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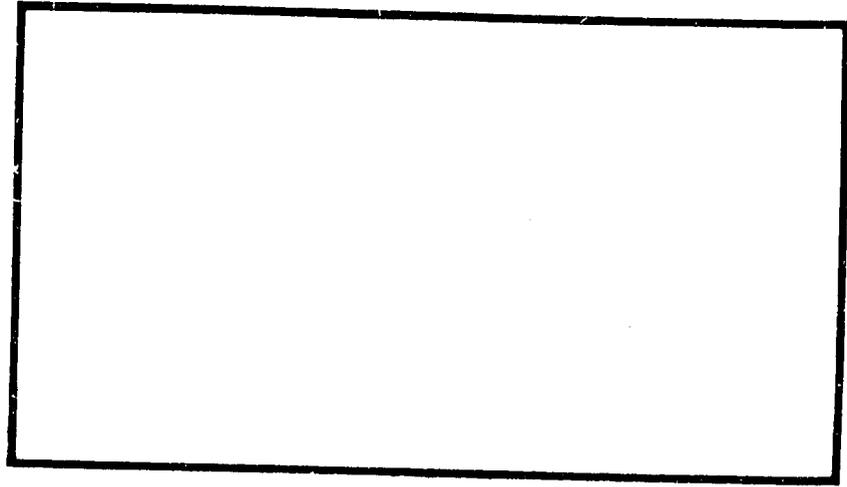
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PLANNING THE HEALTH SERVICES
OF SWAZILAND

A Report Prepared By
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PLANNING THE HEALTH SERVICES OF SWAZILAND

INTRODUCTION

This report is the result of a two month consultancy to the Government of Swaziland over the period 10 July - 15 September 1974. Swaziland officials requested through the U.S. Agency for International Development, the short term services of a health planning advisor to assist the government in laying the basis for a multi-year implementation programme for the health sector of the Second National Development Plan (1973-1977).

The specific objectives of the consultancy were defined as follows:

1. To assess the effectiveness of existing programmes in fulfilling the government's policies and priorities for health services as outlined in the Second National Development Plan.
2. To lay the basis for the formulation of a five year programme for the development of health services in Swaziland within the context of available physical, financial and manpower resources, specifically:
 - a. to make recommendations for the future composition of preventive services, including MCH/FP activities, and to outline a delivery system for these services, focusing particularly on the rural areas;
 - b. to make recommendations for the development of curative services including a long range plan for outpatient services and hospitals, with particular attention to rural areas;
 - c. to assess training requirements in the health services field with special attention to paramedical and auxiliary personnel, and to recommend action to meet these requirements;
 - d. to assess the administrative and supervisory requirements of the curative and preventive programmes proposed and make appropriate recommendations.

This report will be in four parts. The first will describe Swaziland in general terms, as well as setting out its demographic and disease pattern in somewhat greater detail. The second part will describe and analyse the present workings of Swaziland's health services. Part three will examine in greater detail the work of the hospital services. The final part will examine past health planning efforts in Swaziland and make recommendations about future development of the health services.

Appreciation

A document such as this cannot be prepared without the help of many people. Virtually without exception, everyone from whom assistance was requested during the course of the consultancy supplied the necessary help. All Ministry of Health personnel, whether at headquarters or specific institutions, were unfailingly helpful (as were those at mission hospitals). The Ministry of Finance was extremely cooperative and provided an economist to assist with the work. U.S.A.I.D. personnel were always efficient and helpful, especially with the Regional Development Officer. A list of those with whom contact was made is appended, although it does not include the names of many individual health workers who were met with only briefly in the course of visits to their institutions.

I. THE COUNTRY

1. Geography

The Kingdom of Swaziland is a small landlocked country of 6,700 square miles situated between Mozambique and the Republic of South Africa. The country is divided into four topographical regions each of which runs from North to South of the country. These are, from West to East, the Highveld, Middleveld, Lowveld and the Lubombo plateau. The Highveld, in which Mbabane the capital is situated, is mountainous with a high average rainfall and a near temperate climate. The Middleveld, containing the other major town Manzini, consists of rolling grassland and the climate is drier and subtropical. The Lowveld, occupying 40 percent of the country, is an area of bushveld cultivation with a humid almost tropical climate. Finally, there is the small Lubombo plateau in the east with a climate similar to that of the Middleveld. The road network of Swaziland is relatively well developed. Except during very heavy rainfall most areas of the country are readily accessible by road. Because of its small size no part of the country is more than a half day's drive from the central Mbabane-Manzini corridor.

2. Government and Administration

Swaziland gained independence from Britain in 1968 with the King (Ngwenyama) as head of state and with a constitution based on the British model. The Ngwenyama suspended this constitution in 1973, and a special commission is now engaged in drafting a new constitution more in line with Swazi tradition. As an interim measure the former cabinet under the old constitution, consisting of the senior ministers, continues to function as a council of advisers to the King. The country is divided into four districts, Hhohho, Manzini, Shiselweni and Lubombo, each administered by a District Commissioner. Government responsibility for the organization and provision of health services falls under the Ministry of Health. All questions of finance, for both recurrent and capital development purposes, and negotiations with aid donors, are the responsibility of the Ministry of Finance and Economic Planning.

3. Economy

The economy of Swaziland is highly dualistic. The modern sector, largely based on the export of sugar, citrus, forestry products, iron ore and asbestos and on a growing tourist industry, accounted for a total of 54,000 people in wage employment in 1972, or about 30% of the working age population, and for 86% of gross domestic product. The majority of the population still depend upon subsistence farming based on maize cultivation and cattle rearing, but this sector only accounted for an estimated 14% of G.D.P. Over 40% of the total land area is occupied by individual tenure commercial farms, mainly owned by Europeans.

Per capita income (market prices) for 1972 was estimated to be R130.00, but distribution is highly skewed (one Rand = U.S. \$1.50). Income accruing to Swazis only has been calculated to be around R84 per capita. However, the income of rural Swazis has been estimated to be only R48 per capita. Household budget surveys show the average weekly money income for a homestead (average eight persons) to be R4.42, to which should be added a little over three rand of home produced food. Thus a rural homestead of eight has a weekly income of less than R8 (there are close to 40,000 rural homesteads in the country).

4. Demographic Situation

In 1974 the population of Swaziland was estimated (based on 1966 census data) to be 475,000. Of that total all but 3% were Africans. Of the African population 94% shared the common Swazi linguistic, historical and cultural tradition. Population density was 71 per square mile. The four districts of the country contain about equal numbers of people as follows:

Table 1

1.

POPULATION DISTRIBUTION BY DISTRICT: 1972

<u>District</u>	<u>Pop. (No.)</u>	<u>Pop. (%)</u>
Hhohho	115,000	25.6
Manzini	121,000	27.0
Shiselweni	115,000	25.6
Lubombo	98,000	21.8
	<u>449,000</u>	<u>100.0</u>

1. Based on projections of 1966 census data.

About 85% of the population live outside designated urban areas. The only significant urban/peri-urban concentration, of around 73,000 people, is made up of the two towns of Mbabane and Manzini, which are about 25 miles apart, and the 'corridor' which connects them. Mbabane, the capital city, has an estimated population of 26,000, as does Manzini (including Kwaluseni and Matsapa).

The age distribution of the African population, as shown by the 1966 census, was as follows:

Table 2

POPULATION, AGE DISTRIBUTION: 1966

<u>Age</u>	<u>Male (%)</u>	<u>Female (%)</u>
Under age 5	17.5	16.9
5-14	31.0	28.6
15-49	41.1	43.1
50-64	6.9	6.2
64 and over	3.5	5.2
	<u>100.0</u>	<u>100.0</u>

From Table 2 it can be seen that over one-sixth of the population is under the age of five and almost one-half under 15. There are now around 20,000 infants under the age of one. Females comprised 53% of the total 1966 population and males only 47%. This imbalance is primarily the result of the absence from the country of males employed in South African mines. In 1973 the female population was estimated to contain roughly 46,000 women aged 15 to 25, 32,000 aged 25 to 34 and 22,000 between 35 and 44.

The birth rate is of an order of 50 per 1000. In 1966 the death rate was estimated at 20¹-21 per 1000 and the expectation of life at birth only 44 years. One recent 'guesstimate' puts infant mortality at 125 per 1000 live births. Population is growing at around 3% per annum (in 1973 there were approximately 23,000 births and 9,000 deaths).

5. Disease Pattern

The pattern of disease in Swaziland is similar in nature to most other third world countries in that it is shaped primarily by low incomes, inadequate diets, very limited access to clean water and a generally low standard of hygiene for the mass of the population - and most particularly for those living in the rural areas.

In 1971 there were 137,000 'cases treated' at government and mission hospitals, as shown in Table 3. (the data have been grouped in most instances into simplified categories). It can be seen that the bulk of disease in Swaziland is readily preventable. Smallpox has been eliminated from the country, and cholera has not appeared in spite of its presence in neighboring Mozambique. Diphtheria and poliomyelitis are not common occurrences and leprosy does not pose an important problem.

Close to one-third of the population (140,000 people) live in endemic malaria areas. In 1971 testing of one-fourth of that population turned up 73 indigeneous cases of malaria, indicating a total of perhaps 300 cases in all. However, the Annual Medical and Sanitary Report for 1972 reports "an explosive outbreak of malaria of epidemic proportions", although no precise numbers are provided. Bilharzia is a major problem and its incidence is on the increase in keeping with the expansion of agricultural irrigation schemes. It is estimated that 100,000 of the total population live in bilharzia controlled areas, perhaps three-fourths of them within the Mbabane-Manzini corridor. Tuberculosis cases are on the increase but this may result primarily from increased awareness of its prevalence and better means of diagnosis and case finding. The incidence of venereal diseases is rising sharply. The most important diseases remain to be such largely preventable ones as gastro-enteritis and respiratory tract infections.

Table 3

CASES TREATED AT GOVERNMENT AND MISSION HOSPITALS: 1971

<u>Disease category</u>	<u>Cases</u>	<u>Deaths</u>
Medical examinations etc.	16,600	-
Dental caries	9,000	-
Normal deliveries	4,600	-
Accidents, poisoning and violence	10,200	73
Upper respiratory tract	14,100	49
Gastro-enteric	11,900	98
Obst. & Gynac.	5,200	21
Venereal	4,700	1
Eyes and E.N.T.	4,000	-
Parasitic & helminthic	3,300	11
Skin	3,000	-
Whooping cough, measles and mumps	2,900	7
Nutritional	2,600	84
Cardio-vascular	1,600	60
T.B.	1,100	109
Asthma	1,100	-
Rheumatism	1,000	-
Malignant neoplasms	300	23
Other diseases	39,300	341
	<u>136,500</u>	<u>877</u>

II. THE HEALTH SERVICES

This part of the report will examine the health services of Swaziland. However, for convenience of presentation more detailed data about the distribution, utilization and efficiency of hospital and clinic curative services will be presented in section III.

There were no modern health services in Swaziland until early in this century. A government hospital was built in Mbabane in 1909. Mission hospitals and clinics were established in the 1920s. A second government hospital was constructed in 1927, and the present clinic system introduced in 1934. By 1952 there were still only 200 hospital beds in the country.

1. Overview

The modern health care structure of Swaziland comprises services offered by government (primarily through the Ministry of Health), Christian medical missions, industrial organizations and private practitioners. Private practice embraces 11 full time medical practitioners, three dentists, five pharmacists and a few other health workers located almost entirely in the two main urban centers. There is also a private, bedded clinic in Mbabane. The occupational health sector comprises a 70 bed hospital, three bedded dispensaries and a half dozen other clinics, and employs a dozen doctors plus a number of other health workers. There are two mission hospitals of 322 and 100 beds respectively and close to 20 staffed clinics. The missions employ, in all, about 350 people of whom about 100 are health workers, including 10 medical doctors.

The government health sector is operated almost entirely by the Ministry of Health (other government activities include two Public Health Inspectors employed by town councils, some school health nursing, etc.). Government health services are administered almost entirely from the centre and do not include such commonly seen features as District Medical Officers. The Ministry is headed by a Minister, with the Permanent Secretary being the highest ranking civil servant. The Chief Medical Officer (C.M.O.) is the senior health professional in the Ministry and takes direct responsibility for the curative services.

There is a Senior Medical Officer of Health in charge of preventive services, under the C.M.O. The Principal is in charge of administrative matters (accounting, registry, salaries, etc.), including Central Medical Stores.

The seven government hospitals contain over 1000 beds, about 600 of them being in five general hospitals and 400 in mental and T.B. long-stay institutions. The hospitals offer only curative services, although they also supervise about 30 clinics which provide both preventive and curative activities. In addition there are four Public Health Centres, with another due for development, located at the sites of the five major government and mission general hospitals. These centres carry out only preventive health care activities, e.g. immunizations, ante-natal examinations. Other government units include the Public Health Inspectorate (environmental sanitation), the Malaria and Bilharzia Central Centre. The National Tuberculosis Control (and Smallpox Eradication) Centre, the Central Public Health Laboratory, Central Medical Stores, a blood transfusion service, and a mobile Eye Clinic. The Ministry employs close to 800 persons, divided approximately as follows: 20 doctors, 300 nurses, 100 other health workers and close to 400 ancillary personnel. The budget of the Ministry for Fiscal Year 1974/75 was almost Rand 2.3 million.

2. Hospitals

Table 4 lists all bedded institutions in Swaziland. The present volume of general hospital beds of 2.3 per 1000 of population is around two-thirds the figure commonly found in industrialised countries.

The number of hospitals in the country has risen from nine to eleven over the last ten years. Government general hospital beds increased between 1964 and 1973 by almost two-thirds (375 to 608) and mission beds by a quarter (342 to 422). All hospitals in the country showed an increase of around 25% in their bed numbers between 1964 and 1973 (50% in the case of Siteki) except for Mbabane which almost doubled in size.

Specialist hospital facilities comprise the mental and T.B. hospitals located on the site of an old barracks. These are primarily holding institutions rated at 200 beds each; although the T.B. beds are only one-quarter utilized the mental side is full. Specialist curative services include regular monthly visits by a team of specialists from South Africa.

Table 4

HOSPITALS AND OTHER BEDDED INSTITUTIONS: 1974

<u>Institution</u>	<u>Government</u>	<u>No. of beds</u>	<u>Mission</u>	<u>No. of beds</u>	<u>Other</u>	<u>No. of beds</u>
General Hospitals	Mbabane	322	Ralegh Fitkin, Manzini	322	Havelock Mine ³	70
	Hlatikulu	180	Good Shepherd, Siteki	100	Mbabane Clinic ⁴	23
	Pigg's Peak	50				
	Mankayane ¹	41				
	Nhlangano ²	15				
Sub-Total	1123	608		422		93
Long Stay Hospitals	Mental Hospital	200				
	T.B. Hospital	200				
	Leper Station	70				
Sub-Total	470	470				
Bedded Clinics	None	0	Fourteen	60	Three ³	60
Sub-Total	120					
Total	1713					

1. A doctor is not usually posted to this hospital.
2. No doctor; operates in conjunction with Hlatikulu Hospital.
3. Industrial.
4. Private.

3. Clinics

There are close to 60 (mostly) rural clinics in the country, about one for each 8,000 of population. Government runs 30, the missions 18 and the industrial sector most of the rest. The government clinics offer both curative and preventive services, although they are all non-bedded. They are in the charge of a staff nurse who lives at the clinic, and in some there is a second nurse or nurse aid. All the clinics have refrigerators and most have telephones. The clinics are supervised by medical staff from the hospitals, as well as Public Health Centre nurses, who should visit them regularly. The three government hospitals at Mbabane, Pigg's Peak and Mankayane have responsibility for three to six clinics each while Hlatikulu Hospital covers 17.

The major difference between the government and mission clinics is that the latter are usually bedded, i.e. the 14 Raleigh Fitzkin Memorial Hospital (RFM) clinics but not the four Good Shepherd ones, and so can perform deliveries. The 14 RFM clinics average over four beds each. It appears that the total number of clinics in the country has risen from about 40 to 60 over the last 10 years, with government clinics more than doubled from 14 clinics to 30.

4. Preventive Services

Preventive services are offered at the Public Health Centres, at the rural clinics, through special smallpox, T.B., Malaria and bilharzia programmes, and by Public Health Inspectors and health assistants.

There are Public Health Centres at the government and mission hospitals at Mbabane, Manzini, Hlatikulu and Siteki, another is due for development at Pigg's Peak Hospital, and public health nurses function at the two government (sub) hospitals at Mankayane and Nhlanguano. Thus all seven general hospitals in the country have public health services either within their compounds (in the case of government hospitals) or nearby (in the case of the two mission hospitals).

The Public Health Centres are operated by about 25 nurses, of whom around a half dozen have had special training in public health. About half the 25 nurses are posted to

the Mbabane centre from where the other centres are administered. Although the staff do some travelling they spend relatively little time outside their centres, e.g. the Manzini nurses spend only one day a month travelling, although they always meet with a very good response when they do go out and have had several requests from villages for regular visits. The major recipients of the services offered are undoubtedly the people of the towns in which the centres are located. The work of the centres is restricted almost entirely to immunising and vaccinating children, and ante-natal and other examinations. They are now also carrying out some family planning activities.

The work of the special control units is directed primarily against malaria, bilharzia and tuberculosis. Although malaria had been under reasonable control there was a major recent outbreak and the disease remains a serious threat. Bilharzia control is still in its experimental stages, except in the urban areas. T.B. follow-up studies show that of those under treatment during the two years 1968 to 1970 only 42% successfully completed; during the period 1969-71 the figure was 40%; and for 1970-72 more careful work showed that only 30% had completed treatment, 12% were still under care, 19% had died, 37% had 'defaulted' and 3% were unknown.

Environmental sanitation activities are the work of the country's half dozen Public Health Inspectors and 52 untrained health assistants. The work of the inspectors has in the past been concentrated largely in the towns. Although there have been many requests for projects in the rural areas, the lack of staff has made it difficult to respond positively. Of the health assistants 30 are employed in malaria work, 11 in T.B. control, and 11 others in town cleaning and protection of water supplies.

Very little in the way of health education or nutrition activity (other than the distribution of food) is being carried out in Swaziland. In fact, in general it can be said that the preventive services of the Ministry of Health offer very limited coverage to the population of the country. This fact can be best illustrated by looking at the work of the maternal and child health services.

5. Maternal and Child Health and Family Planning

In 1972 only about one-quarter of all births in Swaziland were institutionalized. (There were virtually no supervised domiciliary deliveries). Of these 6,000 deliveries one-half took place at five government hospitals, and the other half at two mission hospitals and their related clinics (20% at the clinics). Perhaps as many as 60% of all pregnant women were seen by a doctor or nurse before delivery. Over the six years since independence it appears that institutionalized deliveries have increased from around 4,000 to perhaps 6,500, and ante-natal first attendances from almost 7,000 to around 14,000.

It is not possible to determine the precise coverage of the child population by the health services, but the statistics of the Public Health Centres and government clinics indicate very limited coverage. In 1973 these institutions saw only 12,400 different children in the under-five age group, but each was seen an average of over 11 times. (Ante-natal coverage totalled 11,400 with the average number of visits being 3.4) Based upon these figures it can be estimated that the Public Health Centres and government rural clinics are reaching less than 15% of the under-five population. This percentage must be very significantly smaller in the rural areas. The two mission hospitals and 18 clinics would also, of course, be reaching some number of additional children.

One estimate has it that in 1973 there were 350 I.U.D. insertions and 2,300 women using oral contraceptives. The country has declared its support of the concept of family planning and efforts are being made to develop appropriate programmes. The major obstacle for the health ministry in this respect appears to be the relatively limited outreach of its services. At present family planning is offered primarily through the Public Health Centres, although some other agencies, such as the mission hospitals, also provide services.

6. Manpower

The health care industry in Swaziland is employing about 1,300 people, of whom about 700 are health workers. Government employs close to 800 persons, the missions around 400, and perhaps 100 others are employed elsewhere.

Another 100 or so students are in training within the country and 40 outside. Table 5 shows the position with regard to registered health workers and nurses.

There are about 125 expatriate health workers in the country. About 45 work for government, 35 for the missions and 45 in the industrial and private sectors. In the case of doctors and most paramedical specialties, expatriates represent the bulk of practitioners. Over 60% of the doctors and even more of the paramedicals are located in Mbabane and Manzini. Government employs only somewhat over one-third of the country's doctors but close to 60% of the paramedicals. The largest single group of health workers in the country are nurses. Of the over 400 in employment, government has 310, the missions 80 and an estimated couple of dozen are in the industrial and private sectors.

The Ministry of Health employment total of close to 800 people comprises approximately 20 doctors, 20 paramedicals and 70 paramedical auxiliaries, 310 nurses (including 18 auxiliaries and 12 expatriates) and 370 non-medical ancillary staff. Only four of the government doctors are citizens, and a dozen of the paramedicals. However, all the paramedical auxiliaries and all but a dozen of the nurses are local personnel as are all the non-medical staff. Between the years 1966 and 1973 Ministry of Health employment almost doubled, from 423 to close to 800. Nursing employment increased from 130 in 1966 to 310 in 1973. Of all Ministry salaries 5% went to doctors, 35% to nurses, 17% to other health workers and 43% to non-health staff.

Although there are a dozen different nursing groups in the country, based on various past combinations of education and training, they can be fitted into three basic categories; the registered, enrolled, and auxiliary nurse. At present there are perhaps 40 to 50 auxiliary nurses in the country and these mostly have less than 13 years of combined schooling and nurse training. There are about 140 to 150 enrolled nurses and they most have less than the 14 or more years of combined schooling and training expected of registered nurses. (Consideration is also given to a second qualification in midwifery.) Current nurse training comprises either three years of nursing and one year of midwifery after 12 years of schooling

Table 5

	<u>Total(Active)</u>	<u>MEDICAL AND NURSING REGISTER: MID-1974</u>						<u>Location</u>	
		<u>Citizens⁵</u>	<u>Non Cit.</u>	<u>Employer</u>			<u>Mbabane/Manzini</u>	<u>Other</u>	
				<u>Govt.</u>	<u>Mission</u>	<u>Ind.</u>	<u>Priv.</u>		
Doctors	53 ²	7	46	20	10	12	11	33	20
Dentists	5	1	4	1	0	0	4	5	0
Pharmacists	8 ³	1	8	2	0	1	5	6	2
Lab. Technicians	8	3	5	5	3	0	0	5	3
Radiographers	8	2	6	6	1	1	0	4	4
Physiotherapists	3 ³	1	3	2	0	0	1	3	0
Public Health Inspectors	6	4	2	6	0	0	0	4	2
Other paramedicals	7 ⁴	0	7	3	0	1	3	6	1
Nurses ¹	410	375	35	310	0	- 20	-	225	185

1. Includes all matrons, sisters and staff nurses, who may be either 'registered' or 'enrolled'; as well as 18 auxiliary nurses.
2. There are another 6 registered doctors who are inactive and 11 others who are not based in Swaziland.
3. Plus 1 other inactive practitioner.
4. 2 occupational therapists and 1 optometrist, sanitarian, chiropodist, toxicologist and dental mechanic.
5. Of the 19 citizen doctors and paramedicals 15 were employed by government, 2 doctors and 1 dentist were in private practice and 1 doctor was not active in medicine.

('O'Levels) or four years of nursing plus one year midwifery after 10 years of schooling (Junior Certificate). It is intended to phase out, over the next five years, the present group of enrolled nurses through upgrading courses. At present nurses are trained at the Ainsworth Dixon Training College attached to the Raleigh Fitkin Memorial Hospital operated by the Church of the Nazarene. About 15 nurses per year are now in the pipeline.

Additional training programmes include the recently started nine months to one year nurse aid course at the Roman Catholic Good Shepherd Hospital (six qualified in 1972). There are now 27 students in training, most drawn from Junior Certificate 'failures'. This programme was initially planned as a 22 months course with about half of it being in public health. Largely due to concern at the time over the place of a two year nurse within the existing government salary structure (and perhaps over 'standards' as well) the course was reduced in length and virtually all the public health aspects removed

Other in-country training includes a one year course for health assistants begun in 1974 with an intake of 21. It is intended to continue this training for a period of four years resulting in an output of around 80 trained health assistants (the Ministry now employes about 40 untrained health assistants). Recruitment is from Junior Certificate level, including a pass in maths and science. The students are living in tents at two very small town locations. On the job training is given to laboratory assistants, dispensers and microscopists (the Ministry now employes about 30 of these auxiliaries).

Overseas training is being taken by about 40 Swazis, as follows: Medicine 29; health inspector, technician and physiotherapy three each; and pharmacy and sanitary engineer one each. Of the medical students, four are still doing pre-medical studies at the University of Botswana, Lesotho and Swaziland, and eight are in a rather doubtful programme in Mozambique. Five of the 17 other students are in the U.S.A. (3), U.K. (1) and South Africa (1), and the other 12 are in African countries (Zambia 6, Tanzania 2, Ghana 2, Nigeria 1, Kenya 1). The expected dates for the completion of studies of these 17 students are: 1972(1), 1974(1), 1975(6), 1976(6), 1979(3). (One of the students due to return in 1972, from the U.S., seems to have gotten 'lost').

7. Finance

During FY 1973/74 the Ministry of Health was scheduled to absorb 8.6% of the total government recurrent budget. The planned recurrent expenditure of the health ministry for FY 1974/75 was R2,275,000 (the actual figure will almost certainly be higher) or almost R5 per capita (which may be the highest figure of any African country). Over the six years since independence the recurrent budget rose in money terms by 137%, or 23% per annum on average. However, almost half of that rise can be credited to inflation. Nevertheless, an average rise in real terms of around 12% per year is twice the figure projected for the current plan period, as well as that which is expected to be sanctioned for the next plan period (up to 1982). At 6% per annum Ministry of Health spending would retain about the same share of total government expenditures as at present.

In addition to the 1974/75 ministry of Health recurrent budget of R2, 275,000 another R300,000 has been allocated to the capital budget. The missions are spending from fees and donations close to another R300,000 and other expenditures are being made by the industrial and private health sectors. Total expenditures on modern health care in Swaziland therefore comes to between R7 and R8 per capita.

The recurrent budget of the Ministry of Health has been divided more or less steadily since independence as follows: salaries 55%, drugs 15%, grants to missions 8%, food for patients 5%, headquarters administration 5%, and 'other' (transport, utilities, equipment maintenance etc.) 12%. Of the salaries item 5% goes to doctors, 35% to nurses, 17% to other health workers and 43% to non-health staff. Thus nurses take 61% of the wages paid to all health workers.

For the first time the 1974/75 budget shows expenditures by institution, except for Central Medical Stores purchases, as shown in Table 6.

Table 6

Ministry of Health Budget: FY 1974/75 (in R.000's

<u>Institution</u>	<u>Amount</u>
	1.
Headquarters	369
Central Medical Stores	441 ^{2.}
Laboratory Services	47
Malaria and Bilharzia Centre	99
Public Health Centres	60
T. B. Centre	49
Public Health Inspectorate	44
Mbabane Hospital	509 ^{3.}
Hlatijulu Hospital	335 ^{4.}
Pigg's Peak Hospital	89 ^{5.}
Mental Hospital	87
Mankayane Hospital	67 ^{6.}
T. B. Hospital	50
Nhlangano Hospital	32
	<u>2,278</u>

1. Includes 249,000 in grants, primarily to missions hospitals.
2. Of which drug purchases 325,000, other purchases 71,000, and operating costs 45,000.
3. Includes the running costs of 4 clinics.
4. Includes the running costs of 17 clinics.
5. Includes the running costs of 6 clinics.
6. Includes the running costs of 3 clinics.

It can be estimated that hospital services (government and support to missions) is taking around 70% of all Ministry expenditure, preventive services 20%, and clinics and headquarters administrative costs most of the balance of 10%. Mbabane Hospital is absorbing close to one-third of the Ministry's total recurrent budget (around R700,000 including the hospitals estimated share of Central Medical Stores issues).

Since independence (1968/69-1973/74) the development budge of the Ministry has averaged R156,000 per annum (less than 3% of the total capital budget). Of these expenditures 62% went into the hospitals, 11% to clinics, 8% to Public Health Centres and 19% for 'other' (vehicles, central medical stores, etc.).

The two mission hospitals receive about one-third of their operating costs in the form of Ministry grants, another third from patient fees and the final third

from donations (mostly the labour contribution of the missionary health workers). In 1973 the budget of Raleigh Fitkin Memorial Hospital was almost R350,000 and Good Shepherd around R90,000.

Fees for medical services provide government with less than 5% of running costs. Government intends to keep charges for the bulk of the population more or less at their present level, however for wealthier sections of the population privately financed medical services will be encouraged where possible.

General and 'first class' health services (so-called 'full paying') are available at government and mission hospitals. For general outpatients government charges a 20 cent fee at clinics and 30 cents at hospitals which includes drugs, and for general inpatients 25 cents per day to a maximum of five days (R1.25) which covers all costs. Government employees enjoy free outpatient care on a first-class basis but must pay R2 per day if they wish to avail themselves of first-class inpatient services. Private persons utilizing first-class outpatient services pay R2 plus the costs of investigations and drugs. As inpatients they pay R4 per day plus the costs of investigations and theatre fees. The missions charge one to two rands per curative outpatient visit, but a smaller fee for an immunization. Inpatient charges are R2 per day at Good Shepherd and 50 cents plus extras at RFM.

8. Some Observations

In the absence of extensive preventive and promotive health care activities it is inevitable for there to be a continuing heavy load of illness in the community. Therefore curative services will always be utilized to the degree they are made available, at least in the absence of a financial barrier. However, curative services alone can never seriously decrease the incidence of the sorts of illness that are prevalent in Swaziland; they can only alleviate the suffering of a portion of the ill until they become ill again. The relatively highly developed hospital services have shown little ability to alter the incidence of the major diseases of the country, e.g. gastro-enteritis, respiratory infections, worm infestations, venereal disease, tuberculosis, eye infections, malnutrition,

measles and whooping cough. Those diseases which have shown a marked decline in recent years (e.g. malaria, smallpox) have been controlled through mass preventive campaigns and not through the work of the hospital services.

The past development of health services in Swaziland has been largely concentrated at the hospitals. The proportion of health resources being expended outside the hospital environment comprises only a relatively small part of the whole. In the future, if any significant change is to be made in the very large volume of morbidity and mortality in Swaziland, it will be necessary to give virtually absolute priority to the development of a rural infrastructure capable of supporting the preventive work that is the basis of all health promoting activities within the organized health sector. The problem becomes one of bringing health care to the people rather than waiting for the sick to come to the hospital or clinic. At present very little mobile work is being carried out and such critical activities as health and nutrition education barely exist. If the rural infrastructure is to be truly extensive - given the financial constraint of the size of the recurrent budget - it will be necessary to incorporate the use of auxiliary personnel into its development.

Because of the demographic structure of the country no substantial change in the present pattern of morbidity and mortality can be expected in the absence of greatly improved coverage by the MCH services. A major decrease of infant mortality, now estimated at around 125 per thousand, is a necessary accompaniment to the widespread acceptance of the child spacing and family health programmes now being stimulated by government. The proposals that will follow are calculated to maximise the potential spread and effect of MCH and associated family planning activities.

One important aspect of the health care system is its relatively rigid separation into curative and preventive parts. This separation is epitomised by the offering of ante-natal care at government clinics but not delivery services. Public Health Centres are at present reaching relatively few people and then virtually only in the towns. They are in effect urban public health centres and function basically as extensions of hospital outpatient departments. The number of people being reached by the Public Health Centres actually declined

between 1971 and 1973, as did total attendances. The Public Health Centres and 30 government rural clinics are reaching not more than 15% of the country's under-five population with preventive health care services. There is much too high a concentration of high-level nursing staff at these centres in relation to the work being done. Each centre needs not more than perhaps 2 or 3 public health nurses who can organize the work of a greater number of auxiliary personnel. These centres could also be doing some minor curative work, which would save a great deal of valuable time at the hospitals as well as making things easier for patients.

Detailed proposals for manpower training in a number of areas will be offered in a later section. However it is apparent that no significant expansion and change in the present limited health care system can be accomplished without the creation of a proper cadre of auxiliary nurses. The output to be aimed for over the next decade of these two year auxiliary nurses would have to be significantly greater than that of registered nurses. There is also need for a group of village health workers who will remain part of their own communities and not become Ministry of Health employees. Details of this particular scheme will have to be worked out, e.g. numbers to be trained, venue of training, etc.

III. THE CURATIVE SERVICES

1. Volume: Outpatients and Inpatients

In 1972 there were in Swaziland a total around 800,000 outpatient visits, as shown in Table 7.

Table 7

OUTPATIENT VISITS: 1972 (in 000's) ^{1.}

<u>Institution</u>	<u>New</u>	<u>Total</u>	<u>1968</u>
Hospitals; Government	90 ^{2.}	144 ^{2.}	98
Mission	20	52	47
Public Health Centres	9	67	29 ^{3.}
Rural Clinics, Government	N.A.	339	137
Mission Clinics ^{4.}	N.A.	160	75
		<u>762</u>	<u>386</u>

1. Does not include most of the industrial sector and private practice.
2. 1971.
3. 1969.
4. Plus Sidvokodvo Railway Clinic.

In 1968, at the time of independence, the total number of outpatient visits came to just over half the 1972 total. Thus total outpatient attendances grew at an average of 25% per annum between 1968 and 1972, and now average not much less than two per person. By international standards this is not a particularly high figure.

In 1972 there were in Swaziland a total of 29.2 thousand hospital admissions; almost 20,000 in government hospitals and 10,000 in the two mission hospitals. The resulting rate of hospitalization was 65 per 1000. In 1968 there were 25.7 thousand admissions. Thus hospital admissions have been growing since independence at an average rate of 14% per year.

2. Distribution

A survey was undertaken to determine the effective catchment areas of the country's hospitals. The results are shown in Table 8.

The two hospitals in the country with over 300 beds each, both located within the corridor - a distance of 26 miles apart, drew three-quarters of their

Table 8

GEOGRAPHIC SOURCE OF HOSPITAL ADMISSIONS: JANUARY 1974

<u>Hospital</u>	<u>Corridor (%)</u>		<u>Other (%)</u>	<u>Total</u>
	<u>Local</u>	<u>Other</u>		
Mbabane	185	200 (68)	79 (32)	630 ¹
RFM(Manzini)	365	180 (80)	36 (20)	681

<u>Hospital</u>	<u>Local (%)</u>	<u>Other (miles) (%)</u>	<u>Total</u>
		5-9 20-44/74 ³ :	
Hlatikulu	401 ² (59)	4 240 (41)	685
Good Shepherd (Siteki)	41 (21)	6 91 (79)	200
Pigg's Peak ⁴			

1. Includes 66 admissions from unknown locations.
2. Includes 130 admissions recorded as being from Nhlanganano, plus some unknown number of others living in the proximity of Hlatikulu who gave it as their address.
3. Maximum mileage was 44 in the case of Good Shepherd and 70 for Hlatikulu.
4. Pigg's Peak Hospital reported 102 admissions from 'Pigg's Peak area' and 2 from 'Tshaneni area'.

admissions from within the corridor. Although the survey data are not perfect, they clearly establish the fact of the limited catchment areas of the country's major institutions, although it appears that the government hospital at Mbabane does draw a somewhat greater number of its inpatients from further afield than does the mission hospital at Manzini (as the detailed data corroborate). However, it is still the case that only 3% of Mbabane's inpatients are drawn from Lubombo District and 5% from Shiselweni (30% of from Manzini and 61% from Hhohho), although between them these two Districts contain just under half the country's population.

The population of the corridor is producing more than one-third of Swaziland's inpatients - over 11,000 in 1973 - but contains only one-sixth of the population. On average, over one in seven of the corridor population is hospitalized each year (a rate of 150 per 1000) but for the rest of the country the comparable figure is only about one in 20 (50 per 1000). The hospitalization rates correspond to bed distribution. Almost 60% of the country's general hospital beds are located in the corridor, but only about a sixth of the population.

3. Efficiency

One important measure of a hospital's efficiency is its bed occupancy rate and length of inpatient stays. Of course, there is a limit to just how quickly patients can or should be put 'through' a hospital stay, but under conditions of bed shortages a more rapid turnover is almost certainly to be preferred to a slower one. In cases where patients are paying fairly significant fees, as at mission hospitals, it becomes more difficult to apply this type of criterion for purposes of analysis. The data provided in Table 9 are fairly rough and should not be read in an overly precise way, although their order of magnitude are certainly significant.

Mbabane and RFM, the two corridor hospitals, had unusually long average length of inpatient stays (12 days). This reflects the low level of pressure which exists to clear beds in the relatively overbedded corridor area whose population is already being hospitalized at the rate of 150 per 1000. The very high average bed stay (156%) at Hlatijulu produces a rapid turnover of patients, half the average length

Table 9

<u>Hospital</u>	<u>Beds^{1.}</u>	<u>Admissions^{1.}</u>	<u>HOSPITAL EFFICIENCY</u>				
			<u>Annual Admissions per Bed (No.)</u>	<u>Average Bed Rate(%)</u>	<u>Average Length of Stay (days)</u>	<u>Estimated Cost per Inpat. Day⁵</u>	<u>Cost per Inpat. Stay</u>
<u>Government</u>							
Mbabane	341	8663	28	83 ^{2.}	11.6	R.6	R.70
Hlatikulu	180	7217	40	153 ^{3.}	5.6	R.4	R.72
Pigg's Peak	50	1339	27	n. i.	n. a.	n. a.	
Mankayane	41	2138	52	n. i.	n. a.	n. a.	
Nhlangano	15	1076	72	n. i.	n. a.	n. a.	
<u>Mission</u>							
RFM	322	5496	17	60 ^{4.}	12.0	R.5.30	R.64
Good Shepherd	100	2960	13	63 ^{3.}	9.1	R.2	R.18

1. 1971.

2. April 1973.

3. January 1974

4. 1972

5. These are estimates only, except in the case of RFM.

of stay of the two corridor hospitals. However, there also may be a management (or statistical) problem at Hlatijulu in that admissions are shown to have increased by two-thirds in the one year 1970 to 1971. As must be expected because of fee differentials, the average bed stay was much lower at mission than government hospitals.

Because data on the allocation of drugs to hospitals were not available (as well as for outpatients expenditures) it was not possible to calculate the precise costs of inpatient days at different government institutions. However, the estimates given are not likely to be very far from the actual figures. The average cost of an admission to Mbabane hospital, at R.6 per day, is 70 Rand. For Hlatikulu the comparable figure is less than one-third. There is a similar difference between the two mission hospitals, RFM and Good Shepherd. However, in the case of both government and mission hospitals the figures may be somewhat influenced by different case loads, e.g. almost one-fifth of all admissions are for maternity, but only one-eighth of inpatient days.

Relatively little information is available about clinic operating costs. The average running costs of the 14 RFM clinics is R.1552 per year, with an average profit of R.471 each. Drugs and wages take 95% of the costs, in about equal parts. Government clinics may be operating at about twice the cost level of the mission clinics; one reason being that government salaries are higher.

4. Some Observations

The relatively high rates of hospitalization in Swaziland hide a gross disparity in utilization between those living in Mbabane-Manzini corridor and the rest of the population. It must be stressed that these different utilization rates result almost entirely from differing possibilities of access to health service facilities. It is clear that the hospital system is reaching only a distinct minority of the country's population. For example, less than 10% of all deaths occur in hospital, and this total has remained static between 1969 and 1972.

It has been argued that because the country is small and possesses a relatively good physical infrastructure that an ever larger centralized hospital should be developed that could offer its specialized services to the whole of the country. The data presented here

indicate very clearly that the existing hospitals and health services are already being disproportionately utilized by the small urban population. It is quite clear that little if anything, in terms of the country's health indices, could be gained from the further development at this time of the central hospital in Mbabane or most of the other services being offered within the Mbabane-Manzini corridor. In practice, the hospitals and other health institutions not only have restricted catchment areas but their staff have very limited mobility and therefore offer relatively little support to the work of outlying facilities. This is so despite the small size of the country, relatively good physical infrastructure, and probably the highest per capita government and total expenditure for health care in Black Africa.

The hospitals must serve the surrounding population. That this is not best done by significantly increasing the number of hospital beds is overwhelmingly evident. It must be achieved by a policy of taking primary health care, in all its aspects, to the rural population. A programme aimed at improving the work of the hospitals, as opposed to expansion, should be undertaken, particularly in terms of hospital and health service management and administration.

The present clinic system needs to be reoriented and expanded. The work of individual clinics must be broadened to include more outreach work (including a regular mobile schedule for staff) and the addition of a small number of maternity beds and perhaps one or two holding/observation beds. The present basic staff of the clinics - one registered nurse and one health assistant - should be expanded to include at least two auxiliary nurses, and one health assistant. In keeping with their changed functions, the clinics should have their title changed, perhaps to rural health sub-centre. It would also be appropriate to develop several rural health centres at strategic points around the country. Such centres would function in conjunction with some number of surrounding clinics/rural health sub-centres and be able to provide a wide range of preventive activities, outpatient care and MCH/FP services. They would also include a limited number of curative beds. These centres would be supplied with their own transport.

IV. PLANNING RECOMMENDATIONS

A. Health Planning in Swaziland

1. First National Development Plan

The post independence development plan stated the principal objectives of the plan to be the improvement of the well-being of the mass of the Swazi Nation and that, "consequently, the Government attaches great importance to improving the health services which affect the every day life of most of the people". It was stated, as a matter of policy, that whatever services government could afford would be provided at a fraction of the cost to the beneficiary. It was further said that, "The wealthier section of the community would, as a rule, prefer medical services which are privately financed. There is no intention of replacing these services by publicly financed services. On the contrary, the private services will be encouraged and can be expected to grow".

In the further expansion of the services priority was to be given to preventive activities, as this was the area "where the greatest benefits to the people could be obtained from any given expenditure". And yet, for "reasons of operational efficiency and financial practicability" it would be "necessary to expand the existing hospitals moderately, as and when finance (becomes) available". Table 10 shows planned and actual expenditures by the Ministry of Health over the period of the first development plan.

Table 10

DEVELOPMENT EXPENDITURES: FIRST PLAN PERIOD (In Rand)

	<u>Plan (%)</u>	<u>Actual (%)</u>
Hospital Development	290,000 (55)	530,000 (75)
Rural Clinics	100,000 (19)	21,000 (3)
Urban Health Centers	75,000 (14)	33,000 (3)
Other ¹ .	65,000 (12)	123,000 (17)
Total	<u>530,000 (100)</u>	<u>707,000 (100)</u>

1. Central Medical Stores, public health office and labs, vehicles, etc.

Over the four years 1969/70 - 1972/73 the Ministry exceeded its planned expenditure by one-third, and spent as much for hospital development (R530,000) as was originally intended for all health sector expenditure. A full 75% of the development budget went into the hospitals, and much of the rest of the expenditure was hospital related as well. Rural clinics took only 3% of expenditure. Actual health sector expenditures during the first plan period appear to have been at considerable variance with the priority which was to have been given to preventive activities and improvement of those "services which affect the every day life of most of the people".

2. Second National Development Plan

The second national development plan states the "greatest needs for health services (to be) those of the young and the inhabitants of the rural areas" ... and that, "there is now an urgent need to reorientate priorities for development in the health field away from conventional institutional facilities centered on urban areas and toward different kinds of programmes which are cheaper and more closely geared to the preventive aspects of health so that a wider impact may be achieved on the health problems of the rural population at large." The plan goes on to discuss the implications of such policies in terms of improved standards of public health, maintenance of present levels of curative services while improving their standards and distribution, and creating "a situation within which a substantial moderation in the rate of population growth can be achieved within a reasonable period". Four priority areas for development were singled out:

- a) expansion of preventive services in the rural areas;
- b) improvements in the quality and distribution of basic institutional facilities;
- c) development of health education; and,
- d) expansion of training programmes.

Once again, in discussing curative services, the plan document states "the belief of Government that over the next Plan period large-scale hospital developments cannot take priority over essential improvements in the preventive services (because) in a mainly rural economy the benefits from hospital developments tend to be quite narrowly concentrated among the urban population. This is probably also true in Swaziland despite its small size".

It is quite categorically stated to be government's "intention, therefore, over the next five years, to give priority to the development of preventive services whose benefits will be much more widely spread among the rural population as a whole." The plan also takes note of the unresolved policy issue concerning "the need for a central referral hospital in Swaziland within which all specialist services would be concentrated. The development of such a hospital, towards the end of this decade, will be the next major phased health service development in Swaziland". The plan does not explain the ways in which in only one plan period the health situation in Swaziland will have improved so markedly as to justify the sharp reversal of health development priorities that is implied in the above.

The plan contains relatively few proposals for health manpower training. In so far as doctors are concerned it is stated that almost as many medical students are already studying abroad as the country will be able to absorb by 1980. The major new direction for training appears to be the possibility of "setting up a small training centre to provide pre- and in-service courses for public health inspectors, health assistants and public health nurses." Table 11 shows planned expenditures by the Ministry of Health over the first three years of the plan (1973/74-1975/76 and an initial estimate for the fourth year (1976/77).

Table 11

PROJECTED DEVELOPMENT EXPENDITURES: SECOND PLAN PERIOD (In Rand)

	<u>1973/74-1975/76 (%)</u>	<u>1976/77 (%)</u>
Hospital Development ¹ .	665,000 (55)	360,000 (77)
Rural Clinics	184,000 (15)	160,000 (23)
Public (Urban) Health Centers	73,000 (6)	
Other ² .	279,000 (23)	
	<u>1,201,000 (99)³.</u>	<u>466,000 (100)</u>

1. R750,000 for Mbabane Hospital, or 73% of the total.
2. Housing R120,000, rural sanitation R99,000, public health training centre R50,000 and Central Medical Stores R.10,000.
3. Does not add due to rounding.

As with the first plan, the second allocates 55% of total health sector expenditure to hospital development (in the end the first plan actually spent 75% on the hospitals).

If 1976/77 is included in the calculation the percentage rises to 62%, of which three-quarters was spent at Mbabane Hospital. Still greater expenditures for this hospital are being projected; in all a sum of R1 million. The second plan document notes that in spite of changed health development priorities "the much greater capital intensity of the curative service means that some two-thirds of the investment programme over 1973/76 will be devoted to hospital developments". There would appear to be a confusion here between hospital services and curative services, i.e. it is quite possible to offer most curative services in a labour intensive rather than a capital intensive fashion.

In summary, the second plan does not appear to be much more consistent in matching its health expenditures to its stated priorities than was the first.

3. External Assistance

It is expected that three quarters of the whole of the second national development plan will be financed by external donors. (In the case of health sector expenditure the comparable figure may be even higher.) The largest of Swaziland's aid donors is the United Kingdom, which has agreed to make 6.8 million pounds during the years 1973/74-1975/76. Other important bilateral donors have been Denmark, Sweden and the United States, and it is hoped that still other bilateral donors will become involved. Multilateral assistance has been forthcoming from various U.N. agencies and the African Development Bank, and some projects have been put to the World Bank.

A 1969 review of external assistance to the health sector showed a series of small projects, the largest of which was R30,000 for a mobile eye clinic from the Royal Commonwealth Society for the Blind. In succeeding years discussions about aid for health projects were held with the U.K., Sweden, Denmark, the Netherlands, the Federal Republic of West Germany, the United States, and various multilateral donors. Support has materialized from British loan funds, primarily for hospital development and also for the construction of five rural clinics, from Danish export credits for the purchases of equipment, from the U.S. for clinic renovations and a Public Health Centre, and from the UNFPA for a clinic and Public Health Centre. There is an environmental health project supported by WHO and UNICEF, and the UNFPA is providing support for an MCH programme. Voluntary bodies continue to support various types of activities.

B. Recommendations

Projections for the decade 1972-1982 indicate that at its end Swaziland's population will still be overwhelmingly rural and dependent upon subsistence agriculture for its existence. Although the total population will have grown by almost half and Mbabane doubled in size the Mbabane-Manzini corridor will still contain only a fifth of the population of the country. It is also important to note that the percentage of the labour force in wage employment will remain virtually unchanged. This is not to imply that Swaziland will not experience many changes over the next decade, but to emphasize the need to plan health services in ways that accord with reality.

The recommendations that follow imply a departure from previous policies directed toward the expansion of the hospitals. Such a shift will be necessary if the rural health service infrastructure is to be sufficiently strengthened so as to be able to support the promotive and preventive activities especially in the area of maternal and child health and family planning - that are the only possible bases of improved health care in Swaziland. It is intended that the proposals should not exceed the 6% per annum growth ceiling that has been imposed upon Ministry of Health expenditures, although more detailed work on some of the cost implications still needs to be done. Although the recommendations will be set out in four separate sections (manpower, the rural infrastructure, hospitals, organization and administration) they are intended to complement each other so as to make a coherent whole.

The recommendations are of the sort that are likely to be of interest to both bilateral and multilateral donors. Although certain projects are more likely to appeal to one donor than to another it might be advantageous to attempt to interest one or two donors in the entire programme, perhaps with one taking on the construction portion and another providing any needed technical assistance personnel.

1. Manpower

Swaziland's major manpower requirement is for sufficient nurses so as to be able to increase the number assigned to an expanding network of rural institutions while still maintaining adequate hospital cover. At present the country enjoys a relatively large number of professional

level nurses, although considerably less than a quarter are working outside the hospital environment. The absence of Medical Assistants makes it all the more imperative that enough of the right type of nurse become available to staff the rural services.

Over the next decade Swaziland should aim at having three nurses at each of about 40 government clinics, plus perhaps two each at 30 mission and other clinics. In addition, the number of nurses now engaged in direct public health and related work should about double. If a number of Rural Health Centres were to be established these would also require additional nursing staff. Expansion of hospital beds so as to keep up with population growth would require an increase of one-third in the number of hospital nurses. Table 12 shows the proposed pattern of nursing expansion over the next decade.

Table 12

PROPOSED INCREASE IN NURSING STAFF

	<u>1974</u>	<u>1985</u>
Hospitals		
Government	250	330 ^{1.}
Mission	60	80 ^{1.}
Clinics		
Government	30	120 ^{2.}
Other	30	60 ^{3.}
Public Health	30	60
Rural Health Centres	-	25 ^{4.}
Total	<u>400</u>	<u>675</u>

1. To cover a one-third increase in bed numbers.
2. To cover a rise in clinic numbers from 30 to 40 and an increase of nursing staff to 3 per clinic.
3. To cover an increase of nursing staff 1 to 2 per clinic.
4. Perhaps four to six centres.

Government would be expected to absorb over 200 of the proposed increase of 275 nurses. This figure represents about two-thirds of the present nursing cadre. Such a level of increase would make difficult any other manpower increases. It is therefore proposed that a level of nurse be trained that could be employed for roughly half the cost of the present registered nurse.

The current entry point to government employment for registered nurses is R1452 per year (although an upward revision is currently under discussion). A two year trained auxiliary nurse should have an entry point to employment of around R684 or perhaps R732 per year. Thus it would be possible to employ about two auxiliary nurses for each registered nurse. Such a wage differential should be sufficient to keep the two cadres clearly distinguishable and yet not be overly discriminatory toward the auxiliary.

Too much attention cannot be paid to setting right the career and salary structures of auxiliary cadres. Many otherwise admirable schemes have failed on these scores. If at a later time it is considered appropriate to permit movement from one cadre to another through upgrading it should be allowed only on the basis of very strict control. Unrestricted movement could only succeed in destroying the entire concept of an auxiliary nursing cadre. In fact the present group of Swaziland registered nurses is actually made up of both 'registered' and 'enrolled' nurses (somewhat more are registered than enrolled) and the enrolled group is being phased out over the next five years through an upgrading programme. This has happened partly because the training gap between the two groups is relatively too small to justify a professional and auxiliary type differential. In any event, the present group of enrolled nurses were mostly trained under colonial circumstances and, therefore, should not be 'penalized' for having been born too soon to have trained as fully professionalized nurses.

It is proposed that government take responsibility for the training of registered nurses at a new school to be constructed either in Mbabane or Hlatikuly (there are good arguments for both locations). Auxiliary nurse training would probably most easily be accomplished at R.F.M. Hospital where plans (and funding) already exist for the expansion of nurse training facilities. Output of the nurse auxiliary school should be about 35 each year, requiring an intake of approximately 40 to 45 per annum. If the programme could be gotten underway by 1976 (the major bottleneck would be the development of the nursing school in Mbabane to which the present RFM students would transfer) there could be an output of 270 auxiliary nurses by 1985.

Intake into the two year auxiliary nurse training programme should be from Junior Certificate level. The overall output from such education is sufficient to provide an adequate number of candidates for the available training places. Curriculum design should concentrate upon public health, but would include simple diagnostic and therapeutic work. (The original two year curriculum at Good Shepherd might be re-examined.) At some later point consideration should be given to creating a one year midwifery course which could be taken by the better auxiliary nurses.

The training of registered nurses should be transferred to a new government school. However, the output of such nurses over the next decade at least must be no greater than that required to replace those leaving the service. Voluntary retirement for nurses is possible at the age of 45 and compulsory retirement is at 55. About 60 nurses working in Swaziland are now 44 or over, and so will have reached compulsory retirement age by 1985. Another 150 are 34 or over and these will have reached voluntary retirement age by 1985. In recent years about a half dozen nurses per year have been leaving government service for other employment (although most have remained in nursing and some were South Africans returning to their own country). In any event, an output of 12 to 14 registered nurses a year should be more than adequate to cover compulsory retirement, some (probably minor) element of voluntary retirement and any additional incidental wastage from the nursing service between now and the year 1985.

A significant part of Swaziland's nurses will have to take charge of rural units, and the nursing curriculum should be revised accordingly. It must include a much more substantial element of public health work, as well as being designed so as to prepare these nurses to function for much of the time in a more independent fashion than is their custom in hospital practice. If such a curriculum could be brought into effect within the next couple of years there would be sufficient output of the new type of nurse so as to assure at least one for each rural facility by 1985. This nurse should be able to give direction to the auxiliary nurses who will work under her supervision. (By 1985 almost half the 270 auxiliary nurses should be employed in rural institutions, and the rest in hospitals.) Consideration should be given to the training of a certain number of males for these rural nursing posts.

The establishment of a government nursing school would have the added advantage of creating a centre at which other types of training for health workers could be conducted. For example, small numbers of laboratory, dental, anaesthetic and pharmaceutical/dispensing assistants might be trained at the new school in partial conjunction with the nurses (a common core curriculum) followed by specialization during the later years of the trained period. It is certainly the case that the new school should be used for the training of public health inspectors (there is an estimate that 22 should be trained in the next number of years). The training of 20 health assistants per year has already begun and is successfully being undertaken away from the country's major population centres. It is likely that this practice should be allowed to continue. (In time one health assistant will be posted to each rural clinic.) Post-basic training in public health nursing could also usefully be undertaken at the school. Although the Loken Report proposed that public health nurse training be undertaken in Botswana for Lesotho, Swaziland and Botswana this particular suggestion appears unlikely to be accepted. The Loken Report also proposed that the three countries train their public health inspectors in Swaziland, and it would be right that Swaziland keep open the possibility of students from Botswana and Lesotho joining this or any one of a number of the other programmes that might be started at the new school. The health training centre should also offer seminars and refresher courses to health workers and other people involved in health related activities. In all, the centre might require around 120 places, as follows: nurses 75 (13 per year plus an extra 10 in the initial year to allow for wastage); paramedical and paramedical auxiliaries 10-15 (allowing a few places for Botswana and Lesotho); public health nursing 10 (a few places for Botswana and Lesotho); seminar places 20. (The present annual cost of nurse training at RFM is R470 for each of 76 students.)

Two years ago Good Shepherd hospital began the training of a one year nurse aid. Their salary structure appears not yet to have been determined, in that it was thought they would enter service at R588 per annum, but are currently getting only R360. If they are to receive a salary that is not much greater - although it must be somewhat higher - than that of a female hospital orderly (entry point of R360) there should be no

objection to continuing with their training in keeping with requirements and budgetary constraints. It would also be feasible to train some of the proposed two year auxiliary nurses at Good Shepherd - say, a dozen of the 40 or 45 projected for annual intake - instead of these nurse aids.

All previous manpower studies have agreed that the number of such health workers as doctors, dentists, pharmacists, optometrists, physiotherapists and radiographers required by Swaziland is too small to justify local training. Enough Swazis are already in overseas medical training so as to satisfy demand over the next decade or so, although some few additional places might be required in the event of wastage from training. Some very few other places might be needed in dentistry, pharmacy and perhaps one or two other areas. (Training of health service administrators will be discussed later.)

It is also strongly recommended that short training courses for up to 10 weeks duration be organized for 'village health workers' (in Botswana they are called family welfare educators). These people should be given the rudiments of personal and public health care techniques, including nutrition and health education, and child care and family planning. They should also be taught to recognize and treat a few simple diseases, how to identify and cope with malnutrition in children, and how to follow-up tuberculosis patients and their contacts. Such a group of health workers would provide a point of contact for the health services at family level. It is absolutely essential that they be supported by frequent visits from more highly trained health workers and with additional in-service training. Although they should not be salaried as such, some form of monetary incentive could be made available, e.g. R10 per month. The initial training courses for these village health workers should be undertaken as close to their homes as possible, for example at the nearest hospital. To begin with these people might be drawn from the planned Rural Development Areas, although they certainly should not be limited to them.

2. The Rural Infrastructure, and Public Health Centres.

A greater number of staff would make it possible for the health services to extend their functions more fully into the countryside. The present clinic network is already sufficiently extensive so that almost 60% of the population as it was distributed in 1966 lived within 5 miles of a health facility. Given increased nucleation of population over recent years would mean that around two-thirds of today's population are so resident, and probably 85%

to 90% of population live within seven or eight miles of a health facility. Although some units could usefully be added to the existing rural infrastructure the major problems facing these institutions have more to do with their staffing and efficient operation rather than their quantity. If a greater number of staff are to be located in the countryside it will require that additional housing be provided.

Six government clinics are planned for development over the next several years and have their funding assured. (RFM mission hospital may also be developing a number of new clinics over the next few years.) The location of the government clinics will be Siphofaneni, Mahamba, Ntonjeni, Mhlangatane, Grand Valley and one that has yet to be determined. From examination of census data it appears that other suitable locations for clinic development might be (assuming they do not overlap with any of the planned new clinics), Ngazini with a 1966 population of 4,600 living within five miles, Mthombe (on D 70, near Nhlangano) with 4,200 people within five miles, Mphini with 4,000 people. Kadake/Motshane and Mphose with 3,500 each, Commissie Nek 3,000, and Ncnabs 2,600. If 10 to 12 more government clinics were to be developed over the next decade there would then be in the country around 40 government and 30 "other" clinics, resulting in a 1985 ratio of one clinic to around 6,000 people. Probably 80% to 90% of the population would then live within five miles of a clinic and most of the rest within seven or eight miles. The new clinic design, which has been utilized at a number of sites over recent years, is estimated to cost R. 23,000 to construct at today's prices. (It is a rather elaborate design for its present limited staffing pattern, but will be suitable for an expanded number of staff, i.e. three nurses and one health assistant.)

At present the clinics are not able to provide a maternity service, although they do ante-natal work. Each rural clinic should have a delivery unit attached containing two to six maternity beds, depending upon the specific size of the surrounding population. (A count of the 1966 population living within five miles of each clinic was done by Economic Planning and all details are available.) On average each clinic has today around 4,500 people resident within five miles, and perhaps up to 6,000 within seven or eight miles. A population of 6,000 will produce about 300 births per year. Given an average stay of two to three days for each maternity case (one to two days would probably be more realistic) results in a requirement for three such beds. In addition to these maternity beds it would be useful, especially

at the more isolated rural clinics, to have one observation/holding bed. It is worth noting that the Ministry of Health is already intending to add maternity beds to at least three clinics.

There should also be developed over the next decade from four to six Rural Health Centres (depending first upon budget possibilities). These centres would hold an intermediate position in the health care hierarchy between the clinic and the hospital. They should be primarily centres for preventive health care activity, although they must not become isolated from the whole of the health needs of the rural population, which certainly includes curative care. These centres would be staffed by nurses, public health inspectors, pharmaceutical, lab and dental assistants, and should have a doctor present for at least one full day per week. They would include up to twenty beds, of which perhaps six to eight for maternity and the rest for relatively minor illnesses. These centres must also have their own transport available.

The present public health centres could be performing considerably more extensive and varied work than they do at present. In essence they should be functioning as urban health centres rather than doing basically only immunisations and ante-natal examinations. On the curative side they could be relieving the hospital O.P.D.s of some of their burden of minor illnesses, as well as saving the patients (usually mothers with young children) from having to attend at separate departments. Consideration should also be given to adding perhaps a dozen maternity beds to each unit to as to relieve hospital overcrowding. At present, maternity represent 18% of all hospital admissions and (at Mbabane) 12% of all inpatient days. It is certainly the case that the Public Health Centre staff should be working in much closer cooperation with the hospitals than is now the case. For example, by conducting family planning activities in hospital maternity wards, or following up children discharged from hospital after admittance for diseases related to malnourishment.

3. Hospitals

If sufficient resources are to be available to finance the expanded rural services being proposed here it will be necessary to limit, over the next decade at least, the growth of government general hospital beds to no more than the rate of population growth, i.e. 200 beds between 1974 and 1985. Instead of expansion, primary attention must be focussed on improving the outreach, quality and efficiency of the work being done at the hospitals. Over this coming decade additional beds should be allocated only to the non-corridor hospitals; say, 75 to Hlatikulu, and 40 to 50 each

at Pigg's Peak and Mankayane. There is already an expansion programme in progress at Pigg's Peak, and Mankayane Hospital could be turned into a "proper" institution with the posting of a medical officer and a few paramedical staff, and the addition of 40 to 50 beds and a few pieces of equipment. At the present level of running costs at these three hospitals such an expansion programme should not increase the recurrent budget of the Ministry of Health by much more than 1% per annum.

The present discussion about either substantially rebuilding Mbabane Hospital and increasing its bed capacity to 500 by 1980, or constructing a totally new "referral" hospital at another point within the corridor could only postpone by at least a decade the development of an appropriate health delivery system in Swaziland. The building costs alone would take virtually the whole of the capital budget of the health ministry for the foreseeable future, and the subsequent running costs would absorb an even greater share than the almost one-third of the recurrent budget now being taken by Mbabane Hospital. It is worth noting that a 500 bed hospital would result in Mbabane's having a bed-population ratio in 1980 of one bed for each 100 people. Some parts of the hospital could certainly be upgraded or replaced (especially if no recurrent costs are involved), but the preliminary plans that have already been prepared bear little relationship to any conceivable volume of work the hospital might reasonable be expected to perform in the foreseeable future. (This is particularly true with regard to the proposed operating theatres, which may have been influenced by the monthly presence of the specialist team from Johannesburg.)

The work of Mbabane Hospital is not efficiently organized. Doctors (or expatriate medical students in any event) must see every outpatient, and so have little time for visiting any outlying health units. In fact Mbabane Hospital is responsible for supervising only four clinics, about the same number as such very small hospitals as Pigg's Peak and Mankayane (which hasn't even a doctor on its staff) but RFM supervises 14 clinics and Hlatikulu manages to cover 17. The Mbabane Hospital doctors must be relieved of many of their routine tasks, e.g. they might see only referred outpatients, so that they might set up a substantial programme of visits to smaller health facilities. The true function of a "referral" hospital, in a country in which it is difficult for patients to reach it, is to strengthen the work of the so-called peripheral units with regular and prolonged visits.

4. Organization and Administration

Many organizational and administration issues have already been discussed and no effort will be made to summarize them here. However, some additional questions will be touched upon in this section.

One of the more striking aspects of the health delivery system of Swaziland is its rather sharp division into curative and preventive parts. It would be more efficient for all health facilities to be carrying out both curative and preventive activities, although some vertically organized programmes must continue to exist, e.g. malaria or bilharzia control. It is also likely that the whole of the health services would benefit from a somewhat greater decentralization of their activities. It might also be more appropriate if such activities as nutrition were administratively grouped together with the Ministry's other preventive activities.

At present there is too little difference in the fees being charged at government institutions to urban and rural patients. Considering the different geographic possibilities of access to health care it would be more equitable for rural clinic fees to be reduced from 20 cents to 10 cents and, to compensate government, urban hospital outpatient fees to be raised from 30 cents to 35 or 40 cents. It is also time that more careful analyses were done of hospital costs, and charges to so-called full paying patients adjusted (raised) accordingly, perhaps to something like R10 to R20 per day (after all even a hotel room costs close to R10 per day).

There is need for government and the churches to coordinate their respective efforts in the health field more efficiently so as to avoid the type of overlap of government and mission (or mission and other mission) units that now occurs. It is also the case that the mission operated nurse training school has yet to make important progress with the localization of its teaching staff; a high priority should be given to this matter. There also appears to be an unnecessarily high rate of student wastage from training at the school.

The health care statistics being collected in Swaziland concentrate almost entirely upon disease data, and in their present form are not very useful for planning purposes (at the moment even government and mission data are being lumped together). Some of the statistics are definitely erroneous, e.g. that of the Public Health Centres, but much more significant is the lack of organization of the types of fundamental data that have been presented in this report. The Ministry of

Health, in conjunction with the Ministry and Finance and Central Statistical Office, should set up a permanent system for collecting these types of basic health service data. The question of collecting vital statistics remains unsolved in Swaziland, as in the rest of Africa. If the rural health delivery system were sufficiently extensive it could make an important contribution to the development of these vital statistical data.

The Ministry of Health needs staff to undertake the collection and organization of data, to plan developments in the rural sector, and to administer the hospital services and the rural facilities. A very high priority should be given to the training of a health statistician and a health planner for the Ministry of Health.

In addition, hospital/health service administrators should be trained immediately for the hospitals at Mbabane and Hlatikulu and later for Pigg's Peak and Mankayane. Because training of personnel must take some time it would be useful to recruit from outside the country someone capable of holding the post of health planner/statistician. A young economist with statistical skills would be most appropriate (perhaps from the Overseas Development Institute in the U.K.). If a more experienced person is sought it is more important that they have worked in a Third World country (preferably Africa), even if not in the health field, than that they have done some health planning in the context of European or U.S. conditions.

C. Summary of Major Recommendations

Manpower

1. Development of a cadre of two year trained auxiliary nurses, probably at RFM Hospital.

Implementations:

- a. government approval;
- b. determination of the location of the school; and if at RFM their approval;
- c. donor support (if required);
- d. curriculum design, including local and technical assistance participation;
- e. construction plans.

Further planning detail required about:

- a. training costs at the proposed school;
- b. employment costs on an annual basis of the proposed output of auxiliary nurses.

External assistance may be required for:

- a. technical assistance for curriculum design;
 - b. training for nurse tutors (unlikely);
 - c. construction costs (unlikely);
 - d. some limited support for the recurrent costs of the school in its early years.
2. Construction of a government training centre for nurses and some other categories of health workers.

Implementation:

- a. government approval, including determination of the location of the school;
- b. donor support;
- c. curriculum design, including local and technical assistance participation;
- d. construction plans.

Further planning detail required about:

- a. determination of the precise number of places required at the school, especially for paramedicals, auxiliaries and public health nurses;
- b. training costs at the proposed school;
- c. employment costs on an annual basis of the proposed output from the school;
- d. approximate construction costs.

External assistance may be required for:

- a. technical assistance for curriculum design;
 - b. training for nurse tutors;
 - c. construction costs;
 - d. support for the recurrent costs of the school in its early years, including technical assistance personnel for teaching.
3. Training of 'village health workers'.

Implementation:

- a. government approval;
- b. curriculum design.

Further planning detail required about:

- a. number to be trained;
- b. training venue.

External assistance may be required for:

- a. construction costs.

The Rural Infrastructure, and the Public Health Centres

1. Construction of up to six clinics over the next decade (in addition to the six already included in the current development plan).
2. The addition at each clinic of maternity units averaging three beds, and one observation/holding bed.
3. Development of four to six Rural Health Centres over the next decade.
4. Expanding the work of the Public Health Centres to include much greater coordination with the hospitals and other health service facilities.

Implementation:

- a. government approval;
- b. donor support;
- c. construction plans.

Further planning detail required about:

- a. recurrent costs of the proposed clinics, health centres and delivery units, within the context of a growth of budget of 6% p.a.;
- b. approximate construction costs.

External assistance may be required for:

- a. construction costs, including staff housing at rural clinics and health centres.

Hospitals

1. Government should absorb the costs of only 200 additional hospital beds over the next decade; these beds should be distributed between the non-corridor hospitals.
2. The proposed major expansion plans for Mbabane Hospital should be re-examined with a view toward making them much more modest, especially those aspects that will affect the recurrent budget.

3. Mbabane Hospital should take greater responsibility for the work of outlying health units.

Implementation:

- a. government approval.

Further planning detail required about:

- a. recurrent costs arising out of any proposed hospital expansions.

Organization and Administration

1. Greater integration of curative and preventive services.
2. Fee differentials to be increased between rural and urban facilities.
3. Greater coordination on health matters between government and missions, including a more rapid localization of teaching staff at the mission operating nursing school.
4. Reorganization of the health statistics collection system so as to put more emphasis on the gathering of such data as is useful for planning purposes.
5. Training on a health planner, a health statistician and at least two hospital/health service administrators
6. Recruitment of a health planner/statistician.

Implementation:

- a. government approval;
- b. mission approval for number 3;
- c. donor support for numbers 5 and 6.

Further planning detail required about:

- a. revenue implications of changes in fee schedules.

External assistance may be required for:

- a. training of a planner, statistician and hospital administrators;
- b. recruitment of a health planner.

CONCLUSION

At the entrance to Mbabane Hospital there is a faded picture portraying an African village by the side of a stream. Leading out of the village and winding up a steep hill is a path on which can be seen 'the halt and the lame' climbing upwards to reach a hospital located at the very topmost point of the hill (with a Union Jack topping the hospital). At the entrance to the hospital are two Europeans in white medical coats waiting to receive the ill after the long journey up the hill. This picture portrays in the most basic way that which has been, and often continues to be wrong with health care in very many parts of the world- both 'developed' and 'developing': health workers waiting at the gates of their institutions for the ill to come and receive treatment. What is most needed instead, of course, are health workers, who because they are located amongst the people, are able to prevent illness before it occurs. Everywhere in the world the carrying of health care to the people, and making people part of their own health care system, is the very essence of a successful health delivery system. Under conditions of severe economic constraints, shortages of skilled health workers, massive illiteracy, difficulties of transport and communication, and all the other common characteristics of Third World countries it becomes even more important that health delivery systems be designed in such a way as to be as close to the people it is intended to serve as is humanly possible. If this concept were to be more thoroughly incorporated into the health care policies of Swaziland it would be reasonable to expect fairly quickly a significant improvement in the overall health indices of the country, particularly with regard to infant and child mortality. One very important aspect of a lower rate of infant mortality is that such a change is almost certainly a necessary, although probably not a sufficient precondition by itself, for altering the unsatisfactory demographic situation that now prevails in Swaziland.

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 Dr. S.P.N. Shongwe, Mbabane Hospital Superintendent

Nursing and other staff; at Mankayane and Nhlanguano (Cottage) hospitals, Public Health Centres in Hlatikulu, Mbabane and Manzini, T.B. Unit in Manzini, Public Health Laboratory in Manzini, Central Medical Stores at Matsapa, and T.B. and Mental Hospitals also at Matsapa.

World Health Organisation

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Mission Hospitals

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U.S. Embassy

Mr. David B. Bolen, Ambassador
Mr. George Lane, Charge d'Affaires
Mr. Donald McConnell, Second Secretary
Mr. Patrick J. Duffy, Administrative Assistant.

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