and the remaining mobile vaccination services are phased into fixed health centers and their outreach programs. Each of these activities is coordinated by a national coordinator whose job includes problem solving at the central Minsitry level to assure that the peripheral, intergrated services run smoothly. The national EPI coordinator has been trained in a WHO international EPI Programme Manager's Training Course, but requires a trained assistant who can take over in case of sickness or absence. Two cold chain technicians have also been trained in regional cold chain courses, but more are required. These technicians, based regionally, require transportation and spare parts for cold chain repair. District nurses responsible for training and supervision of all primary health care activities, including EPI, CDD and malaria control (proposed for training in the previous paragraph) require vehicles for their training and supervisory activities. Vaccines, vaccination materials and cold chain materials which have been supplied by external donors are being decreased as these donors phase out and there will be a period of readjustment as the government increases its budget to compensate. The cold chain has reached 76% of its projected expansion, and replacements as well as the remaining equipment must be provided.

Proposals to assist the Expanded Program on Immunization in reaching its target of vaccinating 80% of all newborns by the age of 12 months include:

- short-term training of 2 assistant national coordinators of EPI activities in planning and management of CCCD-related activities

- short-term training of 2 cold chain repair technicians

- consultant services of a long-term technical officer based in the region to strengthen EPI management and solving of EPI-related logistic problems

- consultant services of a long-term regional medical epidemiologist in improving EPI surveillance activities through the national health information system and for assisting with operational research related to EPI

- commodities such as 1 vehicle for the national program manager to be used for training and supervision, 4 vehicles for the same purpose to district nurse trainer/supervisors, refrigerator/freezers, vaccine carriers, cold boxes, standby generators, vaccines, reusable needles and syringes, and sterilizing equipment

Diarrheal disease control activities within the Kingdom are being coordinated under a national CDD for which there is a proposed plan, soon to be finalized and budgeted. Two national CDD coordinators have been trained in the use of ORS, and one national CDD coordinator has been trained in a WHO international CDD Programme Manger's Course. Trained assistants, who can take over the

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management, supervisory and training activities in case of sickness or absence are required. District nurses responsible for training and supervision of all primary health care activities have been proposed for training in preceding paragraphs, as have vehicles for their use in training and supervision within the districts. Physicians require a national workshop in which they can be shown the value of oral rehydration, through demonstration and testimony of other national practitioners. A guaranteed supply of ORS packets is required, as a back-up to supplies which were inadequate during 1982. Proposals to assist the Control of Diarrheal Diseases Program in reaching its target of decreasing by 75% annual mortality among children from diarrheal disease by the year 1987 include:

- short-term training of 2 assistant national CDD coordinators in planning and management of CCCD-related activities

- consultant services of a long-term technical officer based in the region to strengthen CDD management and solving of CDD-related logistic problems

- consultant services of a long-term regional medical epidemiologist in improving CDD surveillance activities through the national health information system, for assisting with operational research related to CDD, and for motivating national physicians to use oral rehydration as the principle treatment for childhood diarrheal disease dehydration.

- commodities such as one vehicle for the national program coordinator to be used for training and supervision and ORS packets as a back-up to UNICEF supplied ORS.

Malaria control activities are coordinated by a national program manager who has had extensive experience in malaria control. He has assistants who require further training in planning and management of disease control activities. District nurses responsible for training and supervision of all primary health care activities have been proposed for training in the preceding paragraphs, as have vehicles for their use. A guaranteed supply of chloroquine is required to prevent the rupture of stock which occurred in 1982 during the high season of malaria transmission.

Proposals to assist the Control of Malaria Program in reaching its target of decreasing the prevalence of malaria infection in the zone at risk to 0.5% by 1987 include (in addition to the training and vehicles proposed for the district nurse trainers under EPI):

- short-term training of 2 assistant national coordinators in planning and management of CCCD-related activities

- short-term training of 8 malaria assistant/supervisors in mid-level planning and management of CCCD-related activities, to realign their activities to an integrated primary health care approach

- consultant services of a long-term technical officer based in the region to strengthen management and logistics problem-solving capabilities related to malaria control

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- consultant services of a long-term regional medical epidemiologist in improving malaria surveillance activities through the national health information system, for assisting with operational research related to childhood malaria, and for assistance (in cooperation with a CDC, Atlanta, malariologist) in the event of suspected parasite resistance to chloroquine

- commodities such as one vehicle for the national malaria control manager, 8 motorbikes for subdistrict supervision of PHC activities, and a back-up supply of chloroquine tablets.

Health education activities for childhood and maternal disease control programs are coordinated in the Ministry of Health health education unit. A national manager of the unit is completing post-graduate training for a master's degree. Assistants to this manager require training to completely understand the activities required in primary health care. Four district health educators are planned as part of the decentralization process, and will require this same training and vehicles for training and supervision within the district. A curriculum must be developed for training of Rural Health Motivators, and workshops for traditional chiefs and healers to better prepare them to motivate homestead members to seek primary health care services. Training support for these cadres has been proposed in an earlier paragraph. A consultant is required to train a video recording technician from the unit to use USAID provided video recording and playing equipment in the government training school, and video playing equipment is required for use in the private training schools. Support for printing health education materials is required as well.

Proposals to assist the health education unit in reaching its target training activities and developing training curricula include:

- short-term training of 2 assistants to the manager of the health education unit and for 4 district health educators in mid-level planning and management of CCCD-related activities

- consultant services of a video-recording technician to train a national technician from the Swaziland Institute of Health Sciences; training to provide capability to produce training films about EPI, CDD and malaria control for national use in Swaziland, and for regional use in Southern African countries participating in the CCCD project

- support for development of a training curriculum for Rural Health Motivators and of workshop curriculum to motivate traditional chiefs and healers

- support for printing training and workshop materials

- 1 vehicle (van) for conducting district or sub-district training and supervision of traditional chiefs and healers

- 4 motorbikes for district health educators to provide training and supervision

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- two video players for teaching at Raleigh-Fitkin Memorial and Good Shepherd training schools

The national health information and nutrition surveillance unit presently is making progress in providing the information required to evaluate national disease control programs. Two Sirius home computers are in use, a sentinel surveillance system for diarrheal and some of the EPI diseases has been established, and in cooperation with the Ministries of Agriculture and Plan, a national nutrition survey is planned. The unit requires additional hardware and software for its computers in order to provide space needed for CCCD-related information, support for a quarterly newsletter to provide feedback information about CCCD target diseases and other national health information, and assistance in setting up a hospital based in-patient surveillance system. Two medical records clerks require training in a regional course for hospital-based surveillance. Training of 10 statistical clerks to improve national health information is proposed under a preceding paragraph. The unit also requires transport for its supervisory and training activities, and long-term training for a national statistician in computer science and programming to take over the activities which are presently provided by a USAID funded consultant.

Proposals to assist the national health information system in realizing the above activities include:

- long-term training of a national statistician in computer science and programming (9 months)

- short-term training for 2 medical records clerks in hospital-based surveillance (IDM)

- consultant services of a long-term regional medical epidemiologist in improving national health information and nutrition surveillance

- consultant services from a computer technician in programming the national hospital-based surveillance system

- support for a quarterly newsletter, including printing and distribution costs

- support for establishing national baselines for CCCD target diseases and for evaluating CCCD impact

- hardware, software and other supplies for supplementing the output of the existing computer system

The coordinators of the various disease control programs related to CCCD also realize the need for operational research in developing better methods of control and prevention, and have identified nine priority areas which require further study:

- better means to develop rural health committees in the Kingdom

- the best type of health cards, patient or health center retained

- the impact on the community of training nurse clinicians
- the impact of training of traditional chiefs and healers to motivate rural people to seek health services
- the effectiveness of BCG
- the impact of the mass media on health education of mothers
- the best means of assuring malaria surveillance at the homestead level
- the best strategy of malaria control, presumsptive treatment or long-term chemoprophylaxis
- the best means of providing oral rehydration therapy at the homestead level, home-prepared solutions or ORS packets.

Proposals for CCCD support for operational research such as this in the Kingdom of Swaziland include:

- consultant services from nurse/midwives, medical epidemiologists, statisticians and malariologists for development of operational research protocols in these topics and others which may be required for better CCCD activities
- support to each of the above listed topics of operational research after development of sound protocols and review by the CCCD East Africa Research Review Committee
- support of regional meetings where certain researchers from Swaziland will be invited to present their research activities and results

4.2 Proposed Objectives and Targets for CCCD Activities

These proposed activities for CCCD support to primary health care activities in the Kingdom of Swaziland have been developed on the basis of two important considerations:

- the strategy of CCCD, as stated in the CCCD Project Description
- the advanced state of primary health care implementation in the Kingdom of Swaziland

According to the CCCD Project Description, the CCCD strategy is to "build on existing systems and foster integration of activities within the primary health care framework". In view of the Government of Swaziland commitment to primary health care and the progress achieved, and planned, for its integration and implementation in decentralized district framework, Swaziland offers an ideal structure for CCCD collaboration.

In addition, the CCCD strategy of building on the work already achieved by African nations in cooperation with AID bilateral projects can be readily

applied. Five AID supported activities are instrumental in the implementation of primary health care in Swaziland:

- rural water-borne disease control
- national health education
- manpower development
- central planning
- national health information and nutrition surveillance systems.

The achievements of collaboration in these activities are impressive. But more, especially in the field of manpower development at all levels, remains to be done. The CCCD Project is a most appropriate vehicle for providing further support to these primary health care activities in Swaziland, and for assuring the realization of the general objective of the Fourth National Development Plan, to decrease infant and child mortality.

The following proposed objectives and targets have been based on the achievements already realized by the Kingdom of Swaziland in primary health care, and on those objectives and targets outlined in the draft of the Fourth National Development Plan. The assessment team is confident that the progress made during the 4 years of CCCD activities will be sustained and furthered in the years following the end of the project. If the objectives and targets can be obtained, the people and Government of Swaziland will have achieved an important milestone on the way to Health for All by the Year 2000.

Objectives	Targets
1. Collaborate with the Government of Swaziland in the training of its personnel targeted for reorientation in the draft Fourth National Development Plan	Complete, by the end of 1987, training of 1,200 Rural Health Motivators, 63 health assistants, 500 traditional healers and chiefs, 300 mid-level health workers and 10 statistical clerks
2. Provide vaccination services with DPT, BCG Measles and Polio vaccines to children in all districts in the Kingdom	Achieve, by the end of 1987, the following vaccination coverage among children 12-23 months of age: Polio, 60%, DPT 60%, Measles, 50%, BCG, 85%
3. Decrease morbidity and mortality from the EPI target diseases among children less than 5 years of age	Decrease, by the end of 1987, morbidity and mortality among children under 5 as follows:
	Morbidity / Mortality
	Pertussis 40% / 30%
	Polio 60% / -
	Measles 40% / 30%
4. Decrease mortality from diarrheal diseases among children less than 5 years of age	Decrease, by the end of 1987, mortality among children under 5 years from diarrheal disease by 50%

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5. Establish baseline childhood mortality rates from malaria in the lowveld	Establish, by 1987, mortality rates among children and adults which can be associated either with the definite diagnosis of malaria or with malaria-like symptoms
6. Improve nutrition status among children less than 5 years of age by CCCD-related activities	Target to be based on results of National Nutrition Survey scheduled for late 1983
7. Improve specificity of the national health information and nutrition surveillance system for more accurate evaluation of CCCD activities on childhood diseases	Establish, by the end of 1984, baseline morbidity and mortality information by age groups 1 year and 1-4 years for measles, pertussis, diphtheria, tetanus, tuberculosis and diarrheal diseases
8. Ensure regular newsletters about EPI, CDD, Malaria control and other CCCD-related activities such as nutrition to all health staff throughout the Kingdom	Establish, by the end of 1985, a regular CCCD newsletter and mailing system to all health staff throughout the Kingdom (both non-government and government)
9. Answer operational research questions about better methods of primary health care activities	Have, by the end of 1987, provided answers to 5 of the operational research questions listed in Section 4.1
10. Increase health education and awareness among mothers about childhood diseases and their prevention and treatment	Increase, by the end of 1987, use of oral rehydration therapy for diarrheal diseases among mothers throughout the kingdom by 50%.

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4.3 Proposed Workplan for CCCD Activities in Swaziland

Activity	Proposed Time	Individual Responsible	Source of Funding
1. TRAINING:			
-12 national tutors (2 weeks)	1984-1985	CCCD Coordinator, Brazzaville	Regional
-6 national program managers (2 weeks)	1984-1986	CCCD Coordinator, Brazzaville	Regional
-8 district nurse/ trainers (2 weeks)	1984-1985	CCCD Coordinator, Brazzaville	Regional
-8 malaria assistants (2 weeks)	1984-1985	CCCD Coordinator, Brazzaville	Regional
-6 health educators (2 weeks)	1984-1985	CCCD Coordinator, Brazzaville	Regional
-2 medical records clerks (IDA)	1984	CCCD Coordinator, Brazzaville	Regional
-2 cold-chain technicians (2 weeks)	1984	CCCD Coordinator, Brazzaville	Regional
-2 nurse tutors (2 years)	1984-1987	CCCD Regional Technical Officer	National
-1 computer technician (9 months)	1985	CCCD Regional Technical Officer	National
-1200 Rural Health Motivators (1 week)	1984-1987	CCCD Regional Technical Officer	National
-63 Health Assistants (1 week)	1984-1987	CCCD Regional Technical Officer	National
-500 traditional healers/ birth attendants (1 week)	1984-1987	CCCD Regional Technical Officer	National
-300 mid-level health workers (1 week)	1984-1987	CCCD Regional Technical Officer	National
-10 statistical clerks (1 week)	1984	CCCD Regional Technical Officer	National

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ACTIVITY	PROPOSED TIME	INDIVIDUAL RESPONSIBLE	SOURCE OF FUNDING
2. HEALTH EDUCATION/PROMOTION			
- training of video-recording technician	1984	CCCD Coordinator, Brazzaville	Regional
- printing health education materials	1984-1985	CCCD Regional Technical Officer	National
3. TRAINING DEVELOPMENT/ADAPTATION			
- development of training curriculum for RHM's and traditional healers	1984-1985	CCCD Regional Technical Officer and CCCD Nurse/Midwife	National
4. STRENGTHENING NATIONAL HEALTH INFORMATION SYSTEMS			
- establish baseline information in collaboration with National Nutrition Survey	1984	CCCD Regional Medical Epidemiologist	Regional
- design and implementation of health information methodology to include more age- and disease-specific information	1984-1987	CCCD Regional Technical Officer and Medical Epidemiologist	National/ Regional
- quarterly newsletter support	1984-1987	CCCD Regional Technical Officer	National
- development of hospital-based surveillance system	1984-1987	CCCD Regional Medical Epidemiologist	Regional
- CCCD program evaluation	1984 and 1986	CCCD Regional Technical Officer and Medical Epidemiologist	Regional

(continued on next page)

ACTIVITY	PROPOSED TIME	INDIVIDUAL RESPONSIBLE	SOURCE OF FUNDING
5. OPERATIONAL RESEARCH			
- protocol development	1984-1987	CCCD Medical Epidemiologist, Nurse/ Midwife, Statistician	Regional
- support to operational research	1984-1987	CCCD Regional Technical Officer and Medical Epidemiologist	Regional/ National

4.4 Proposed Budget for CCCD Activities

The regional budget of the CCCD Project will provide the necessary support for a regional technical officer and a regional medical epidemiologist, both appointed by the Centers for Disease Control (Atlanta). The regional medical epidemiologist's proposed base is Malawi and the regional technical officer will be based in one of the BLS countries (the Ministry of Health of Lesotho has proposed that this officer be based in Maseru). Both of these regional representatives of the CCCD Project will collaborate with the Kingdom of Swaziland on CCCD-related activities at the request of the Ministry of Health. Other consultants, such as those for training in video-recording, developing operational research study protocols, and hospital-based surveillance systems will be made available through the regional budget. Short-term training of national trainers and technicians, in CCCD sponsored training courses in the African region, will also be largely funded from the regional budget.

The national (country-specific, bilateral) budget of the CCCD Project will provide support to national training activities; to national curriculum development; for printing of training materials and newsletters; and for strengthening the national health information system. In addition, the national budget will provide support for operational research which is necessary to better develop primary health care strategies within Swaziland as listed in Section 4.1, providing acceptable protocols are developed. Proposed long-term training will also be funded from the national budget. Finally, the national budget will provide support for purchase of the proposed commodities such as equipment, medications and supplies, computer hard- and software, vehicles and their maintenance, and cold chain materials.

The proposed National Budget for CCCD Activities in the Kingdom of Swaziland is shown in the following table:

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Table 16: CCCD Project Swaziland: USAID, UNICEF And Government of Swaziland Contributions in U.S. Dollars, 1984-1987

Item	1984	1985	1986	1987	Total
Vaccine	34,000*	38,000*	42,000*	46,000*	160,000
ORS packets	30,000*	34,500*	39,000**	44,500**	148,000
Chloroquine	10,000	11,000**	12,000**	13,000**	46,000
Vaccination Cards	11,000**	14,000**	16,000**	18,000**	59,000
Syringes/Needles	3,500	4,000	4,500	5,000	17,000
Sterilizing equipment	6,000	-	-	-	6,000
Refrigerator/freezers	15,000	16,000	-	-	31,000
Vaccine carriers	3,000	-	-	-	3,000
Vehicles and parts/service	120,000	-	-	-	120,000
Motorbikes and parts/service	12,000	-	-	-	12,000
Fuel	16,000	17,000**	19,000**	20,000**	72,000
Equipment (includes computer)	21,000	-	-	-	21,000
Supplies, office	1,500	2,000	2,500	3,000	9,000
Printing	14,000	4,500	5,000	6,500	30,000
Health information system	20,000	-	-	20,000	40,000
Long-term training***	100,000	100,000	50,000	-	250,000
Short-term training	50,000	50,000	50,000	27,000	177,000
Operational Research	20,000	20,000	5,000	5,000	50,000
Health Education	10,000	10,000	-	-	20,000
Contingency	49,700	32,100	24,500	20,800	127,100
TOTAL	546,700	353,100	269,500	228,800	1,398,00
USAID	471,700	238,600	141,500	87,300	923,100
*UNICEF	64,000	72,500	42,000	46,000	224,500
**Government of Swaziland	11,000	42,000	86,000	95,500	250,500

***Support for long-term training, as a part of the overall CDA cooperative effort, is being proposed to other donors such as the United Kingdom Overseas Development Administration

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4.5 Budget Explanation

- Vaccine amounts and costs were calculated for four years projecting approximately 3% population increase and 10% inflation rate annually

  - Measles vaccine 10¢ per dose x 30,000 children 9-23 months of age (75% vaccination coverage/25% vaccine loss)
    30,000 doses x 10¢ = $U.S. 3,000

  - DPT vaccine 10¢ per dose x 3 doses x 30,000 children (new susceptibles per year) (75% vaccination coverage/37% vaccine loss)
    100,000 doses x 10¢ = $U.S. 10,000

  - Polio vaccine calculated same as DPT
    100,000 doses x 10¢ = $U.S. 10,000

  - BCG vaccine 5¢ per dose x 30,000 newborns and school enterers (85% vaccination coverage/60% vaccine loss)
    60,000 doses x 5¢ = $U.S. 3,000

  - Tetanus toxoid 10¢ per dose x 2 doses x 30,000 pregnant women (75% vaccination coverage/25% vaccine loss)
    60,000 doses x 10¢ = $U.S. 6,000

  - DT vaccine 10¢ per dose x 20,000 school enterers (90% vaccintion coverage/10% vaccine loss)
    20,000 doses x 10¢ = $U.S. 2,000

- ORS packets 10¢ each x 120,000 children under age of 5 years x 2 episodes of diarrhea per year x 2 packets per episode = 48,000 packets. For 62% coverage, 300,000 packets required x 10¢ = $U.S. 30,000. Coverage estimated to increase 10% each year and ORS packets to decrease in price, inflation omitted.

- Chloroquine calculated at 500,000 tablets (300 mg) required each year (past usage and estimated increase) at 2¢ per tablet for the first year and 10% inflation per year 500,000 x 2¢ = $U.S. 10,000

- Vaccination cards for 75% of newborns or 22,000 infants x 50¢ each = $U.S. 11,000 for first year with increased coverage and inflation calculated thereafter

- Syringes (5,000) and needles (20,000) calculated at 50¢ and 5¢ each respectively for 100 clinics = $U.S. 3,500 for first year with inflation each year thereafter

- Sterilization equipment for EPI calculated at $U.S. 60 per set x 100 clinics = $U.S. 6,000 (pressure cooker, tray, forceps, kidney dish)

- Refrigerators (gas-operated) to equip 30 additional clinics and to replace 20, at an average of $U.S. 625 each = $U.S. 15,000 for the first year and $U.S. 16,000 the second

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- Vaccine carriers for 100 clinics and/or ice chests at $U.S. 30 each = $U.S. 3,000

- *Vehicles and parts, one each for malaria, CDD and EPI national coordinators, one each for the four district PHC coordinators and one for health education unit for field training course (van); 8 vehicles x $U.S. 15,000 = $U.S. 120,000

- *Motorbikes and parts, one each for the four district health educators and one each for the 8 malaria assistant/supervisors of PHC activities; 12 motorbikes X $U.S. 1,000 = $U.S. 12,000

- Fuel of 40 liters per week x 65¢ per liter x 52 weeks x 10 vehicles = $U.S. 13,500; 6 liters per week x 65¢ per liter x 52 weeks x 12 motorbikes = $U.S. 2,500

- Equipment: Computer hardware for statistics = $U.S. 7,000; typewriter for primary health care office = $U.S. 1,500; health education video equipment for RF and Good Shepherd training schools = $U.S. 1,500; generators (3) for district vaccine cold equipment = $U.S. 6,000; film developing equipment for health education = $U.S. 5,000 total = $U.S. 21,000

- Supplies: (office only) = $U.S. 1,500 first year with 10% inflation rate and increased program activity each year thereafter

- Printing: primary health care training and refresher manuals = $U.S. 10,000; health cards = $U.S. 2,000; quarterly newsletter and annual reports $U.S. 2,000 total = $U.S. 14,000 first year

- Health Information Systems: Baseline surveys and surveys to determine impact = $U.S. 40,000

- Regional Training: short-term training (2 weeks) for 22 central level personnel in senior-level planning and management courses in CCCD related activities and 22 district level personnel in mid-level planning and manage- ment of CCCD related activities and of 2 cold chain repair technicians at $U.S. 850 per person = $U.S. 39,200 (supported from regional funds)

- National Training: 2 national tutors for 2 years each for M.P.H. in primary health care and 1 computer technician for 1 year at $U.S. 50,000 per year per person = 5 x $U.S. 50,000 = $U.S. 250,000; short-term training (one week) in CCCD-related activities for 300 field nurses and nurses assistants, 63 health assistants, 1,200 RHM's and 10 statistical clerks at $U.S. 100 per person = $U.S. 157,000; 500 traditional healers (2 days) at $U.S. 40 per person = $U.S. 20,000; national training is to be done over a 4 year period; Total = $U.S. 177,000

- Operational research for the development of better primary health methodology in Swaziland is budgeted for up to $U.S. 10,000 per study.

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- Health education: for development of training materials in primary health care for use in national training courses = $U.S. 20,000 over two year period

- Contingency fees of 10% for fluctuation of dollar exchange rates, unforeseen inflation increases and program needs.

*Vehicles and motorbikes to be used only for primary health activities which include supervision and training.

5.0 Persons Contacted During Assessment

1. Mr. T.M.J. Zwane, Principal Secretary, MOH
2. Dr. Z.M. Dlamini, Director of Medical Services, MOH
3. Dr. Mike Owens, Deputy Director of Medical Services, MOH
4. Mrs. E.T. Ntiwane, Chief Matron, Public Health Unit, MOH
5. Ms. Dumisile Nxumalo and Staff, Health Planner, MOH
6. Ms. Maggie Makhubu and Staff, Principal, Institute of Health Sciences (IHS)
7. Mrs. Hilda Mdluli, EPI Coordinator, Public Health Unit, MOH
8. Mrs. Gladys Matsebula, Diarrheal Disease Control Coordinator, Public Health Unit, MOH
9. Ms. Martha Mkambule, Family Planning Coordinator, Public Health Unit, MOH
10. Dr. Raymond Chung Tung, WHO Epidemiologist, MOH
11. Ms. Nestor Dlamini, IHS tutor, MOH
12. Ms. Phyllis Jenkins, Nurse Educator, Health Manpower Training Project (USAID)
13. Dr. P. Wardlaw and Staff, Medical Director, Raleigh Fitkin Memorial Hospital (Mission)
14. Mrs. E.M. Ndsiniso and Staff, Health Education Centre, MOH
15. Dr. W. Hoadley and Team, Chief of Party, Rural Water Borne Disease Control Project (USAID Funded)
16. Dr. J.P. Chaine, Epidemiologist, Rural Water Borne Disease Control Project
17. Mr. P. Mathe, Malaria Coordinator, MOH, Save the Children Fund (London)
18. Mrs. Z. Zwane, Matron, Good Shepherd Hospital (Mission)
19. Mrs. J. Mkhwanzi, Public Health Nurse, Good Shepherd Hospital
20. Dr. Richard Yoder and Staff, Chief of Party, Health Planner, Planning and Management Project (USAID funded)
21. Ms. Catherine Connolly, Health Statistician, Health Manpower Training Project
22. Mrs. Christobel Sithole, Home Economics Officer, Ministry of Agriculture and Cooperatives

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23. Mr. William Msibi, Save the Children Fund (Mbabane)

24. Mr. R. Huesmann, USAID Director

25. Mr. J. Philpott, USAID Deputy Director

26. Ms. Britt Christensen, UNICEF

27. Ms. S. Mabuza, Dept. of Economic Planning and Statistics (Health Liaison Officer)

6.0 Documents Reviewed During Assessment

-Kingdom of Swaziland, Fourth National Development Plan, 1983-1987 (Draft)

-Kingdom of Swaziland, Third National Development Plan, 1978/79-1982/83

-Health Policy Statement, July 1982 (Draft)

-Strengthening the Planning and Management Capabilities of the MOH of the Kingdom of Swaziland, Feb. 1981

-Economic Memorandum on Swaziland, World Bank Report #3028-SW, April 20, 1981

-Evaluation of Immunization Coverage, Feb. 23-25, 1982.

-Control of Diarrheal Disease in the Kingdom of Swaziland by R.W. Ryder, Oct-Dec. 1982 (Draft)

-Workplan for CDD Program in Swaziland by Dr. Barua, WHO, 10 Aug 1982

-Report of a Survey of the Management of the Health Services of Swaziland, June/July 1979

-Preparation for Maintenance Phase of the EPI, Jan/Feb 1982

-Swaziland Health Manpower Training Project, June 1981 (Draft)

-A study of Infant Mortality in Swaziland (3 pages - no date or author)

-Annual Statistician Bulletin, 1980

-Communications Planning for Health Programs, Oct. 1982

-Knowledge, Attitude and Practices Survey of Water and Sanitation in Swaziland, Sept. 1982

-Rural Water Borne Disease Control Project Paper, 645-0087, August 1979

-Health Manpower Training Project, 690-0062, April 1977

-Five Year Plan for Strengthening the Rural Health Motivator Program, Nov. 1982

-Report on Health Assts. Workshop, June 1982

-Curriculum for Rural Health Visitors Course (no date)

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-Nayaren Nursing College Curriculae (no date)

-Applied Research and Evaluation Activities at Health Education Centre (no date)

-Foreign Trip Report on Proposed Nutrition Survey, Oct. 1982

-Project status reports on Rural Water Borne Disease

-Health Management Training and Health Planning and Management

-Community Health Manuals (6 volumes)

-Rural Health Motivators Manual (Draft outline)

Appendix 1: Mortality Section of Survey Questionnaire, Sine-Saloum, Senegal, 1982

D. ETAT SANITAIRE ET MORTALITE DES ENFANTS

SI L'ENQUETEE N'A PAS EU DE NAISSANCE VIVANTE DEPUIS JANVIER 1977, PASSER A 400

POUR CHAQUE ENFANT NE A COMPTER DE JANVIER 1977 ET EN COMMENÇANT PAR LE PLUS JEUNE DONNER LES RENSEIGNEMENTS SUIVANTS :

N° d'ordre	Prénoms et NOM	(300) Date de Naissance		(301) Sexe		(302) Encore vivant		(303) Carnet de Santé		(304) Diarrhée au Cours des 2 dernières semaines		(305) Traitement pour la diarrhée	(306) Fièvre et nivaquine durant la dernier hivernage				
		Mois	Année	M	F	OUI	NON	OUI	NON	OUI	NON		pas de fièvre pas de nivaquine	nivaquine à titre préventif	fièvre nivaquine inconnue	fièvre pas de nivaquine	ne se souvient pas
1																	
2																	
3																	
4																	
5																	

POUR CHAQUE ENFANT { (PASSER à 303) / (PASSER A L'ENFANT SUIVANT)

PASSER A 306

SI OUI, AIDEZ-VOUS DU CARNET POUR OBTENIR LES REPONSES DE 305 à 307 ET VERIFIER L'INFORMATION DE LA QUESTION 300

MARQUES :

TOUS LES ENFANTS SONT ENCORE VIVANTS, PASSER A 400 APRES AVOIR REMPLI LE TABLEAU PASSER A 313 POUR LES ENFANTS DECEDES

77 – 103
104 – 130
131 – 157
158 – 184
185 – 211

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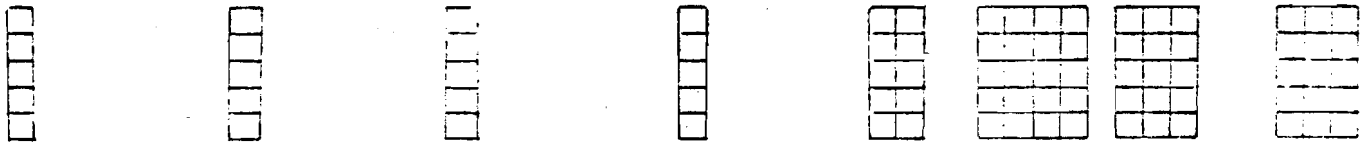
N. d'Ordre	DTCOQ POLIO TRETRACOQ (nombre de prises)	(30) VACCINATIONS				P.P.N.S.				MENSURATIONS		
		B.C.G.		Rougeole Rouvax		(305) Inscription dans un Centre de P.P.N.S.			(306) Pendant combien de temps en mois (si inscrit)			
		OUI	NON	OUI	NON	est inscrit	était inscrit	jamais inscrit		(310) Hauteur (en cm)	(311) Poids (en Kg)	(312) Tour de bras (en cm)
1												
2												
3												
4												
5												

0 – o prise
9 – NE SAIT PAS



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QUESTIONS A REMPLIR POUR TOUS LES ENFANTS DECEDES INSCRITS AU TABLEAU DE LA PAGE 9

(S'IL Y A PLUS DE 2 ENFANTS DECEDES UTILISER UNE FEUILLE SUPPLEMENTAIRE)

PRENOMS ET NOMS (DANS L'ORDRE DES ENFANTS DECEDES DU TABLEAU PAGE 9)

	1er Enfant	2è Enfant	
	.....	.....	
313. No d'ordre de l'enfant (PAGE 9)	.....	.....	212 / 213
314. Sexe	M. ☐ F. ☐	M. ☐ F. ☐	214 / 215
315. Age au décès	Ans ..... Mois	Ans ..... Mois	218 / 219
316. Nombre de jours de maladie avant le décès	par accident ☐ PASSER A L'ENFANT SUIVANT OU A 400	par accident ☐ PASSER A L'ENFANT SUIVANT OU A 400	220 / 223
	Nombre de jours	Nombre de jours	224 / 229
317. Lieu du décès	Domicile ☐	Domicile ☐	
	Hôpital ☐	Hôpital ☐	230 / 231
	Centre de santé ☐	Centre de santé ☐	
	Autre ☐	Autre ☐	
	..... A PRECISER	..... A PRECISER	

318. L'enfant tétait-il normalement après la naissance ? 232 / 233

OUI	☐	OUI	☐
NON	☐	NON	☐
Ne se souvient pas	☐	Ne se souvient pas	☐

319. Au cours de la maladie ayant conduit au décès, l'enfant a-t-il présenté un ou plusieurs des symptômes suivants ?

	OUI	NON	OUI	NON	
a/ incapacité d'ouvrir la bouche pour téter	☐	☐	☐	☐	234 / 235
b/ incapacité d'ouvrir la bouche pour pleurer	☐	☐	☐	☐	236 / 237
c/ forte fièvre	☐	☐	☐	☐	238 / 239
d/ éruption	☐	☐	☐	☐	240 / 241
e/ toux	☐	☐	☐	☐	242 / 243
f/ yeux rouges et larmoyants	☐	☐	☐	☐	244 / 245

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	12					
	OUI	NON	OUI	NON		
g/ toux prolongée suivie de vomissements	☐	☐	☐	☐	246	247
h/ quintes de toux	☐	☐	☐	☐	248	249
i/ 3 ou plus de selles déliées (ou liquides) par jour	☐	☐	☐	☐	250	251
j/ cheveux roux	☐	☐	☐	☐	252	253
k/ pieds enflés	☐	☐	☐	☐	254	255

320. Juste avant la mort, l'enfant a-t-il eu un ou plusieurs des symptômes suivants ?

	OUI	NON	OUI	NON		
a/ spasmes musculaires ou convulsions	☐	☐	☐	☐	256	257
b/ 3 ou plus de selles déliées (ou liquides) par jour	☐	☐	☐	☐	258	259
c/ selles présentant des mucosités ou du sang	☐	☐	☐	☐	260	261
d/ corps raide	☐	☐	☐	☐	262	263
e/ paralysie d'une ou des deux jambes	☐	☐	☐	☐	264	265

321. Reconnaissez-vous un de ces mots comme étant la cause de la mort de l'enfant ? 266 267

	OUI	NON	OUI	NON
1/ Tétanos	☐	☐	☐	☐
2/ Coqueluche	☐	☐	☐	☐
3/ Diarrhée	☐	☐	☐	☐
4/ Rougeole	☐	☐	☐	☐
5/ Malaria, paludisme	☐	☐	☐	☐

(SI AUCUN DES MOTS CITÉS CI-DESSUS N'A DÉTERMINÉ [illegible] PASSER A 322)

SINON PASSER A 323

322. Quelle est la cause du décès ? 268 271

☐ Ne sait pas (Passer à l'enfant suivant ou à 400)

323. Qui vous a appris la cause du décès ? 272 273

Médecin	☐	Médecin	☐
A S C	☐	A S C	☐
Infirmier ou autre agent sanitaire	☐	Infirmier ou autre agent sanitaire	☐
Personne	☐	Personne	☐
Autre ☐ ..... (A PRECISER)		Autre ☐ ..... (A PRECISER)	

(PASSER A L'ENFANT SUIVANT OU A 400)

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