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CHILD HEALTH
IN A
GHANAIAN COMMUNITY

An Essay Submitted to the Yale University School of Medicine
In Candidacy for the Degree of Doctor of Medicine

Kwaku Chene-Frempong

May, 1975

Thesis Advisor: Dr. George A. Silver

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- Fig. 1 "African Report," May-June 1974. The African-American Institute, Inc., New York, 1974.
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CHAPTER I

Introduction

Purpose of Study

The developing nations of the world are faced with the most serious health problems today. Measured by the traditional parameters of life expectancy and infant mortality rate, these economically poor countries are still struggling far behind the industrialized nations. In a world where fantastic scientific and technological feats are being performed routinely in some countries, these developing nations have to utilize the most primitive and often outmoded methods in the health care of their people.

In the mid-twentieth century, gradual improvements are beginning to take shape in some of these "young" nations. New political realities have enabled many people to determine their own destiny, and the effects of these political changes have been felt in all fields including health. In the last twenty years or so, drastic improvements have been made in certain spheres of life for people in these nations. One such sphere has been maternal and child health. Although still a long way from what might be considered satisfactory, developing nations such as Ghana have undertaken steps to reduce their infant and maternal mortality rate and have brought new hopes of better life for greater portions of their population. These new improvements have also brought in their own unique problems. In countries such as Ghana, the improved public

health methods which led to the decrease in perinatal and infant mortality have caused great shifts in the age distribution of the population. A high proportion of the populations in these countries is made up of young children. The impact of this population shift on the resources and services in these nations has, however, not been seriously appreciated.

In national planning, the pressures exerted by such a large proportion of children oftentimes escapes attention. Child health has become of major importance. Special efforts have to be made to provide adequate health care for these large numbers of children. In the expansion of health services in countries such as Ghana, many times special consideration is not given to the fact that pediatric services may be the largest sector to be dealt with. In the training of personnel for the health services, the child health services are not given their due share. Ghana as a young African nation is undergoing rapid development. Many impressive advances have been made in all fields including health. However, it is not clear how the country is organizing its resources to meet the new challenges in the child health services.

The main purpose of this study was to examine the child health care resources available to the children in a community in Ghana, at a specific point in time. Modern child care methods are relatively new in Africa, and even with the rapid "development" in some countries, the traditional methods of care still survive. The need for expansion of services of the modern health care for the children would depend to a large extent upon the acceptance and utilization of the new methods by

the people. In looking at the health care resources available, an attempt was made to find out how much people still depended on traditional health methods. The types of traditional health care resources available were also examined.

The argument has often been made that many of the so-called "tropical diseases" were not in fact related to the "tropical" climate of the places where they were found, but rather they were diseases reflecting the socio-economic situations within those areas. Apparently, the spectrum of common diseases found in any country is also a good indication of the stage of socio-economic development of that country. The other major purpose of this study, therefore, was to analyze the disease spectrum presented by the children in the area to the health establishments and to see if the spectrum had any relationship to the existing social and economic conditions. The overall aim then was to present a fairly accurate picture of the child health situation as it existed around the summer of 1974, the period when the study was conducted.

Description of Study

Location. The study was based in Kumasi, the second-largest city in Ghana. Two main health establishments served as the sources of much of the information gathered -- the Komfo Anokye Hospital (KAH) and the Maternal and Child Health Center (MCHC). The choice of Kumasi as the location for the study was made for several reasons. Kumasi, even though a large urban center, still maintains a strong

traditional character, and can be described as a typically Ghanaian city. KAH serves a population which represents both the rural and the urban samples of Ghana. The hospital was large enough to handle a full spectrum of diseases, to serve as a referral center, and to provide most of the usual basic services offered by a comparable city hospital in the United States. Also, the distribution of health personnel in the Kumasi area is more typical of the rest of the country than the capital city, Accra, which has a disproportionately high number of health personnel mostly because of the existence there of the only medical school in the country.

MCHC served as a complement to the KAH, specializing in some maternal and child health problems while the main hospital performed the rest of the general functions of a city hospital. Visits were made to other clinics in the Kumasi area.

Methodology. The study was carried out mainly along three methods -- collection of information from health and governmental sources, observation of actual work performed, and conversations and interviews with the various health personnel and also with some parents of sick children.

Information on the organization of the national health services, and national health statistics were obtained mostly from the government agencies in Accra, the capital. The Ministry of Health, the Center for Health Statistics and the Central Bureau of Statistics, along with

the Ministry of Finance, all provided useful information on the national level. Since publication of information of health statistics and other statistics are not widely distributed, it was always necessary to obtain such data directly from the offices where they were compiled.

Specific information on the distribution of health resources in Kumasi and the surrounding areas was obtained through the offices of the Regional Medical Officer of Health, the Regional Public Health Nurse, and the City Medical Officer of Health. These officers also provided information on the organization of the health services in Kumasi, their functions, and their problems.

At KAH and MCHC, data was collected directly from hospital records and from ward records where necessary. The study had originally intended to compare current data with data from a period in the past -- from about 1963 -- however, the lack of complete records from the past made this impossible. Complete inpatient records were obtained for 1973 mostly from going through the individual wards to count directly from the lists of admissions, discharges and deaths compiled routinely by the nurses. At KAH this data collection became a tedious, time-consuming affair. A central records office is supposed to receive a daily account of all the admissions, discharges and deaths from all the wards in the hospital. However, serious discrepancies between the data from the Records Office and the data kept in the various wards existed. Whenever available, therefore, the ward day-to-day data were used for this study. Because these kinds of hospital data are not

routinely demanded by researchers or used by the hospital administration on a regular basis, there is no organized system for keeping such data accurate and complete. However, for the purposes of this study, the general picture of the work done in the pediatric wards of KAH and MCHC was fairly accurately obtained.

Conversations with the doctors and nurses at the two health establishments provided much of the information on organization and functions of the different sections of each. The Chief of the Pediatric Department at KAH, with whom I worked directly, provided me with the goals of his department, its organization and some of its problems. He also made it possible for me to work with the other doctors in the different sections of his department to gain a first-hand knowledge of pediatric care at KAH. Part of this entailed making rounds with the inpatient teams, talking with the head nurses of the various wards, attending the outpatient clinics and talking to some of the parents.

Because my main objective was to get a general idea of the spectrum of disease presented at the hospital, and not the specific management of any of the diseases, I refrained from critical examinations of any methods of management of diseases by the medical staff. This was necessary in order not to make my role as a "foreign" observer too intrusive and uncomfortable to the staff that I worked with. Moreover, the period of the study was not long enough to enable me to get closely involved in the running of any particular ward in the hospital or at the health center.

It had originally been a plan of the study to interview several parents to assess their reactions to the health care available to their children. This would have been much more practical in a smaller community. The size of Kumasi and the variety of cultural and socio-economic groupings within it made home visits impractical for such a short-term study. The interviews were, therefore, made of parents who had brought their children to KAH outpatient clinics or to the various clinics at the MCHC.

The contact with the traditional doctors was made through their chief, Nana Nsumankwahene. He is the traditional head of all the traditional healers in Kumasi, and all of Ashanti, and a member of the court of the Asantehene, the King of Ashanti. He arranged for me to interview one of his subjects, a traditional doctor who had excellent knowledge about childhood diseases. In the past, the traditional healers had been subjected to ridicule and rejection by the foreign missionary Christian establishments. This had forced the traditional healers to retreat into a state of suspicion for any outsiders who sought information about their work. Recently, however, the new African governments have been making efforts to bring the work of the traditional healers into the open, and in fact, to study it for ways of incorporating their methods into the modern health care systems.

The government researchers have been able to obtain some of the herbs used by some traditional healers in their usually secret methods of management. The chief, therefore, made it quite clear to me that

they would not answer any questions dealing directly with their treatment of specific diseases, especially since my work was going to be presented in a foreign country. My aim, however, was not to learn about their methods, but to get some idea of what diseases they treated and what they felt about child health problems in general.

CHAPTER I I

Description of Ghana

Brief History of Modern Ghana

Ghana derives its name from a great West African empire which existed around 1000 A.D. Formerly known as the Gold Coast, the country assumed the name Ghana when it regained political independence from British Colonial rule. Historians differ on the accuracy of the application of the name Ghana to the modern day country, but it is generally held by some African historians that the Akan people of modern Ghana are descendants of people from the ancient Ghana Empire.

The present borders of the country were established only after the Second World War, ending a period of annexations and expansion by various European colonialist nations in West Africa. The people of modern day Ghana have probably existed in their present environment for over 600 years, since there have been no major intra-African population movements since the 15th Century in that area. The borders of Ghana, similar to most colonialist-established countries of modern Africa, cut across ethnic and cultural groups.

The first Europeans arrived in 1471¹ in search of gold which they quite correctly suspected came from some area beyond the North African Mediterranean countries with whom they had been trading. They were Portuguese, and they gave the name Gold Coast to the area because of the abundance of gold possessed by the people of the area. Since then

the coast of West Africa became the commercial focus of European exploiters as European nations fiercely scrambled for control of various areas of the land for gold and other resources. The trade in gold later was turned into the devastating slave trade across the Atlantic into the Americas. By the middle of the 18th Century the Portuguese, the Dutch, the Danes, the French, the Swedes and the Germans had all joined in the scramble, and the British had finally wrestled complete control of the coastal area of the Gold Coast.² In 1874, the area declared by the British as their colony of the Gold Coast extended only about 50 miles northwards from the coast. By 1902, the interior area inhabited by the Asante people -- after they had been forced to relinquish their right to self-rule through a war with the British in 1896 -- and the northern area of the country had been taken over by the British. During World War I the British and the French "conquered" German Togoland, the land directly to the east of Gold Coast, and in 1922 the League of Nations entrusted the western zone of Togoland to Britain as a mandated territory to be administered integrally with the Gold Coast.³ Thus, the present borders of Ghana were established.

The Gold Coast was ruled by the British until 1957 when, under increasing pressure from the people led by the late Kwame Nkrumah, they had to give up their political control. In March, 1957, Ghana became the first Black African nation to regain its political "independence" from European Colonial rule since the process of colonization started in the 15th Century.

Since 1957 Ghana has gone through a period similar in many respects to that of many "young," developing nations in their immediate post-colonial era. There have been three changes of leadership since 1966, two of them caused by military coups; and the present government is a military one. Considerable progress has been made since independence, especially in the fields of education and health, and today Ghana has one of the highest standards of living in Black Africa.

Geography and Population

Ghana is a small nation situated almost centrally among the coastal countries of West Africa (see Fig. 1). It has a generally rectangular shape, bordered to the south by the Atlantic Ocean, to the north by the Upper Volta, to the east by Togo, and to the west by the Ivory Coast. All the three neighboring nations are former French colonial holdings. Ghana is entirely tropical, stretching from latitude $4^{\circ} 4'$ North at the coastline to latitude 11° North over a distance of some 420 miles, and from longitude $1^{\circ} 12'$ East to longitude $3^{\circ} 5'$ West with a total area of 92,100 square miles.⁴ (The Meridian of Greenwich passes through the eastern side of Ghana)

The vegetation of the country, influenced by water-borne south-east winds from the ocean and dry north-east winds from the Sahara Desert, shows a general south to north thinning. A small area of plains along the south-eastern coastal area changes into the middle belt of tropical rain forest and a northern region of tropical savannah plains. Apart from the low-lying narrow coastal areas, the country is basically



Fig. 1
Map of Africa

a plateau averaging about 800 - 1000 feet above sea level with a few peaks rising between 2000 - 3000 feet.⁵ Ghana is a warm country with annual mean temperatures of 79° F - 84° F for the whole country. The country, like most tropical countries, experiences only two seasons, a rainy (wet) season, and a dry season. The mean annual rainfall ranges from about 90 inches to 50 inches in the forest regions and less than 45 inches in the savannah plains. The relative humidity also decreases from the coastal south to the north, ranging from 75% or more to 30% or less.⁶

For administrative purposes the country has been divided into nine regions, each with its headquarters (see Fig. 2).

The 9-1/2 million people of Ghana are made up of about twelve ethnic groups (plus some minor ones), but are comprised of two major anthropological/linguistic groups. There are those speaking the Kwa languages -- the Akan, Ewe, Ga and Adangbe, and those who speak the Gur (or Voltaic) languages -- the Dagomba, Mamprusi, Gonja, and some smaller groups.⁷ The Akan speaking group, comprising various dialects of Twi and Fante, constitute more than 50% of the population. English is the official language, and it is studied as a second language in addition to the major Ghanaian languages in schools.

By tradition, most Ghanaians are religious, and the population is made up roughly of 42.8% Christian, 12% Moslem and 33.2% traditional.⁸ Many of the Christians, however, can only be called "nominal" since they do not worship as diligently as most of the Moslems or the traditionalists.



Fig. 2

Administrative Regions and Capitals of Ghana

Ghana is mainly agricultural with a large number of people living and working in the rural areas. In 1971 it was estimated that 71% of Ghanaians lived in rural areas and 29% lived in urban areas.⁹ Urban area was defined as "localities with 5000 or more people." In the United States in 1970 26.5% of the people lived in rural areas, and 73.5% lived in urban areas defined as localities with 2500 or more inhabitants.¹⁰ The 1970 census in Ghana showed that 57.2% of the total number of employed people were engaged in agriculture, including forestry, logging and fishing.¹¹ (This showed a decrease from the 1960 figure of 61%.) The distribution of persons employed in industries in 1960 is shown in Table 1. Farming is by far the most common occupation, and food production is the most common pursuit of the farmers. However, cocoa farming is the most important industry in Ghana, accounting for over 66% of the country's annual export revenue.¹² It is the chief export product, followed by timber, gold, diamonds, manganese, and other minor items. In 1970, 73.3% of all those 15 years and over (83.5% of the males and 63.6% of the females) were economically active. This represented 38.9% of the entire population, 43.3% of all the males, and 34.1% of all the females. Comparative figures for the United States were 56.8% of all those 15 years or more were economically active, 74.7% of the males and 40.5% of the females 15 or over; and 40.3% of the total population made up of 52.7% of all males and 29.6% of all females were economically active.¹³

In 1970 the population of Ghana was 8,559,313, showing an increase of 27.24% in the ten-year period since 1960, with an annual rate of

TABLE 1

Persons Employed in Industries by Sex, 1960¹
(in thousands)

	MALES		FEMALES		BOTH SEXES	
	No.	%	No.	%	No.	%
Agriculture, forestry hunting and fishing	1,003	64	576	58	1,579	62
Mining	46	3	2	-	48	2
Manufacturing	136	9	99	10	235	9
Commerce+	96	6	276	28	372	15
Construction	87	5	3	-	90	3
Electricity, water and sanitary services	14	1	-	-	14	1
Transport	67	4	7	-	68	3
Services*	124	8	31	3	155	6
TOTAL	1,573	100	988	100	2,561	100

+Commerce - 87% are petty traders, almost 75% of which are female petty traders

*Services include - central government, local administration, education, health, and also domestic services

¹Source: J.C. Caldwell in:

A Study of Contemporary Ghana by Birmingham;

Neustadt and Omaboe, Vol. II by George Allen and Union, Ltd., London, 1967

1970

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1970

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1

increase of 2.4%.¹⁴ In the period from 1963 - 1972, Ghana's population showed an annual rate of increase of 2.9% while the population of the United States showed an annual rate of increase of 1.1%.¹⁵ The sex ratio from the 1970 census was 98.5 males : 100 females. As mentioned in the Introduction, the population of Ghana, like many other developing nations, is very young. The proportion of persons aged less than 15 years was 46.8% in 1970, showing an increase from 44.4% in 1960. The proportion of persons in the dependency age group, i.e., 0 - 14 years, and 65 and over also increased, from 47.6% to 50.4%, in the same period.¹⁶ The breakdown for the United States in 1970 was 28.5% less than 15 years and 38.4% in the dependency age group.¹⁷

The true "dependency" group in Ghana is actually higher than the figures would show. The retirement age was decreased three years ago to 55, thus putting a large number of people into the "dependency" group. The high percentage of people in the pediatric age -- more than 50% of the total population is 18 years old or less -- emphasizes the need for special health programs to meet the special demands of children. The stresses put on the national economy by such a high proportion of children is complex, a problem whose solutions probably will demand a lot more of the nation's resources in the initial stages of development. More children are surviving the hazards of childbirth and infancy and growing into healthy adults, however, the problem of infant mortality is still a serious one. Accurate figures are very difficult to obtain because of the non-existence of an efficient means of reporting births and deaths, and also cultural practices which tend to minimize the

importance of the death of young infants. Table 2 shows the vital statistics of Ghana for 1960, and for the period 1965-70. The infant mortality rate of 156 per 1000 live births may be too high for the country today, but the true figure may lie somewhere between that and the rates shown in the Infant Mortality Analysis in Table 3 for 1969. In fact, the rates obtained from the Compulsory Registration Centers, although serving only 35% of the total population, may be quite representative of the total population since more and more people in the rural areas surrounding the urban areas are utilizing the health services in those urban areas.

Life expectancy in Ghana is low, and it is quite certainly made worse by the high infant mortality rate and perhaps morbidity from childhood diseases. The life expectancy for a Ghanaian born in 1960 was 37.8 years. This had improved to 46 years for both sexes by 1970. As shown in the table (see Table 4) comparing the Ghanaian life expectancy at different ages in 1960 with that of the United States, the greatest difference can be seen at the pediatric ages. With the improvement of life expectancy seen in the 1960-1970 period, the gaps should get even narrower with age.

Primary school education in Ghana has been "compulsory" since the early 1960's, but the failure or inability to enforce the laws still leaves many children out of the schools. In 1960, 73% of the total population aged six years and over had never been to school; 63.3% of the males and 83.0% of the females. By 1970, the figure had decreased to 56.3% (males 47.3% and females 66.2%). In the "compulsory" school

TABLE 2

Vital Statistics of Ghana, 1960 and 1965-70
(compared with the United States, 1969)

	Ghana 1960	Ghana 1965-70	U.S. 1969
Crude birth rate (per 1000 population)	47-52	46.6	17.7
Crude death rate (per 1000 population)	24	17.8	9.5
Natural increase rate (per 1000 population)	23-28	28.8	8.2
Fertility rates	203-224*	NA	61.6 ⁺
Infant mortality rate	156	NA [#]	20.8
Life expectancy for male born that year	37.08	46.0	67.0 (1967)
Life expectancy for female born that year	NA	46.0	74.2

NA = Not available

NA[#] = Not available for entire country. See Table 3.

* = Fertility rate per 1000 female population aged 15-49

+ = Fertility rate per 1000 female population aged 10-49

Sources: U.N. Demographic Yearbook, 1969

U.N. Demographic Yearbook, 1972

TABLE 3

Infant Mortality Analysis - Ghana, 1969
(rates per 1000 live births of same sex)

	Age in Days				
	up to 365	up to 1	1 - 6	7 - 27	28 - 364
TOTAL	66.9	4.2	18.9	7.6	36.2
Male	67.1	4.3	18.7	7.9	36.2
Female	66.2	4.1	19.0	7.3	35.8

Source: U.N. Demographic Yearbook, 1972

Note: Figures obtained from Compulsory Registration Centers which served only about 35% of the total population. Data excluded fetal death.

(According to the U.N. statisticians, these figures obtained from civil registers are incomplete or of unknown reliability)

TABLE 4

Life Expectancy Rates for Different Ages
Ghana and United States 1960

Age in 1960	Life Expectancy (Yrs)	
	Ghana	United States
0	37.80	71.1
15	39.35	57.9
65	9.39	15.2

TABLE 4

The Exchange Rate of the United States Dollar
 Ghana and United States 1960

Year	United States Dollar	Ghana Cedi
1960	1.00	4.60
1961	1.00	4.75
1962	1.00	4.90

age group of 6-14 years, in 1960, 56.3% of the males and 46.7% of the females had never been to school. By 1970, 37.5% of the males and 33.5% of the females aged 6-14 had never been to school.¹⁸

An interesting observation here is that whereas female education was not encouraged in the past, it appears from the figures of the "compulsory" school age children, that the young girls are responding to education more than the boys. This is an important development because these young girls are going to become the mothers of the future, and as will be seen later, the uneducated mother seems to be one of the serious problems in child health care in Ghana. It must be mentioned that female higher education is still lagging behind the encouraging picture of primary education presented above. Out of the total of 5,049 students enrolled in Ghanaian Universities in 1968-69, only 549 (10.9%) were females!¹⁹

CHAPTER III

General Overview of the Health Care System in Ghana

The National Health Services

Two types of medicine are practiced in Ghana, the modern "scientific" medicine, and the old traditional medicine. A third type of practice has evolved in recent years -- since the arrival of missionaries and modern medicine -- that seems to combine the modern and traditional methods. The modern methods of medical care, of course, date back to the arrival of the first Europeans. Initially, the "modern" medical care was primarily a service offered by and for the European settlers and later extended through the setting up of missionary clinics to the African population. At first the missionaries used their clinics as part of their evangelical work in much the same way as their schools. Africans who denounced their traditional religious beliefs could receive modern education in Christian schools as well as health care in mission hospitals. However, these health institutions attached to the Christian missions gradually developed into more purely health establishments than religious, and formed the basis for the modern medical system in Ghana today.

In the areas where many of the Europeans settled, hospitals and clinics were set up to serve both the Europeans and Africans, although usually not in the same buildings. The term "European hospital" was still used for some of these segregated establishments as late as the 1950's. The British Colonial administration established the Ministry of

Health as a wing of the government in charge of health planning and administration for the whole country. Government hospitals became established through public funds and these became the mainstay of the present public health system.

Ghana, like many developing nations of the world today, has a dual system of modern health care, a large Public Health Service taking care of most of the underprivileged people, and a small private service serving the few people who could afford to pay. The Public Health Service of Ghana, inherited from the British Colonial era, has been greatly expanded to meet the health needs of the whole country. It is run by the Ministry of Health, a full department of the government, which is, in fact, in charge of all health matters in the country. It is directly in charge of the health establishments and personnel in the public services, and also regulates the activities of the private services. The Ministry of Health is essentially a technical ministry. It has two main divisions -- the Technical Services and the Administrative Services.

The Technical Services Division is headed by the Director of Medical Services, a physician, and consists of the following subdivisions: Communicable Disease Control, Environmental Health, Medical Care, Nutrition, Maternal and Child Health, Dental Health, Health Education, Nursing, and Pharmacy. These subdivisions are all headed by professional medical personnel and they deal with the actual work involved in the health care delivery to the people.

The Administrative Services deal with Finance and Budget, Establishments, Personnel, Supplies, Political and Public Relations, and

Common Services, and is headed by non-medical administrators, economists, etc. During civilian government rule, the overall head of the ministry is the Minister of Health. The equivalent position in the military government is known as the Commissioner of Health. It is the duty of the Minister or Commissioner to coordinate the activities of the two divisions of the Ministry. From conversations with personnel at the Ministry, it became clear that the two divisions do not always work in harmony.

It appears the administrators know too little about health care to provide good advice to the Commissioner on the needs of the country, and the professionals of the technical services cannot understand why there is always long delay in the implementation of their requests for new equipment, more personnel, etc. The Minister or Commissioner, who most often has had no training in a health-related field however, has to depend on both services to make decisions concerning the health care for the people.

The Ministry of Health is headquartered in Accra, the capital city, and has regional offices in all the nine regional capitals (see Fig. 1). Each regional office is headed by the Regional Medical Officer of Health (RMOH) who is a physician. Each RMOH is assisted by a Senior Medical Officer in charge of communicable diseases and a Senior Medical Officer in charge of maternal and child health. Other members of the RMOH's staff include a Regional Matron in charge of hospital nursing systems in the region, a Regional Public Health Nurse in charge of public health nursing services, and an Inspecting Pharmacist. Each

region has a Regional Health Planning Committee which is made up of the RMOH and his staff, and the Medical Superintendent, the Dental Surgeon, and the Pathologist of Regional Hospital, or the chief hospital in the regional headquarter's city. Periodic meetings of the Regional Medical Officers of Health constitute the main Committee for National Health Planning and Epidemiological Surveillance.

The next subdivision from the regional level is the district. The health administration of the 140 or so districts in the country is not as well organized as the regional level. The health administration of a district depends upon the health establishments in the district. The major cities in the country have, in addition to the Regional Health Office, the office of the City Medical Officer of Health with a physician in charge. This office deals with problems such as infectious disease patterns in the city, building health standards, control of health standards of public eating places, diseases of animals, garbage collection, slaughter house and meat inspection, and others. The district councils (local government) also have health inspectors attached to their offices who deal with some of the problems listed above on the local township or village level. The Health Inspector, city and other rural health administrators, as well as all the health establishments in one region, work under the RMOH. The RMOH's office collects all the health data from all the health establishments in the region and reports them for action on the national planning level. The financial support from running these regional programs all come from the government.

In fiscal year 1973-74, the government of Ghana spent a total of \$62.34 million on health. \$51.61 million went for current expenditure and \$10.93 million for capital expenditure.²⁰ This amount of money spent on health represented 7.2% of the total government expenditure for 1973-74. It is not possible to obtain figures on how much of the government spending on health went into the care of children, but it must be concluded from their high proportion of the population that directly or indirectly children receive a large share of the health services. The Maternal and Child Health Division of the Ministry of Health received \$1,345,000 or 2.6% of the health allocation, while the Nutrition Division received \$475,000. The Maternal and Child Health Division deals mainly with perinatal services on outpatient basis, and the Nutrition Services deal mostly with problems of malnourished children. The amount of money spent on these services may not be a good indication of their importance in the health needs of the country. For instance, the relatively small amount spent on the nutrition services may not be an indication of the size of the nutritional problem. It may rather be an indication of the lack of adequate facilities and personnel to deal with the massive nutritional problems of the children.

The cost to the patient for health service at the public health establishments is virtually free, with only nominal fees charged. At the government hospital where I worked this summer, adults paid 50 cents for the first visit to an outpatient clinic and 10 cents for each additional

visit, and 10 cents a day for inpatients. Children paid no fee for outpatient service, but 5 cents a day for inpatient care.

As mentioned earlier, there is private medical practice in the modern health care system. Before a discussion of the private service, it would be appropriate to give some idea of the facilities available on a broad national level to the various types of modern health services. The public health care is not entirely performed by the government health establishments. There are mission hospitals -- some very old, colonial establishments and some newer ones -- and other hospitals attached to major industrial concerns which also serve the general public. The mission hospitals are run by the particular Christian mission in charge, under regulations set by the Ministry of Health. Unlike the past, mission hospitals of today serve all the people in the community and not only those who believe in the particular "faith" of that mission. Mission hospitals are spread throughout the country and provide care to some of the more remote rural areas.

The other type of "public" hospital is typified by the mining hospitals. These are hospitals built by the mining companies originally for their European settlers, and then expanded to take care of all the employees. Most of these hospitals today not only care for all the employees and their dependents, but also extend their services to the public in the mining townships. Some of them charge small fees for their services to non-employees. These hospitals are run by the mining

companies under broad regulation of the Ministry of Health. All of the hospitals described above are non-profit making and are there essentially to serve the people of the country. There are only very few profit-making private hospitals, and much of the private health service is outpatient.

In 1970 there were a total of 177 inpatient health establishments in Ghana.²¹ These ranged from a tiny rural health post with a total of five beds (four beds and one cot) to large general hospitals such as Korle Bu Hospital in Accra with 1,503 beds (1,293 beds and 210 cots). There are large general hospitals in the regional capitals serving as referral centers for the regions, then smaller hospitals, health centers and health posts spread out throughout the country. There were nine general (regional) hospitals all run by the government plus 40 additional government hospitals including 12 described as quasi-government. The quasi-government hospitals are made up of seven military hospitals, four hospitals attached to educational institutions and one hospital attached to the Volta River Authority, a major national hydroelectric power project. These quasi-government hospitals served the sectors of the public that fell into those government-run institutions. There were 46 "private" non-profit hospitals consisting of 34 Christian mission hospitals and 12 mining center hospitals. The private profit-making hospitals numbered 16 with a small bed size (see Table 5).

In addition to these hospitals located mostly in the cities and larger towns, there were 52 Rural Health Centers and Rural Health Posts

TABLE 5

Hospitals and Other Medical Establishments with Beds in Ghana
1970

Type of Establishment	No.	Beds in Establishment
General Hospitals A	9	3,246
Local or Rural Hospitals Total	102	6,338
A	40	2,620
B	46	3,427
C	16	291
Medical & Maternity Centers A	52	548
<u>Specialized Establishments:</u>		
Maternity Hospitals B	1	75
Pediatric Hospitals A	2	74
Infectious Disease Hospitals A	5	52
Mental Hospitals A	2	745
Leprosaria A	4	314
TOTAL	177	11,392
Total A	114	7,599
Total B	47	3,502
Total C	16	291

1970 total population/bed=751; beds/10,000 population=13.3 in all hospitals

United States 1970 population/bed=130; beds/10,000 population=78.9 in all hospitals

KEY: A = Government hospital establishments
 B = Private non-profit hospital establishments
 C = Private profit hospital establishments

Source: World Health Statistics Annual, Vol. III, 1970, Section 6

TABLE 2

Number of hospital beds in the United States, by type of hospital, 1960-1970

Year	Total	General	Specialty	Psychiatric	Other
1960	1,000,000	700,000	100,000	100,000	100,000
1961	1,000,000	700,000	100,000	100,000	100,000
1962	1,000,000	700,000	100,000	100,000	100,000
1963	1,000,000	700,000	100,000	100,000	100,000
1964	1,000,000	700,000	100,000	100,000	100,000
1965	1,000,000	700,000	100,000	100,000	100,000
1966	1,000,000	700,000	100,000	100,000	100,000
1967	1,000,000	700,000	100,000	100,000	100,000
1968	1,000,000	700,000	100,000	100,000	100,000
1969	1,000,000	700,000	100,000	100,000	100,000
1970	1,000,000	700,000	100,000	100,000	100,000

TABLE 3

TABLE 4

Number of hospital beds in the United States, by type of hospital, 1960-1970

A = Government hospitals
B = Private non-profit hospitals
C = Private profit hospitals

Source: U.S. Department of Health, Education and Welfare, Bureau of Health Resources, *Hospital Statistics, 1970* (Washington, D.C., 1971), pp. 1-10.

serving as medical and maternity centers throughout the regions. These general service establishments were relieved by some 14 specialized hospitals. These included infectious disease hospitals, psychiatric hospitals, leprosaria, maternity, and pediatric hospitals.

These 177 health establishments had a total bed allocation of 11,392 in 1970, for a population of 8,559,313.²² This gave a total population per bed ratio of roughly 751, and a ratio of 13.3 beds per 10,000 population! For comparison, the United States in 1970 had a population per bed ratio of 130, and 78.9 beds for 10,000 population for all hospitals.²³ The information on the health establishments in the past is not complete, but in 1959-60, two years into the post-Colonial era, there were 37 government hospitals in Ghana. Of these 34 were general service, and there were two psychiatric hospitals and one leprosarium with a combined total bed allocation of 4,200.²⁴ By 1970 the government had 61 hospitals made up of 49 general service establishments, two pediatric hospitals, five infectious disease hospitals, two psychiatric hospitals and 14 leprosaria, all with a total of 7,051 beds. This amounts to an increase of 63% in hospital beds in the government health services for the 1960-1970 period excluding the medical and maternity center (see Table 5). The population of the country showed an increase of 27.24% for the same period.

At the end of 1973, there were 951 doctors in Ghana working in the modern health care system.²⁵ This number excludes an additional

80 doctors teaching in the Ghana Medical School. Of the 951, 675 (71%) were Ghanaians. The government health services employed 67% of all the doctors including all those at the medical school, while 33% worked in the private services. The private services included the non-profit health establishments -- the mission hospitals and the mining center hospitals -- as well as the private profit-making services. Of 343 private doctors, 191 (55.7%) were non-Ghanaians working mostly in the mission hospitals and mining center hospitals. The number of doctors, like the number of hospital beds, has been increasing since the regain of independence. In 1960 there were only 315 physicians in Ghana, 546 in 1963,²⁶ and 667 in 1970.²⁷ The increase in recent years has been primarily due to the graduation of about 50 doctors a year from the Ghana Medical School. The school was established in 1964 and graduated its first group of doctors in 1969. Based on an estimated population of about 9.19 million in 1973, and the 951 practicing physicians in Ghana, the population per physician ratio was 9,664. If the 80 doctors in the medical school are included in the computation, the population per physician ratio was about 8,914. The true figure lies somewhere in between the two since most of the doctors teaching in the medical school do, in fact, take care of patients both in the government service and through private services. In 1963 the population per physician ratio was 13,443.²⁸ The 1963-1973 period, therefore, showed an increase of about 39.1% in the doctor per population ratio, while at the same time the population of the country climbed by 25.2%.

The point is often made that what is needed in developing countries is not so much an increase in the number of doctors but rather the training of more paramedical personnel. Table 6 shows the number of other medical and paramedical personnel in the country as of December, 1973. It is true to say that the governments since the regain of independence have stepped up efforts to improve the health of the people. In many ways the achievements have been quite impressive, but then it appears that the high rate of increase of the population constantly diminishes the gains even through the accelerated programs of national development. It must be pointed out that the health of the country does not depend entirely on the resources mentioned above. The contribution of traditional medical care, even though on the decline, and in fact difficult to assess with any accuracy, is still a major factor. This is true especially in the remote rural areas. The newer types of traditional-cum-modern methods also thrive in the urban areas.

The distribution of the health facilities over the regions reveals the same trend followed in the more developed nations. The rural areas which need the most basic modern health care facilities usually do not have any, while the urban areas receive a disproportionately high quota of the available resources (see Table 6). Accra, the capital city of Ghana, with about 10% of the total population of the country had 300 of the 951 practicing physicians in the country in addition to the 80 in the medical school. Thus, 10% of the population had 36.9% of the physicians in the country at their disposal. In contrast, there

TABLE 6

Distribution of Health Personnel in Ghana on 12-31-73
(Government and Private Sectors)¹

	ACCRA (the capital)			Other Towns Over 20,000 Population			Localities of Less than 20,000 Population			TOTALS Entire Country		
	G	N-G	Total	G	N-G	Total	G	N-G	Total	G	N-G	Total
Medical Officer (doctors)*	280	20	300	247	66	313	148	190	338	675	276	951
Medical Assistants	18	-	18	40	-	40	200	-	200	258	-	258
Dentists	11	2	13	11	-	11	5	1	6	27	3	30
Dental Assistants	28	-	28	38	-	38	6	-	6	72	-	72
Professional Midwives	230	-	230	343	-	343	3,075	14	3,089	3,648	14	3,662
Nurse Midwives	260	-	260	420	-	420	563	27	590	1,243	27	1,270
Professional Nurses	1,120	-	1,120	1,439	4	1,443	3,540	50	3,590	6,099	54	6,153
Auxiliary Nurses	500	-	500	430	-	430	1,530	-	1,530	2,460	-	2,460
Pharmacists	208	-	208	200	5	205	120	5	125	528	10	538
Pharmaceutical Assistants	58	-	58	83	-	83	98	-	98	239	-	239

(continued on next page)

(continued)

	ACCRA (the capital)			Other Towns Over 20,000 Population			Localities of Less than 20,000 Population			TOTALS Entire Country		
	G	N-G	Total	G	N-G	Total	G	N-G	Total	G	N-G	Total
Physical Therapists	13	-	13	3	1	4	3	-	3	19	1	20
Laboratory Technicians	126	-	126	86	-	86	60	4	64	272	4	276
Laboratory Assistants	134	-	134	62	-	62	47	-	47	243	-	243
X-ray Technicians	46	-	46	30	1	31	42	6	48	118	7	125

KEY: G = Ghanaian
N-G = Non-Ghanaian

*Number of doctors does not include 80 doctors teaching at the Ghana Medical School, Accra

¹Source: Ministry of Health, Ghana

were only 338 doctors for all localities with less than 20,000 people combined. As mentioned earlier, 71% of the people in Ghana live in localities of 5000 people or less. Thus, the rural areas are actually supplied with even fewer doctors than the "338" would suggest. Newly graduated doctors from the medical school during their immediate post-graduate training must serve for some period of time in the rural areas. This helps relieve some of the scarcity, but the real issue is that doctors cannot be sent to areas where there are no health facilities for them to work in. There is still no incentive plan from the government to attract doctors to work in the rural areas. Since most of the rural population are poor, with very little income, the private physicians do not find them attractive.

Private Health Care

Modern. Private profit-making medical practice in Ghana is quite small compared with the public services. It is almost totally an outpatient service as evidenced by the fact that the bed space for private doctors accounted for only 2.6% of the total bed space in the modern health care system. In 1970-71 there were 64 private practitioners in the country (9.6% of the 1970 total of 667) and only 17 purely private inpatient facilities.²⁹ The 1973 figures are not available, but it is unlikely that any substantial shifts have come about since 1971. Thirty-two of the 64 private practitioners were

in the Greater Accra region (30 in Accra city), and 16 were in Kumasi. Seventy-five percent of the private doctors in the country, therefore, practiced in the two largest cities in the country. In contrast, the entire Upper Region had not a single private doctor, and the Northern Region had only one! (It is interesting to point out that the Greater Accra Region had no mission hospital while the Upper Region had four.)

Strictly speaking, the doctors working in the government services are legally barred from simultaneous private practice, but it is no secret that quite a large number of them, especially the older ones, have lucrative private practices in addition to their regular public health service. The volume of work performed by the private services has not been accurately assessed yet, but it is probably true that it is growing.

In the urban centers where the higher income groups of the "new urban elite" are found, it is true that private health care is preferred to the usually overcrowded public services. Even though quite a few people can afford the fees of private health care, the majority of Ghanaians cannot afford it and have to depend on the government service. Serious problems have arisen from this situation which threatens the government system and eventually the health of the poor people in the country. Over the past several years there has been a gradual exodus of doctors from the public service into the private health care. These doctors have usually

worked for a number of years for the government to accumulate capital through their private "moonlighting" to enable them to set up private practices. If this trend continues, the government will continue to lose good doctors from the service of the general public to the service of the few who can afford it. In conversations with young doctors who have to serve the government for a number of years in return for the free medical education they received, it became clear that many of them find the private practice attractive. Since most of the private doctors do not have inpatient facilities, their practice tends to be restricted to the management of non-serious diseases, referring the seriously ill patients to the government or other hospitals. Private doctors do not have inpatient privileges at the government hospitals.

The fees charged by private doctors are not controlled by any regulatory body, and they range from as low as \$2 in some cases to as high as \$25 for a visit. The average figure quoted is probably around \$5-\$10. With a per capita income of about \$300 per annum, it is not surprising that only a few can afford regular private health care.

It is difficult to assess from the resources enumerated above what proportion of the national modern health services is directly involved in child health. In fact, it was not possible to obtain a list of the specialties for the physicians in the country. It is true, however, that most of them would be technically classified as

general practitioners with no specific post-graduate specialty training. The importance of this is not exactly clear since it is quite true that much of the basic health needs of Ghana can be very competently handled by non-specialists. Even though a number of doctors may be working in a children's hospital or pediatric ward, only very few of them would have any formal post-graduate training in pediatrics.

The national figures on bed allocation do not specify exactly the percentage of beds allocated to pediatric cases. However, in a 1971 analysis of the "bed state" in hospitals in the country, there were 1936 (or 17.8%) cots out of a total of 10,851 beds.³⁰ Cots are usually used by newborns and young infants. In 1973, there were 4932 midwives and nurse-midwives whose duties directly related to the care of pregnant women and childbirth. At the same time, there were 6153 general service trained nurses (see Table 6). The high number of midwives and nurse-midwives compared to the general service nurses may be a good indication of the importance of maternal and child health in the health services. It may also indicate the increased utilization of modern methods of prenatal care and childbirth by pregnant Ghanaian women.

Traditional. It is a fact that before modern medicine arrived in Ghana with the European adventurers, traditional medicine was the source of medical care for the people. Traditional medicine has always been very closely related to the religious beliefs and

the cultural activities of the people. It is, therefore, not surprising that the first attacks on traditional medicine were made by the European Christian missionaries. In their attempts to convert the Africans to the Christian faith from the traditional religions, the missionaries sought to discredit traditional medicine. The resulting development was that the "converted" African would no more use traditional medical methods. Ultimately, the introduction of modern formal education by the missionaries seriously threatened the survival of traditional medicine by labelling it "uncivilized" and "unscientific." However, the close connections between the cultural and religious beliefs, and traditional methods of medical care kept the "spiritual" belief in traditional medicine alive. Even educated Africans who would not themselves go to see a traditional doctor still believed that the traditional doctor was not ineffective in treating some diseases. In practice not only those people who were being cared for by traditional doctors, but many more, believed in traditional medicine. One had to "believe in" traditional medicine because the higher forms of traditional medicine were not simply diagnostic and treatment methods, but they were inseparable from the traditional philosophies and beliefs about human life and interpersonal relationships. The "persecution" of traditional medicine by the new Europeanized Christian and literate African, drove it "underground." The activities of traditional doctors became shrouded in

secrecy. The competing influence of modern health centers and doctors compelled the traditional doctors to guard their methods of operation and their knowledge about herbs from other people. The aspect of magic which probably had always been part of traditional medicine became even more prominent because of the suppression. The survival of traditional culture, however, assured the fate of traditional medicine. In the early 1960's the government of Ghana started to bring traditional medicine into official public recognition. A national organization of traditional healers was formed, and efforts were begun to bridge the gap between traditional and modern medicine. Now there have been several research projects looking into the pharmacology of traditional medicine, and the psychiatric aspects are also being studied by modern "scientific" doctors.

There are many levels of traditional medical care in much the same way as modern medicine. Self-medication with traditional "drugs" is practiced by many people as the first level of therapy in the same way that many people in the United States take aspirin when they have a headache. The next level up is the "family doctor," usually the father, who knows of treatments for one or a few common diseases and would treat the members of his family who developed those diseases. Such knowledge is usually handed down vertically from father to son. A more organized version of this limited

practice is a part-time traditional doctor who treats people in his immediate community with some particular diseases. He would ordinarily not charge people for his services. The professional full-time traditional doctor also comes in many forms. There are roving "medicine men" who travel around selling "drugs" for specific diseases. Of course, the definition of the specific disease in most cases does not coincide with the description of symptomatology in the modern medical terms. These salesmen of medicine in actuality do not take care of people since they have no followup of patients, nor do they sell only to those who are sick.

It is interesting to note that it is more common these days to see travelling medicine men selling modern drugs than the traditional preparations. The equivalent of the modern private practitioner with an office also exists in traditional medicine. The office in the case of the latter is usually his home.

The traditional doctors described above usually have little or no religious attachments, and the "spiritual" or psychiatric component of their practice is usually negligible. The religious traditional doctor, attached to a traditional house of worship is the fetish priest. This is the figure commonly referred to as the "witch doctor" in Western parlance. In fact, he is a combination of medical doctor, psychiatrist, and a faith healer. His medical work is directly connected with his work as a priest, and he usually seeks "spiritual"

explanations for disease. The success or failure of his treatment methods is usually dependent on the acceptance or rejection of his "spiritual" diagnoses. Witchcraft is a major part of his spiritual activities and excorsism is a frequent adjunct to medical therapy. The fetish priest usually has inpatient facilities, and the large treatment centers sometimes have patients live there for months. Such long-term patients usually become involved in the religious activities of the fetish. There are other forms of traditional medical practices which are variations of the major ones described above.

The equivalent of a hospital in the traditional sense would be a village or group of houses, with assistants and worshippers, and inpatients, all serving both as a center of worship and a center of health care.

As mentioned earlier, the true contribution of traditional care is impossible to assess. Its influence definitely has an impact on the manner in which the people accept and practice modern health care methods. It has a major advantage over the modern medicine by its ability to give "spiritually" satisfying answers to the causes of disease. In a few cases, traditional methods of care have actually proven to be somewhat more efficient than the modern methods. In Ghana it is quite true that traditional doctors have sometimes had better results in the management of fractures, especially in cases where the modern doctor has decided on

amputation as the last resort. However, traditional medicine does present a lot of problems, the real toll of which may also be impossible to assess. Many patients are brought to modern hospitals in the terminal stages of treatable diseases, because valuable time was wasted with some traditional methods of treatment. In the rural areas, and even in the cities, it is quite common for patients to seek help from modern medicine only after some traditional mode of therapy has been tried without success. This applies to minor ailments as well as serious ones.

From my interviews with parents this summer, it was evident that the attitudes of people even in the rural areas are changing with respect to when to seek modern health care. Whereas in the past most people had felt that only serious diseases warranted the attention of a modern doctor, now it appears that the sense of early diagnoses and treatment is growing. There are many people including the modern-educated, the illiterate, the Christians and the traditional worshippers who would never go to a traditional doctor for medical help. They are fully convinced that only modern medical methods can give them solutions to their health problems.

At the same time there is a large section of the population who make use of both modern and traditional medicine. Some base their decision on which type of help to seek on their own estimation of the etiology of the disease. It is a popular notion that modern

medicine cannot treat diseases which have spiritual or witchcraft origins. If the family of the patient believe that the disease is not "ordinary" but suspect a "spiritual" cause, they will send the patient to a traditional fetish priest. It is not uncommon to hear of a family taking a chronically ill relative from the modern hospital after a prolonged stay with little improvement to a traditional doctor because they have decided that the cause of the disease only lies in witchcraft.

The new type of a combination of traditional and modern methods of medicine mentioned earlier has become quite popular in recent years. A good example of this type is the modern faith-healer, who uses the Christian faith and a strong "belief" in God to perform healing. Some of these healers have large followers, and like the fetish priest, serve both as preachers of their Christian faith and as healers. They usually belong to the new types of African Christian churches commonly referred to as "spiritual churches." The strictest of these do not use any medications at all and only heal through prayer. Their patients usually must denounce their previous "faiths" and convert to the church of the healer. The medical work done by faith healers is probably more of a psychiatric nature than purely medical. Some of these new churches have fallen into public shame because some of the "healers" have been exposed as quacks only looking for means to get rich quickly.

Some of them charge a considerable amount of money for their services. Not all of them are purely "faith healers." Some use medications -- modern medicines or traditional drug preparations -- as adjuncts to their "Christian" prayers. These new types of healers seem to thrive in the new urban areas where people originally from the villages are undergoing substantial socio-cultural transformation. Their churches usually have lively music and dancing, closer in nature to the traditional religious gatherings than the "straight" Christian churches such as the Catholics.

Another phenomenon on the medical scene in Ghana is the "druggist" who sells modern drugs on the open markets. These entrepreneurs, most of them with absolutely no training in any medical field, sell all kinds of drugs for all types of diseases -- at least by their own designation. Just like the traditional medicine man selling traditional herbs and other preparations, these people are primarily businessmen. They have no knowledge of the drugs they sell and make fantastic claims about their indications. During the summer of 1974, it was a common sight on the open markets and in the streets to see one of these drug salesmen singing the praises of his wares selling Terramycin capsules for headache, backache, and rheumatism. The dangers of free dispensing of antibiotics on the open market are, of course, not apparent to the general public. There is no enforcement of any drug control laws to prevent such misuse of drugs. The future of traditional medicine lies in the ability of the government

through conscious efforts, to preserve it for historical purposes,
and also to modernize it and to make it more acceptable to the
changing culture.

CHAPTER IV

KUMASI History, Geography, Population

Kumasi, the "community" for this study, is the administrative capital of the Ashanti (British mis-spelling of Asante) Region. Until the formation of Ghana as a country under British Colonial rule, Kumasi was the most important city in the area, serving as the capital of the Asante Nation.

The Asante are the largest group of the Akan people of Ghana. The Asante nation was founded by King Osei Tutu, the first Asante-hene ("ohene" means "king" in Akan), through the consolidation of some smaller city states in the late 17th Century. King Osei Tutu was assisted by his lifelong companion and political advisor, Okomfo Anokye, the greatest fetish priest in the history of the Akan people of Ghana. Traditional history says that, in order to decide where to build the capital of the young Asante nation, Okomfo Anokye planted two Kum trees, one at the present site of Kumasi, and one at Kumawu, another Asante town. The tree at Kumasi grew and flourished while the one at Kumawu died. Okomfo Anokye advised King Osei Tutu to build his capital where the tree flourished. Kumasi in Akan language means "under the Kum tree," and Kumawu means "Kum is dead."

It was also at a great gathering of Asante chiefs and people at Kumasi, convened by Osei Tutu, that Okomfo Anokye is said to have commanded the Golden Stool to be brought down from the sky. The Golden Stool -- which is still in existence in the palace of the present Asantehene in Kumasi -- has since served as the soul and symbol of the Asante Nation. Kumasi grew to become an important city as the Asante nation grew to become the largest and most powerful ethnic group in Ghana. By the middle of the 19th Century the population of Kumasi was estimated to be between 100,000 and 200,000. But in 1901, after a long series of Asante wars, and near total destruction of the city by the British in 1874, the population had dwindled down to only 3,000. By 1921, the population had climbed to 35,829, and 180,642 by 1960. The 1970 census showed that the population of Kumasi had increased to 260,286, with 345,117 people in the Kumasi urban agglomeration.³¹

Kumasi is situated in the tropical rain forest region of Ghana. It has a mean annual temperature of about 78° F.³² with a peak of about 90° F. and a low of about 65° F. Its mean annual rainfall is about 58 inches³³ with a dry season around November to February and a wet season from April to September. The annual mean relative humidity is about 88%.³⁴ Kumasi is in the midst of a rich cocoa and timber-producing region and its fast growth in this century can be attributed largely to the wealth of its people

derived mainly from cocoa and timber industries. It serves as the main commercial center for the region, and now it is fast becoming a modern industrial center. Kumasi is the main link between the coastal regions and the northern regions of the country and is, therefore, the major center for transport and communications networks across the country. With its rich traditional history, the city has grown to become the cultural center of all of Ghana, and even though it is now a modern metropolitan city, it still maintains a strong traditional Asante character.

The present population of Kumasi is made up not only of Asante people from the surrounding region, but of large numbers of people from all over Ghana. There is also a considerable non-African population comprised mainly of Lebanese and Indian traders, and European and Americans involved mostly in educational activities. Kumasi is a great educational center with several good secondary schools and teacher training colleges. It is the home of the University of Science and Technology.

CHAPTER V

Health Care Resources Available in Kumasi

The health care facilities in Kumasi can be divided along the same general lines as the national level. In the modern health facilities there is the large government-run system and also the private non-profit and private profit-making systems. In addition, there is a large traditional sector.

The major health establishment of Kumasi is the Komfo Anokye Hospital (KAH), the second largest hospital in Ghana. It has 537 beds and 130 cots and serves as the main referral center for the Ashanti Region. Close to the hospital is the Maternal and Child Health Center (MCHC), a 31-bed unit which specializes in pre-natal care and some specific childhood problems. (These two establishments served as the main sources of information for this study and will be described in more detail later.) Kumasi also has an 18-bed Communicable Disease Hospital which is used mainly for isolation purposes. The three institutions just described are government-run facilities and open to the general public with only token fees paid. There are two quasi-government hospitals -- the 24-bed, two-cot hospital of the University of Science and Technology, and the 20-bed, six-cot Military Hospital. These are only used by people connected with these two institutions. There are eight private "hospitals" with

a total bed allocation of 119 and nine cots. These are not true hospitals in that the services provided are very limited.

The total inpatient capacity for all the health establishments in Kumasi amounted to 896 in 1971.³⁵ There are no figures available for 1974. In 1970 the entire Ashanti Region, with a population of about 1,482 million, had a total of 1,502 spaces for patients in all the health establishments. The population per bed ratio based on 1970 population census and growth rates would be for Kumasi about 300 people per bed and for Ashanti it would be about 986 per bed. It must be mentioned that the number of beds in any of these institutions is not an accurate reflection of the full capacity, especially in the government establishments where it is not unusual to have patients sleep on the floors because of lack of any more beds. The state of the inpatient capacity for Kumasi and Ashanti have probably not changed much since 1971 since no new large establishments have been opened. Whatever slight increases there may have been might have been in the private system.

In Kumasi the outpatient services at KAH have been greatly relieved by the construction in the mid-1960's of two Urban Health Centers. Accurate figures are again difficult to come by, but one of these, the Manhyia Urban Health Center, saw 142,581 patients in 1972. The other center probably saw about the same number of patients since the two health centers are identical in size and

provide basically the same services to different areas of the city. Most of the city's immunization programs and outpatient care of school children are carried out at these health centers. In addition, the 21 private doctors in Kumasi hold 18 clinics in the city on the weekdays and see quite a number of patients. Dental clinics are held at KAH as well as the two Urban Health Centers.

The bulk of the modern health personnel in Kumasi work for the government medical services. The Regional Medical Officer of Health who is in charge of the whole Ashanti Region is also in charge of the government-run facilities in Kumasi. In addition, a City Medical Officer of Health is also available to deal with some of the public health programs in the city. Much of the public health services in the city are run by the Regional Public Health Nurse who is in charge of the whole region, in collaboration with a District Public Health Nurse. The Regional Public Health Nurse's department sends out Community Health Nurses and other workers who directly engage in various public health activities. These activities include the following services:

1. Maternal and Child Health Services
2. School Health Services
3. Prevention and Control of Communicable Diseases
4. Health Education
5. Inspection of Maternity Homes and Supervision of Domicilliary Midwifery

These programs are organized on a regional basis.

The Maternal and Child Health Services include the running of pre-natal clinics for pregnant mothers throughout the region. In 1971, 82,301 were seen by the Public Health Nurses in these clinics. The nurses give the mothers demonstrations and talks about modern pre- and post-natal care, and also hold discussions on family planning. They visit and inspect all private midwives and advise them about modern methods of delivery, and also teach them how to administer BCG vaccination to all the newborns. Child Welfare Clinics are organized throughout the region by the Public Health Nurses. The clinics usually meet every two weeks to deal with common childhood ailments and also to give immunizations.

Some of the common ailments seen at these clinics are "fever" complaints, cough, colds, diarrhea, and skin infections. The "fever" complaints are usually due to malaria. The more seriously ill children they come across in these clinics are referred to hospitals for further evaluation and treatment. They also follow patients who have been discharged from the hospital and who need some follow-up at home. The Public Health Nurses give routine small pox, DPT, BCG, measles and polio immunizations. In 1971, a total of 73,919 children were seen at the various child welfare clinics in the region of which 10,712 were new cases.³⁶ In Kumasi alone there were twelve child welfare clinics which met every two weeks. In 1973 these clinics had a total of 12,155 consultations.

In the school health program, the Public Health Nurses carry out "routine hygiene inspection" in selected schools in the region. BCG and small pox immunizations are given to the school children who may need them. In Kumasi there is a Dental Inspection program for the schools organized by these nurses with the assistance of two Dental Surgeons. They also conduct "Minor Ailments" clinics in the schools. In 1971 there were four such centers in the region, and these dealt with minor health problems such as cuts and sores. The nurses give talks on personal and environmental hygiene, diet, and good health habit formation to the school children. In 1971, 3,358 pupils were seen in these clinics out of whom 164 had problems serious enough to need referral to a hospital or health center for management.³⁷ As part of the school health program, the Public Health Nurses inspect all day care centers to see that good health standards are maintained.

The work in prevention and control of communicable diseases is primarily devoted to immunization. They also trace contacts of patients seen in the health establishments with communicable diseases. This work usually involves cases of tuberculosis, measles, cholera, tetanus, typhoid, suspected cases of diphtheria, infectious hepatitis and poliomyelitis. Where necessary, the homes of the contacts are cleaned and disinfected. In this follow-up work, doctors in the hospitals alert the Public Health Nurses when a case of a communicable disease is presented so that the nurses can trace the contacts.

The nurses also make special visits to follow cases that need close observation and advice on home care. Some of these cases include malnutrition problems, leprosy cases, twins, triplets, premature babies, babies whose mothers died during delivery, and old people who need home nursing. They also make visits to the Children's Home Rehabilitation Center, an institution for the handicapped, and to the Probation, Remedial and Destitute Homes for juvenile delinquents.

The nutrition programs of the region are organized through the Regional Public Health Nurse's office. Regional Nutrition Officers hold clinics throughout the region. The malnutrition clinic at the MCHC in Kumasi is run by these Nutrition Officers and Nutrition Assistants. They also make home visits to teach mothers how to prepare "artificial" baby foods, and how to take care of the feeding utensils.

From the above description, the organization of the Office of the Regional Public Health Nurse sounds quite impressive, especially in the field of maternal and child health. Unfortunately, due to lack of adequate training facilities and funds, there is a serious shortage of manpower to carry out some of these well-planned programs. The result is that many of their programs, even though planned on a regional basis, can only serve a few communities, thus leaving a large portion of the rural population untouched by their good work. For instance, in 1974 only nine schools in the entire region had

regular routine hygiene inspections. In the city of Kumasi, it became necessary to rotate these services through the many schools so that any one child can expect to be seen only three times during the eight-year elementary school education for these well-child checks. The child welfare clinics are also restricted to only a few villages making it necessary for others to travel for long distances to attend the clinics.

The Office of the Regional Medical Officer of Health is also in charge of the Medical Field Unit. This unit is the mobile division of the section that deals with the control of communicable diseases. The Medical Field Unit performs several routine duties, but also has the capability of re-organizing itself to meet new demands created by outbreaks of diseases. In 1971 their program of activities involved the following:

1. The eradication of smallpox and control of measles.
2. Trypanosomiasis investigation and treatment in one area where there was an outbreak (Asukwa)
3. Treatment of yaws by field teams and also at fixed centers
4. Cholera inoculation by special teams.

There was a small outbreak of cholera in Ghana in 1971, and that year the Medical Field Unit inoculated 691,545 persons against cholera.³⁸ (The population of Ashanti Region in 1971 was about 1.52 million.) Thus, more than one-third of the population were reached by the Medical Field Unit alone. Other health establishments such as the hospitals inoculated a further 53,765 people.

A special leprosy clinic is held at Kumasi on a regular basis, and also in villages throughout the region. There is a regional leprosarium at a town called Kokofu, run by the Catholic Mission. In 1971 no new case of leprosy was reported in Kumasi.

The Office of the Regional Medical Officer of Health is supposed to collect all the data on the incidence of communicable diseases and causes of death. Unfortunately, the techniques of reporting are not accurate and the figures compiled usually fall far short of the true situation in the field and in the hospitals. The same problem exists with statistics obtained from the City Medical Officer of Health's office. The above discussion on the health care services in Kumasi (and Ashanti) was based mostly on information obtained from the Annual Report of the Regional Medical Officer of Health. At the time of this study (June-July, 1974) the latest issue of the Annual Report was for 1971!

As mentioned earlier in this discussion, the Private Medical Services in Kumasi, in the modern system, is quite small. The 21 private physicians in the city of Kumasi operate mostly outpatient services with very little inpatient care. Only eight private "hospitals" exist with a total of 119 beds and nine cots. These are not even deserving of the word "hospital" since they are merely small inpatient facilities where private patients can stay and receive nursing care and medications from their doctor. There are no extensive supportive

services such as X-ray department or laboratories. The seriously ill patients who need more intensive care and diagnostic work are referred to the other hospitals -- KAH in most cases. The private doctors hold 18 clinics in the city and that is where they perform much of their services to the city. More and more people now seek out private medical care for themselves and their families even though the government services are available for virtually no charge. The new "urban elite" of educated people, wealthy individuals, and simply those who are aware of "good" medical care, usually prefer the private doctor's "personal" service to the large government services. The private doctors all have large practices which seem to be getting even bigger. No figures have been compiled on a city-wide basis to actually show how many people are served by the private services, but it is still only a small section of the entire population that do go to private doctors.

Kumasi is a modern traditional city. Even though its population is made up of people from all over the country, the basic Asante character of the city prevails and the newer "immigrants" also have maintained their own traditional customs. Traditional medicine is, therefore, still a big factor in the lives of many people. For some, it is still the first source of help for most health problems. All the different types of traditional medical workers described earlier also exist in Kumasi. Because of a large Moslem community of Northern

Ghanaians, the strong bond between religion, culture, and traditional medicine is strongly expressed even when modern medical assistance is finally sought. The importance of traditional medicine is recognized by the court of the Asantehene, the King of the Asante, and, in fact, one of his "officials," Nana Nsumankwahene, the "Chief Fetish Priest," is the head of all the traditional healers in the city and in the region. He provides broad guidelines to all the traditional healers who accept him as the authority. The traditional healers in Kumasi are organized into a group with Nana Nsumankwahene as the head. This group, however, consists of only the well-known, well-established traditional doctors. Many more operate on their own and without any guidelines from anyone. The work they perform in child health will be discussed later, but it is necessary to point out that most of these traditional doctors have a strong idea of what sorts of diseases now "belong" in the modern medical system, and which ones they can deal with. The general population also accepts this ill-defined separation of influence.

For instance, in the city of Kumasi, it would be highly unlikely that a victim of an automobile accident, with injuries, would be sent to a traditional doctor. In such cases of clear cause and effect, the modern hospital is the clear choice. Again, the number of people who exclusively use traditional medicine is probably very small. But, the number of people who use both modern and traditional

medicine is probably very high. Even though people usually deny having sought some traditional help before coming to the modern hospitals for fear of being scolded, it is well-known by all the modern health workers that such a practice is the norm rather than the exception.

The markets and streets of Kumasi are abound with people selling all kinds of medication including some "prescription drugs." Antibiotics such as penicillin and terramycin can be purchased on the open markets. The seller almost always does not know much about the drug or what it is supposed to do, but sells it for all kinds of symptoms. The modern medical system has no control over such sales.

Kumasi is also famous for the presence there of some of the most popular "spiritual healers." These are Christian "faith healers" who have large followings and hold large sessions of worship and healing. Most of these healers are purely "faith" healers and do not use any medications. Their impact on the health of the people is also hard to assess. They have become more popular in recent years because they seem to meet the needs of the "faith hungry" urban masses who have broken out of their traditional rural lives to move into the city. They and the old traditional systems probably still are useful in the treatment of psychiatric disorders. With many organic medical problems, they may, in fact, be harmful by delaying good treatment in some cases.

CHAPTER VI

Komfo Anokye Hospital (KAH)

History³⁹ and Physical Resources, Personnel, and Functional Organization. The first government hospital was built for the people of Kumasi in 1910 when the Asante nation was under forced British rule, and the city of Kumasi was under martial law. This hospital was called "Native Hospital." At the same time another hospital was built by the colonialists for themselves and this was called the "European Hospital." The inadequately equipped "Native Hospital" was put to a great test in 1918 with the dreadful influenza pandemic, and again in 1924 when there was an outbreak of the plague in Kumasi. The details of the bed space of the hospital were not available, but from accounts from those two epidemics, it was clear that the Native Hospital was too small to handle the hordes of patients.

The two epidemics made the people of Kumasi painfully aware of the need for a new hospital. Another factor of the epidemics was that the people became more aware of the availability of modern health care. It is said that pregnant Kumasi women began to go to the hospital for maternity care instead of relying on traditional methods. The push for expansion of the health facilities after the epidemics led to the construction of the Child Welfare Clinic in 1928. This is the present day MCHC. As far back as 1942, the leaders of

Kumasi and Ashanti region were complaining to the colonial authorities for the construction of a bigger, modern hospital for Kumasi. By 1950 the Legislative Council of the Gold Coast -- the colonial government -- had approved of the sum of one million British pounds for the construction of a new hospital for Kumasi. The Convention Peoples Party led by Kwame Nkrumah, then the majority party, later increased the allocation for the hospital to 4.5 million British pounds, and finally construction started in 1952. The new hospital, built at the site of the old "European Hospital," was completed in 1957. It was the same year that Ghana regained her independence from the British.

The hospital, then known as Kumasi Central Hospital, is situated on the top of a hill in the central area of Kumasi. The name of the hospital was later changed to Komfo Anokye Hospital after the great fetish priest, Okomfo Anokye, who helped build the Asante Nation. It is one of the most imposing structures in the city. It consists of five main buildings linked together end to end in a step-wise fashion.

The first building houses the outpatient departments, the administrative offices and also the two delivery floors and newborn nurseries. The other four buildings, all six-story units, comprise the inpatient wards, with clinical laboratories, radiology and physical therapy and other departments on the ground floors. The outpatient department has separate sections for pre-school children, school-age children, general medicine, surgery, and gynecology. The outpatient surgical section

deals mostly with dressing changes of wounds. The casualty section (emergency room) is also located in the general outpatient building.

The hospital has a total of 537 beds and 130 cots. As mentioned before, the total patient capacity on any ward may exceed the bed capacity since it is not at all unusual to have patients sleep on the floor when the beds are filled up. This is especially true with the maternity and pediatric wards. In the newborn nurseries, it was very common to see two or three neonates in a single bassinette. Because most of the wards are open large rooms with several beds, the sexes are separated in the adult services so that, for example, there is a floor for adult male surgical patients, and another for the adult female surgical patients.

Attached to the main hospital building are the kitchen and laundry buildings. A separate building serves as the morgue. There is a Nursing Training College attached to the hospital. Soon to be completed (in 1975) is a new building on the hospital grounds which will serve as the main outpatient clinic. In effect, it will be the third urban health center of Kumasi. Its main purpose is to relieve the outpatient department of the hospital of its incredible overcrowding.

The chief administrator of the hospital is the Medical Superintendent who is also the Chief of the Medical Staff. The current Medical Superintendent (July, 1974), is a dentist and is also the head of the Dentistry Department. In July, 1974, there were a total of 65 doctors on the

staff of KAH. This number included six Housemen (interns) recently graduated from the Ghana Medical School. The major departments of the hospital and their physician allocations were:

Medicine	14 doctors
Surgery	14 doctors
Obstetrics & Gynecology	12 doctors (including two housemen)
Pediatrics	11 doctors (including three housemen)
Dentistry	6 doctors (including one houseman)

The following are smaller departments:

Ophthalmology	1 doctor
Pathology	1 doctor
Anesthesia	2 doctors
ENT	2 doctors
Chest Clinic	1 doctor
Radiology	1 doctor

There is a Department of Orthopedic X-ray with a Senior X-ray Technician in charge. Other Departments which were not headed by members of the medical staff were:

Physical Medicine	2 physiotherapists
Limb Fitting Center	1 senior orthopedic technician
Dispensary (pharmacy)	1 pharmacist
Department of Social Welfare	
Department of Records	

It should be pointed out that the physicians listed under any of the major departments are not necessarily specialists in those fields. In fact, only very few of the doctors have had post-graduate specialty training, and most of them are general practitioners. In the Pediatric Department, for example, out of the eleven physicians on the staff, only the head of the department was a trained pediatrician. This situation does not necessarily mean a lack of good health care for the children since much of the work done in the pediatric department can be competently handled by general practitioners.

Komfo Anokye Hospital, as mentioned before, is the second largest hospital in all of Ghana. It is a government hospital which means that anyone can go there for medical care for only a token fee. Its major problem is overcrowding. Because it has built up the reputation as the ultimate referral center in the region, several people bypass other hospitals and health centers to come directly to KAH. The outpatient services of the hospital are used primarily by the many people who cannot afford private medical care and by those whose special medical needs cannot be met by the private services. The long hours of waiting and the congestion are enough to compel the few who can afford to pay to seek private health care.

Because the private physicians have a very small inpatient service, KAH handles almost all the inpatients in the city. Its inpatient population, therefore, comprises people from all walks of

life. It is interesting, therefore, to note that there are special semi-private wards set aside for the "more privileged" members of society and their families.

KAH is a Regional General Hospital. It serves not only the people of the city of Kumasi, but receives patients from all over the Ashanti Region as well as from other regions. The outpatient departments serve the city of Kumasi plus the surrounding smaller towns and villages from where patients come everyday by various means of transportation. A study conducted by the Ministry of Health in 1966 showed that 65.88% of the inpatients at KAH were from the Kumasi urban area, 2.224% were from a different urban area in the Ashanti Region, and 29.38% were from the rural areas in the region. Patients from other regions made up 2.5% of the sample studied.⁴⁰

Analysis of Total Hospital Data from Records Office. The outpatient departments of the hospital keep fairly accurate records of the numbers of patients seen on a daily basis. This information is reported to the records office which compiles "complete" statistics for the entire hospital. The information on outpatients also includes the sex and the age of each patient seen. Unfortunately, no records are kept of the presenting clinical problems or the provisional diagnoses of the cases seen. It is, therefore, difficult to get any clear picture of the disease spectrum presented to the outpatient services from past records. The only basis for accurately assessing the

work performed by these services lies in the volume of the patient load. Table 7 shows the record of the monthly visits to all the outpatient services. The patients are broken down by sex, and also into "new" and "old" patients. Strictly speaking, the "new" patient is supposed to be one who has not visited the hospital with the current health problem. A new patient could, therefore, be a patient who has had multiple visits for a particular ailment, but who comes in now with a different and new disease. However, this designation is difficult to make since the assignment of "new" or "old" status to a patient is not made by the medical staff, but by the staff of the records office. Any patient who visits the outpatient services is given an identification card. On subsequent visits the patient is supposed to present this card to the records office so that his clinical records chart can be pulled out for the current visit. Many of the patients lose their identification cards -- which are made of paper -- and rather than go through the usual verbal scolding from the harassed records office workers, they simply say they've never been to the hospital before. To the records office, then, a "new" patient becomes one who is issued a new card. This may explain the high proportion of new patients.

In 1973 a total of 320,709 patient visits (see Table 7) were made to the outpatient services of KAH. Of these, 238,195 or 74.3% were "new" patients and 82,514 or 25.7% were "old" patients. Of

TABLE 7

Komfo Anokye Hospital Record of Monthly Outpatient Visits 1973
(all ages)

	New Patients			Old Patients			Grand Monthly Totals
	Male	Female	Total	Male	Female	Total	
January	11,008	10,161	21,169	2,712	2,348	5,060	26,229
February	10,122	9,146	19,268	3,177	2,789	5,966	25,234
March	10,683	10,193	20,876	3,932	3,185	7,117	27,993
April	9,635	9,053	18,688	3,372	2,836	6,208	24,896
May	10,922	10,838	21,760	4,223	3,550	7,773	29,533
June	10,155	9,444	19,599	3,795	3,767	7,562	27,161
July	10,594	10,493	21,087	4,374	4,439	8,813	29,900
August	9,521	9,538	19,059	4,250	3,609	7,859	26,918
September	9,018	8,930	17,948	3,360	2,841	6,201	24,149
October	10,614	10,272	20,886	3,553	3,073	6,626	27,512
November	11,631	11,640	23,271	4,146	3,527	7,673	30,944
December	7,717	6,867	14,584	3,236	2,420	5,656	20,240
Whole Year	121,620	116,575	238,195	44,130	38,384	82,514	320,709

Source: Records Office, Komfo Anokye Hospital, Kumasi, Ghana

the patient visits, 165,750 were made by males, constituting 51.7%, and 154,959 or 48.3% were made by females. It should be pointed out that a major service, pre-natal care of women, is not offered by KAH. This service is rendered by the MCHC. The lack of pre-natal care at the hospital may explain the slight preponderance of male visits over female visits. The pregnant women who visit the MCHC tend to go there first with all their medical problems.

The outpatient services, similar to other hospitals, close on Saturdays and Sundays with the exception of the emergency room. At KAH the emergency room, known as the Casualty Section, is a true emergency service. It deals mostly with accident victims and other very acute cases. It does not serve as a walk-in clinic since the general outpatient departments serve that purpose. The attendance to the various outpatient services are usually not by appointment. Even the 25.7% "old" patients come in on a loosely arranged appointment and do not come in usually to see any particular physician, but to go to the same place they went on the previous visit. On a day-to-day basis, therefore, the outpatient services do not have any list of patients who are expected to visit each particular clinic. It is, therefore, not possible to assess compliance of the population with hospital visits. There are no time-scheduled appointments either. A patient seen on a Friday is only told to come back again the following Friday, but not any particular time on

that Friday. This is because the system of processing incoming patients can be so time-consuming and unpredictable that there is no guarantee that time appointments could be followed. This, however, is not an excuse but rather a sign of the disorganization within the system. Most of the people who decide to go to the hospital on any of the weekdays go there very early. The outpatient services do not open until 8:30 a.m., but as early as 6:30 a.m., patients start gathering outside the hospital gates. It is not at all unusual to have a "new" patient spend six or more hours at the hospital going through the processes of seeing a doctor and getting the medications prescribed.

There are two steps in the processing that can consume several hours. The first step is the records office. All the patients visiting any of the outpatient services except the Casualty Section have to make a stop at the records office before they can see a doctor. "New" patients have to be processed for new identification cards and records charts. Since the majority of the patients are illiterate, the forms that have to be completed are all completed by the records office personnel. The Records Office is situated at the main waiting area of the outpatient department. It is a small office, and usually has only two windows open for business. One window processes "new" patients and the other processes "old" patients until all the "old" patients are completed before both windows service the "new" patients. The reason why most of the patients come in very early is so that

they can get to be in the front of the two lines leading from the two windows of the records office.

After the patient is processed by the records office and is given his old chart, or his new chart and an identification card, then he has to rush to the particular outpatient department he is supposed to go to, present his chart to a clerk, and then join the waiting line there to see the doctor. Much of the waiting is done sitting except at the windows where it is necessary to stand. It is common to have people wait for as long as two or three hours before finally getting to see the doctor. The actual contact with the physician is the briefest of all the steps. It can be as short as one or two minutes and as long as six to ten minutes depending on whether the consultation involves undressing for an examination.

The next problem arises if the physician prescribes a medication for the illness. If one has the money to buy the drug or if the drug is not available at the hospital pharmacy, then one gets to leave the hospital. For the poorer patients, having to purchase the medication themselves is definitely the greater of two evils. The other evil arises when the medication is available at the pharmacy and the patient then has to go and join the long lines there to wait for it. That can also take from one to two hours, depending on whether the particular drug has to be reconstituted or prepared for the patient.

As mentioned above, in 1973 there were 320,709 visits made to the outpatient services. This, of course, includes the emergency room which is open on a 24-hour basis. But the emergency room only deals with injuries and the very acutely ill, thus most of the 320,709 patient visits were made on the weekdays of 1973 to the other outpatient services. Without excluding holidays (when the outpatient services are closed) there are roughly 261 weekdays in the year. The daily patient visits to all the outpatient departments work out to be about 1,228! This means every weekday at least 1,000 patients go through the waiting lines at the outpatient services. This is a very serious problem. It is a major factor in discouraging people from using the hospital facilities when they are sick. Those who can afford it simply seek out private doctors, but the overwhelming majority cannot afford it. Sadly, quite a large number of people decide to wait until whatever disease they have reaches an advanced stage, or they turn to traditional medicine for help. Either choice many times leads to disastrous consequences.

For the many who have no alternatives but to come to KAH, the situation is not discouraging but only challenging. A patient would come in early in the morning accompanied by two or three members of the family ready to do battle with the long lines. One member of the group -- the patient himself if he is old enough, or a parent -- gets in the records office line, another joins the line going to the doctors office and another joins the lines at the pharmacy. By the

time the chart is obtained, the one in the doctor's office line is pretty close to the door, and after the doctor is seen, the one at the pharmacy is also close to being served. With a little help, the situation does not seem hopeless to the determined.

Another danger in the long lines of waiting is potentially more serious. Because there is no organized way of screening out the patients before they join these long lines, it often happens that a patient with a potentially acute condition or a painful condition spends hours waiting before seeing a doctor. A patient with a history of acute diarrhea and dehydration collapsed in one of the waiting lines on one of the days when I was observing the functioning of the outpatient department. Apparently he did not consider himself an "emergency case" and decided to go through the regular outpatient medical service. He had waited for over three hours occasionally excusing himself to visit the toilet and finally had become so weak that he collapsed. He was, of course, rushed to the emergency room, but it is quite possible that much suffering other than the mere pain of waiting goes on in those lines.

The monthly average attendance to the clinics comes out to be about 26,726 with the highest attendance, 30,944, in November and the lowest, 20,240, in December. The explanation for the upswing in attendance in November and the sharp decline in December most probably can be explained on the basis of the Christmas season. It is likely that in preparation for Christmas many people -- especially those living in the surrounding villages of Kumasi -- decided to visit

the doctor to take care of whatever health problems they might have. Survival until the New Year is of high cultural significance in Akan tradition and it may be that people worry more about their health at that time. Again, the Christmas holidays may partly explain the small number of patient visits in December. People would rather travel to be with relatives for the actual celebration of Christmas than travel to the city to visit the hospital for a minor ailment. Without information on the disease spectrum of the different months, especially between November, December, and the rest of the year, the above explanation can only be conjectural.

As mentioned before, there are four main units of inpatient facilities. These are separate buildings called "blocks," and are all linked together in a step-wise fashion. The blocks are named by letters of the alphabet and the wards of each block are named by numerals usually -- but not always -- designating the floor on which the ward is. Therefore, there are Blocks A, B, C and D; and the wards have names such as A1, B2, B4, C5 and so on. A typical ward has a large room with about 20 beds and three or four smaller rooms used for isolation purposes with one or two beds in each.

In 1973 a total of 33,139 patients of all ages were admitted according to the records office to KAH. This number included 9,511 pregnant mothers admitted for deliveries. Table 8 shows the monthly breakdown of the admissions by sex. Of the total number admitted, including the maternity admissions, 32% or 10,607 were male, and

TABLE 8

Komfo Anokye Hospital
Monthly Record* of Admissions and Deaths 1973
(all ages)

Month	Admissions			Deaths		
	Male	Female	Total	Male	Female	Total
January	880	1,824	2,704	126	84	210
February	769	1,606	2,375	112	79	191
March	974	1,944	2,918	131	71	202
April	965	1,888	2,853	111	56	167
May	1,025	2,152	3,177	105	48	153
June	823	1,971	2,794	93	72	165
July	840	1,838	2,678	113	54	167
August	886	1,853	2,739	92	83	175
September	833	1,822	2,655	77	76	153
October	1,010	1,926	2,936	120	54	174
November	770	1,918	2,688	109	82	191
December	832	1,790	2,622	110	71	181
TOTAL	10,607	22,532	33,139	1,299	830	2,129

*Source: Records Office, Komfo Anokye Hospital. Reliability is highly questionable.

68% or 22,532 were female. If the maternity patients are excluded, the sex breakdown of the patients shows 44.9% male and 55.1% female. In the outpatient service the male patient visits outnumbered the female patient visits by 51.7% to 48.3%, excluding pre-natal visits. It is not clear why more females are admitted than males. The records available do not give any account of the diseases for which all these patients were admitted. It is still quite possible that maternity-related problems admitted to the gynecological services may account at least in part for the higher female inpatient number. The attitudes of males and females towards hospital admission may also offer some explanation. In a society where the male still has a very strong image as the provider and the strength of the family, it is reasonable to expect that men would be more reluctant to spend time in a hospital away from their work. The loss of income and the admission of illness by a stay in the hospital both appear to mitigate against the self-esteem of the male.

The average admissions per month come out to about 2,762 for both sexes; 1878 for the females and 884 for the males for all causes. Of the 33,139 admissions, there were a total of 2,129 deaths. This represents 6.42% of all admissions for all causes. There were 1,299 male deaths constituting 61% of all deaths, and 12.25% of all male admissions; 830 females died, constituting 39% of all deaths, and 3.68% of all the female admissions. Of the 9,511 maternity admissions, there were 114 deaths, or 11.98 per 1000 deliveries (1.198%).

Excluding the maternity deaths, the sex breakdown of the deaths from all other causes comes out to 64.5% male and 35.5% female. This clearly shows that even though slightly more females are admitted than males, more males die in the hospital than females. Again, without a breakdown of the causes of death, it is difficult to explain the true causes of this preponderance of male deaths. A contributory cause suggested for the higher number of female admissions may also apply here. It is quite likely that the male, unwilling to be admitted to the hospital for his illness, stays away from the medical help until the illness has reached a hopelessly advanced stage before seeking treatment. Of course, it is also quite possible that the males are dying of some particular disease or diseases with a higher incidence, morbidity, and mortality in males than females. A closer look at the breakdown of the deaths by age groups will be taken during the discussion of deaths in the pediatric age groups.

The problem of overcrowding which seriously plagues the outpatient services also can be found in the inpatient services, although to a lesser degree. As mentioned before, it is not unusual to see patients sleeping on the floors because of the lack of bed space. This problem is mostly found in the maternity and pediatric wards and less so in the other services where there is more control over elective admissions. It was not possible to assess the average daily census in the entire hospital from the 1973 records, however, a 1970 analysis of some 11,386 admissions to KAH in 1970 gives some idea

of the occupancy of the beds through the duration of stay. It is not clear how this sample of 11,386, which does not represent the total admissions to KAH in 1970, was obtained. But if it is assumed that it represented a random sample of the inpatient population, then it can be seen from Table 9 that almost half (49.5%) of all the patients admitted stayed in the hospital for more than six days.

The figures presented in Table 8 were obtained from the records office. The reliability of these figures is questionable and will be examined again during the discussion of the pediatric admissions. It is true to say that these figures show quite a high degree of under-reporting and that the true totals probably exceed the totals in Table 8. These totals, however, represent the official hospital admissions and deaths for 1973, which would be reported for the computations of National Health Statistics of Ghana.

The Child Health Department of KAH

The Child Health Department of KAH is one of the busiest services in the hospital. It serves close to half the hospital population, yet its personnel constitute less than a fourth of the medical staff of the hospital (see Chapter IV).

There are eleven medical doctors in the Pediatrics Department. The department is headed by the Pediatrician-in-Chief. At the time of this study, the current chief was the only trained pediatrician in the department. The Child Health Services are offered mainly through

TABLE 9

Komfo Anokye Hospital
Duration of Stay of 11,386 Patients 1970*
(all ages)

Days	1	2-3	4-6	7-10	11-15	16-20	21-25	26-30	31-35	36+	Total
No. of Patients	1,239	2,309	2,195	1,913	1,384	709	450	314	192	681	11,386
% of Total	10.9%	20.3%	19.3%	16.8%	12.2%	6.2%	3.9%	2.8%	1.7%	.6%	100.0%

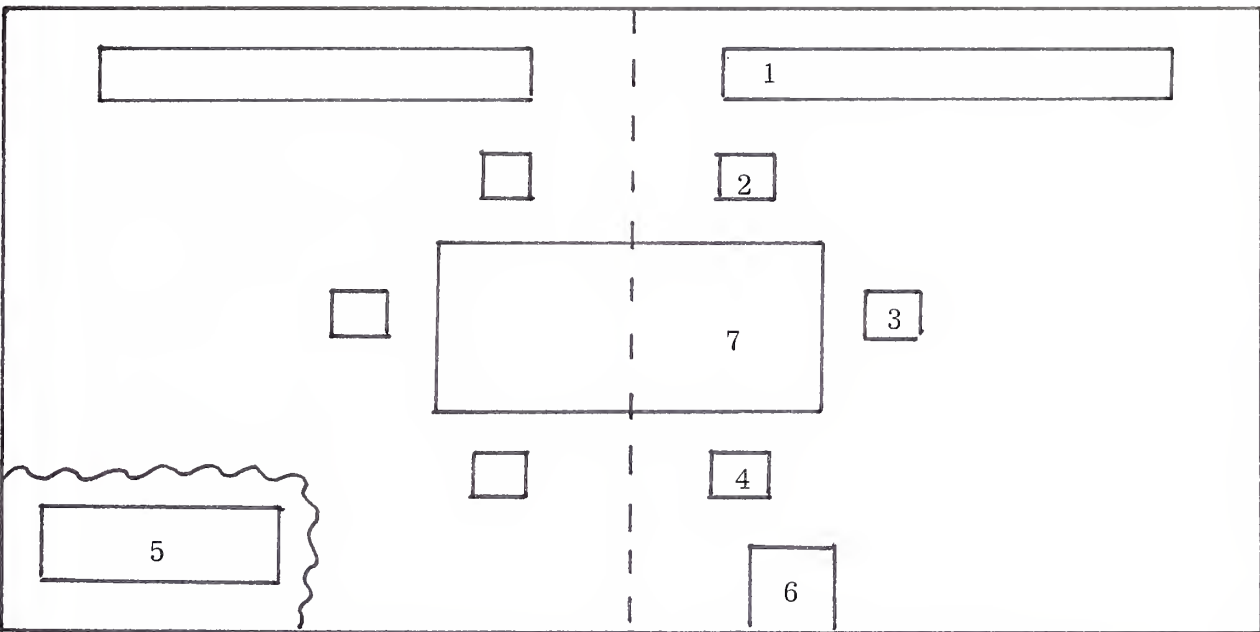
*Source: Center for Health Statistics, Accra, Ghana

four outpatient offices, or consulting rooms, two nurseries, a special "sick nursery," and two general medical wards. Pediatric surgical patients have a separate ward which is run by the Department of Surgery. The care of pediatric surgical patients is entirely in the hands of the surgeons.

In the outpatient department there are two consulting rooms for pre-school children and one for school-age children. A typical consulting room is a spacious 15 feet by 12 feet room with a table and six chairs for two doctors, two nurses, and two patients, and two long wooden benches for waiting patients (see Fig. 3).

There is one bed for examination enclosed by a screen. The bed is used only in cases where an older child has to be examined or when the complaint of the patient warrants it.

It is not at all routine for each patient to get a "complete physical examination" as a check of general health. Patients are called into the consulting rooms by a clerk who has a desk outside of the rooms and who receives the charts the patients bring from the records office. About six patients are always waiting on one of the wooden forms to see the doctor. Usually there are two doctors at the table and each one examines and interviews patients or their parents at the same time. A typical session at the table lasts less than four minutes. The doctor or the nurse asks for the chief complaint, the doctor asks any pertinent questions, gives a quick physical examination and writes down a prescription while the nurse records the important information of the visit on the chart. The



- 1 = Long wooden bench
- 2 = Nurse's chair
- 3 = Patient's chair
- 4 = Doctor's chair
- 5 = Examining bed (screened off)
- 6 = Sink
- 7 = Table

Fig. 3
 Layout of Typical Consulting Room, KAH

next patient is called as the previous parent scurries off to join the lines at the pharmacy. Vital signs are not routinely taken on the outpatient services. Growth charts are not kept, so the children do not routinely get their weights and heights measured before seeing the doctor. The clinics run purely on a curative basis. There are no well-baby checks except on a follow-up basis for children previously admitted to the hospital for some medical problem.

Two or three doctors attend the pre-school clinic and two take care of the school-age patients. In addition, the chief of the department runs his own clinic where all serious or complicated cases are referred. He usually runs his clinic with one other member of the medical staff. The referred cases not only come from the general outpatient consulting rooms, but also from the other Urban Health Centers in Kumasi, from private clinics (rarely), and from health centers outside of Kumasi.

Clinics in all three sections; the pre-school, the school-age, and the referred cases, are held every morning, Monday through Friday. The clinics usually run from 9:00 a.m. to about 1:00 p.m., but quite often they run on into the afternoon hours. The same consulting rooms are sometimes required for other purposes in the afternoons.

The Child Health Department of KAH also sends out two doctors to run daily clinics at the two Urban Health Centers in

Kumasi. The department also oversees the pediatric work at the MCHC which specializes in outpatient care of children with measles and whooping cough, as well as inpatient care of children with severe nutritional problems. There is very little well-child care at KAH. The two Urban Health Centers and the MCHC carry out the bulk of the well-child care which is mostly immunizations for young infants and other children. KAH, however, runs an immunization program for the children of the medical staff of the hospital. The Child Health Department does not run any special clinics for any special group of patients. There are no sup-specialty clinics, and the patients seen everyday are not in any way grouped according to their health problems.

The inpatient services are conducted in three main units. The major pediatric medical floor consists of two wards known as B4 and B5, both located on the fourth floor of the "B" block. These two adjacent wards are large rooms each having a few semi-private rooms for isolation purposes. These isolation rooms are usually used for diseases such as measles, tetanus, hepatitis, and pertussis. Wards B4 and B5 take children aged from three months upwards to 12 or 13 years. The 13-year olds are admitted based on their physical development. Children who are physically mature-looking are admitted to the adult floors since there is no adolescent ward. The two wards, B4 and B5 have a combined total of seven large beds, 24 cots, and

14 additional "treasure cots" or bassinets for toddlers and younger infants. The average daily census for these wards, however, far outnumber the bed space, sometimes being as high as 76 or more.

There are two well-baby nurseries and two premature-newborn nurseries. These nurseries are attached to the two delivery suites, and to the two main obstetric wards, A1 and A2. There are, therefore, A1 and A2 "Main Nurseries," and A1 and A2 "Premature Nurseries" for the well newborns and the premature newborns, respectively. In addition, there is a small ward attached to the A2 obstetric floor known as the A2 "Sick Nursery" which takes care of non-premature very sick neonates and young infants. It serves as a sort of intensive care unit although it is not actually equipped to carry out any special care. The Main Nurseries are similar to newborn well-baby nurseries in United States' hospitals in function, if not in appearance. The children spend from one to three days there, mostly waiting for their mothers to be discharged from the obstetric floors. Each Main Nursery has 24 bassinets ("treasure cots"), but again, the average daily census far exceeds the number of bassinets. It was a common sight to see three unrelated newborns sharing one bassinet. The babies are fed by the nurses or by their mothers who are allowed to come in from the wards to breast-feed their babies.

Each Main Nursery has a Premature Baby Nursery. These two Premature Baby Nurseries are small units with space for six

babies in each. Each of the Premature Baby Nurseries had two incubators, the rest of the bed space consisted of bassinets. There were no respirators in either Premature Baby Nursery, although an oxygen tank was available and probably could be used to administer oxygen to any of the babies in the incubators. This meant at the most, only two babies could receive oxygen therapy in each of these two nurseries. The Premature Baby Nurseries are very simple acute care units, nowhere near in quality to the highly sophisticated modern newborn special care units in the United States. Perhaps the only similarity is the constant nursing attention. But even in times of emergency, there is very little that could be done since there is no equipment for assisting resuscitation.

Similarly, the A2 "Sick Nursery" which serves as an intensive care unit, does not have any of the equipment commonly associated with acute care units in the more advanced hospitals. There are no monitors, EKG machines, or any respirators. It is simply a small room with very ill infants under constant nursing care. Again, similar to the Premature Baby Nurseries, very little can be done in times of emergency. The A2 Sick Nursery can accommodate about six infants in bassinets. The Premature Nurseries and the Sick Nursery are directly under the supervision of the Chief of Pediatrics. Any changes in the management of any of the patients must be approved by him. Any new admissions to any of these units must also be reported to him for his evaluation.

The Scope of the Pediatric Work

Admissions and Causes of Death, 1973. As mentioned before, the Child Health Department at KAH performs very little preventive health care. It is primarily a place where seriously ill children are taken care of. The hospital itself seems to be isolated from the public health activities of the other sections of the Ministry of Health in the city of Kumasi and in the region as a whole. Because no accurate data are compiled on the clinical work at the hospital, it is not possible for the hospital to assess its own work in terms of goals. Disease trends are not studied in conjunction with the various public health units, so that well-planned health goals for the city can be laid down. The health of the children may have improved considerably over the past ten or twenty years, but there is no accurate knowledge of what factors are involved in this improved health. The only way to assess the work performed at the hospital is to take a look at the clinical problems dealt with, and the causes of death. Again, lack of past records made it impossible to compare the present situation with the past to see what changes, if any, have come about. In this analysis of clinical problems presented at the Child Health Department, the inpatient units mentioned above will be examined, and then a total picture will be presented of the entire department.

It should be mentioned from the outset that no records were routinely compiled on the clinical work of the outpatient services.

The numbers of children seen, their ages and sex were all recorded, but no records of their presenting diseases were kept, except what went on their individual charts. During the period of the study, an attempt was made to institute this sort of record keeping with little success. However, a sample of some of the patients seen at the department chief's clinic shall give an idea of what the common out-patient problems were. The 1973 inpatient records collected from each of the pediatric wards served as the source of the analyses given below. These records were not complete in every ward, however, the omissions did not seriously affect the general situation of the records. Wherever available, the records of June-July, 1974, will be given as a comparison to the same period in 1973. Table 10 is a summary of the admissions and deaths from all the pediatric medical wards.

The two Main Nurseries serve as well-baby nurseries, but on occasion, sick neonates are admitted there because of overflow from the Premature Baby and Sick Nurseries. In 1973 a total of 8,378 newborns were admitted to A1 and A2 Main Nurseries. All of these children were delivered at KAH. Of these, 4,434 (52.9%) were male and 3,944 (47.1%) were female. In that same year, 74 of the 8,378 newborns died in the two "well-baby" nurseries; 50 (67.6%) of them male and 24 (32.4%) female. Records for the causes of death at these two nurseries were complete only for A2 Main Nursery, and Table 11 is a summary of the 40 deaths in 1973.

TABLE 10

Komfo Anokye Hospital
Admissions and Deaths from Pediatric Medical Wards 1973

Wards	Admissions			Deaths			Deaths/ Admis- sions (%)
	Male (%)	Female (%)	Total	Male (%)	Female (%)	Total	
A1 Main Nursery	2, 173 (52.5)	1, 963 (47.5)	4, 136	23 (67.6)	11 (32.4)	34	.8
A2 Main Nursery	2, 261 (53.3)	1, 981 (46.7)	4, 242	27 (67.5)	13 (32.5)	40	.9
A2 Sick Nursery	220 (57.6)	162 (42.4)	382	43 (45.3)	52 (54.7)	95	24.9
A1 Premature Nursery	118 (49.0)	123 (51.0)	241	50 (47.6)	55 (52.4)	105	43.6
A2 Premature Nursery	320 (46.8)	364 (53.2)	684	58 (54.7)	48 (45.3)	106	15.5
B4 and B5	2, 435 (57.5)	1, 797 (42.5)	4, 232	269 (59.1)	186 (40.9)	455	10.8
TOTAL	7, 527 (54.1)	6, 390 (45.9)	13, 917	470 (56.3)	365 (43.7)	835	6.0

Sources: Admission and Deaths Books from each ward, 1973 (Pediatric surgical patients not included)

TABLE 11

Komfo Anokye Hospital
Causes of Death at A2 Main Nursery 1973

Causes	No. of Deaths 1973
1. Asphyxia Neonatorum	19
2. Intracranial Injury and Hemorrhage	9
3. Neonatal Jaundice	2
4. Hyaline Membrane Disease (RDS)	2
5. Aspiration Pneumonia	1
6. Bronchopneumonia	1
7. Cardiac Failure	1
8. Hepatic Insufficiency	1
9. Gastroenteritis	1
10. Gross Congenital Abnormalities	1
11. Unknown or Unstated Cause of Death	<u>2</u>
TOTAL	40

Source: Admissions and Deaths Book, Ward A2 Main Nursery,
Komfo Anokye Hospital, Kumasi, Ghana

It should be mentioned that the cause of death as listed in the table is the same as listed in the Admissions and Deaths book of the wards. The nurses who write this information in the books obtain them from the Death Reports filled by the doctor in charge. In most cases the cause of death is based purely on clinical assessment and not on any pathology report from autopsy.

During the months of June and July of 1974, when this study was conducted, 1,310 newborns were admitted to A1 and A2 Main Nurseries compared to 1,483 in June and July of 1973; and seven died compared to 14 in June and July of 1973. The breakdown of the causes of death in these two periods is as follows:

<u>June-July, 1973</u>		<u>June-July, 1974</u>	
Asphyxia Neonatorum	5	Asphyxia Neonatorum	4
Intracranial Injury	5	"Twitching"	2
Erythroblastosis Fetalis	1	Dehydration	<u>1</u>
Vacuum Extraction DOA	1	TOTAL	7
Unknown or Unstated Cause	<u>2</u>		
TOTAL	14		

The grim situation during the perinatal and neonatal period will become more evident when the data from the Premature Baby Nurseries are examined.

The two Premature Baby Nurseries received a total of 925 admissions in 1973; 438 (47.4%) of the premature newborns were male and 487 (52.6%) were female. Of the 925 admitted 211 died. This number represented 22.8% of the admissions! The deaths were divided 108 (51.2%) male and 103 (48.8%) female. From Table 10 it can be seen that A2 Premature Baby Nursery was used more often than the A1 nursery. There is no real difference between these two nurseries in equipment or size, and it is quite surprising that the percentage of admissions who died at A1 Premature Nursery is almost three times that of A2 Premature Nursery. In going through the records of both of these nurseries, it was clear that those from A2 nurseries were more complete and better organized than A1 records. Whether there is a difference in the quality of nursing at the two nurseries or not was not clear during the period of observation. Of the 925 premature babies admitted to these wards, 684 (73.9%) went to A2 Premature Nursery and 241 (26.1%) went to A1. However, 105 (43.6%) of the A1 premature babies died, while only 106 (15.5%) of the A2 premature babies died. The causes of death at these two nurseries were similar even though the A1 records were not as complete.

The breakdown of the 106 deaths which occurred at A2 Premature Baby Nursery is shown in Table 12. The distribution is very similar to the records of A1 Premature Baby Nursery in the first six months of 1973, which are complete. It is quite clear from Table 12 that

TABLE 12

Komfo Anokye Hospital
Causes* of Death at A2 Premature Baby Nursery 1973

Causes	No. of Deaths 1973
1. Asphyxia Neonatorum	18
2. Jaundice	2
3. Exomphalos (omphalocele)	2
4. Kernicterus	1
5. Respiratory Distress Syndrome	1
6. Malabsorption Syndrome	1
7. Dyspepsia (diarrhea)	1
8. Prematurity	<u>75</u>
TOTAL	106

*As listed in Admissions and Deaths Book of Ward A2 Premature Baby Nursery, Komfo Anokye Hospital.

the overwhelming majority of the babies who died in these nurseries are simply assigned the diagnoses "Prematurity" as the cause of death. This is probably because definitive diagnostic measures were lacking or were felt to be unnecessary. The estimated gestational ages of these premature children are not given in the records, but a look at their birth weights gives some idea of how young they were. The average birth weight for the 106 "premature" babies who died at A2 nursery in 1973 was 3 lb., 10 oz., ranging from a low of 1 lb., 12 oz. to a high of 5 lb., 12 oz.

Whereas almost all the children admitted to the Main Nurseries were delivered at KAH, those admitted to the Premature Nurseries came in from all over the city of Kumasi and beyond. Routinely, KAH obstetric service does not handle the bulk of the deliveries in the city. Only primiparous women and multiparous ones having their fifth or more child are routinely admitted to the hospital for delivery. The rest use the services of the many private midwives in the city. Also, all other pregnancies that are known or suspected to be at risk are delivered at the hospital. The private midwives who are mostly former hospital midwives and nurses and, therefore, quite well-trained, promptly refer any difficult deliveries to the hospital. They are trained to anticipate the difficult situations ahead of time and usually are very reliable in referring risky pregnancies to the hospitals.

Home deliveries are still quite common, especially in the rural areas and some -- very few -- of the premature babies may have been born at home. The chances of a 3 lb. baby surviving a home delivery in a village long enough to reach the hospital, however, are quite slim. The true rates of prematurity and perinatal mortality in Kumasi and its vicinity are unknown. Home deliveries are mostly unreported, and certainly deaths of 3 lb. premature neonates are not mentioned beyond close family circles. A look at the delivery histories of some of the children sent to the nurseries from KAH delivery suites gives some idea of the risks encountered at birth (see Tables 13 and 14).

As mentioned above, the babies delivered at KAH are from a selected group of all the pregnancies in the Kumasi area. In June-July, 1973, and June-July, 1974, the babies admitted to the A1 and A2 Main Nurseries had the delivery histories presented in Table 13. From the ward records, the outcome of these various forms of delivery is impossible to tell since the babies who died were not identified by delivery histories.

The delivery histories of the premature babies are presented in Table 14. Here the data from the two Premature Baby Nurseries are separated in order to assess whether the population admitted to A1 Premature Baby Nursery were any more at risk than that admitted to A2. From the figures it would appear that certain risk factors were more common among the A1 babies than the A2 babies.

TABLE 13

Komfo Anokye Hospital
Summary of Delivery Histories of Well-Baby Nursery Admissions

	June-July 1973	June-July 1974
No. of Babies Admitted	1,483	1,310
Spontaneous Delivery	1,328 (89.5%)	1,153 (88.0%)
Caesarean Section	83 (5.6%)	90 (6.9%)
Forceps Delivery	14 (.9%)	4 (.3%)
Vacuum Extraction	19 (1.3%)	17 (1.3%)
Breech	14 (.9%)	13 (1.0%)
Twins	25 (1.7%)	33 (2.5%)
Overall Mortality	14 (.9%)	7 (.5%)

(Figures from Obstetrics and Gynecology Statistics for Komfo Anokye Hospital give a Caesarean section rate of 6.33% for all deliveries at KAH in 1973.)

Source: Admissions and Deaths Book, Wards A1 and A2, Main Nurseries, Komfo Anokye Hospital, 1973.

TABLE 14

Komfo Anokye Hospital
Summary of Delivery Histories of Premature Babies Admitted 1973

	A1 Premature Nursery	A2 Premature Nursery	Total
Premature Babies Admitted	241	684	925
Spontaneous Delivery	159 (66.0%)	560 (81.9%)	719 (77.7%)
Caesarean Section	10 (4.1%)	33 (4.8%)	43 (4.6%)
Vacuum Extraction	1 (.4%)	3 (.4%)	4 (.4%)
Twins (No. of Babies)	53 (22.0%)	68 (9.9%)	121 (13.1%)
Triplets (No. of Babies)	6 (2.5%)	3 (.4%)	9 (1.0%)
Breech	12 (5.0%)	17 (2.5%)	29 (3.1%)
Overall Mortality	105 (43.6%)	106 (15.5%)	211 (22.8%)

Source: Admissions and Deaths Book, A1 and A2 Premature Baby Nurseries, Komfo Anokye Hospital, 1973.

TABLE

CONTENTS

1. Introduction 1

Only 66% of the A1 premature babies were products of spontaneous delivery as compared to 81.9% for the A2 babies. The A2 figure is closer to the 89.5% spontaneous delivery rate among the babies admitted to the full-term newborn nurseries in June-July, 1973 (see Table 13). Also, the incidence of twins in the A1 premature babies of 22% was much higher than the incidence of 9.9% among the A2 babies. The normal incidence of twin births in the Kumasi area is unknown, but in June-July, 1973, the full-term nurseries at KAH had 1.7% twins among the 1,483 children admitted. During the same two-month period in 1974, the percentage of twins among the 1,310 full-term newborns admitted was 2.5%. The higher twinning rate among the A1 premature babies may be a contributing factor in the higher overall mortality rate of that ward. There were twice as many breech deliveries among the A1 premature babies as among the A2 babies, and this may also have been a contributory factor increasing the risk of neonatal death and morbidity for the A1 babies. Of course, the risks associated with these pregnancies all predispose towards a higher incidence of prematurity, and so the effects of twinning or malpresentations cannot be separated from the prematurity which in itself may have been the major problem of the babies.

In this discussion the term "premature" has been used in a loose undefined sense. This is because, as mentioned earlier, the gestational ages of these babies were not estimated or recorded at birth.

The two categories, small-for-dates babies, or low-birth-weight infants and pre-term infants have both been combined. The pregnancy histories of the mothers of the babies in these premature baby nurseries were not known, but it is very likely that most of the women only kept a gross monthly account of the age of their pregnancy. It is, therefore, most likely that the birth weight of the neonate would be a stronger factor in the assessment of maturity. As mentioned previously, the highest birth weight of any of the babies who died at the Premature Baby Nurseries was 5 lb., 12 oz. In that particular case the baby was delivered by Caesarean section and was probably not premature but rather showed signs of distress at birth and so was admitted to the Premature Baby Nursery. Without a check of the birth weights of all the babies and some estimation of gestational ages, the true incidence of "prematurity" among the neonates admitted to the newborn nurseries cannot be accurately calculated. In 1973 a total of 9,303 babies were admitted to all the newborn nurseries of KAH; 8,378 (90.1%) of them to the well-baby nurseries and 925 (9.9%) to the Premature Baby Nurseries. Even if it is assumed that all the babies admitted to the premature babies were in fact either simply pre-term or small-for-date, the 9.9% figure cannot be used as the true incidence of prematurity in the Kumasi area. This is because the population of pregnancies that end up being delivered at the hospital is a high risk group. The prematurity incidence among these pregnancies may be higher than that for the majority of Kumasi women who get their babies delivered at midwives' and at home.

The next ward of attention is the A2 Sick Nursery, the small ward which serves as a sort of intensive care unit for very ill infants. Some of these infants are very ill neonates who do not belong in the Premature Baby Nurseries either because of their maturity and weight or who have to be isolated from the other premature babies. It has a capacity for about six infants. As mentioned before, it is not an intensive care unit of the kind equipped with monitors, respirators, and emergency equipment. It is simply a unit where a small number of very ill infants are given closer nursing attention than the general wards. There are usually two nurses on duty.

In 1973, 382 infants were admitted to the Sick Nursery, 220 (57.6%) of whom were male and 162 (42.4%) female (see Table 10). Out of the total, 95 (24.9%) died. The causes of death covered a wide range of diseases, but here again, there was no definitive pathological study of the true causes in most of the cases. However, most of these children showed advanced stages of their diseases, and so clinical observations were probably adequate in assigning the causes of death. The leading causes of death and their toll are listed in Table 15.

Other causes which killed two infants each were malaria, osteogenesis imperfecta, "fever," cerebral injury, asphyxia neonatorum, imperforate anus, and meningomyelocele. The Sick Nursery takes in children from the general Kumasi and regional population, and some

TABLE 15

Komfo Anokye Hospital
Leading Causes of Death at A2 Sick Nursery 1973*

Causes	No. of Deaths
1. Pneumonia	10
2. Diarrheal Diseases	10
3. Tetanus Neonatorum	9
4. Dehydration	7
5. Meningitis	4
6. Septicemia	4
7. Neonatal Jaundice	3
8. Intestinal Obstruction	3
9. Spina Bifida	3
10. Cellulitis and Abscesses	3
11. Omphalocele	3

*Source: Admissions and Deaths Book, A2 Sick Nursery, Komfo Anokye Hospital, 1973.

of these infants were delivered under conditions which lack "modern" facilities. In looking at some of the top causes of death, it is interesting to see the effects that the places where the infants were born might have had on their health. Of the ten infants who died of pneumonia, six were born at KAH, three at home, and one at a midwife's maternity center. Details of the circumstances of each of these children were lacking, but it should be remembered that KAH only delivers pregnancies which may be at risk. The deaths of children born at KAH stand a better chance of occurring at the hospital than that of a child born at home. It is more likely that a mother whose child was born at the hospital would quickly take the baby back to the hospital if it became ill in the few weeks following the delivery.

Again, five of the children who died of diarrheal diseases were born at KAH, one at home, and two at other health centers. However, the situation is different with tetanus neonatorum where eight of the nine deaths occurred in children who were born at home and the other one at a midwife's maternity home. The danger of neonatal tetanus is still in existence under the home conditions where some of these children are born, and where the cause of the disease is not recognized by those who live there. Here again, the true incidence of the disease cannot be assessed by the number of deaths it causes at KAH, since probably many cases are never even brought to modern medical attention.

Conditions such as intestinal obstruction, omphalocele, spina bifida, imperforate anus, and others which require surgical intervention in the neonatal period may simply progress to fatalities because of the lack of trained surgical personnel to handle them. While the general surgeons may deal with some of the more specialized surgical problems in the older child, neonatal surgery is considered too risky and not routinely performed at the hospital. There is no pediatric surgeon in the hospital.

The main pediatric medical wards at KAH are wards B4 and B5. In 1973 these wards admitted 4,232 patients ranging in age from a little over three months to about 13 years. In that same year there were 455 deaths on these wards. Table 10 gives the sex breakdown of these admissions and deaths. These wards are general medical wards and their disease spectrum is a good representation of the disease state the children in the Kumasi area are in. There are some major omissions in the diseases admitted to these wards, and they will be mentioned later. Also, the children admitted to these wards represent a wider section of the population than those who attend the clinics because of the lack of adequate private inpatient facilities for those who may want to use them.

Major Diseases Seen and Their Management. Table 16 is an analysis of the "diseases" seen at wards B4 and B5 in 1973. It is clear from the list that the lack of specificity of diagnosis has caused

TABLE 16

Komfo Anokye Hospital
Major "Diseases"^a and Causes of Death at the Main Pediatric Wards
(B4 and B5) for 1973

Disease	No. of Cases ^b	No. of Deaths	% Deaths/Cases	% Total ^c Pt. Deaths
1. Anemias	844	75	8.9%	16.5%
2. Respiratory Diseases	799	94	11.8%	20.7%
3. Malaria	633	57	9.0%	12.5%
4. Diarrheal Diseases	379	59	15.6%	13.0%
5. Measles	271	56	20.7%	12.3%
6. Infectious Hepatitis	148	9	6.1%	2.0%
7. Meningitis	143	41	28.7%	9.0%
8. Sickle Cell Disease	93	7	7.5%	1.5%
9. Others	848	111	13.1%	24.4%
10. Diagnoses Unknown or Unstated	464	50	10.8%	11.0%

(Total number of admissions = 4,232; total number of patient deaths = 455)

- a. Source: "Diseases" as listed under "diagnoses" in Ward Admissions, Discharges and Deaths Books, 1973.
- b. Number of times when "disease" is mentioned as part of diagnoses. Many patients had more than one diagnosis.
- c. Number of dead cases of these "diseases" as a percentage of the total patient deaths.

the grouping together of a variety of diseases under broad categories. The numbers given are not for patients, but for the number of times any one of those diseases or symptom complexes is mentioned under the diagnoses of the patients health problem. A patient with malaria and severe anemia is counted twice -- once as malaria and then as anemia. "Anemia" which heads the list as the most common symptom complex probably should not have been listed at all. Most of these patients, even though profoundly anemic, do not have any primary hematological disease but have become anemic secondary to some other common disease. The most common causes of anemia are the infections such as malaria and intestinal helminthiasis, and the general poor state of nutrition. Very few of these anemic children would, in fact, be found to have primary hematologic disease.

The main problem behind the lack of specificity of diagnosis is the fact that the clinical laboratories of the hospital are simply not equipped to handle even some of the most routine tests. Very little emphasis is, therefore, put on specific diagnosis as an aid towards management. Clinical assessment of the patients remains the only tool in most of these cases. The management of some of these diseases will be discussed as the disease spectrum is further examined. The information on how these diseases are managed by the KAH pediatric staff was obtained through direct conversation with the Chief of the Department.

Anemia on the list usually means severe to very severe anemia as judged on physical examination and also from some laboratory studies. Severely anemic patients are admitted for treatment of the anemia. Those whose hemoglobin levels were below 5 gm/100ml were admitted for blood transfusion. The underlying causes are searched for and treated. Finding the true cause of the anemia, however, is limited by the laboratory service's abilities.

Respiratory diseases as a true clinical category are the most common. The most frequent diagnosis is bronchopneumonia. Like many of the other diseases, mild cases of pneumonia are treated on an outpatient basis with antibiotics. Younger infants are routinely admitted for treatment for pneumonia, and so are asthmatics. The inpatients are "routinely" given either the Heaf test or Mendo-Mentol test, plus chest x-rays to rule out tuberculosis. Precisely how routinely these screening tests were performed is not known, but in going through the 1973 records there were only very few cases of tuberculosis cases diagnosed. (The tuberculosis patients are isolated on a separate ward in the hospital.) Isolation of the causative organism of pneumonia or other respiratory diseases is not routinely performed. Broad spectrum antibiotics form the backbone of the management since specific drug sensitivities are also not routinely done. From the fatalities it is evident that respiratory diseases were the leading cause of death in the children admitted to the wards

B4 and B5 in 1973. Malaria, which is by far the most commonly treated disease in the child population, is still perhaps the most important infectious disease in the Kumasi area. It is true to say that most of the cases of anemia also had malaria. The overwhelming majority of cases of malaria are not admitted to the hospital for treatment. Only those with some complication of malaria get admitted. One of the most common of these complications and also one associated with a high fatality is cerebral malaria. Most of the patients admitted for such "general" diseases as anemia automatically get anti-malarial medication. Malaria is diagnosed on clinical judgment, but probably very few false positive diagnoses are made and microscopic studies would probably only increase the incidence by identifying the false negatives.

It is true to say that most of the children who present with fever and general signs such as lethargy, vomiting and pallor are treated with anti-malarials to rule out malaria before further diagnostic work is pursued. All parents whose children are treated for malaria are advised about malarial prophylactic preparations and given free samples upon discharge. However, there are no studies to determine how many people continue to take malaria prophylactic drugs and what effect, if any, this has had on the frequency of the disease in the hospitals.

The fourth most common cluster was diarrheal diseases. The causes of diarrhea are many, but as usual, the actual causes are

never found in most of these cases. The young infants got treated with antibiotics such as Neomycin or Thalazole (a sulfonamide). Only severe diarrheal cases are admitted to these wards for treatment. Fluid therapy was given where necessary, both oral and intravenous. Intravenous fluid therapy was monitored strictly on clinical observation since the laboratories -- at least during the period of this study and in the previous year -- did not perform electrolyte studies. The fatality rate of 15.6% for diarrheal diseases is very high and perhaps could be greatly improved if more specific diagnostic work could be done and more careful monitoring of electrolytes was instituted.

Measles is still a major disease in the Kumasi area, as it is elsewhere in that area of Africa. It is very widespread and the fact that only 271 cases were admitted is not an indication of the incidence of the disease in the population. Only those who have developed some complications of measles are admitted to the hospital. Children who died of bronchopneumonia were most often post-measles or still infected with measles. The most common complications of measles are bronchopneumonia and post-measles malnutrition, specifically, kwashiorkor. Measles is generally treated on an out-patient basis at the MCHC. The post-measles kwashiorkor cases also are treated at the MCHC.

The population of measles cases which reach KAH are only a small percentage of the total measles cases. With a fatality rate of

20.7%, measles is the second most deadly disease among the major diseases affecting the children in the Kumasi area. It is also the one disease which probably requires no help from laboratory for specific identification. It is very well known even to the lay public. At KAH all the children are given a combination of two broad spectrum antibiotics for prevention or treatment of the common complications.

Infectious hepatitis is also another disease which represents a group of conditions not clearly differentiated at KAH. The basis for making that diagnoses at KAH is mostly the presenting sign of jaundice. Usually the true cause of the jaundice is not determined, and no immunologic studies are done to determine the type of hepatitis. Only severe cases are admitted to KAH simply because of lack of bed space. The severe cases are given intravenous Tetracycline and a preparation containing liver hydrolysates.

The seventh most common disease cluster was meningitis. As shown on Table 16, even though only 143 cases of meningitis were admitted more than 25% of them died, making it the most fatal of the major diseases. Diagnosis is usually made on clinical grounds and lumbar punctures are done for cultures routinely. The exact reason why there is such a high fatality rate is not clear, but it is quite likely that, as with most of the diseases admitted to these wards, the children arrive sometimes too late.

Sickle cell disease, even though listed here as the eighth most common disease seen at KAH, apparently presents less of a problem

than some diseases listed in the "Others" category. The Kumasi area, like much of the southern area of Ghana, has a high prevalence of the sickle cell gene. It is estimated as much as 20% of the population may have sickle cell trait, and 10% have Hemoglobin C trait (AC).⁴¹ Sickle cell disease is, therefore, quite common. The children who are admitted are usually in some form of crisis or have developed some complications due to their basic disease. Even though they may end up dying of other complicating causes, they are usually assigned to the sickle cell fatality group. Malaria seems to be the most serious problem for these patients, and they are routinely given anti-malarial medications.

Surprisingly, the sickle cell disease patients are not the most anemic patients admitted to the hospital. Many of the children who come in with very severe anemia have hemoglobin far lower than some of the sickle cell patients. Probably the frequent visits made to the hospital give the parents of the sickle cell children some education about the care of their children and also leads to treatment of their infections more readily. For those admitted in crises, blood transfusions are given when necessary, and the usual underlying infections treated. These children are also routinely given folic acid supplements during their hospital stay.

Children who come in with mild crises are not admitted. They are treated on an outpatient basis with antibiotics, mild analgesics,

and anti-malarial drugs. The overall fatality rate of the sickle cell disease patients is seventh among the eight most common disease complexes admitted to these wards. It would be interesting to see what happens to most of these children as they grow older into their teens. At that age they are not admitted to the pediatric service, and they get lost from follow-up and continuity of care. There is no organized clinic for children with sickle cell disease in the Kumasi area, and there is no organized program for identifying these children from early childhood or even antenatally, by identifying the parents. It is the most common serious genetic disease affecting the children in the area, and such an organized program would be of great service to the population.

In discussing these "major diseases," some mention of the common management methods were mentioned. This was done only to give a general idea of what was available for the care of these children in the hospital. The purpose of this study was not to closely examine and criticize the management methods, but rather to gather information on the health problems presented to the hospital by the children.

A closer look at the age distribution of some of the children admitted and distribution of deaths are given in Table 17. The figures

TABLE 17

Komfo Anokye Hospital
Age Distribution of Admissions and Deaths at Pediatric Wards B4 and B5
June-July 1973

Age Group	No. Admitted	% of Total Admissions	No. of Deaths	% of Total Deaths	% Adm/Deaths
Less than 1 year	108	15.1%	23	30.3%	21.3%
1 to 5 years	417*	58.2%	40	52.6%	9.7%
More than 5 years	191	26.7%	9	11.8%	4.7%
Unstated Age	? *	?	4		
TOTAL	716	100.0%	76		

*The total number of children aged 1-5 was obtained by adding up the counts of children less than 1 and children more than 5 and subtracting the sum from the total count of all admissions. The 417 may contain a small number of children whose age was unknown or unstated.

Source: Admissions and Deaths Book, Wards B4 and B5, Komfo Anokye Hospital, 1973.

given for the months of June and July are from a good sample of the distribution of diseases and age over the year. The figures in the table show that the infants and children less than five years old faced the most serious health problems. The two groups combined constituted about 73.3% of the children admitted and 82.9% of all the deaths on the ward. The infants were the hardest hit. Only 15.1% of the admissions were less than a year old, but 30.3% of the deaths were from that age group. The infantile deaths become even more striking when each group is examined separately. The 76 deaths constituted 10.6% of all the 716 admissions for all the children. Only 4.7% of the children more than five years old died, but 9.7% of those one to five years old and 21.3% of the infants died. In June and July of 1974, a total of 826 children were admitted to these wards and 89 (10.7%) died. The age distribution of the deaths were similar to that of 1973.

The full impact of the infantile deaths at the hospital will become apparent when all the inpatient data are put together and analyzed by age group. The infants were admitted for mostly the same diseases listed in Table 16. Table 18 also shows the distribution of these same diseases among the infants who were admitted during the same months of June and July of 1973, and those who died with these diseases. The numbers here represent the instances of when these "diseases" are designated as the diagnoses, and total more than the

TABLE 18

Komfo Anokye Hospital^a
 Distribution of Major Diseases and the Fatalities Among the Infants
 During June-July 1973 at Pediatric Wards B4 and B5
 (distribution of fatalities in other age groups also presented)

Disease ^b	All Cases	Infant Cases	Deaths				
			Total	Infant	1-5	Over 5	un-known
1. Anemias	140	34	23	8	13	1	1
2. Respiratory Diseases	106	26	10	6	4	-	-
3. Malaria	123	19	13	1	11	-	1
4. Diarrheal Diseases	52	17	8	3	5	-	-
5. Measles	34	10	4	2	2	-	-
6. Infectious Hepatitis	22	-	2	-	2	-	-
7. Meningitis	10	5	2	-	1	-	1
8. Sickle Cell Disease	12	1	1	-	1	-	-
9. Others	152	13	15	-	6	9	-
10. Unknown or Unstated	106	8	12	3	6	2	1

^aSource: Admissions and Deaths Book, Wards B4 and B5, Komfo Anokye Hospital, 1973.

^b"Diseases" as mentioned in the diagnoses. Numbers do not represent patients, but instances when these "diseases" are designated under diagnoses.

Florida State Hospital

The following is a list of the patients who were admitted to the hospital during the month of July, 1911, and the date of their admission.

1. Amato
2. Resistor, Diseases

patient number due to multiple diagnoses. The age group breakdown of the fatalities emphasizes the fact that the major diseases seen most seriously affect the pre-school age children. In fact, the nine children over five years old who died during the same period died of causes listed under the "Others" category. These older children and their causes of death are shown below:

		Age (yrs)	Sex	Cause of Death
<u>June 1973</u>	Patient # 1	12	Male	Food poisoning
	2	8	Male	Lymphosarcoma
	3	6	Female	Hepatic coma
	4	11	Male	Tetanus
	5	6	Male	Unknown or unstated
<u>July 1973</u>	Patient # 6	7	Male	Tetanus
	7	13	Male	Lymphosarcoma
	8	6	Female	Malnutrition and severe anemia
	9	7	Female	Unknown

The serious diseases in the older children are part of the wide variety grouped together under "Others" in Table 16. Some of the more common diseases in this category included Burkitt's lymphoma, typhoid and typhoid complications, particularly perforations, helminthiasis, tetanus in non-neonates, nephrotic syndrome, and glomerulonephritis,

various forms of congenital heart disease, and pertussis. Pertussis was usually treated on an outpatient basis at the MCHC and only the more severe or complicated cases were admitted to the hospital. A major omission from the list of major diseases is malnutrition. Only very few of the severe malnutrition cases were admitted to KAH pediatric service. As mentioned before, the MCHC specializes in inpatient care of malnourished children.

Kerosene poisoning was the most common form of accidental ingestion seen. The inpatient services admitted about six cases a month in 1973. Even though most of the homes in Kumasi have electric lights, the rural areas surrounding the city and a few very old areas of the city do not have electricity. In these homes kerosene lamps are used and the usual practice is to purchase the kerosene in beer bottles. Most of the accidents occurred with young children who mistook the kerosene in these bottles for water. Snake bites were also quite common, averaging about two a month in 1973.

The discussion of the inpatient pediatric services would be incomplete without a look at the pediatric surgical service. The service is run entirely by the Department of Surgery. All the patients are housed on one ward, B3, which has a total of 36 beds. It has the same problem of overcrowding which plagues the other pediatric wards. The children range in age from young infants to about 12 years old. It is not possible to present any reliable data

from ward B3 because the record keeping there was too incomplete. In 1973 approximately 1,776 patients were admitted for various kinds of surgical procedures including orthopedics. The ward records of admissions, procedures and outcome were so incomplete that there was no figure for the number of deaths which occurred for the year of 1973.

In June and July of 1973, a total of 246 patients were admitted, of which 12 died. Males outnumbered the females by 151 (61.4%) to 95 (38.6%). Extrapolating from these figures and assuming that the two months of June and July of 1973 were essentially not different from the other months as far as surgical admissions were concerned, 61.4% of the 1,776 patients or 1,090, were male and 38.6% or 686 were female. Based on the 12 deaths per 246 patients in June and July of 1973 and again making the same assumptions as above, a similar ratio of deaths per total patient population can be calculated. This works out to be about 87 deaths for the year. (These figures will be used in the summary of the inpatient pediatric services.)

The common surgical problems dealt with in June and July of 1973 on ward B3 included, in order of decreasing frequency, abscesses, fractures, inguinal hernias, burns, wounds and lacerations, typhoid perforations, appendicitis and other less frequent complaints. Abscesses and fractures were by far the most common problems. This fact may explain why as much as 61.4% of the patients were

male and only 38.6% female. Boys in that area and in most other places are, perhaps, more likely to engage in activities which result in fractures and minor lacerations, which may develop into abscesses.

It should be stressed that the surgical problems listed above were obtained from ward records which had only about 75% of the diagnoses for the patients filled in. It is not possible to make any analysis of the relationship between these problems and surgical outcome or find out which problems were associated with high fatality rates. The age distribution of these patients, which may be quite different from the patients admitted to the general pediatric wards, cannot be analyzed for the same reason cited above.

In summing up the discussion on the inpatient pediatric services at KAH, it should be helpful to put the figures from all the wards together and to compare them to the data on the entire hospital. The data from the individual pediatric wards, with the exception of the surgical ward, are quite complete and reliable. Actual counts of all the patients listed, their ages, and diagnoses were made by going through all the ward admission and discharge books during the course of the study. However, the figures from the hospital records office which are supposed to cover the entire hospital were found to differ quite considerably from the actual ward counts. The records office statistics are eventually reported to the Ministry of Health for the computations of national health statistics. In most cases there seemed

to have been gross under-reporting of numbers of admissions and deaths from the wards to the records office. Both sources of information will be presented where necessary to put the situation in the correct perspective.

The summary of all 1973 admissions and deaths at the pediatric medical wards is given in Table 10. To complete these figures, the admissions and deaths at the pediatric surgical ward should be added. The total number of admissions to the pediatric surgical wards was 1,776 in 1973. The estimated sex breakdown, based on the June and July returns of that year, came up to 1,090 males and 686 females. Adding these figures to the totals from the medical wards, a grand total of 15,693 admissions with 8,617 (54.9%) of them male and 7,076 (45.1%) female were made to KAH's pediatric services. These children ranged in age from 0-14 years, with some 12 to 14 year olds being admitted to the adult wards if they were thought to be physically too developed to be on the same wards with the young children.

Again, based on the returns for June and July of 1973, an estimated number of 87 deaths occurred on the pediatric surgical service bringing the total deaths on all the pediatric services to 922 or 5.9% of all admissions. Assuming that most of the children admitted to A1 and A2 Main Nurseries were well-baby full-term newborns, even though they had a mortality rate of 0.89%, we can get a better idea of the state of the sick children. Of the 7,315 children admitted to all the other pediatric services, apart from the

Main Nurseries, 848 (11.6%) died. There were no official figures on mortality rates of infants. From the figures from the different wards a rough idea of the infant mortality rate can be calculated. All the children admitted to the Main Nurseries, the Premature Baby Nurseries and the Sick Nursery were less than one year old. If the number of infants admitted to wards B3, B4 and B5 could be estimated and their mortality calculated, the number of deaths in all infants admitted could be worked out.

In June and July of 1973, a total of 716 (see Table 17) patients were admitted to wards B4 and B5. This represented 16.9% of all the patients admitted to these wards in 1973. Based on the number of days in the year 1973 (365) and the days in the months of June and July (61) the expected percentage of admission for those two months would be 16.7%, so that the 16.9% actual percentage is quite close. In looking at the monthly distribution of the major diseases and deaths, there did not seem to be any seasonal pattern. In the months of June and July of 1973, 76 deaths occurred among the 716 patients admitted to B4 and B5, representing about 10.61% of the admissions. In the entire year, a similar figure of 10.75% of all the patients admitted died. In both number of admissions, and number of deaths, as well as distribution of diseases, June and July of 1973 were representative of the whole year.

Assuming that the age distribution of admissions was also uniform throughout the year, the distribution for June and July could

be extrapolated for the whole year. Of the 716 admissions, 15.1% were less than one year old. For the whole year of 1973, then, the estimated number of infants admitted to B4 and B5 would be 15.1% of 4,232 or 639. In 1973, there were a total of 455 deaths of which 76 occurred in June and July (see Tables 10, 17). Of the 76 deaths, 30.3% were in infants, and extrapolating for the year, the estimated infantile deaths on wards B4 and B5 would be 30.3% of 455, or 138. This figure would also represent 21.5% of all the infant admissions for the year, and quite close to the 21.3% of the June and July infant admissions who died.

The population of children admitted to the surgical ward may have been quite different in age distribution from the B4 and B5 patients. However, using the same assumptions made above, and the age distributions based on the June and July, 1973, B4 and B5 figures, similar estimates can be made for B3. The number of infant admissions to B3 in 1973 would be about 268. The number of infant deaths based on the ratio of infant deaths to total number of deaths at B4 and B5 would be about 26. If the number of deaths of infants is based on the infant deaths per infant admissions for B4 and B5, a much higher figure of 57 would be obtained. The latter method would more probably be wrong because of the small overall death/admission ratio estimated for the ward which was based on admission ratio and not deaths ratio for those months, compared to the whole year.

Table 19 is a breakdown of all infantile admissions and deaths for 1973 at KAH based on the analysis presented above. The admissions to the Main Nurseries and the Premature Baby Nurseries give a very close approximation of the number of live births at the hospital for 1973. This total is 9,303. The Infant Mortality Rate calculated for KAH would, therefore, be 544 deaths per 9,303 live births or 58.48 per 1000 live births based on the above figures.

Another source of figures for births was the Department of Obstetrics and Gynecology. From the obstetrics and gynecology statistics for KAH, there were a total of 9,511 deliveries in the hospital. (Of these deliveries there were 114 maternal deaths, a rate of 1.2%, and 334 still births.) Another source of information from the same department, the Midwives Monthly Returns, give a total of 9,054 live births at KAH and only 256 still births. No explanation could be given for the apparent discrepancy between the two still birth figures. The 9,054 live births at KAH from the Midwives Returns were 249 less than the figure of 9,303 used above based on the admissions to the newborn nurseries. The 249 newborns apparently, therefore, could be premature or ill newborns admitted to KAH from elsewhere. It is not possible to calculate neonatal death rate because the ages of all the infants at the time of death were not available. The Midwives Monthly Returns had an incomplete tabulation of neonatal deaths. The data for May and July of 1973 were not available. The total for the other ten months was 191 neonatal deaths.

TABLE 19

Komfo Anokye Hospital
 Infant Admissions and Deaths by Ward in 1973

Wards	Admissions	Deaths
1. A1 Main Nursery	4,136	34
2. A2 Main Nursery	4,242	40
3. A1 Premature Nursery	241	105
4. A2 Premature Nursery	684	106
5. A2 Sick Nursery	382	95
6. B4 and B5	639	138
7. B3	<u>268</u>	<u>26</u>
TOTAL	10,592	544 (5.1%)

Assuming a fairly average distribution of births and neonatal deaths throughout the year, the total neonatal deaths based on the ten-month figure would be about 229 for the year. This would give a neonatal death rate of 229 per 9,054 live births or 25.3 per 1000 live births. The validity of this figure is questionable, however. The department of pediatrics, where the neonates are cared for, does not keep any close account of neonatal deaths, and it is not clear who these 229 deaths truly represent. It was clear from the observations during this study that children who died during the first four weeks of life were not being separately counted from the others in the nurseries.

As mentioned earlier, the official hospital records of admissions and deaths are compiled at the Records Office. The inpatient figures are grouped into ages: less than 1, 1-3, 3-5, 5-10, 10-20, and above so that the admissions to the pediatric services cannot be extracted from the totals. The pre-school age figures are, however, available for comparison with the ward by ward tabulations and estimates. According to the Records Office there were only 936 infant admissions to KAH in 1973. This is far lower than the total of 10,592 obtained (Table 19) from individual counts from ward records and estimates. Even when the 8,378 full-term newborns are excluded, the number left, 2,214, is more than twice that given by the Records Office. During the same period the number

of infant deaths is given as 165. A total of 544 deaths is listed on Table 19. It is quite obvious that a serious gap exists between the ward figures which are more accurate, and the Records Office figures. Somehow, all the deaths and admissions are not reported to the Records Office. A similar situation exists when the 0-5 year olds are analyzed. The Records Office lists a total of 3,679 admissions of children aged 0-5 for the entire year of 1973 with 522 deaths, figures which are again too small when compared with the infant statistics alone in Table 19. Even when the "well-baby" newborns are excluded and the age distribution of the older children computed based on the B4 and B5 analysis, there were still about 5,700 children aged 0-5 years old admitted to KAH in 1973. The true explanations for these discrepancies were not immediately available, but even the Chief of Pediatrics advised that the figures from the Records Office were highly unreliable. The real problem is that it is the figures from the Records Office that are reported to the Ministry of Health for National Health Statistical analyses.

Outpatient Data and Work Performed

Unfortunately, data from the outpatient services of the pediatric department are not as complete as the inpatient services even though the latter is only partially so. As reported in the introduction to this discussion on the clinical work, no clinical facts are recorded on the outpatients except what goes on the charts of individual patients. To obtain a rough idea of some of the common problems seen at the outpatient department, a system of record keeping which

included not only the sex and age of the patient, but also the diagnosis presumptive or definitive made, or description of major symptomatology, was instituted during the period of this study by the Chief of Pediatrics. However, the attempt met with very little success as much of the clinical information was either left out or simply repeated for a large number of patients. The only reliable source of the information required came from the clinic of the Chief of Pediatrics, and also from direct conversations with him. The figures for the number and ages of children attending the various clinics could only be obtained from the Records Office where all outpatient records are sent. Because of the organization of the clinics, specifically, the method of having all the patients report to the Records Office before going to any of the clinics, the figures from the Records Office on the outpatients are very reliable.

There is no need for individual clinics to report their daily figures to the Records Office, a step which might lead to the under-reporting seen with the inpatient services. Again the patients are grouped by age and sex into under 1, 1-3, 3-5, 5-10, 10-20 and some older groups; and the true number of children attending the Pediatric Clinics cannot be extracted. Table 20 gives a summary of the attendance to the clinics by children up to the age of 10, broken down into the various age groups. The totals for the entire hospital (see Table 7) are also given for comparison.

TABLE 20

Komfo Anokye Hospital
Summary of Annual Outpatient Visits by Children (0-10)
1973^a

Age Groups	New Patients			Old Patients			Total Old and New
	Male	Female	Total	Male	Female	Total	
Under 1 Year	10,564	9,469	20,033	3,191	2,560	5,751	25,784
1 - 3 Years	15,334	13,536	28,870	3,496	2,979	6,574	35,345
3 - 5 Years	5,758	5,223	10,981	1,571	1,427	2,998	13,979
5 - 10 Years	10,736	10,213	20,949	2,188	1,727	3,915	24,864
Total 0 - 10 Years	42,392	38,441	80,833	10,446	8,693	19,139	99,972
Total All Ages*	121,620	116,575	238,195	44,130	38,384	82,514	320,709

^aSource: Records Office, Komfo Anokye Hospital.

*Female visits do not include prenatal visits -- service not offered at Komfo Anokye Hospital.

A total of 80,833 new patient visits were made by children aged 0-10 years, constituting 33.9% of the total new patient visits to the hospital for all ages in 1973. Also there were 19,139 old patient visits by children aged 0-10 years, or 23.2% of the total for all ages. In all there were 99,972 patient visits by children 10 years old or less, constituting 31.2% of all patient visits to all the outpatient services of the hospital.

The terms "new patient" and "old patient" as used here are explained in the discussion on the outpatient facilities and organization. They simply refer to patients who have new identification cards issued them. Some of these have definitely visited the hospital in the past but have misplaced their old cards and so simply state that they are new patients. The number of new patient visits most likely approximates the number of visits for new illnesses occurring some weeks or months apart. The true number of people served by the pediatric outpatient services cannot be known until the pediatric patients are separated from the 10-20 year olds category.

If it is assumed that there were 261 working weekdays in 1973, it means the 99,972 patient visits made to the pediatric services by children aged 0-10 years came to 383 per day on the average. When those aged 10-13 or 14, who may also use the pediatric services, are added, the average number of patient visits per day would be well over 400. The majority of these patients are seen by only four or

five doctors in the pediatric outpatient clinics. If each doctor saw 80 patients a day during a 9:00 a.m. to 1:00 p.m. clinic session, he would have to spend only three minutes per patient in order to cover the load.

From the figures on Table 20, the 0-3 year olds seem to form the group using these clinics the most. It should be pointed out that these visits are not for well-baby checks. They comprised 60.5% of the new patient visits and 61.1% of all patient visits by children ten years or younger. The infants formed 24.8% of the new patient visits and 25.8% of all visits made by the age group 0-10 years. In 1970 infants comprised 3.1% of the population of Kumasi,⁴² but the 1973 outpatients visits of infants to KAH amounted to 8% of the visits by all age groups. Children less than five years old made up 16.8% of the Kumasi population, but they made 23.4% of all the patient visits to the outpatient services of KAH (see Table 20). These figures underscore the fact that the functioning of the pediatric department may be seriously affected by the disproportions in the staffing of the different departments of the hospital.

The clinic of the Chief of Pediatrics where complicated or serious cases were referred from the general pediatric clinics provided the only record of some of the clinical problems seen at the outpatient service. The first 100 cases seen at this referral clinic in July of 1974 were analyzed by age and sex and are presented

in Table 21. Because these are referred cases, the disease spectrum is not truly typical of the general clinic. According to the Chief of Pediatrics, "fever due to malaria" is the leading complaint at the general clinics and about 70% of the children who attend the general clinics have malaria. Most of the children who eventually get admitted to wards B4 and B5 are seen at the referral clinic. The diseases seen at this clinic have a spectrum quite similar to that of wards B4 and B5 (see Table 16). As expected, most of the children fall into the pre-school age group.

TABLE 21

Komfo Anokye Hospital
 Summary of the First 100 Cases Seen at Pediatric Referral Clinic
 (Consulting Room 10) in July 1974
 (age and sex breakdown provided for most common complaints)

Disease or Provisional Diagnoses	Under 1 Yr.		1-5 Years		Over 5 Yr.		Total All Ages
	Male	Female	Male	Female	Male	Female	
1. URI	6	9	3	1	1	-	20
2. Malaria	3	2	4	1	4	2	16
3. Severe Anemia	2	-	2	4	-	-	8
4. Bronchopneumonia	1	1	1	2	2	-	7
5. Multiple Abscesses	2	1	-	2	-	1	6
6. Skin Diseases (rashes)	1	-	1	2	-	1	5
7. Diarrheal Diseases	1	-	-	-	2	1	4
8. Pertussis	-	1	2	1	-	-	4
9. Measles	1	-	2	-	-	-	3
10. Malnutrition	-	-	1	2	-	-	3
11. Febrile Convulsions	1	1	1	-	-	-	3
12. Paresis	1	1	-	1	-	-	3
TOTAL	19	16	17	16	9	5	82

2 cases each: Infectious hepatitis, nephrotic syndrome (4)

1 case each: Mastitis, typhoid, helminthiasis, swallowed foreign body, hydrocephalus, sickle cell crisis, Burkitt's lymphoma, chicken pox, splenomegaly, soap ingestion, hepatitis, cirrhosis, prune belly syndrome (absent abdominal muscles), jaundice, and umbilical hernia (14)

Source: Records Office, Komfo Anokye Hospital

TABLE 21

Summary of the First 100 Cases Seen at Pediatric Referral
Kanto Ankylo Hospital
(age and sex distribution provided for most common complaints)

CHAPTER VII

The Maternal and Child Health Center

The Maternal and Child Health Center (MCHC) of Kumasi, originally known as the Child Welfare Center (CWC) was established in 1928 to take the load of child care off the overburdened "native" hospital of Kumasi. Following the 1918 influenza pandemic and the 1924 plague epidemic of Kumasi, many citizens of Kumasi had become interested in modern medical health services for the first time and were eager to have their sick children cared for in the new system. The Child Welfare Center served as the children's hospital until the construction of Komfo Anokye Hospital a few hundred yards away in the same central area of Kumasi. Now known as the Maternal and Child Health Center, this establishment continues to relieve KAH by taking up some specialized functions.

The main building of the MCHC is a two-story colonial structure. Its ground floor is the general outpatient area with two main consulting rooms, a dispensary (pharmacy), a file room (for old charts), and waiting areas. The second floor houses the 31-bed malnutrition wards and a kitchen for the inpatients. There are other smaller buildings in the MCHC complex for such services as nutrition education, housing for the mothers of the inpatients, family planning, and administrative offices. The dispensary serves only prescriptions written at MCHC clinics.

The medical staff consists of two doctors in the pediatric services and another doctor who serves the maternal services on a part-time basis. The other members of the malnutrition services consist of eight nurses, two ward assistants (nurses' aides), two nutrition assistants, two community health nurses, and one senior nutrition officer. The ward is headed by one nursing sister. The kitchen is run by two cooks under the direction of the two nutrition assistants. The maternal services are staffed by two midwifery superintendents, 20 midwives and nurse-midwives, and also six student midwives from the Nursing Training College. The entire nursing staff at the MCHC is headed by one senior sister.

The outpatient work at the MCHC is very well organized into different time slots and patient groups. Strictly speaking, the outpatient pediatric services are restricted to malnutrition, measles and pertussis clinics, and a well-baby clinic. The maternal services are mainly prenatal clinics with some postnatal education combined with the well-baby clinic. The family planning services do not hold separate clinics, but offer educational services to the mothers during the well-baby clinics. A food and nutrition education clinic is run concurrently with the malnutrition clinic. The maternal services run a prenatal clinic every weekday in the mornings from 8:30 a.m. to 12:00 noon on the ground floor of the main building. On Mondays, Wednesdays, and Fridays, the pediatric services run malnutrition clinics upstairs in the mornings from 8:30 a.m. to 12:00 noon. The

nutrition staff run the nutrition education and food distribution clinic concurrently with the malnutrition clinic. In the afternoons of Mondays, Wednesdays and Fridays, two clinics are held for measles and whooping cough(pertussis) patients. Thursday afternoon holds the well-baby clinic, and on Tuesday afternoons no clinics are held.

The malnutrition clinic serves both as a regular follow-up clinic for children discharged from the malnutrition wards and as a clinic for the intake of new patients with malnutrition. The follow-up patients tend to use these clinics for other health problems they may develop so that the health care given at this clinic is not entirely restricted to nutritional problems. The clinic is held upstairs on one of the two adjoining wards. Two consulting tables are set up for two doctor-nurse teams in the central area of the ward, and the parents and their children wait in a sitting line on the corridor. New patients are admitted if their problems are serious enough and if there is room, or they are either sent to KAH or treated on an outpatient program. All new patients are referred to the food distribution and nutrition education center after seeing the doctor. This center is staffed by the two community health nurses, the two nutrition assistants and the senior nutrition officer who runs the entire nutrition program of the MCHC. Two basic services are offered at the nutrition center; 1) education of parents whose children have nutritional problems about good nutritional and health practices, and 2) distribution of food for the children.

The community health nurses give the mothers lectures on the causes of malnutrition in their children and practical ways of combatting them. They also give the mothers general information on immunizations and family planning. These lectures are very well run, informal, and in simple traditional language well understood by the parents. Suggestions of inexpensive ways of balancing the diets of their children are given the mothers based almost totally on locally produced foods. The main attraction of the nutrition center, however, is the free food that is given these parents for their children. The food comes from the Catholic Relief Organization of the United States of America. Three basic food products are supplied:

- 1) Sorghum, which has replaced wheat in the program in recent years.
- 2) Corn-soya-milk powder preparation.
- 3) Soya bean oil.

The nutrition assistants give the mothers demonstrations of various ways of preparing these foods, emphasizing methods that are very similar to traditional food preparation methods. The aim is to prepare these foods in ways such that the finished foods look and feel like the traditional foods, even if the tastes might be different. The nutrition assistants report good results from this approach.

The children referred to the Nutrition Center are seen on a monthly basis for a health check, and for their food allocation. Each

child is given enough food to last a month. Each child is followed in this pre-school feeding program until the age of five. On the first visit to the clinic, the parents are asked to buy a weight chart costing 10 cents for their child. The child's weight is recorded on every monthly visit on the chart. The purpose of selling them the chart, according to the senior nutrition officer, is to make them feel responsible for its good preservation. The parents keep the cards and bring them to each clinic visit. Children who fail to gain weight adequately are referred back to the doctor, and the mothers given more intense instruction on the feeding methods -- but not without a few harsh words -- by the nutrition assistants. Apparently, the general results from this feeding program have been very good.

Most of the children who attend the malnutrition clinic and the nutrition clinic are not residents of Kumasi, but come from the small villages around Kumasi. Some of the children are brought from as far as forty miles away for the monthly visits. Apparently, the good results seen by the improved health of their children encourages these parents to bring them despite the high transportation costs.

Children who are seen at the measles and whooping cough clinics are automatically referred to the nutrition clinic, at least for the immediate post-measles or post-pertussis period, and for the full length of the program if necessary. Any of the children who are

found to be sick during the monthly visits are referred to see the doctor before returning home. Table 22 is a summary of the major consultations made to the various clinics of the MCHC in 1973. Other common problems of these children attending the major clinics are dealt with by the staff at MCHC and some of these are also summarized in the chart.

The measles clinic and the pertussis clinic are held in two separate areas of the general outpatient area. The clinics are organized by the nurses with the doctors in consultation. In order to speed up the services, management of these major diseases are standardized for all "routine" cases. Children with very severe or complicated cases of either disease are referred to KAH for admission. All other children are treated on outpatient basis for measles and whooping cough. The patients are seen on a weekly basis until they are well.

The standard measles management regimen is known as "Code 1," and is filled by the MCHC on the first visit. Code 1 consists of the following:

1. Crystalline penicillin injection IM
2. Nivaquine - injection or oral dose stat; then oral dose for two-day course
3. Codeine compound tablets
4. An anti-diarrheal mixture - for five-day course
5. An expectorant-sedative mixture - for five-day course
6. Anthisan cream
7. Terracortil eye ointment

TABLE 22

Maternal and Child Health Center
Monthly Summaries of Major Outpatient Visits 1973

Months	Measles Clinic		Pertussis Clinic		Immunizations		Post-Natal Visits	Mal-nutrition Clinic	Prenatal Clinic	
	New	Old	New	Old	DPT/ Polio	Small Pox			New	Old
January	334	239	376	147	539	177	325	150	2,634	3,456
February	346	344	330	204	629	149	387	225	2,120	3,145
March	419	324	406	291	704	124	435	164	2,323	3,610
April	164	218	356	235	575	113	355	119	1,991	3,203
May	248	287	368	262	703	217	470	179	2,147	3,291
June	329	292	306	301	494	126	405	NA*	2,001	3,136
July	266	265	314	288	560	130	400	119	3,170	3,457
August	219	207	263	257	734	165	501	141	1,990	3,009
September	214	155	262	279	552	123	349	97	1,936	2,945
October	281	278	274	216	492	128	384	170	2,004	3,026
November	397	400	265	184	535	129	394	255	2,318	3,148
December	361	287	173	156	376	168	296	219	1,596	2,948
TOTALS	3,578	3,296	3,693	2,820	6,893	1,749	4,701	2,005*	26,230	38,374

8. White vaseline (for lips)
9. Vitamin B Complex tablets

The full reasoning behind such an extensive drug regimen for measles was not clear to anyone at the MCHC -- including the doctors who prescribed them. Apparently, the regimen was worked out more than five years before this study by a doctor who was then in charge of the pediatric services at the MCHC, and it has since been followed without question or modification. Nivaquine is an anti-malarial preparation containing chloroquine sulfate. A codeine compound is an analgesic and antipyretic agent containing aspirin, phenacetin, and codeine, usually in small amounts. Anthisan, a product of May & Baker of the United Kingdom, is a preparation of mepyramine maleate, an anti-histamine. Terracortil eye ointment by Pfizer contains oxytetracycline, polymycin B, and hydrocortisone. Since this treatment was carried out on outpatient basis, the mothers of these children, many of them illiterate or with very little education, had to be given instruction on how to administer all these medications. Undoubtedly, most of them found the instructions confusing, and probably did not follow them well.

The standard regimen for pertussis, "Code 2," was somewhat less confusing than the measles regimen. Patients with uncomplicated pertussis received the following:

- 1) Chloramphenicol syrup for seven days
- 2) Histalix expectorant for seven days
- 3) Pred_nisolone tablets for seven days
- 4) Streptomycin injection for seven days

The basic dosage is worked out for four-year olds and then adjusted for individual patients according to their ages. The use of chloramphenicol on routine basis under such loosely supervised conditions did not seem to disturb the medical personnel administering the drug. In fact, at both the MCHC and KAH chloramphenicol seemed to be the standard broad-spectrum antibiotic commonly used. It was clear that these children were taking the potentially dangerous chloramphenicol on a routine basis with no close follow up for reactions or toxic effects. Again, the full reasoning behind the Code 2 regimen was not clear to anyone on the MCHC staff at the time of the study. One can only say that the continuation of these two regimens with very little re-evaluation and with no suggestion of changes hopefully is because of the very good results that have been obtained. Apparently, the personnel at the MCHC felt incompetent to re-assess the usefulness of these regimens, and also the tried-out routine of Code 1 and Code 2 certainly made the work run smoother and perhaps faster.

The prenatal service of the MCHC is one of its busiest services. As can be seen from Table 22, a total of 26,230 new mothers came to the MCHC for their prenatal checks in 1973, averaging about 100 a day! Some of these "new" cases came in with their pregnancy far advanced, but most of them came within the first trimester. On their first visit a history of their past pregnancies -- if any -- and general medical health is taken. The weight, blood pressure, and hemoglobin are checked on a routine basis. They are given a physical examination

consisting mainly of abdominal palpation to check for the appropriateness of size of uterus and age of pregnancy and position of fetus. On the first visit they also receive diet instructions and receive medications such as calcium supplements. Iron supplements were not given on a regular basis but were prescribed for those found to be anemic. After the initial visit they make monthly visits until the 30th week of pregnancy, then a visit every two weeks until the 36th week, then weekly until the date of confinement. Even though the MCHC does not go out into the regions to campaign for pregnant women to visit the clinic for checks, a large number of the pregnant women come there from the rural areas surrounding Kumasi. The clinic encourages all primigravida and grand multiparous women to visit the MCHC for all their prenatal checks. The rest, they encourage to use the private midwifery services. All difficult pregnancies that need close follow up are referred by the private midwives to the prenatal clinic at the MCHC.

Perhaps the "happiest" clinic of all to attend at the MCHC is the Thursday afternoon 4 - 6 weeks post-natal and well-baby check. In tune with tradition, these mothers after surviving through the "ordeal" of pregnancy and childbirth, bring their babies to this clinic dressed in bright traditional dresses, giving the atmosphere of the Center a deserved uplifting. At this clinic the babies get started on their DPT and polio immunizations which are given on a monthly schedule, with small pox vaccination given at three months of age.

The new mothers are given diet instructions and advised on how to prepare foods for their babies. They are also taught about hygienic methods of caring for their babies and themselves. The nurses in charge of these programs are on the most part very encouraged by and happy about the large numbers of women who now find the MCHC prenatal and postnatal services useful. The nutrition assistants, however, report that sometimes the same mothers who received diet and baby-feeding instructions at the postnatal visits end up a few months or years later in the malnutrition clinic with severely malnourished children.

The inpatient service at the MCHC is entirely devoted to the care of severely malnourished children. The two basic types of malnutrition, marasmus and kwashiorkor, are both treated at these wards. The children admitted are almost all under five years old (see Table 23). These children are referred from health establishments throughout the city and also the surrounding region of Kumasi.

The children fall into the two basic types of malnutrition. There are those suffering from total caloric deficiency or marasmus, and then those suffering from the more common protein malnutrition, or kwashiorkor. The thin, severely emaciated patients suffering from marasmus can be any age, but are most often infants; whereas, the kwashiorkor patients are usually more than a year old. It should be pointed out in most of these cases, the separation into marasmus or kwashiorkor is not clear cut, and it is better to think of all the

TABLE 23

Maternal and Child Health Center
 Summary of 1973 Admissions and Deaths by Sex and Age Group

Age Group (Yrs)	Admissions			Deaths		
	Male	Female	Total	Male	Female	Total
Less than 1	16	13	29 (3.1%)	1	3	4
1 - 3	397	393	790 (85.2%)	37	25	62
More than 3	38	70	108 (11.7%)	4	6	10
TOTAL	451	476	927 (100.0%)	42	34	76

children in one group, as severely malnourished patients. Table 23 shows that in 1973, 927 children were admitted to the 31-bed malnutrition unit of the MCHC. The average daily census ranged from a low of about 19 in March to a high of about 32 in August. The practice of putting patients on the floor because of overcrowding is very rare at the malnutrition unit. When no beds are available, severely ill patients are referred to KAH. The 927 admissions were divided fairly between the sexes, but the age grouping is more interesting.

An overwhelming majority of the children, 790 (85.2%) were between the ages of 1 and 3, whereas only 29 (3.1%) were less than a year old, and 108 (11.7%) were more than three years old. In 1973, 76 (8.2%) of the 927 children admitted died, 13.8% of the infants admitted, 7.8% of those between one and three years old, and 9.2% of those more than three years old. The fatality of these nutritional problems, therefore, seems fairly distributed over the age groups. The significant observation from the figures is the fact that those children at the ages when their mother is most likely taking care of a newborn are very seriously at risk. This fits the classical picture of the kwashiorkor child.

All the children admitted to the unit are given a physical examination and some specific measurements are taken and charted. These are weight, height or length, head circumference, chest circumference, and lower and upper body segment ratio. These

measurements are checked from time to time during the admission and continued when the children join the food distribution program as outpatients. Where necessary, samples for other laboratory tests are drawn and sent to the clinical laboratories at KAH. Most of these children come to the unit with various infectious problems in addition to their malnourished state. These infections are diagnosed and treated at the malnutrition wards.

The nutritional therapy utilizes three main products -- skim milk, casilan, and sugar. Casilan (by Glaxo-Allenbury's) is a whole protein powder preparation, containing all essential amino acids. For the first few weeks, the intake of fat is restricted, apparently because of the diarrheal problems that these children can run into. The diet is supplemented with traditional foods and vitamins. Children are encouraged to feed themselves if possible, but some of these children are so weak that they have to be tube-fed. The mothers of these patients are encouraged to stay at the MCHC premises so that they could participate in the feeding of their own children. Some of the very ill children have to be given intravenous alimentation -- mostly glucose and vitamins, until they can tolerate some milk through endogastric tube. The diet is carefully calculated for each patient based on the weight of the patient and also on whatever other medical problem there may be.

The diet is individualized as much as possible, however, there is a basic diet plan based on weight already worked out for the sugar, skim milk, and casilan. This basic plan is modified to suit the



individual patient. The children are fed six times a day in small portions, and the amount of food is advanced as progress is made in the general response of the child. A typical daily diet schedule for a child able to tolerate oral feedings consisted of the following:

- 6 a.m. Porridge with milk and sugar
- 9 a.m. Milk, casilan, sugar and bread
- 12 noon Light soup with meat, fish and eggs, mashed or pureed, plus mashed yams, or rice and beans
- 3 p.m. Milk, casilan, sugar and bread
- 5 p.m. Porridge with milk and sugar
- 9 p.m. Milk, casilan and sugar

The sugar is given either as a sucrose-water solution for oral feedings or glucose solution for intravenous or oral feedings. The sugar is either given by itself or mixed with the milk and the casilan.

The nutrition assistants attached to the malnutrition wards supervise the preparation of the food in the kitchen. On Tuesdays and Thursdays these nutrition workers give the mothers of the in-patients demonstrations and lectures on good nutritional care for their children and teach them how to prepare the foods used to feed the children on the wards. The medical care of these children and the ward care are all in the hands of the medical team composed of the two doctors in the pediatric services and the nurses mentioned above. The children receive routine antibiotic therapy even when specific infectious processes are not immediately apparent. The commonest

antibiotic used during the period of this study -- June-July 1974 -- was hostamycin (Hoechst, Germany), a penicillin-streptomycin combination drug. All the children receive vitamins, and also anti-malarial therapy for the first three days of admission. They are subsequently placed on prophylactic anti-malarial medication. Nivaquine (M & B), a chloroquine sulphate, is used for the treatment; and Daraprim (B-W & Co.), a pyrimethamine, is used for anti-malarial prophylaxis.

Another routine therapeutic measure is "de-worming." All the children receive Antepar, unless contraindicated by some specific reason. Antepar is a preparation of piperazine citrate. These malnourished children also receive an anabolic agent, Durabolin (Organa Laboratories, England) containing Nandrolone, an androgen. They are given one injection per week of this androgen for three to four weeks, upon discharge from the inpatient service. There were no reports of any untoward reactions from the use of this long-acting anabolic androgen. All the children discharged from the malnutrition wards automatically get placed in the feeding program and are followed until they are five years old.

The causes of the nutritional problems are many and not easily understood. In the Kumasi area there is no generalized lack of food affecting any particular villages or farms. These children, therefore, are not part of any mass nutritional problem. They come as isolated incidents, and usually the problem lies directly in the home situation.

The marasmic children are sometimes suffering from other underlying diseases which may have contributed towards their poor feeding, but these go undiagnosed for a long time because the parents do not seek medical assistance for a long time. Actual lack of food to feed the children is probably very rare in the area. A certain degree of negligence is sometimes contributory even though ignorance is usually the obvious cause.

The situation with the kwashiorkor children is less complicated. With these children, the underlying cause usually can be found in plain ignorance of the parents. Most of these children are given food to eat, and so their eventual development of severe kwashiorkor is not associated with diet by the parents. Most of the mothers of the kwashiorkor patients are shocked when told that their child's illness is related to poor diet. They lack the knowledge of the importance of a balanced diet. The traditional pattern of giving most of the meat to the adults in the house -- especially the father -- and sometimes totally neglecting the young children also contributes to the problem.

Most of the poor rural farmers produce food to sell for cash and also to eat. Most of their products are starchy foods such as cassava, yams, plantains, and cocoyam. On a seasonal basis they grow some corn. Accumulation of cash is their main goal. Since they do not produce meat or do any fishing for their own table,

they have to use the cash they obtain from selling their crop to buy meat or fish. These tend to be expensive, especially in an area far from the coastal fishing area. Meat and fish, therefore, to them are an expensive "delicacy." Meat and fish are not considered in terms of their nutritional value, but mostly of their socio-economic implications. A rich person can afford to eat meat every day, and so anyone who buys beef from the market every day is considered "rich" in these communities. Even though they may very easily be able to afford some meat or fish every day from their small income, these people do not consider those items as necessities. Other sources of protein from vegetables are not part of the regular traditional diet and escape the regular meals of these children. There is no good reason why these farm communities cannot be made nutritionally self-sufficient. The basic problem to be dealt with is their education about the importance of a balanced diet.

CHAPTER VIII

Traditional Child Health Care

The health care of sick children in traditional communities is not significantly different from the care of adults. Childhood diseases also fall into the same cultural interpretations as adult diseases. In fact, whereas the death of older people may be acceptable as due to some organic illness, the death of a child is usually less well received. Often the question is asked, ". . . what has such a young child done to deserve such an illness?" The implication here is that adults have lived long enough to have committed some "offense" deserving of a serious illness, but not a young child. The health of children, therefore, is of prime importance, and the traditional doctors have great interest in finding treatment for childhood diseases.

Newborn children are not accepted as part of the "human family" until they are given a name on the eighth day of life. The true cause of this Akan tradition is not clearly understood, but the most common explanation is that the high level of perinatal mortality of the past led to this custom so as to minimize the pain of the loss. A family which loses a neonate or a young infant are discouraged from mourning, and assured that God will soon grant them a replacement. In fact, a neonatal death is not even supposed

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to be taken as true death, but rather as an "incomplete arrival" of a new human being. The family of a dead young infant are forbade from wearing mourning clothes, and no funeral ceremony is permitted. Even the deaths of children up to the age of about fourteen are still met with subdued expression of grief by the society.

In conversations with the traditional doctors in Kumasi, it became clear that much of childhood death is attributed to supernatural causes. (As mentioned before, these conversations were made with the chief of the traditional doctors, Nana Nsumankwahene, and two other traditional doctors that he summoned because of their familiarity with diseases of children.) There are no traditional doctors who specialize in the care of children on a full-time basis, although some of the part-time "one-disease" doctors may deal with a problem such as diarrhea in children.

The causes of childhood diseases and their treatment are not considered to be basically different from adults. The traditional doctors viewed child health as a serious problem and recognized that there were many childhood diseases that they themselves did not know much about. It was surprising to find that they did not view the modern medical health system as their antagonist in the care of children. While they admitted that there were certain diseases which could never be treated by modern medicine, they also accepted the fact that they themselves were inferior to the modern doctor in treating certain diseases. It was interesting

that one of these traditional doctors was an educated, literate man, able to speak and write English, a former school-teacher, who had responded to the "call" from supernatural powers "to become a traditional doctor." He had the clearest knowledge of childhood diseases, and the following discussion of specific diseases is based on information supplied mostly by him. In some instances, the Akan names of diseases will be used and English names supplied if directly applicable, or the description of the diseases shall be supplied.

According to their chief, the Kumasi area has over 1,000 traditional healers. Apparently, these doctors do handle all kinds of diseases except two: tuberculosis and leprosy. All the diseases are divided into two causal groups. Some diseases are called "efie yaree" or "home diseases," and the others are "abonten yaree" or "outside diseases." Outside diseases are thought to be purely organic, with no supernatural or spiritual origins and manifestations. These are diseases that people can "catch" from external sources such as bad drinking water or from some accidents. Home diseases are diseases caused by the supernatural involvement of another human being, often through witchcraft. They are called "home" because in traditional Akan beliefs "witchcraft" can only exert its influence, good or evil, on near relatives. A witch with the powers to cause illness in another person can only do so in a close relative, usually a blood relative. Other people such as "fetish priests," some traditional magicians and "juju" experts all can produce disease in other people through "spiritual" means.

Almost any disease can be explained in supernatural witchcraft terms, and the search for the "cause" of a disease usually goes beyond diagnosis and delves into the interpersonal relationships of the patient and his family. "Accidental" death and injury can all be attributed to witchcraft. It is possible in traditional beliefs for a person to die in an automobile accident after the soul of the person had already been "killed and eaten" by a witch close relative. It is possible through witchcraft to "place" disease inside the body in both concrete and abstract terms. Fantastic stories are told of fetish priests causing the victims to "produce" all sorts of bizarre objects which have been placed in their "stomachs" or "wombs" to cause disease or to prevent conception by some witches. Whereas the traditional doctors agreed that modern medicine can and does help in the treatment of "outside diseases," they said that with "home diseases" no amount of hospital medications or tests could help. The human and supernatural causes of "home diseases" should be dealt with before any medical treatment of the disease can be successful.

A major childhood disease which the traditional doctors all agreed was a very serious problem is called "Asram!" In their terms this disease or syndrome has several different forms. Some of the signs and symptoms of Asram are large head, sunken or bulging fontanelles, prominent cranial vasculature, prominent abdominal vasculature, severe diarrhea, and also a cat-like cry. In a

special form called "Asram Brodegyo" (meaning Asram - roasted plantain) the child becomes severely emaciated with a large head. Asram typically is a congenital disease. According to the traditional doctors Asram is a "home disease." The pregnant woman is "cursed" by evil spirits invoked against her through some "juju" (voodoo), and this results in the birth of the Asram baby. The disease can also be caused through the use of some herbs. The herbs are used to prepare some juju potion which, when ingested by the pregnant woman, can also lead to the production of the Asram baby. The pregnant woman can also be cursed if she steps in the urine of the perpetrator of the curse, or if she uncovers her breasts in the presence of the cursor. (The idea of stepping in another person's urine may sound strange to people only used to the practice of urinating in designated bathrooms and urinals. In rural Africa, it is not unusual to urinate elsewhere, usually on the ground next to the wall of a building somewhat secluded from general public view. Urine deposited in front of the doorstep of a house would almost certainly be stepped in by each member of the household sooner or later, even when it might be soaked up into the ground.) Asram can be treated, according to the traditional doctors, but it is usually very difficult to find the true causes. The medical treatment involves the use of nasal drops, enemas, and creams all prepared from herbs and other medicinal sources only known to these doctors.

The doctors also see many cases of "ahonhon" (meaning generalized edema or swellings). "Ahonhon" is usually kwashiorkor, but the traditional doctors do not attribute it to the lack of protein in the diet. They claim that "Ahonhon" can be due to worms, or can also be due to a juju curse. It may be quite true that most of the children with severe kwashiorkor may also be found to have intestinal helminthiasis due to their general poor hygienic conditions. These traditional doctors may, therefore, be "right" in thinking that the worms are the cause of the edematous condition of these children.

Another commonly seen serious "disease" is "Esoro" (meaning "up" or "sky"). This refers to convulsions. All childhood generalized seizure activities are included in this "Esoro," but epilepsy is specifically excluded from this group. The name of the disease stems from the observation that the eyes tend to roll up during these convulsions. It is assumed that the eyes turn up to the sky because of some "bad winds" in the air. The many underlying causes of seizures in infants and young children are not isolated by the traditional doctors. The convulsion is regarded as a disease entity in itself. Idiopathic epilepsy is known as "tweree" and together with leprosy, known as "kwata," is considered as "nto yaree," or "purchasable disease." These diseases, according to the traditional doctors, are not contagious but they are "bought" for the victims. This means one person wishing to cause another person to have leprosy or idiopathic epilepsy can pay a juju-maker to invoke his evil powers to cause the disease in the victim.

Several diseases seen by the traditional doctors have to do with abdominal or gastrointestinal complaints. They see several cases of both "ayamtuo" (diarrhea) and "yafum keka" (literally meaning "itchy stomach," referring to gnawing type intestinal pain). A special type of diarrhea called "ayamtuo tutuani" (literally meaning "diarrhea that plucks the eyes") is sometimes part of the "Asram" syndrome. The term describes the features of a severely dehydrated emaciated child with sunken eyes, and wide-awake appearance of the marasmic child.

Another gastro-intestinal disease, "adinam" (meaning "meat eater") is seen in the child who shows a large protuberant abdomen but otherwise skinny, and who eats excessively. Here the cause of the disease is attributed to worms, and it is the supposition that the worms are eating the meat of the child that gives the name of the disease. The treatment of this disease involves the drinking of medications causing the passing of these worms. "Koraa" (meaning calabash) is another commonly seen symptom of disease. A child is said to have "Koraa" in the abdomen. This refers most commonly to splenomegaly, although hepatomegaly may also be part of the disease. The massive spleen in these children, with a smooth surface, feels like the surface of the calabash, a common traditional utensil. It is quite interesting to see children in the hospital with several tiny scars on the abdomen delineating the area covered by a splenohepatomegaly in the past. These marks were made by a traditional doctor in his treatment of the "Koraa" in the abdomen. Of course, there are many

causes of hepatosplenomegaly in these areas, especially malaria, but these are not searched for in the traditional management of "Koraa."

Common respiratory problems such as pertussis ("nkonko") and conditions causing hacking coughs ("ntehye") are also managed by traditional doctors. One of the traditional doctors observed that "nkonko" was a very difficult disease to find a cure for and that the modern doctor who could find that cure would have done a great service for the children. When told that the disease was at least preventable through immunization, he expressed great interest in waiting to see what becomes of the disease in the future when all the children are immunized. Another respiratory problem described by these traditional doctors sounded very similar to asthma. It was their observation that both pertussis and asthma affect children on nights when the moon "comes out."

They described several symptoms of sickle cell disease even though they never tied them all together under one disease. The most common symptomatology of the disease was "ahotutuo" (meaning "body pains") describing the painful crisis of that disease. They mentioned that in some cases some of these children with "ahotutuo" go on to develop convulsions. Some children with "ahotutuo" were also described to have a disease known as "depo" which is characterized by joint swellings. There is no "traditional" disease entity that fits sickle cell disease as a separate disease. Moreover, there is no suspicion that the disease is in the blood or that it is genetically transmitted.

Other diseases seen in children by the traditional doctors include "mmubuo" (meaning "breakage") which refers to paralysis and "asabra" which is characterized by itchy, weeping red eyes, or conjunctivitis. One of the most common childhood diseases of the Kumasi area, "ntenkyem" (measles) is not commonly referred to these traditional doctors for care unless some complications develop. Other diseases considered of minor importance are treated at home with traditional medicines known within the family.

It is clear from the discussion above that the traditional doctors deal with a wide range of childhood diseases. It is also obvious that their knowledge of diseases and the etiology of diseases are quite different from the modern scientific medical doctor. It was interesting to discover that these traditional healers had such good and vivid description of certain symptoms which fit some diseases known to modern medicine. Because of the limitations of their methods, it can be said that their diagnoses are based solely on what they can see with their eyes, hear from their patients or their parents, and rarely on what they can feel with their hands.

The microbial origins of most of the childhood diseases completely escape their knowledge, even though they know that there are diseases in bad water and bad food. In recent years, the knowledge that malaria is caused by the biting of a mosquito has become commonplace enough so that even the traditional doctors accept it. However, malaria is thought of only as "fever," and the shaking chills and

lethargy constitute the extent of its manifestations. The knowledge of these traditional doctors is only slightly better than that of the average illiterate adult, with respect to anatomy and body functions. It has always been a source of mystery that their treatment methods achieve any success at all. Even though the origins of their treatment methods are not known, recent studies have shown that, in fact, several of the herbs they use have medicinal content similar to some modern medications. As an art, traditional medicine may survive because of its strong cultural religious ramifications. As a major health care alternative, the era of traditional medicine is slowly passing. Deliberate efforts have to be made to pass on the art of traditional healing to the younger generations. Hopefully, the recent efforts of post-independence governments to bring traditional medicine into public recognition and to encourage its study will ensure its survival.

The discussions with the traditional doctors produced some important observations. It was clear to these doctors that the health of the children today is better than the past. They attributed this improvement in health in part to modern health facilities. They clearly recognized their limitations with several childhood problems. They also felt that modern education probably did more for child health than anything else. They did not see their role in the society threatened by modern medicine. They maintained that there will always be those "home diseases" which the modern doctor may never

be able to deal with. This contention, of course, depends on how many people in the future still believe in the supernatural causes of disease. In present day Kumasi, or Ghana as a whole, even with the rapid modern development going on, there is no question that the traditional beliefs about illness and death still prevail.

CHAPTER IX

Comparison of the Kumasi Child Health Situation with Other West African Examples

The child health situation in Kumasi is unique in several ways, but at the same time it is typical of that area of Africa. In Ghana itself, Kumasi being the second largest city, and Komfo Anokye Hospital being the second largest in the country, may suggest that child health in the city of Kumasi may be much better than in rural Ghana. This is probably true in reality. However, much of the figures obtained from hospital and clinic records do not tell only of the picture as it exists in Kumasi. The diseases seen in Kumasi health establishments are not unique to Kumasi since many of the patients are brought from the rural areas near the city. The population per bed ratio calculated for Kumasi may seem much better than for the rest of the country (300 for Kumasi and 751 for the whole country), but the population actually served by the city's health establishments number more than the population of Kumasi used in the calculation. In a 1970 analysis of bed ratios for the nation by the Ministry of Health, Ashanti Region had the bed/population ratio closest to the national ratio.⁴³

In Ghana it is true that the further north one travels from the coast, the fewer the health establishments get. The disease patterns may be slightly different between the dry northern cities and the humid southern cities, but this has not been studied yet. A study⁴⁴ conducted

in 1968 at Korle Bu Hospital, Accra, Ghana, provides a good basis for comparison with some of the data obtained at KAH. It should be stressed that Korle Bu Hospital is the medical facility used by the Ghana Medical School and is a more "sophisticated" hospital than KAH, particularly in the use of laboratory methods for diagnostic purposes.

The major causes of death on the pediatric wards at Korle Bu were:

1. Respiratory Infections	(15.5%)
2. Gastro-Enterocolitis	(12.4%)
3. Malaria	(10.9%)
4. Measles	(10.9%)
5. Septicemia	(7.1%)
6. Meningitis	(5.6%)
7. Anemias (including sickle cell)	(6.0%)
8. Malnutrition	(5.1%)
9. Typhoid	(3.3%)
10. Neonatal Jaundice	(3.3%)
11. Neonatal Tetanus	(3.2%)
12. Cerebral Hemorrhage	(2.9%)
13. Congenital Anomalies	(2.7%)

The numbers in parentheses represent the percentage of total pediatric deaths in 1968 at Korle Bu. The findings in this study are

quite similar to the situation at KAH in 1973, presented in Table 16. The high number of deaths attributed to anemias at KAH has already been attributed to lack of specificity of diagnoses. At both hospitals the leading cause of death was respiratory diseases (infections). Excluding the anemias category, the four leading causes of death at KAH were respiratory diseases, diarrheal diseases, malaria and measles. This order corresponds exactly to the Korle Bu situation in 1968, if gastro-enterocolitis at Korle Bu is taken to represent the same diseases as diarrheal diseases at KAH. Both Korle Bu and KAH have separate health establishments which handle children with malnutrition so that both hospitals show small numbers of deaths from malnutrition.

Nigeria is a West African country with geography and history quite similar to Ghana. A paper on child health in Western Nigeria by Omolulu⁴⁵ in 1965 presented some data from various Nigerian cities in previous studies. The most common causes of death at the Children's Ward at Wesley Guild Hospital, Ilesha, were found by Morley (1962) to be measles, diarrhea, protein-caloric malnutrition, bronchopneumonia and pertussis. At the Children's Unit of Lagos General Hospital, Gans (1961) found that pneumonia, diarrhea, measles and protein-caloric malnutrition were the leading causes of death. In Ibadan, at the Children's Ward of Adeoyo Hospital (the University College Hospital), pneumonia, diarrhea (and vomiting),

anemias, and protein-caloric malnutrition were the leading causes of death, according to Macgregor (1958). These examples from Western Nigeria, compiled about ten years prior to the 1973 data from Kumasi bear a very close resemblance to the Kumasi situation. Western Nigeria and Ghana have gone through similar post-independence development. The fact that the disease spectrum in these West African cities have not changed much in the last ten or more years shows that even with the accelerated developmental programs there is still a lot to be done. These infectious diseases which are prevalent in Kumasi and these West African countries have largely been "conquered" in the more advanced industrialized societies.

In 1900, the leading causes of death in the United States contained some of these same diseases.⁴⁶ Pneumonia and influenza were the leading causes of death followed by tuberculosis, and diarrhea and enteritis. By 1954, these three diseases had dropped out of the leading causes of death. The same is true with causes of infant mortality. In 1900, diarrhea and enteritis were the leading causes of death in infants in the United States, followed by pneumonia and influenza and "infective and parasitic diseases." By 1954, these had dropped to become very low contributors to infantile mortality. These drastic changes were made at the same time as actual mortality rates were also dropping precipitously. The pattern of disease seen in Kumasi and the other West African cities, therefore, is a good

indicator of the current socio-economic level of the area. The similarities between Kumasi, Accra and the Western Nigerian cities with respect to causes of childhood deaths are a reflection of the developmental stages of these cities and their surrounding areas and not their geographic-climatic conditions.

The children of Kumasi and the surrounding area are not any more at risk of dying of any major diseases than their counterparts at or near Accra in Ghana. Their health care depends largely on the general improvement of living conditions in the country. It is fair to assume that whatever general health improvements have taken place in Ghana in recent years have also affected the children of Kumasi, and so the child health situation in Kumasi is probably a fair statement of the child health situation in Ghana at that stage of national development.

CHAPTER X

Interview of Mothers of Patients Attending Clinics

This portion of the study was originally planned on a larger scale to include visits to homes in the city of Kumasi and the surrounding rural villages for interviews of parents. Logistical difficulties, however, made it impossible to carry out the extensive field study, and so all the interviews were conducted at KAH and the MCHC. The reactions discussed below came from mothers who had brought their children to either of these two health establishments for a variety of health problems. In all, forty mothers were interviewed. The interviews at KAH followed immediately after the mother and child had completed their consultation with the doctor and nurse at the outpatient clinics. This was not such an ideal time for many of the mothers since they wanted to hurry off to get into the lines at the pharmacy to collect their medication. However, it was the only time when they could be counted on to be available for the interviews without disruption of the long waiting line systems.

The interviews at MCHC were conducted at the nutrition clinics, and the measles and whooping cough clinics. The mothers were interviewed as they waited their turn to receive their food rations or to see the doctor.

Most of the mothers were initially very surprised that they were being asked questions about how they felt about the hospital and

the care their children received. They were suspicious of the motive behind my questions, and most of them had to be reassured of their anonymity before relaxing enough to give the answers. They were mostly reluctant about saying something negative about the hospitals and the treatment they receive from the hospital staff. Some of them felt that their answers somehow would lead to some trouble for them, and asked to know why they were chosen from the many women who had also brought their children.

Interviews at both places were carried out on Wednesdays. Wednesday was chosen for a variety of reasons. Mondays and Fridays were eliminated because of their closeness to the weekend. It was the experience of the pediatric staff at the hospital that Mondays and Fridays were the two favorite days for the rural mothers to bring their children to the hospital. Friday is a traditional non-farming day in the area, and so the rural farmers preferred using that day to visit the hospital to take care of health problems. Mondays were eliminated because apparently, again, people from the rural areas who have relatives in the city tended to bring their children in mostly on Mondays. They would travel to the city on Sunday, stay with their relatives, and come to the hospital early Monday morning. It was felt by the Chief of Pediatrics at KAH that the Wednesday population probably represented the most typical distribution of the population in the city and the rural areas. The mothers were selected at random.

At KAH the interviews started an hour after the clinics opened for the morning, and every sixth mother and patient were interviewed. A total of twenty mothers were interviewed at KAH. At the clinics at the MCHC the twenty mothers were selected on a similar basis.

The first series of questions were designed to obtain some information about the families of the children that visit these clinics, and whether they lived in the city or came from the surrounding rural country. The mothers were asked to give their age, occupation, income, number of children born, number of dead children, the town they lived in, and how far they got in school. They were asked to provide the same information about their husbands and also to give information on the educational status of their children. The simple question, "How old are you?" did not always get a simple answer. Quite a few of the mothers did not know their date of birth and were only able to provide a rough estimation of their age. Many were also ignorant of their husband's age. The estimates of income by most of them were so inaccurate that their answers could not be relied on. Most of them quoted very small incomes to give the picture of how "severely" poor they were.

Of the forty mothers interviewed, twelve did not know how old they were. Those who gave their ages ranged from 16 to 50, the average age being 26. Only three of the 28 mothers who gave their ages were older than 35. Thirteen of the mothers were farmers,

thirteen were traders selling various items on the market, seven were seamstresses and seven were housewives. Information on the ages of their husbands was less available. Twenty-nine out of the forty mothers did not know their husband's age, but most of them indicated that their husbands were older than themselves. The occupations of the husbands showed more variation but fell into some major classes. Nine of the forty were farmers (eight of whose wives were also farmers), and the rest were more or less self-employed as carpenters (4), tailors (3), shoemakers (2), barber (1), shopkeeper (1), and the rest worked for other employers. The last group who would receive monthly salaries worked as manual laborers (6), drivers (4), office workers (4), auto mechanics (2), electrician (1), meat seller (1) and mason (1). Only one mother was divorced, and she did not know what sort of work her former husband was doing.

These forty women had had a total of 139 children. Eighteen (12.9%) had died. Eight mothers had come with their first or only child, and thirteen of them had had five or more children. One woman had had nine children, eight of whom were still living. The eighteen deaths were distributed among 14 mothers. Three women had lost more than one child each, with three children being the most any one of the women had lost.

Of the forty women interviewed only 11 lived in the city of Kumasi. The remaining 29 lived in smaller towns and villages

surrounding Kumasi. Most of these were not more than twenty miles from Kumasi, but one woman came from more than forty miles away. Broken down into the two health establishments, it is seen that seven out of the twenty mothers interviewed at KAH lived in Kumasi, whereas only four of the twenty mothers at the MCHC were from Kumasi.

On their educational background, 27 of the forty mothers had had no schooling at all (11/20 at KAH and 16/20 at MCHC), and none of the rest achieved any schooling above Middle School Form 4 (equivalent of about 8th grade). The fathers were only slightly better with 21 out of the forty having had no schooling (8/20 at KAH and 13/20 at MCHC), but with three of those who had been to school reaching post-elementary school levels. None of the parents had been to college or pursued any advanced secondary school education lasting more than two years. Of the forty couples only nine were both literate. The situation with the children was much more encouraging. Of all the children of school age, only one had dropped out of school without completing the elementary school. All the mothers whose children were not of the school age yet said they would send them to school when they became of age.

The family analysis presented above shows a pattern which is typical of the Kumasi area in some ways and atypical in others. It is quite remarkable that 72% of the children were brought in from

areas outside of the city of Kumasi. The small number of patient-mothers interviewed makes it unwise for generalizations, but conversations with the pediatric staff at KAH and the staff at the CMHC lent some support to the above findings. The nutrition assistants were of the opinion that very few children living in the city of Kumasi ever became as severely malnourished as some of those in the rural areas. It was also their distinct impression that educated mothers took better care of their children and that most of the mothers they saw in the clinics had never been to school. There are no figures available on the educational background of the Kumasi population in recent years, but it is always safe to assume in a country such as Ghana, that the cities usually have a higher proportion of educated people than the rural areas. In fact, the poverty of the rural areas has sometimes been attributed to the exodus of their educated people to the cities.

The occupations of most of the parents suggest that they are mostly of the lower income group. Even though farming on a national level is the major source of Ghana's wealth, most individual rural farmers are not wealthy. Many of the rural farmers around Kumasi do not have large cocoa farms which can assure a steady income throughout the year. In fact, many of the farmer-mothers interviewed were not cocoa farmers at all, but produced foodstuff on a small scale. It is always difficult to assess how much a

farmer makes in a situation where much of the "income" is not made in terms of cash. The only people with reliable information on income are those who receive monthly pay for some regular work done for another employer. Traditionally, most people also tend to underestimate their income when asked in order not to give the impression that they are less poor.

Typically, therefore, the patients attending the child health clinics at KAH and MCHC come from rural, low-income families, with illiterate or semi-literate parents, but trying to put their children through school.

"Where do you usually take your children when they become ill?" This question was also asked the forty mothers. Only four of them said they sometimes took their children to see private doctors, eighteen said they always took their children to KAH, seven of them used the Urban Health Centers as well as KAH, and seven used the MCHC and KAH or MCHC and another Urban Health Center. The rest used any of the available health establishments with no special "preferences," and one routinely used the hospital of the University of Science and Technology, only coming to KAH when referred.

The mothers were asked whether they used any traditional methods of treatment for any diseases of their children, or whether they would use them for any childhood diseases in general. Only thirteen mothers admitted to the use of traditional medicine. These

mothers said they would use or have used traditional medicine for problems such as "Asram" (see discussion of traditional medicine), diarrhea, constipation, skin diseases, and convulsions. Most of them said they used traditional herbal preparations as enemas for gastrointestinal problems of their children. Even though only thirteen out of forty were positive about the use of traditional medicine, there is little doubt that the number is probably higher. Most of the mothers who bring their children to the modern health establishments deny the use of traditional medicine for fear that they would be scolded by the nurses. Even though the mothers were assured that their answers would not in any way lead to any repercussions, it is still likely that some of them were not fully convinced and did not tell the truth about their use of traditional medicine. If it were true that only thirteen out of the forty would use traditional medicine before seeking modern help, it would probably indicate a change from what might have been expected from such a population.

The interpretation of this change would, of course, depend upon the fulfillment of the goals expected from modern medicine. If these mothers were turning away from traditional medicine because they felt that modern medicine offered their children better health care, then the change could be interpreted as a positive step. To test this interpretation, the mothers were asked what they liked about modern medicine as opposed to traditional care. The answers to

this question were very interesting and informative. As expected, almost all of the women said that modern medicine was better than traditional medicine, however, their reasons were quite varied and informative. Some of their answers are quoted here:

- Pt. No. 1 "Hospital has trained people -- traditional does not."
2 "Hospital is last resort even if traditional is tried first."
3 "Better drugs than traditional."
5 "Traditional is non-specific, may worsen disease, and seller of traditional medicine cannot be traced."
6 "Traditional medicine may lead to development of serious complications. Doctors know what to give."
7 "Not all traditional medicines work. Children's diseases do better at the hospital."
12 "Doctors know about how diseases come about."
15 "There is diagnoses before treatment at the hospital unlike traditional medicine."
17 "Even when traditional doesn't work, doctor can help -- sometimes, though, only traditional can work."
18 "Doctor first. Only when doctor cannot help before traditional will be tried."
19 "Doctor comes after God. Traditional does not work."
22 "Doctor can even give blood. Traditional is non-specific."
23 "My husband prefers doctor to traditional medicine. I obey him."

- Pt. No. 24 "Doctor is straightforward. Traditional too much rigamarole."
- 28 "I don't know any traditional medical help."
- 34 "I'm a Christian, so I always go to the doctor."
- 35 "I take major diseases to the doctor; sometimes I use traditional medicine for minor stomach problems."

The other answers not quoted above were variations of the same themes expressed in these answers. The word "doctor" refers to modern medical assistance and not necessarily a modern medical physician. In the traditional jargon "doctor" is used as a general reference to modern medical personnel.

These answers were fascinating and suggest good faith in modern medicine. Even though the honesty of these remarks may be questionable under the circumstances of the interviews, still they show that at least the mothers had their own good reasons for coming to the modern "doctor." Only a few of them gave answers suggestive of a blind faith in modern medicine. Many of them sounded familiar with some limitations of traditional medicine and seemed to have chosen modern medicine because of those limitations. The most common answer given was that modern medicine had better drugs than traditional medicine. Another observation which seemed to have impressed many of these mothers was that in modern medicine, the children were examined and tests done to find the causes of diseases before treatment was begun.

It was the opinion of many of these mothers that modern medical therapy was more specific than traditional medicine. This is an important observation. It is true that many traditional doctors know about only a few herbs and medicinal preparations, but use these few drugs for all the cases presented them without much individualization. The mothers seemed to appreciate the fact that their children were examined before treatment. This suggests that they feel more comfortable about the "somatic" causes of disease offered by the modern doctor as opposed to the "spiritual" interpretations offered by most traditional doctors. It should be borne in mind that most of these mothers had never been to school and lacked any real understanding of the organization of the human body in terms of anatomy and physiology.

To find out more about their knowledge and acceptance of modern medicine, the mothers were asked about some common medical practices and problems. They were asked whether they knew about the practice of immunizations and whether they understood why people were immunized. All the forty women had heard about immunizations, but only eleven mothers understood the purpose of immunizations. An even more surprising revelation was that only sixteen out of the forty women had ever had their pre-school children immunized. Obviously, most of these mothers who did not know of the purpose of immunizations had not felt they were necessary for their children. It is interesting that four of the thirteen mothers who had had some formal

education were among those who did not know the purpose of immunizations. However, on the positive side, nine out of the eleven mothers who understood the purpose of immunizations had been to school. The staff at both KAH and the MCHC have formed the habit of telling the mothers about the availability of malarial prophylactic drugs. At the MCHC the mothers are instructed about the use of these "weekly" drugs as they are referred to in the local language. The mothers who were interviewed were asked whether they had ever heard of those drugs, and whether they gave them to their children. Seventeen of the forty women said they had never heard of those drugs, and of the 23 who had, only thirteen were giving them to their children. Seven of the thirteen who gave the malaria prophylactic drugs to their children were also among the thirteen who had had some schooling. In fact, only three of the educated thirteen had never heard of malarial prophylactic drugs, whereas fourteen of the illiterate 27 had not.

The point being made here is that it appears that the mothers who had been to school, even though for only elementary education, seemed to know more about some of these simple public health practices. It is quite possible that more of these mothers had actually been told of these drugs than the number that admitted any knowledge of them, and that the illiterate mothers somehow tended to pay less attention to the information. From personal observations of how the clinics were run, at least all the mothers who had ever

been through any clinic at the MCHC should have heard about the use of malaria prophylactic medications. Some of them denied they had ever heard of them because they knew they could not be blamed for their ignorance, but could be blamed for their failure to use the medications if they admitted to the fact that they had been told about these drugs.

Fever and diarrhea are two of the most common childhood disease symptoms, especially in an area where malaria and intestinal parasites are so common. The initial medical assistance sought by parents when their children developed either of these two symptoms may be a good indication of the medical knowledge and orientation of these parents. There are traditional medical methods of dealing with fever and diarrhea which are different from the usual modern medical methods. The forty mothers were asked simply what they would do if their children developed a fever and diarrhea. Their responses are presented below:

A. Fever

No treatment at home = 8

Initial treatment at home = 32

Methods of home treatment:	Antipyretic alone	= 14
	Antipyretic & antimalarial	= 7
	Antimalarial alone	= 2
	Leftover hospital medications	= 7
	Nonspecific "pills"	= 2
	Traditional methods	= 0

B. Diarrhea

No treatment at home = 22

Initial treatment at home = 18

Methods of home treatment:	Specific modern medications	= 7
	Nonspecific modern medications	= 5
	Traditional methods	= 4
	Leftover hospital medications	= 2

In Ghana most people equate fever with malaria, and that explains why nine of the mothers would give antimalarial drugs to their children for fever. It is quite interesting to note that none of the mothers would use any traditional medications for the treatment of fever. This may be due to the fact that there is no accepted traditional anti-malarial treatment, and the traditional methods for treatment of fever are not widespread. These usually involve cold baths, and/or "steam baths" from boiling traditional herbal preparations. Probably the most common prescriptions given in modern health establishments in Ghana are for antipyretic-analgesics and anti-malarials, especially for the children. It is not surprising, therefore, that many of the mothers have grown to believe in those medications for the treatment of fever. The most common antipyretic mentioned by these mothers was A.P.C., containing aspirin, phenacetin, and caffeine. The most common anti-malarial mentioned was Nivaquine, a preparation of chloroquine sulphate. A common practice of parents in Ghana, as elsewhere, is to stop giving

prescribed medications to their children as soon as the children appeared to have recovered from their illness. In Ghana, some of these mothers keep the leftover medication to use the next time the child falls ill again. This practice is potentially harmful for several reasons, one of which is that the medications are not used for the specific purposes for which they were prescribed. A medication prescribed for helminthiasis may be kept and used at the first sign of another illness such as fever. The nonspecific nature of traditional medicines has influenced the mothers into this practice. On the whole, the responses from the mothers on "fever" are very encouraging. All those who said they would not give their children any medications at home said they would take them directly to see a "doctor," that is, they would seek modern medical assistance. Most of those who would try home treatment made the point that they would go to see "doctor" if their children did not improve on the initial treatment.

The "diarrhea" question brought quite a different set of responses. Here 22 of the forty mothers said they would not attempt any home treatment but would take their children directly to the "doctor." These mothers were quite convinced that diarrhea in children was a much more serious "disease" than fever. It is interesting to point out that seven of the eight mothers who would take their children to the doctor for fever would do the same for diarrhea. This means that fifteen of the mothers felt that diarrhea was a more serious disease

that should not be dealt with at home, unlike fever. The eighteen who said they would try some home treatment at least initially included four who would use traditional methods. The most common traditional method of dealing with diarrhea is enema. There is a traditional concept that diarrhea, constipation and other digestive disorders come about because of "dirty-gut" or because of inflammation in the gut, and enemas and rectal suppositories are believed to help "wash out" the gut. This concept is essentially correct except that its application has become too wide, and has led to excessive use of laxatives and purgatives. The practice of "washing out" the gut of small children already dehydrated from diarrhea has undoubtedly led to several unnecessary deaths, and may explain why so many of the mothers were afraid to try home treatment of diarrhea in their children. All the four mothers who would use traditional methods specifically mentioned enemas.

The most common drug mentioned by the women who would give "modern" home treatment was a preparation of sulfonamides popularly known by the initials of the manufacturers, "M&B" (May and Baker of England). One woman said she would give her child with diarrhea an enema with an external-use-only antiseptic preparation known as T.C.P. According to the child health personnel at KAH, this practice is more common than the interview might indicate. The disturbing facts are that the sulfonamides are available for wide use without prescription,

and that there is no way to prevent the use of antiseptic solutions for enemas in these children. These mothers are not willfully abusing their children. They are simply uninformed about the hazards of their "modern" medical practices.

In the last portion of the interview, each mother was asked to say what she thought of the child care she was receiving in the modern health establishments, and what she thought could be done to improve the services. This was the most disappointing part of the interviews. It became very clear from the reactions of most of the mothers to questions such as, "What don't you like about bringing your children to this hospital?" that they did not feel they were qualified or entitled to outwardly express such opinions. All twenty mothers at KAH and all twenty at the MCHC said they received the medical assistance they "expected" whenever they brought their children to these establishments. Of course, knowing what is "expected" from medical resources depends upon a knowledge of what is "needed."

All the twenty mothers at the MCHC said there was nothing they disliked about bringing their children to the center. They did not have any suggestions for improvements of the services, and had no complaints about the doctors and nurses. Even though the services at the MCHC are well-organized and better-run than those at KAH, still the responses of these mothers were incredible. At KAH, where it was quite obvious that these mothers had to suffer through

long waits and disorientation simply because of the size of the hospital, a few of the mothers voiced some negative feelings. Of the twenty mothers, seven had some reason to dislike bringing their children to the hospital. Five of these complained about rudeness and insulting behavior of the hospital workers and medical staff towards the mothers and their children, one complained of the long hours of waiting, and one complained of the fact that sometimes she has had to buy the medications because the hospital pharmacy did not have them.

On the question of steps to improve the services at KAH, thirteen mothers had some ideas. The ideas were concentrated around three subjects. These mothers suggested that the dispensary (pharmacy) should be improved to eliminate the long waits, they should be given good medications so they do not have to bring their children back, and that the hospital personnel should be more courteous towards them. The issue of courtesy seemed to be the most important to these mothers, and they probably have good reason to complain about the way they are treated in the hospital. The procedures at the large hospital are unfamiliar to most of these illiterate rural mothers, and they need more than "average" assistance to take them through a day at the hospital. Unfortunately, the over-worked, hassled hospital personnel in most cases fail to appreciate the difficulties of these mothers and tend to "insult" them unnecessarily. In a few cases

there is downright rudeness and contempt for the baffled, worried illiterate mother and her sick child.

CHAPTER XI

Conclusions and Recommendations

The limited period of this study did not permit a full assessment of all the child health care facilities available in the Kumasi area. It was also not possible to fully investigate the impact of private modern medical care on the health of the children in the community. However, this study was more interested in the general state of child health in the Kumasi community and even in the short period of the study, some important and interesting observations were made.

The Ministry of Health of Ghana seems to be quite well-organized to deliver good medical care to the whole country. The regional organizations of the Ministry, at least on paper, appear to have the organizational tools necessary for effective public health administration. Ghana had only been a politically independent nation for 17 years at the time of this study, but it appeared that tremendous efforts of the government to improve the health of the people had already started to show some good results. The health statistics of the nation in 1970 were much better than those from the pre-independence or immediate post-independence era. Even though considerable progress has been made the basic health problems of the country as a whole do not seem to have changed much. The country's major health problem is still the scarcity of personnel and facilities. The distribution of hospitals and other health establishments and doctors and other health workers still is not

adequate to meet the demands of the population. With the Ghana Medical School and the many Nursing Training schools, the future looks brighter. However, it would take more than simply higher numbers of personnel and establishments to make meaningful changes in the health of the people.

The Ministry of Health would need to establish goals and organize the health resources to meet these goals. In the Kumasi area, it appeared that the health resources were not organized in any direction to meet any specific goals. Part of the problem probably stemmed from the fact that the specific health problems facing the region had not been considered carefully in health planning. There is no well-organized system of assessing the outcome of the efforts made in these health establishments to serve as the basis for future planning. The same old solutions are used to deal with the same old problems without new directions.

The children of the Kumasi area have quite a few health care resources available to them, both in the modern and the traditional sectors. The government-run services form the bulk of these resources, as in other parts of the country, but there is a growing private service in the modern health care system. The child health care facilities are organized mostly for curative care, and inpatient facilities are available for only the seriously ill. Even though the doctor per population, hospital bed per population ratios and other

health statistics in the Kumasi area may be slightly better than the Ghana national statistics, the child health situation is still far from what is acceptable. The modern health care system in Kumasi has very large outpatient services, but there is very little well-child care. The immunization services run by the government services still do not reach many people, and there is no organized way of making sure they are reached. Even though measles is one of the major diseases affecting the children in the area, the government has not started any measles vaccination program. The impact made on the child health situation in the Kumasi area by these immunizations is not readily determinable, but there is little doubt that many children are not reached early enough to protect them from these preventable diseases. Since there is still no effective way of registering all births in the country, these immunization programs do not have any way of assuring that all children are immunized.

The major diseases affecting the children in the Kumasi area serve to emphasize the fact that the health of the children is more a factor of the socio-economic, educational, and perhaps cultural conditions than merely the geographico-climatic conditions. The children are dying of the same diseases that children in the more developed nations used to die of during the earlier stages of development. On the local level, the children of the poor, illiterate, rural peasantry seem to form the bulk of the patient population at the child

health facilities. Of the major diseases, malaria is perhaps the only one which may be favored by the tropical climate. Large numbers of children die of diseases which are medically treatable, either because they are brought to the hospitals too late or they are so badly compromised by their poor nutritional and general health state that they are beyond help. The diseases affecting the children in the Kumasi area are the same diseases affecting children in other communities in West Africa at similar stages of development.

Traditional medicine is still a factor in the health care of the people of Ghana. The extent to which people depend on traditional medicine is not exactly known, and, in fact, may be impossible to measure; but strong cultural factors still make traditional medicine attractive to many people. The traditional doctors who were interviewed in this study acknowledged the tremendous improvement in child health brought about by modern education and modern medical care, but they maintained that traditional medicine would still be needed to deal with those diseases for which modern medicine lacks the "supernatural" or "spiritual" means to treat effectively. The traditional doctors, at least the experienced ones, seem to have a well-defined knowledge of the diseases they treat, and their description of some diseases in traditional terms fit some diseases or symptom complexes also well-defined in modern medicine.

The future of traditional medicine is difficult to clearly predict. There seems to be an established movement away from

the use of traditional medicine by the people. This trend seems to be enhanced by modern education and a strong faith in modern medical care on the part of the people. On the surface, one may be tempted to conclude that traditional medicine is slowly moving towards extinction. However, this may be an oversimplified assessment of a complex situation. Many more people believe in the values of traditional medicine than those who would actually use it. Modern medicine does not seem to provide all the answers that are culturally satisfying to many people, and the need for new forms of medical care has arisen in the form of "spiritual churches," and "faith healers."

Traditional medicine in its classic forms may become obsolete in the future, but it is very likely that the new forms of healing which incorporate traditional beliefs in their therapy will continue to increase. The recent efforts of the government to study traditional medicine should help in the historical preservation of a system of health care which once was the only way. Even though the actual practice of herbal medicine may die in a far future, the cultural significance of traditional medicine should be preserved.

It is not likely that traditional and modern medicine can co-exist in the same medical establishments. Perhaps, the most hopeful area where the two can work together would be in psychiatry. Efforts should be made to bring the practice of traditional medicine into public view so that its positive as well as negative aspects can be

examined. If there are conditions which are clearly better handled by traditional medicine, traditional doctors should be encouraged to treat those conditions. Modern medicine can also gain from traditional medicine. The strong religious and cultural ties which traditional medicine holds are missing in modern medical care for most of the people in Ghana. Students of modern medicine in Ghana should be taught about these traditional medical beliefs of their patients to make them more appreciative of the patients' expectations. For purely historical purposes, the government should ensure that people are trained in the various methods of traditional medical care.

There is a movement in the modern medical system towards the private, profit-making service. Many doctors leave the government service to set up lucrative private health care facilities. This trend, if not checked, threatens the future of the government-run national health service. The overwhelming majority of the people in Ghana cannot afford private medicine and have to rely on the government services. These government services are all under-staffed and need more doctors.

The government should devise a plan to make sure that good health does not become a privilege of those who can afford it. For instance, each private doctor could be given inpatient privileges at the government hospitals in return for the care of some non-private patients. Or, each private doctor could be required to work for the government for a number of hours per week. It is difficult

to advocate a total ban of private medical practice in the country because of the fact that most of the government establishments are less than adequate. The government should try to make the national health service more attractive to the doctors, and also make private practice a less attractive alternative. However, for the purposes of national development, the idea of a unified health system run by the government, which serves both the rich and the poor, is probably the best alternative.

Child health in the Kumasi community is a good example of the state of the health care delivery system in Ghana. The problems of health care of these children point out some of the failures in the national health services. From the interviews, it was striking to note that most of the children were from outside Kumasi, with illiterate parents. It would appear that education alone would make a significant change in the child health situation. Even with the compulsory education program of the government, many children will still be born to illiterate parents for quite some time. Special efforts should, therefore, be made towards the delivery of health care to a population of illiterate, rural, and poor people. In the Kumasi area, the Regional Public Health Nurse's office seemed to have the most promising organization for dealing with the special problems of such a population. Unfortunately, their staff was so small that much of their goals could never be reached. There is a need to train many more para-medical workers such as the community health nurses

who would make home and school visits to deliver modern health care and education. The socio-economic problems of the families whose children continually end up in the health establishment with the common major diseases are never identified as part of the health care work. The system of care now wastes a lot of effort in its purely curative approach to health problems of these children.

Ghana is an agricultural nation, and her future lies in her ability to develop her vast agricultural resources. With modernization, the trend has been towards urbanization and industrialization. Recently, however, the government has embarked on an "agricultural revolution" as the basis for national development. The success of such a program will partly depend on the ability of the government to make rural living attractive to the educated people. In the health services, a program of rural development aimed at making good health care available to the rural population should be adopted.

The one area where Ghana has made its greatest improvement in the last twenty years is education. Several schools, with trained teachers, have been built across the nation since the regain of political independence. Even the most remote villages now have schools where their children can get an education. The extensive school system could be "exploited" by the national health service. One or two teachers from each elementary school could be given "summer school" education in basic well-child and prenatal care,

and also taught to administer immunizations to children in the school area. An extensive mobile health care delivery system can also be set up to "make rounds" in villages surrounding the cities and towns with health establishments. These mobile teams sent out from the establishments could deal with health problems "discovered" by the teachers serving as primary health workers.

It is true that Ghana is a young developing nation with typical problems of poverty, ignorance, and disease. The paths that countries such as Ghana are struggling along have already been travelled by the more developed nations. There is no reason, therefore, for the developing nation not to use methods available today which were not available in the past to deal with their problems. The health care delivery system in Ghana needs new methods to enable it to make significant improvements in a short time span. The health of the people should not wait for the general improvement of the socio-economic state of the country.

In national health planning there should be emphasis on the development of new techniques of health care delivery to a predominantly poor, rural population in an era of modern technology. In an accelerated program of national development, good planning is needed. The Ministry of Health with the assistance of the Ghana Medical School should develop effective means of gathering health data from all sections of the country so that health programs can be planned and reorganized to meet specific goals. A study such

as this one, but on a national level, and extending into all facets of health care would provide valuable information upon which the future of national health planning could be based.

The problem of increasing population which has not been fully recognized in national developmental planning deserves the final comment. Even though with a population of 9.5 million (1974), Ghana is not over-populated, there are special strains put on development of the country by the distribution of the population by age. The children in the country utilize resources provided by the adults who are economically active. The high proportion of children in Ghana and other developing nations is partly a result of improved prenatal and child health care, and partly a result of continued high birth rate. This problem is not going to be solved by reduced but rather increased efforts to provide good maternal and child health services. Improved public health methods coupled with improved educational status lead to a healthier, more productive population who can understand the problem of overpopulation. In Ghana, over-population is not seen as a national problem. However, the time to educate the people about the dangers of overpopulation is now. The schools are now filled with large numbers of healthy children whose reproduction in the future, if not controlled, will certainly ensure an overpopulated state.

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