

"BELIEFS AND ATTITUDES TOWARD
INFANT MORTALITY AND
MODERN HEALTH CARE CENTERS
IN EAST CAMEROON"

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TABLE OF CONTENTS

iii.	Acknowledgments	1
I.	Introduction	1
II.	Study Setting	2
III.	Methodology	4
	1. Field Research Instruments.	4
	2. Data Collection	5
	3. Data Analysis	6
IV.	Results	6
	1. General Data - Frequencies.	6
	2. Beliefs, Practices, Attitudes	8
V.	Discussion.	15
VI.	Public Policy Implications and Recommendations.	23
	Summary of Findings	30
	Notes	31
	Bibliography.	34

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*Some interviewers recorded only their first or last names on the questionnaires, as reflected in this acknowledgment section.

BELIEFS AND ATTITUDES TOWARD INFANT MORTALITY AND UTILIZATION OF MODERN HEALTH CARE CENTERS IN EAST CAMEROON

I. Introduction

Infant mortality is one of the most serious health problems that Cameroon and most developing countries face today. Although official statistics on infant mortality in the country report the figures of 160 per thousand live births, the actual number of dead infants is likely much higher. In the neglected areas of the north and the south-east, the rates are undoubtedly higher, and, during the colonial period, rates were reported to have been as high as 50 percent of the children between ages zero to five.¹ In view of the fact that Cameroon's East Province has received much less attention from the government compared to most of the country's ten provinces, the fight against infant mortality in the area seems to have had little success during the post-colonial era.

This study was prompted by recent findings and emphasis by medical anthropologists and sociologists that the success of any government health program on infant mortality cannot solely rely on scientific research and the elimination of environmental causes of disease and death -- that it must as well take into account values and beliefs that affect peoples' attitudes toward disease itself, death, and modern health care. This point is made so convincingly by Dennis Warren and Z. A. Ademuwagun in their edited volume African Therapeutic Systems (1979).² The phenomenon of infant mortality in Africa and elsewhere in the developing world carries with it deep-seated cultural assumptions which ultimately affect social relationships and impact the survival of the family. Thus, a study of infant mortality cannot be complete unless it encompasses physical, environmental, cultural, psychological, and social factors.

Therefore, the specific objectives of this study were to:

1. Ascertain the prevailing beliefs and attitudes toward death, particularly of infants and neo-nates (to the age of five), and people's perceptions about the most common children's diseases in Cameroon's East Province;
2. Determine the degree of utilization of health care centers and thus uncover people's attitudes toward Western and traditional medicine which may impact adversely on children's survival;
3. Suggest alternatives that might encourage a greater utilization of such centers to curb the curse of infant mortality and assist the health care projects funded by the Agency for International Development (AID);
4. Help to determine, as a corollary, whether or not data on infants and infant mortality is often accurate or complete when requested by governments or private agencies and researchers; and
5. Make available the results of the study and disseminate them for the benefit of AID and Cameroon (and other developing countries),

as they implement programs for the survival of the child.

The study was funded by the Agency for International Development through Jackson State University, Jackson, Mississippi. The proposal was written by Drs. Gwendolyn Prater and Mario Azevedo, the two investigators, from the Departments of Social Work and History respectively.* Consultants included Drs. Daniel Lantum, trained and experienced as a medical doctor, Paul Nkwi (sociologist-anthropologist), Verkijika Fanso (historian), Kashim Tala (Professor of Literature)--faculty members at the University of Yaounde--Michael Warren (medical anthropologist) at Iowa State University and Frank Sillonville (surgeon) at Saint Nazaire les Eymes, France, all with first-hand experience in Africa in general and Cameroon in particular. During the field work, the Director of the Health Care Training Center at Bandoungoue, Mr. Agoumemord Menze, joined the research team and so did the male nurses at Boubara village and Kette health care center, who wished to demonstrate to the people that the project was important. Most interviews were conducted by students from the medical school of the University of Yaounde, the School of Social Work in Yaounde, and the Health Care Training Center at Bandoungoue, Batouri.

II. Study Setting

The East Province was selected as the study setting following lengthy discussions with the local experts, particularly Lantum, with an eye on the financial limitations of the grant. The East Province, as noted above, is one of the least developed of the country's ten provinces, and therefore seemed to lend itself to the objectives of the study, namely, the nature of the attitudes, beliefs, and practices related to infant mortality, and the degree of the utilization of modern health care centers by its various ethnic groups.

The East Province consists of four Divisions: Lom and Djerem, (26, 350 km²), Haut-Nyang (36,320 km²), Kadey (15,910 km²), and Boumba-Ngoke (30,390 km²), with a population a little above 500,000 people, sparsely scattered (at a density of 4.55 persons per km²) in what is mostly a tropical rainforest. In spite of its great economic potential from livestock, forestry, agriculture, and mineral resources (such as diamond, iron, gold, and uranium), the East Province is one of the poorest in the country. Problems of illiteracy, malnutrition, a sparsely distributed population, and the lack of adequate water supply make it very difficult for the people--the Baya, the Kaka, the Baminga and Baguidi (pejoratively known as pygmies), and the Bororo-Fulani--to enjoy the comforts of modern "civilization."

The Province produces much tobacco (619,933 tons in 1985-86) controlled by the Societe' Camerounaise des Tabacs, plantain (147,478 tons in 1985-86), cassava (128,074 tons, 1985-86), corn (20,290 tons), peanuts (9,431 tons), bananas (23,991 tons), palm oil (4,230 tons), cocoa (222,091 tons), and coffee (1,315,168 tons). Its educational

*Although Azevedo is now at the University of North Carolina at Charlotte, he maintained his role as an investigator throughout the grant's period (1987-1989).

opportunities for youngsters, however, are very limited. In 1986, for example, the number of primary schools was only 437 with 84,560 students enrolled, out of a population that has 200,000 individuals below the age of 16, taught by 1,925 teachers, while post-primary schools numbered 23, which enrolled only 10,709 students with a teaching staff of 416. Health facilities are scattered and few, staffed by 30 doctors (in 1986), one surgeon-dentist (in 1985), and the number of pharmacists, nurses, midwives, and assistants totalled only 455 in 1986. The ratios between health care providers and population were 1 doctor per 14,165 people and 1 nurse per 8,635 people. In 1986, government health facilities included one provincial hospital, 3 division hospitals, 12 subdivision hospitals, 4 urban dispensaries, 58 health centers, 18 community health centers, 14 infirmaries, 17 pharmacies, and some 13 other small health facilities. The bed capacity of all hospitals, however, did not exceed 1,466 in 1986.

The most common epidemic diseases treated at the centers were and still are cerebro-spinal meningitis (74 cases in 1985-86), pian (683 cases in 1985-86), sexually transmitted diseases (19,581 in 1986), and tropical illnesses such as malaria (55,353 cases), intestinal worms (21,728), rheumatic-angina (18,288), skin diseases (17,825 in 1984-85), gonococcus infections (14,179 in 1986), serious diarrhea (8,320 cases), rheumatism (7,097), broncho-pneumonia (7,517), several types of dysentery, and non-specified diseases (42,465 in 1986).

Twenty-one additional health facilities were privately run. The nine provincial maternities admitted 4,672 pregnant women in 1985-86, with an average hospitalization of 2.5 days per woman. The number of live births totalled 4,318 in 1984-85 and 4,303 in 1985-86, representing an unfortunate reduction of 0.3 per cent. Government records reveal, furthermore, that dystocic births amounted to 157 in 1986, premature births 171, still births 187, spontaneous abortions 423, and live births 4,303, while 23 women died in labor (as opposed to 19 in 1984-85).

The Kadey Division, with its center at Batouri town, and its subdivisions of Kette and Ndelele, were selected as the focus of the study along with the Boubara, Bandoungoue, Bakombo, Kentzou, Biti, Timangolo, Beke, Kete, Loloi, Ndongbeli, Kolmbomou, Bakombo, Tikondi, and Dalingoue villages, which were the actual places where the interviews were held. A high infant mortality rate and the insufficient number of health centers in the area as well as logistical reasons prompted the researchers to select a 50-100 km (30-60 miles) radius around Batouri as the data collection site.

Kadey, with a registered population of 121,700, lacks water supply, has no paved roads, and had 97 primary schools in 1986. Its capital -- Batouri -- has four small hotels, three banks, one hospital, one small (grassy) airport, and is at the mercy of timber, tobacco, and coffee companies (Societes), mainly foreign. It boasts of 9 markets, 4 permanent and 5 periodic.

Kadey's climatic conditions are warm with four distinct seasons: a dry season (December to mid-March), a short rainy season (mid-March to July), a short dry season (June to August), and a rainy season (mid-August to November). Aside from the harsh climatic conditions, jobs are extremely scarce here, and incomes very low. The Catholic Church and some Protestant denominations, particularly the Adventist

of which many of the respondents claimed to be members, have assisted in the development of the area, but the lack of water and acceptable infrastructure creates insurmountable problems at the present time. However, the optimism, resilience, and hospitality of the people and the friendly attitude of government officials posted here facilitated the conduct of this study.

III. Methodology

The researchers and the project consultants held several brainstorming sessions in Yaounde in December 1987 in an effort to determine how best to adapt the methodology proposed by the Jackson State University team to the actual realities of the East Province of Cameroon. This is an isolated area, sparsely inhabited, rainy, and hardly developed in its infrastructure, where French is the predominant idiom among the educated population along with little known local languages such as Baya, Kaka, and Fula. From the sessions emerged the following methodology which was implemented in March 1988, the period when the actual field work was conducted.

1. Field Research Instruments

a. A two-fold sampling approach was adopted. The first was a focus group in which interviews with community "opinion leaders" were conducted in an attempt to find and reach a consensus on the prevailing beliefs and attitudes toward infant mortality and neo-natal deaths and the utilization of health clinics in the eastern part of the country. The two research teams hypothesized that the "opinion leaders'" perceptions would be reflected in the general population. The focus groups, each consisting of six to ten participants, included health care providers and promoters and community leaders -- nurses, teachers, prominent farmers and businessmen, chiefs, elders, social workers, and some government officials. Twenty-nine focus group interviews took place, totalling 199 people, roughly divided into 90 males and 109 females.

b. The second sample included interviews of 254 individuals who were actual users (and non-users) of health care centers to determine how and whether their beliefs and attitudes regarding infant death affected behavior, specifically insofar as the use of health facilities was concerned. This two-tier approach was likewise expected to allow researchers to ascertain the beliefs of the general population as well as to determine whether or not "opinion leaders'" perceptions accurately reflected the beliefs and attitudes of the people they purported to represent.

c. A pre-test instrument was also developed to serve as a barometer of the focus group and individual interviews. It was administered among the Baya, Maka, and Boboli by Professors Kashim Tala and Verkijika Fanzo in Bertoua, East Province, in 12 villages, namely: Yoko, Ndoumbi I, Yanda, Bethem II, Bouan, Ndjangane, Viazi, Moundi, Ndemba, Dondi, Bonis, and Essandjane. The investigators were assisted by Mr. Jikong Stephen (interviewer/interpreter) and Mr. Shifu Ngalla (interviewer).

2. Data Collection

Once the general methodology had been devised, eighteen students, fluent in French, from the research area, were chosen to administer the questionnaires along with the faculty. Six social work students from the Ecole Nationale des Assistants des Affaires Sociales, five advanced medical students from the University of Yaounde, and seven student nurses from the Bandoungoue training center joined the research team and were trained to assist in data collection. Since the project required some knowledge of customs, French and local languages, disease nomenclature, and the nature of health care services, the selection of these eighteen students ensured that data collection would be done with a high degree of competence.

As mentioned above, the area selected for the project was the Kadey Division, within a 50-100 km (30-60 mile) radius of Batouri, the Divisional capital, using three vehicles. Due to the demographic sparsity of the study areas, the team decided that interviewers would go where the people could be found more easily, namely, the weekly rotating market place (from village to village), and at homes, if at all possible. Finding most people in their villages, as the team realized, was almost impossible except on market days. On other days, most people worked all day in the remote areas of the Province for the tobacco, timber, and coffee companies. At the market, interviewers targeted adult participants (18 and older), both male and female. Since the Ministry of Higher Education and Scientific Research had endorsed the project, and the local coordinator, Daniel Lantum, had sought and secured assistance from the local prefets, sous-prefets and health care administrators, respondents cooperated, apparently without suspicion, and village chiefs urged their "subjects" to make themselves available and answer questions truthfully. As a result, the interviews proceeded without major problems (except for the vehicles), and the weather was so cooperative that the field work was completed as planned.

On the final day, all field workers faculty and students held a formal session to briefly analyze the pros and cons of the whole process, following which time the U.S. team carried the data to Jackson State University for preliminary analysis. Data collected in the study included demographic information such as ethnicity, religious affiliation, gender, education, income, occupation, age, and marital status. An extensive list of independent variables such as beliefs, attitudes, and practices regarding infant mortality, health and disease, family influence on the belief systems, and extent of travel to the health care center, became part of the project.

The variables tested included: origin of death and disease, causality, most common and identifiable diseases, children's diseases only treatable through ancestors' intervention, vaccination of infants, nutritional taboos for children and pregnant women, health care for infants, death of infants (and neo-nates), life after death for infants, the implications of abortion for infants, sexual abstinence before and after child's birth, mourning and rituals for children, role of the traditional healer, priority of treatment for children simultaneously ill, breastfeeding and solid foods, attitude toward modern health care, hygiene and sanitation, desirability of a

large number of children, and corporal punishment for children ages 0-5.

Beliefs were generally defined in the study as "an intellectual acceptance of something as true," and an attitude as the sum total of "inclinations and feelings, prejudice or bias, preconceived notions, ideas, fears, threats, and convictions" about infant mortality and the utilization of health care centers, all of which influence one's behavior. Although the determination and classification of diseases in the project cannot be one hundred percent accurate since the symptoms were provided by laymen and not by doctors or nurses, the authors consider people's perceptions--the essence of this study--of paramount importance, particularly in relation to the use of health centers. As noted in a similar study in Cameroon, "...since it is the perception of illness by a respondent that will determine his use or otherwise of any form of health care, symptoms described during interview surveys have become of greater importance to epidemiologists."⁴ A strategy meeting and a preliminary look at the data held in Yaounde in July 1988 convinced the team that all of the study's objectives were achieved.

3. Data analysis

The nature of the project (probing into beliefs and attitudes toward infant mortality and use of health care centers) dictated a variety of statistical analysis and approaches. The collected data was computerized at Jackson State University and subjected to frequency distributions, cross-tabulations, chi-square, and T-tests, means, and standard deviations of all variables related to disease, infant mortality, and health care centers in the Kadey Division. The following report includes only relevant data on the most important variables in order to allow interested individuals and government officials in Cameroon and elsewhere to interpret the results and consider the study's public policy implications.

Although we consider our project potentially significant and scientific in social science methodology and analysis as well as in its results and implications for third world countries, we do not claim to be the "saviors" of AID health programs on infant mortality or the "advisors" of the Cameroon government on health and culture, nor do we claim that the government of Cameroon and its people are unaware of the health conditions and prevalent attitudes in the East Province. We are convinced, however, that our study is unique and innovative, and constitutes a step in the direction toward a heightened awareness of cultural factors that might impact on infant mortality and the acceptance and adequate utilization of available health care facilities in Cameroon.

IV. RESULTS

1. General Data - Frequencies

The individual interviews consisted of 254 respondents, 49.6 percent male and 50.4 percent female. The typical ages of the respondents were 20-30 (23.6 percent), 31-40 (25.2 percent), while the

majority were farmers (44.0 percent) and housewives (31.5 percent). Twenty-six percent had had some education (1-4 years of elementary school), 33.2 percent had none, and 36.4 percent had had a few years of high school. The prevalent religion was Christianity (61.4 percent), followed by Islam (26 percent), and Traditionalism (12.0 percent). The major ethnic groups reached by the study were the Kaka (52.1 percent of the total sample), the Baya (22.9 percent), Fulani-Peule-Bororo, heretofore referred to as Fulani (12.7 percent), and others (12.3 percent), including a few Eton, Bamileke, Bulu, Hausa, Badjoue, Ndjem, Kolejo, and Daoyo. The predominant or equivalent incomes ranged from 10,000-25,000 francs CFA (26.5 percent) a month, to 5,000-10,000 (14.2 percent) and 1,000-5,000 francs (10.8 percent).

Among the 254 respondents, only 10 percent lived in a Western style house, and the number of people per house ranged from 3 to 7 (69.6 percent of valid cases), while the number of people per room ranged from 1 to 3 (88.7 percent). Among the respondents, water supply was distributed as follows: 37.0 percent used a public well, 26.9 percent public taps, and 23.1 percent, living closer to a river, or spring, used flowing water. Home ventilation was found adequate to very adequate in 61.2 percent of the cases, while closeby pit latrines, outside the house, constituted 86.0 percent of the cases.

Insofar as distance to the health care centers is concerned most people (62.0 percent) lived between 1 and 5 km (.6 and 3 miles) away from the facility, and of these only 4.4 percent lived 4 to 5 km (2.4 to 3 miles) from the center. In 72 percent of the cases, a road was available to the center, while in 28.0 percent ill people had to use a foot path to reach the medical facility. Among those who availed themselves to the centers, only 19.5 percent could afford to travel by car, while the remainder walked or used animal transportation (donkeys). Cost of travel to the centers ranged from 1-99 francs CFA (44.5 percent of 145 respondents) to 500-1,000 francs (20.0 percent) and 100-500 francs (17.2 percent). We also found that the vehicle is still feared and suspected as a strange and dangerous instrument by at least 29.2 percent of those who responded to the question (154). The fear of the car was related to the fear of metal in 22.4 percent of the 174 individuals who answered this question.

The cost of medicine in public facilities ranged from 2,100-10,000 francs CFA (46.5 percent) to 10,000-20,00 francs (18.4 percent) and to 20,000 francs and above (14.9 percent) per treatment. (Private denominational hospitals, usually viewed as more efficient and better equipped, were more expensive, as the focus groups confirmed.)

Insofar as family composition was concerned, the study showed that 42.1 percent of the total sample were monogamous families, and 30.5 percent polygamous, the remainder accounting for singles (divorced and those who never married). Among the polygamous families, the average was two wives, and the number of children within the total sample averaged 4.94 (5) children per family.

In terms of pregnancies, questions posed to women gave the average number of 6-9 pregnancies per woman (the focus groups suggested the number of 10.5 resulting in live births), while the number of children lost during pregnancy was 2 during birth and 2 during the weaning period, which ends at the ages of 24 months (24.2 percent) or 18 months (29.2 percent) or 12 months (18 percent). Solid

foods are introduced to the child at the age of 6 to 9 months (55.3 percent), and in 93.5 percent of the cases artificial milk is not used for various reasons, including cost and perceived lack of nourishment value, even if the mother happens to be ill.

Taboo foods for children include mushrooms, fish, cassava, reptile meats, snails, and pork (among Muslims). For the mother, reptiles are also tabooed, and so are wild animals and even fish (15.2 percent of the 165 respondents). Reasons include the child looking like fish or being unable to breathe well.

The diseases most frequently identified as the major causes of infant death were diarrhea, measles, malaria, kwashiorkor, and convulsions. When the diseases were collapsed and generalized, the distribution was as follows: Intestinal, 29.0 percent; cardiovascular, 25.0 percent; skin related, 25.0 percent; unidentified, 21 percent. In the focus group interviews, these were the disease frequencies: worms, 20 percent; diarrhea, 15 percent; yellow fever (jaundice), 15 percent; malaria, 12 percent; spleen (associated with malaria), 10 percent; and convulsions, 10.7 percent.

Although not every child is vaccinated in the villages, 93.2 percent of the sampled population reported they knew about it, but only 79.8 percent of the parents said they had cards to prove that their children had been vaccinated.

2. Beliefs, Practices, Attitudes

The following section outlines the results of the study according to the variables as listed in the methodology to determine the various beliefs, attitudes, and practices, crosstabulated with demographic variables whenever relevant and applicable to specific cases.

Variable 1 (V_1) and Variable (V_2): Origin of Death (V_1) and Disease Causality (V_2).

When asked how death came about and what decides that a child will die, the respondents, by a margin of 72 percent, gave God and witchcraft as the answer, although the female outnumbered the men in this answer by 5 to 6 points. Religion did not seem to be a factor, as all three categories--Christian, Muslim, and Traditionalist--gave the same answer.

Even among those who had some education, God, witchcraft, and sorcery were the most commonly perceived causes of disease in a child, while other reasons such as impure water, diseased environment, uncleanness, germs, and other natural causes were rarely named. While 53.6 percent of the Kaka named witchcraft as the major cause, only 25.5 of the Baya (but 53.8 of the Fulani) named witchcraft as one of the major culprits.

Variable (V_3): Common and Identifiable diseases; Variable (V_4): Fatal Diseases; Variable (V_5): Uniqueness of Traditional Healer; and Variable (V): Diseases treatable through ancestor's intervention.

In line with the general belief that some diseases are caused by God, some by a witch, and others by a sorcerer, there is also the belief (71.3 percent of the respondents) that a disease caused by a

sorcerer can only be cured by a traditional healer. Leprosy, all mental illnesses, epilepsy, convulsion, as well as tuberculosis are all within the domain of the traditional healers or the ancestors. The existence of such beliefs was confirmed by the focus group interviewees whose majority (45.7 percent) thought only the traditional healer could successfully treat sterility, as opposed to 16.7 percent and 9.3 percent who believed that Western medicine and God, respectively, could succeed in treating these "curses." Religion and education seem to play little of a mitigating role in these beliefs.

About 67.8 percent of the total sample also held the view that some diseases affect only the child's soul (Christians: 70.5 percent and Muslims: 65.5 percent). Diseases curable through the Western doctor at the health care center included diarrhea, measles, malaria, worm diseases, venereal diseases, and smallpox. Among the diseases, some are considered to be abominable, whose carrier should not be approached. This is the case of leprosy and tuberculosis. Furthermore, leprosy and certain mental diseases are viewed by more than 34.0 percent of the respondents as fatal. Some also named smallpox (which has been eliminated in Cameroon) as a fatal disease.

Variable (V_6): Vaccination of Infants

It is interesting to note that 90.2 percent of the Kaka, 94.3 percent of the Baya, and 93.1 percent of the Fulani declared that they were aware of the government's immunization program. The high percentages were irrespective of education: 86.7 percent among those with no education, 95.2 percent among those with some education, and 96.7 percent of those with some secondary schooling. The same applies to all ages included in the study (18 to 76 years): the percentage of awareness remained in the 90.0 percentile. Likewise, the possession of vaccination cards was claimed by 75.3 percent of the farmers, 79.1 percent of the housewives, 83.3 of the traders, and 100.0 percent of the teachers and drivers.

As to the question of children's vaccination, 88.2 percent of the total sample responded that their child(ren) had been vaccinated, while 11.8 percent responded negatively. Those who answered negatively claimed that the government was not providing adequate serum or staff, or that it had stopped the campaign (90 percent), while 10 percent said young children should not be given such treatment. While some males (21.4 percent) tended to think that young children should not be vaccinated, 33.3 of the females tended to blame the government for the scarcity of drugs.

Interestingly enough, however, of 249 respondents, 31.7 percent thought vaccination was useless. Among these there was very little difference based on age (all above the 55.6 percentile). About 62.0 percent of the Kaka, however, 77.8 percent of the Baya, and 71.4 percent of the Fulani saw vaccine as useful. When they were asked to justify the usefulness of vaccination, 92.9 percent of the respondents cited disease prevention or immunization against disease as the major benefit.

The vast majority of the vaccinations were done at the village rather than at the health center, and 95.8 percent of the parents remembered that the vaccines were administered on the upper arm, 65.7

percent remembered a lower arm injection, 55.1 percent recalled inoculation through the mouth, and 15.7 percent on the buttocks.

Variable (V₇): Nutritional Taboos for Mother and Child

The prohibition on foods and meats (mushrooms, fish, reptiles, wild animals, and snails) transcended age, education, and occupation. Among the most important reasons for the prohibition, people named the following: (1) child's physical deformation (37.9 percent); (2) source of illness (24.3 percent); (3) the probability of the child resembling the animal whose meat was consumed (16.4 percent); and (4) complications during labor (10.0 percent). The focus group interviews mentioned wild animals as the major nutritional taboo for pregnant women, the reasons being that they complicate child birth (66.7 percent of the respondents) or cause illness in the unborn child (11.1 percent). These explanations permeated even the ranks of the educated, although they tended to lose ground among the more educated individuals (46.2 percent of those having some years of secondary education believed that taboo foods would cause physical deformation). In terms of forbidden drinks, over 90.0 percent of the total sample named alcohol as dangerous to children. About 67.8 percent of all respondents denied that children died in the village from improper foods, although 50 percent of the teachers included in the sample contradicted the response of the farmers, housewives, traders, professionals, and businessmen, and thought that, indeed, infant mortality occurred in the villages as a result of improper foods and malnutrition.

Variable (V₈): Health Care for Infants

Respondents were unanimous in their perception that the incidence of child disease was extremely high in their areas. Asked about how many times they had taken a child to the health care center during the previous six months, the average answer was 3 times, sometimes accompanied by one parent alone (1-3 times), and other times by the whole family. Among the Kaka, 20.0 percent said 3 times, while 60.0 percent of the Baya cited the same frequency. Interestingly enough, 91.2 percent of all respondents attested to the fact that they usually took the child to the health center. The breakdown according to ages on this positive answer was: 31-40: 94.9 percent; 41-50: 84.8 percent; 51-60: 90.0 percent; and 61-75: 80.0 percent. In terms of the three major ethnic groups, the positive answers were: Kaka: 86.1 percent; Baya: 85.2 percent; and Fulani: 70 percent.

Children were taken to health centers regardless of gender. In cases where two children might be simultaneously sick, the parents' response was that they would take both children either to the traditional healer (41.2 percent) or to the health center (58.8 percent) and would not send them to either one separately.

Variable (V₉): Death of Infants and Variable (V¹⁰): Life After Death

Some 53.0 percent of the respondents reported that the death of an infant was a punishment (males: 50.0 percent; females: 55.4 percent). This belief transcended religion, education, and age, as

the following figures indicate: Christians: 50.7 percent; Muslims: 46.9; and Traditionalists: 90.0 percent. Ages 18-20: 52 percent; 21-30: 51.2 percent; 31-40: 52.5 percent; 41-50: 57.8 percent; 51-60: 52.6 percent; 61-75: 66.7 percent; and 76 and over: 50.0 percent.

However, the answers were divergent on the whereabouts of the child after death. About 53.4 percent believed the child joined the ancestors, while 46.6 percent said the child would just vanish or go to heaven. Of those who named heaven, Christians represented 83.1 percent and Muslims 89.8 percent of the sample. The belief that the child would not just disappear but would join the ancestors was stronger among men (60.4 percent) than among women. A good number of people (47.9 percent as opposed to 52.1 percent) held the belief that the diseased dead child comes back in some form to haunt the next child. About 46.7 percent of the Christians and 54.1 percent of the Muslims respectively held this view which was strongest among the Kaka (47.6 percent), 23.8 percent among the Baya (and only 17.1 percent among the Fulani). A majority (53.1 percent of the total sample) also believed that the dead child came back into the mother's womb (50.0 percent among those who claimed to be Christians and 52.5 percent among the Muslims).

This belief was stronger among the Kaka (61.2 percent) than among the Baya (20.7 percent) and Fulani (5.0 percent). The returning child may also cause the death of another child (35.0 percent of the sample reported affirmatively, as opposed to 65.0 percent, negatively). Such a belief prevailed particularly among ages 18-41 and among the Kaka (51.8 percent--only 30 percent, and 4.8 percent among the Baya and the Fulani, respectively).

In a related issue, 38.4 of the sample (as opposed to 61.6 percent) declared that the dead child was still able to transmit its disease to another child. Several Christians (37.8 percent) and Muslims (30.2 percent) held the same view. This belief, however, was strongest among the youngest respondents. The distribution among the ethnic groups was: 47.7 (Kaka), 31.8 (Baya), and 12.5 (Fulani). A fatalistic belief on infant death seemed to prevail also, as 72.8 percent of the people believed that some children were predestined to die as infants. This sample included Christians (67.8 percent); Muslims (87.1 percent); educated (with some education: 75.4 percent and high school: 74.4 percent); young and old (72 to 76 percent); males (77.9 percent); and females (68.0 percent).

Variable (V₁₁): Fate of Infant as a Result of Abortion

There was little difference between those who thought a spontaneous abortion was a curse from the ancestors or the work of witches and sorcerers (44.6 percent) and those who held a different viewpoint (55.4 percent)--43.7 percent of the Kaka, 66.0 percent of the Baya, and 30.0 percent of the Fulani answering positively. However, most (64.6 percent) did not think spontaneous abortion caused the death of the next child, although 31.3 percent of the Christians and 40.6 percent of the Muslims answered positively (Kaka: 35.3 percent; Baya 45.3 percent, and Fulani 17.9 percent). An overwhelming majority (86.3 percent) held the view that induced abortion was wrong (Christians: 84.8 percent, Muslims 87.7 percent.) The same high

percentage (in the 80.0 percentile) was apparent within the age sets and educational categories. However, 38.6 percent (as opposed to 61.4 percent) believed that spontaneous abortion may cause the death of another child, the belief being stronger (42.0 percent) among the Kaka.

As to the circumstances that might justify abortion, the most prevalent answer was that nothing justified it (42.0 percent, including incest from 16.0 percent of the respondents). Some considered abortion to be a crime (16.6 percent). Whereas among the Kaka only 22.5 percent thought it to be a crime, the percentages among the Baya and Fulani were 42.9 percent and 40.9 percent respectively.

Variable (V₁₂): Broken Sexual Abstinence and Parents' Unfaithfulness During Mother's Pregnancy

Across age, religion, education, and ethnicity, the people included in the study overwhelmingly held the belief (in the 80.0 percentile) that couples are allowed intercourse even a few days before the birth of the child, but 61.9 percent thought it was unwise to resume it a short time after birth. Among these respondents, the Muslims had a weaker tradition about post-partum abstinence (47.6 percent of them said it was all right, compared to 37.4 percent of the Christians). The focus group interviews suggested the following beliefs related to sexual intercourse resumption prior to the weaning of the child: (1) resulting child illness (25.9 percent of the reasons presented); (2) death of the child (22.2 percent); (3) child's deformity (11.1 percent); and (4) child's slow growth (7.1 percent).

Concerning the mother's unfaithfulness during pregnancy and its impact on the fetus' survival, 78.7 percent of the whole sample believed it does cause the fetus' death (66.7 percent from the focus group interviews). This belief was stronger not only among the males (82.5 percent) and the females (74.4 percent) but also among the Muslims (83.9 percent) compared to 77.0 percent among Christians. The figures from the Kaka and the Baya people registered no significant difference (76.9 and 77.4 percent, respectively, in this respect). However, the percentage of those who believed that the mother's infidelity (immediately) after birth caused the death of the child already born was only slightly lower (81.2 percent), with almost no difference between males (80.6 percent) and females (81.3 percent). When the question was reversed--the husband's infidelity during his wife's pregnancy and its impact on the death of the fetus--the percentage of positive answers dropped to 60.9 percent, the males registering 59.9 percent and the females 61.8 percent. Ethnic distribution on this issue was: Kaka 65.0 percent, Baya 64.7 percent, and Fulani 33.3 percent. The focus group interviews, however, named complications at birth, which could result in the death of the child, as one of the most serious consequences from the pregnant woman's infidelity.

In a related issue, namely infertility, 48.2 percent of the 254 respondents believed that it was a curse, and 51.8 percent thought it was not. More males (53.3 percent) than females (42.7 percent), among those who responded positively, tended to view it as a curse and not as a natural or a physically caused phenomenon. The group interviews, however, suggested that natural causes accounted for some types of

sterility (38.1 percent), while witchcraft accounted for 30 percent of the cases, venereal infections for 14 percent, and curse for the remainder.

Variable (V₁₃): Mourning and Rituals for Children

From the focus groups it was clear that, when children die, they are buried the same or the next day with very simple rituals and little show of grief, in contrast to the longer ceremonies and rituals that accompany the death of adults, especially of chiefs and patriarchs whose mourning may take several days and weeks.

Variable (V₁₄): Role of Traditional Healer and Modern Midwife

The birth of a child is a great event in the African milieu, particularly in the villages, and the presence of a traditional healer, male or female, was desired by a majority of the people interviewed (male healer: 66.3 percent, female healer: 78.1 percent). The presence of a traditional midwife was desirable to 96.0 percent of the 254 respondents. A similar high percentage was observed for the need to have the assistance of a modern (Western-trained) midwife. Comparing the traditional healer with the Western-trained doctor, more people (77.9 percent) thought that the latter made fewer mistakes than the traditional healer (whom 74.0 percent of the sample thought made more mistakes in his diagnosis and treatment). The percentage in favor of the Western doctor and those who thought the doctor made fewer mistakes was highest among the educated (83.0 percent among the high school category), the Kaka accounting for 85.4 percent, while the Baya and the Fulani accounted for 69.2 percent and 64.3 percent, respectively.

The traditional midwife, in the view of a good number of the respondents (24.0 percent), holds the power to decide whether or not the child should be allowed to live or die; half of the respondents, aged 61-75 held this belief (27.7 among farmers; 78.5 percent among those with no education; 25.5 percent among Christians; 67.8 percent among the Kaka; 75.0 percent among the Baya; 93.1 percent among the Fulani; and 50.0 percent among those aged 61-75). Signs that may determine termination of life at birth included: (1) baby's immotion (56.9 percent); (2) visible sickness (15.3 percent); (3) prolonged labor (11.6 percent); and (4) damaged umbilical cord (6.9 percent).

Variable (V₁₅): Counting Children

The study disputed the belief that the counting of children is a taboo. It confirmed, however, the fact that one does not reveal the number of children to strangers. Taxation, likewise, does not have an impact on the accuracy of the number of children reported to the government by the parents, contrary to a tendency during the colonial period when many attempted to conceal their male children from the ravages of forced labor and military recruitment as well as from household taxes. (Civil servants today must report an accurate number of children to receive various allowances and other subsidies from the government.)

Variable (V₁₆): Modern Health Care Use

Parents were asked whether or not they themselves visited the health care centers. Of 253 respondents 85.4 percent said yes, while the remainder answered negatively. The positive answer transcended religion, ethnicity, age, and occupation, about which figures ranged from 88.1 percent to 90.0 percent. When the respondents were asked to list the reasons why they went to the health centers, they cited the following: 94.2 percent, ailment; 4.1 percent, checkup; and 1.8 percent, new treatment.

The focus group interviews, however, revealed that only 50.0 percent of the sick availed themselves to the health care centers. Of the individual respondents who utilized the facilities, 85.0 percent said the centers provided efficient treatment. (This was contradicted by the focus groups.) Reasons for not utilizing the health centers included the belief that the traditional healer was more effective and some fear of the child being treated by a Western-trained doctor. Among those who used the health care centers, 78.2 percent believed Western doctors were more effective than the traditional healers. Across religion, 74.4 of the Christians and 76.9 percent of the Muslims reported they had more faith in the Western-trained doctor. The majority of the Baya (81.5 percent), the Kaka (72.0 percent), and the Fulani (87.5 percent), had more faith in the Western doctor than in the traditional healer.

The focus group interviews also alarmingly suggested that the average number of visits by a pregnant woman to the health center was once, and only one time during the post-natal period.

Variable (V₁₇): Hygiene and Sanitation

Respondents were asked whether or not there were diseases that required that the child not be washed. The answer was positive for the following diseases: Measles: 18.2 percent; spleen disease: 18.2 percent; smallpox: 18.2 percent; and malaria: 25.0 percent. For any other diseases the sample (82.7 percent) urged that children be washed three times a day where and when water is available.

Variable (V₁₈): Desirability of Many Children

Insofar as the ideal number of children was concerned, about 83.9 percent of the total sample said that they desired to have five to six children. The reasons for desiring to have many children ranged from assistance at work to perpetuation of the lineage and the need to offset the heavy loss of infants from death. The majority (52.2 percent) cited the last as the major reason. Among these, 51.8 percent were male and 54.1 percent were female. About 59.8 percent of the Kaka, 50.0 percent of the Baya, and 37.0 percent of the Fulani presented this reason. Within the age categories, the following were the percentages: 18-20 years old: 61.9 percent; 21-30: 51.9 percent; 31-40: 42.9 percent; 40-51: 50.0 percent; 51-60: 56.3 percent; 61-70: 60.0 percent; and 71 and older: 100.0 percent.

As to the means and ways to ensure that one has many children, the most common answers were: "only God can determine the number"

(23.8 percent); "one should get more wives" (22.9 percent - Kaka: 22.5 percent and Baya 28.3 percent); "there is nothing one can do" (19.6 percent); "I do not know" (19.2 percent); and "one should engage in more sex" (10.7 percent, distributed agewise thus: under 20: 10.5 percent; 21-30: 12.9 percent; 31-40: 9.4 percent). Interestingly enough, 21.3 percent of the Christians advocated marrying more wives.

Variable (V₁₉): Corporal Punishment of Children

Punishing children by heavily spanking or "beating" them was approved by 52.9 percent of the respondents (42.3 percent of the focus group interviewees), followed by the habit of depriving them of food (13.6 percent), forcing them to do house chores (10.3 percent), or making them kneel on the floor (12.8 percent, reflecting Euro-Christian practices). Asked whether parents ever abused their children (through excessive "beating" or through immoral practices), the majority said that instances of that were very rare. About 46.5 percent, however, said they would intervene, mostly through advice, if they witnessed such incidents, while 52.8 percent reported that they would do nothing to stop them.

Along these lines, unlike some ethnic groups in Africa, the study found that twins were welcomed among the Kaka, the Baya, and the Fulani, eliciting a positive response of 93.0 percent of the sample. However, 50.7 percent of all respondents perceived a child born with physical defects as a sign of punishment; 18.9 percent said such an event would be regretful; 10.6 percent claimed they would accept it gladly; 6.6 percent that it was natural for that to happen; and 4.0 percent believed this to be a curse. Interestingly, 46.4 percent of the Christians and 64.4 percent of the Muslims thought it to be a punishment, the same feeling predominating (between 50 and 54.5 percent) among ages 21-60. In terms of occupation, punishment accounted for 54.2 percent of the farmers' responses, 57.1 percent of the traders' and 50.7 of the housewives'.

Finally, the study found that the majority (66.2 percent) of the respondents--regardless of ethnicity, gender, education, age, religion, income, and occupation--would prefer a male over a female child, if they could have only one child.

V. DISCUSSION

The study underscores the overcrowding conditions that are prevalent in the East Province, not only in terms of people in a house but also in a room when families are able to afford one. The adverse implications of these conditions for the family and child health care are obvious: little privacy for the adults and favorable conditions for easy transmission of infectious disease from child to child and from adult to child. The situation is aggravated by a lack of sufficient water supply and by inappropriate outdoor or indoor latrines, and insufficient ventilation due to cooking smoke in the morning and in the evening. Lantum notes of the Bui Division, for example, that the frequent dysenteries there ... "(both amoebic and bacillary) are associated with low standards of personal hygiene. These can be controlled with health education campaigns on the proper use of latrines and water."⁵

The same is applicable in the East Province. The 1972 UNICEF Conference at Lome (Togo) concluded, in fact, that 90 percent of the children dying in Africa between the ages 0-5 die from three major factors, namely, malnutrition, infectious diseases, and lack of local hygiene, "all of which can be prevented by simple measures, easily implementable such as nutritional education of mothers, vaccination of children, environment cleanliness, with drinking water supply and the elimination of waste as a priority."⁶

It is absolutely clear from the study that external religion, notably, Christianity and Islam, changes very little deep-seated African cultural perceptions and attitudes toward death, disease, and suffering. Traditional religious beliefs on causality and family make-up (men's right to more than one wife, for example), are hardly erased by foreign-introduced religious tenets, notwithstanding people's claims and assurances to the contrary. This contradiction is well illustrated in Lantum's study of traditional healers of Cameroon's Bui Division. Christianity, and particularly Catholicism, always fought traditional healers as perpetuators of a belief system contrary to the teachings of Jesus Christ. Lantum's study, however, found that

The majority of the Kumbo healers were Christians (54.5 percent)... This suggests that the healers did not probably see traditional medicine as a serious hindrance to the practice of their faith. But considering the proportions of the types of marriage unions adopted by some of the healers, there was, however, some evidence that, despite their Christian immersion by Baptism, some of the Catholic ones had relaxed the vigors of Catholic-Christian practice and profited from the liberties and other advantages of marriage by traditional systems.

The same attitudes and reality prevail in the East Province among those who call themselves Christians. In fact, 13.3 percent of the respondents in the focus groups claimed that they were either Catholic and Muslim at the same time or Muslim and Protestant simultaneously.

It is also apparent from the data analysis that most people (about 85.4 percent) in the East Province are within a short distance from some health care center, at least in the Kadey Division, but only about half, according to the focus group interviews, actually use them. The reasons are not difficult to ascertain. In an area where incomes are extremely low (2,000-10,000 francs CFA, about \$5.25-\$26.25 a month) and where prescriptions are to be filled dozens or even hundreds of miles away at a cost of between \$3.00 to \$75.00, people tend to attempt to take care of themselves and their children at home, thus reinforcing the role of the traditional healer. Despite the availability of roads to the centers, the added cost is simply prohibitive to most villagers. Fear of motor car (due to the fact that they are metallic), however, plays a negligible role in the inadequate number of visits to the health centers by both parents and infants. More serious is the complaint often heard that the health care centers themselves are not adequately provided with medication and proper facilities. This issue was underscored by Bernard Hours'

study in the Littoral Province of Cameroon in the early 1980s. Hours writes:

The lack of medication is the source of perceptions which sustains the process. In the absence of these, the patients are frustrated that they are ill-served, while the nurses lose a great deal of their social justification, since they lack the means to treat people. Greatly deprived of efficiency by the absence of medication, the nurses find themselves deprived of professional and social dignity by the inability to provide the treatment from which their social prestige emanates.

Hours concludes that the absence of medication elicits the hatred of both the health care providers and the patients toward the government of Cameroon.

Contrary to a widely held myth, families in the East Province are predominantly monogamous, and the polygamous husbands tend to have only two wives. It is doubtful that Christianity, rather than the cost of living, is the major factor in the prevalence of monogamy, although the polygamous "opinion leaders" in the focus groups tended to have an average of six wives. Families also tend to be small in comparison with those in other parts of Cameroon, most families having three to five children. One of the reasons is the prevalence of infant mortality. The focus group study shows that the average marriage age of the girl is sixteen, so she can start her procreative cycle early, and is expected to have an average of 12.5 babies delivered by the time she reaches menopause. Out of the 12.5 deliveries, suggests the survey, an average of 4.5 end up in death, that is, almost 35 percent of the babies born--indeed, a high mortality rate. It must be pointed out here that, because foreign companies in the area look for as many cheap workers as they can find, most parents are unable to feed and take care of their own children, thus recreating the untendable situation created by concessionnaires during the colonial period.

Our data seems to suggest a high rate of infant (and fetus) mortality in the Province. Between the time the wife gets pregnant, has a child, and weans him/her (most commonly at 24 months of age), the couple may lose at least one pregnancy, one child at birth, and one before the age of two years due to malnutrition, disease, and lack of sanitation. In fact, recent studies have shown that there is a correlation between poverty (per capita income) and disease, malnutrition, and the rate of infant mortality. One expert notes that "poverty, malnutrition and high birth rates are causes and effects of one another, and all play a part in the carnage "which accounts, on average for 150 out of every 1,000 African children" who die on the continent before the age of one, that is, about 5 million children under five years of age in 1984 alone." The tendency to reject any type of milk, even when the mother is ill, and the several food taboos prevailing in the region, can only strengthen the grip of disease and exacerbate the rate of infant mortality. Some of the taboo foods, such as fish and eggs among the Baya, are essential to the human diet. We acknowledge, however, that nothing replaces the mother's milk or breast-feeding, as studies have also demonstrated that bottle milk or

baby formulas increase infant death as much as 30 percent due to contamination and over dilution which can cause infection and malnutrition and the fact that they do not pass on to children the mother's resistance to disease."¹⁰

The belief associated with the taboos is that fish, for example, causes gala, and eggs will make the child mute, while goat meat may cause leprosy. According to Sanwogou, among the Baya, pregnant women are encouraged to drink plenty of alcohol to make the expected infant strong, while the husband is forbidden to eat snake meat lest it will cause diarrhea in the child.¹¹ Nutritional education, therefore, seems to be as important as literacy campaigns to arrest infant mortality from all possible angles. Frank Sillonville's study elsewhere in Cameroon is clear in its tragic findings. Sillonville observes that malnutrition "is the cause of the weak resistance of infants to infectious diseases such as measles, malaria, diarrhea, etc. It explains the high mortality rate, as one-fourth of the children born die before reaching the age of five."¹²

This study, both from its individual and group interviews, likewise confirms the fact that intestinal diseases, often related to nutritional habits and to a lack of water supply and proper sanitation, decimate more children than any other kinds of diseases. The sad aspect of this is that people realize the culprit but are often powerless to do anything about it, when often simple lessons in hygiene could save thousands of children. A good example is diarrhea and the resulting dehydration, the prevalent killer of infants, which can be easily treated and stopped at home when water is available. (This point has also been emphasized by studies done on other continents, as the work by Carl Kendall in Honduras, where hundreds of children die yearly as a result of diarrhea¹³.) The effect of diarrhea is well known: it interferes with the body's ability to absorb water and salts. It has been known, however, that simple methods of mixing little salt and sugar with water (even if the latter is infected) allows the child to absorb water and prevent dehydration and thus eliminate diarrhea. This simple process, known as Oral Rehydration Therapy (ORT), can effectively treat about "90% of all acute diarrhea patients, including cholera patients." In the words of an AID official, this is "the most idiotically simple piece of health technology ever invented."¹⁴ The prevalence of intestinal ailments found in the study is consistent with Nchinda's data in North-West Cameroon where "pre-school and school aged children had mainly digestive, parasite and respiratory diseases while the adult population had mainly digestive and musculo-skeletal disorders."¹⁵

Awareness of the need to have children vaccinated in the East Province is widespread (among 93.2 percent of the population interviewed). However, for several reasons many children are not immunized. While quite few parents still do not see its usefulness, many complain that vaccination serums are not enough at the health care center and that the government has stopped or scaled down the use of mobile units it used to deploy in earlier inoculation campaigns. It is interesting to note also that most of the vaccination has taken place in the village rather than at the health care center itself. The study further suggests that polio vaccine is the least administered in the Province, although it is one of the primary focus of the World Health Organization (WHO) immunization program. The

problem, unfortunately, is not limited to the East Province. Lantum's study shows that measles, tetanus, and tuberculosis, reach epidemic proportions in parts of Cameroon such as in the Bui Division. He further observes that all of them "can be prevented by appropriate immunization programs during childhood." "From personal experience," he adds, "the major problem there is the lack of vaccines," the same complaint the researchers heard in the East.¹⁶ Recent studies have shown, however, that "for as little as \$5, a child can be immunized against six killer childhood diseases: diphtheria, measles, polio, poliomyelitis, tetanus, tuberculosis, whooping cough," during the first year of life.

Disturbing is the fact that, irrespective of religion, age, and ethnicity, a belief in natural causation for most major diseases and death is almost non-existent. Sorcery, witchcraft, and ancestors' curse are still viewed as the major causes of infant mortality. A few years of education do not seem to significantly erase the belief. (W.W. Gesler and G. Gage were surprised in their study of two areas of Sierra Leone to find that "...surprisingly, less God and poor health care causation, but more witchcraft was reported by more educated parents," when the team attempted to determine people's perceptions of disease and death causation¹⁸). In the East Province, this is a problem the government must face in its health care campaign.

Likewise, the belief that certain diseases, such as leprosy, epilepsy, tuberculosis, yellow fever (jaundice), convulsions, all mental illnesses, as well as sterility, can only be adequately treated by the traditional healer (most likely because of their inscrutable origins), cause the people not to visit the health care centers. They simply give up when the traditional medicine-man is unable to provide satisfactory treatment and/or cure. This finding is also consistent with Nchinda's study of the Mezam Division in the North-West Province of Cameroon in 1973-74. Nchinda found that:

For mental illnesses seen in this study, 87 percent of the treatment given was traditional. Mental illness is one of the conditions for which traditional medicine is culturally preferred...The explanation generally offered is that mental diseases and seizures (epilepsy and convulsions in our study) are traditionally considered to have supernatural causal factors and are therefore best treated by traditional methods where the supposedly predominating 'why' aspect of causation will be suitably dealt with.¹⁹

Leprosy, whose prevalence in Cameroon is .68 percent, is an abominable disease in East Cameroon just as in the Mezan Division where, according to Nchinda's study, "...to the lay person it is still a much dreaded illness and its sufferers are shunned by all."²⁰ Incidentally, this belief also transcends religious faith and age differences.

Reliance on the traditional healers (rooted in cultural legacy) and the efficient treatment they sometimes provide further explain why visits to the health care centers with sick children are relatively few, inspite of the prevailing disease environment. One of the

problems, however, is that a great number of the healers are charlattans who take advantage of the people's cultural upbringing. A recent study of health care in Cameroon notes that "...there are also illegal practitioners who portray themselves as a combination of witch-doctor-physician sage. Though clearly implicated in the neglect of serious, but treatable, conditions, and unnecessary deaths²¹ of their 'patients,' legal action is rarely undertaken to stop them." Although the role of the traditional healer in Cameroon is under review at present, if the agreed compromises are not enforced, the situation may improve on paper but not in the countryside where the traditional healer operates freely.

The fact that the death of an infant is seen as a punishment (from ancestor or sinister forces) for unaccepted behavior is likewise disturbing. In most cases, the wrong reason is presented to the parents' child. This obviously creates a "superstitious" atmosphere and an environment that may lead to fatalism, making the government task in health care much more difficult. Such attitudes must eventually change because, as one expert put it, "The objective of health education is not only to inform but also to motivate the people to change their behavior and habits, to create a health mentality through the daily application of simple rules related to hygiene and nutrition."²² In other words, attitudinal change through a modification of some traditional beliefs is at the heart of a successful program for the prevention of infant mortality in Africa in general and Cameroon in particular.

In one respect, the child seems to be more important than an adult, as the elaborate birth ceremonies demonstrate. Indeed, the child offsets the rate of infant death, perpetuates the lineage, and assists in the accumulation of wealth under ideal conditions (e.g., by providing needed man-power and bridewealth). However, the low-key infant death rituals when compared to those performed at the passing of an adult, especially a male elder, seem to point to an ambivalence about the value of an infant, a situation that is diametrically opposed to Western tradition.

Also, the belief in the transmission of disease by a dead child, the influence of the dead child on another child, as well as those beliefs associated with parents' infidelity, only frustrate government efforts to improve people's response to effective medicine and the use of health care facilities. Again such beliefs perpetuate a fatalistic attitude, as seems to be the case among some of the people in the East Province. The researchers realize, of course, that certain beliefs are designed to ensure the proper survival of the family. For example, some of the beliefs related to infidelity serve the purpose of safeguarding the proper morals and protecting the child or the pregnant woman from infections. The post-partum beliefs and mores such as the long lactation period and the warning that immediate post-partum intercourse causes infant death are also ways to space the children (a natural family planning technique) and to protect the mother against infection. However, ultimately, the government must decide whether to leave these beliefs "alone" or impose systematically scientific explanations.

It is clear and understandable why induced abortion finds a high degree of disapproval in the Province: it reduces the availability of children in a society that is plagued with infant mortality. Of

course, this attitude is strengthened by the fact that it is against the law to seek an abortion. However, induced abortions do occur in the villages, as was confirmed by 50 percent of the focus group respondents, who claimed that two major reasons were responsible for abortions: pregnancy before marriage and family pressures to terminate pregnancy as a result of "unknown" but sure unfortunate circumstances for mother or child. The belief that abortion does cause the death of another infant or that, once a spontaneous abortion has occurred, another one is inevitable, creates unfounded anxiety, unless physically the woman is unable to have a child as a result of medical problems. The same comments are applicable to infertility which is viewed as a curse or punishment. The mention of venereal disease infection in the focus group as one of the causes of sterility may point to a high incidence of venereal diseases in the area, which individuals reluctantly agree to discuss publicly, particularly with strangers.

The seemingly exaggerated powers sometimes attributed to the traditional midwife in determining the fate of a baby at birth could conceivably be detrimental to the infant. Since infants born with a physical or mental handicap tend to be seen as the result of a punishment or curse, the midwife plays, in a true sense, the role of a goddess. On the other hand, the welcome given to twins is a positive phenomenon. (This attitude is to be expected in a society in which infant mortality is a serious problem.) The power of the midwife becomes dangerously greater, however, if she also has the knowledge of a traditional healer.

Also, the strong belief that God determines how many children a couple may have and that nothing can be done to change the situation (except for those few who saw the taking of more wives and increased sexual activity as a remedy) contributes to fatalism and to dangerous inaction, particularly in cases where physical impairments can be corrected in a hospital or health care center. Incidentally, a study conducted by the Ministry of Social Affairs, in 1988, found this cultural tradition prevalent, anti-natalist, and alarming. It noted:

The belief that it is God who reduces the number of children for a given woman ... appeared in more than half of the discussion groups: 76 over 142 (54 percent). Rural people account for 56 percent, in this respect, more than among the urbanites, and women (55 percent) more than among men. Little difference is noticeable between the ages: 53 percent for those 20-39 years of age and 55 percent among those 40-60 years old.²³

The inaction indicated by families when instances of child abuse occur (which, however, seem to be rare), makes one wonder why the safety of the child does not take precedence over the privacy of the family. Such an attitude seems to contradict the extended African family and communal tradition which assumes responsibility for the adequate protection of the child.

Finally, some ethnic groups tend to hold stronger traditional beliefs than others. The Kaka remain adamant in maintaining a non-naturalistic causality of major diseases and death, although they

seem more often to take their children to the health care centers. The Kaka also lead in the beliefs associated with the harmful effects of deceased children, continued transmission of disease by a deceased infant, and impact of the husband's infidelity (during his wife's pregnancy) on the fate of an infant. The Baya, however, who lead in the frequency of utilization of the centers when they, as adults, fall sick, at the same time give stronger powers to the traditional midwife, strongly believe in the consequences of the pregnant woman's infidelity, in the uselessness of immunization, and in the curse associated with a spontaneous abortion.

The data further demonstrates that the beliefs outlined above tend to continue even if conversion to Christianity or Islam takes place. The Fulani, who tend to be one hundred percent Muslim, are not exempt from similar beliefs associated with African traditional religion. Thus, for example, they seriously doubt the effectiveness of infant vaccine, strongly believe in sorcery, witchcraft, and predestination, and allow exaggerated power to the traditional midwife, although, when they fall sick, they are more likely to go to the health care center than the other ethnic groups (the distribution being: Kaka: 72.0 percent; Baya: 81.5 percent; and Fulani: 67.5 percent). Hence the need, stressed more recently by cultural anthropologists, physicians, and sociologists studying Africa and those aware of cultural resilience, that no health care system can succeed without consideration of cultural habits. Lantum, for example, asserts that, in Cameroon and elsewhere, "...certain diseases with socio-cultural bases for their etiology can only be understood in the cultural context and treated best by the masters of the culture which generates these diseases."²⁴

What complicates the matter is that Western doctors and some health care providers do not realize the complex diagnosis that, ideally, a "traditional" African would expect in order to have faith in any important treatment and thus be comfortable with visiting a hospital or health care center. This point is succinctly summarized by Austine Okwu who writes that:

Diagnosis in African traditional healing process is a complicated procedure because it is used to establish:
(a) the immediate or secondary cause of the ill health, or the natural cause that is acting as the agent of the supernatural forces; (b) the primary or remote cause of the disease, the originators, or the supernatural forces that are responsible for or that approved of, the illness; (c) the reasons for the supernatural's action; (d) the propitiatory sacrifice required to placate or cajole the gods and thus make the actual medical therapy effective; and (e) the healer that should be invited to perform both the ritual sacrifice and the practical healing exercise.²⁵

This complex diagnostic system is prevalent among the people of the East Province, particularly the Kaka and the Baya.

VI. PUBLIC POLICY IMPLICATIONS AND RECOMMENDATIONS

Although many of the following recommendations may not be a novelty to the Agency for International Development, the Cameroon government, and health care providers in the East Province, particularly those in the Kadey Division, the researchers find them significant because they underscore the problems stemming from culture and tradition, and wish to urge the government to seriously consider and highlight them in its national and regional planning policies.

Foremost, the study, which reveals little discrepancy between the individual and the focus group interview results, points to the fact that for most people in the East Province (and we suspect that, due to resource limitations, this is also true among the health care providers in other parts of the country), the emphasis lies on curative rather than preventive health care. A reversal of such tendencies is extremely urgent to ensure the long-term survival of the infant. People take the child to the hospital only as a last resort, and almost never for periodic check-ups. The reasons for this behavior are not hard to find: unawareness of the significance of preventive medicine, costs, and strong traditional resistance against relying on "foreign"-introduced health care systems. What is required, therefore, is a more vigorous awareness campaign on primary health care in the villages and the adoption of measures that would alleviate the costs resulting from a child's visit to a health center for regular check-ups.

Although the degree of home ventilation was perceived as acceptable in most cases, the emission of smoke, particularly in early morning, were found to meet only minimum village standards in many houses. Childrens' inhalation of the smoke is certainly detrimental to their lungs. We were told that fear of burglars prevented most people from building windows in homes. However, recent have begun to focus on the harmful effect of smoke inhalation on children and on pregnant women, which could warn health care providers in Africa.²⁶ The task of health care providers, therefore, is to educate the villagers about the foremost need for adequate ventilation for the promotion of health.

The provision of immunization services for children is probably the most important achievable aspect of primary health care. Although some people remain skeptical about its effectiveness, there is no doubt from the study that the majority of the parents are aware of the program, and, if adequate opportunities were provided to all, the vast majority of the children from the East Province would be vaccinated within the next five years. Again, we urge that awareness campaigns be expanded, the utilization of (mechanically well-maintained) mobile units reactivated and sent directly to the villages and not to the health care centers. The health care service providers themselves must reach the villagers, because our study shows that most of the children are vaccinated not at the health center but in the villages.

From the study it becomes apparent that one of the government's most difficult tasks is to change peoples' perceptions about causal relationships and introduce the concept of natural causality of disease and death, without destroying cultural pride and identity. The difficulty of such an undertaking is demonstrated by the fact that, even those who claim to profess Christianity and those who have

had some schooling, do not abandon the traditional perspective on disease, death, ancestor's curse, and the role of the sorcerer and the witch. What makes the change more difficult is the fact that even some government officials consult traditional healers when they go home. Of course, with more education the situation may improve. Meanwhile, however, the question is who can perform that task more effectively and with some degree of credibility. It would seem to us that those who have roots in that area are best suited to perform this delicate cultural role, hopefully without increasing ethnic divisions, which the government attempts to minimize in its effort to forge a nation. As Sillonville advises, "Above all, no change will occur if an atmosphere of trust is not established between the health personnel and the practitioners."²⁷ The same climate of trust must exist between health care providers and the people in order for any program to succeed.

People's participation is essential as it is by seeing, touching, doing, and listening to those whom they trust, such as their chefs de canton and chefs de village, that they will be willing to change those cultural habits and behaviors that may not contribute to a better quality of health care for themselves and their children.

As a result of our listening to people's worries, we conclude that one of the major obstacles to the utilization of the health care centers is not the cost of the visit but of the prescriptions that follow. In the East Province (and we suspect that most likely this is a national phenomenon), acquisition of drugs is impeded by the following factors: cost of drugs, their unavailability in most pharmacies, and the scarcity of drug stores and pharmacies near the facilities where diagnoses are conducted. The most severe of the three seems to be the latter. By not providing pharmacies that can be easily reached by patients after consultation, the government is waging a losing battle against the eradication and prevention of infant disease.

Insofar as the cost of medication is concerned, the practice of "sensitive" doctors and nurses is to prescribe not the most effective drugs and treatment but the cheapest and affordable ones. The consequences of such practices are obvious -- the skewing of the intended health care objectives. In Boubara and Beti, we were informed that the scarcity of medicine was such that people had to cross the frontier to the Central African Republic, a much poorer country than Cameroon, to buy drugs and seek treatment. The researchers were also informed that most drug provisions that are designed to last three months are dispensed by the nurses and midwives' in a period of two weeks. Understandably, thereafter, these health care providers have almost nothing to do at the center once they have distributed the available medication.

We also urge a clearer delineation of authority and responsibility among the Ministries of Planning, Education, Social Affairs, and Women's Affairs, lest disputes over jurisdiction and inactivity ensue, thus confusing the people and the health care providers. This situation was quite evident in one of the health centers near Batouli, where not only improvement projects had been abandoned, but expensive medical equipment was simply sitting on the floor gathering rust and dust.

Streamlining the bureaucratic practices in the health care system is something the government must continue to address aggressively. In our visits to the health centers, we saw boxes of medicine lying unopen and much expired medication, both caused by the inability of government certifiers to meet and authorized usage. We also saw drugs that had been sent to the health care centers that did not request them or did not need them, while those that had a need for them could not get them. Hindered distribution of supplies not only contributes to the inefficiency of the health care system but it also frustrates the people, a situation that can only aggravate rather than alleviate infant mortality in the region.

The elimination of unnecessary bureaucratic interference also dictates community participation in the improvement and delivery of primary health care. Under ideal conditions, as Charles Good observes,

Primary Health Care (PHC) builds and depends upon genuine community participation as a health activity in and of itself. It relies on appropriate technology and local resources, particularly the 'community health worker' (CHW); is low-cost and culturally acceptable; ...it is necessarily connected with a formal network of health care facilities, including curative services backed by a dependable inventory of essential drugs... and referral and supervisory systems.²⁸

East Cameroon seeks increased attention along these lines.

We also wish to urge the government to look critically at the impact of the working practices of the Societes or the Companies, particularly the Societe Camerounaise des Tabacs (SCT) on the family and the child. It is obvious that parents spend entire days away from home for nine months a year, and those children who are unable to attend school are left alone. In addition, the salaries they receive are minimal and do not assist these parents in affording the cost of children's medication. The role of these companies and others in the health care system in the East Province must therefore be reexamined carefully to see to it that they enhance rather than hinder the survival of the child.

Assumpta Madu and Christian Madu, in their study of multinationals that administer drugs in Nigeria, suggest that these companies should be forced to express "...commitment to help and improve the distribution of pharmaceutical services," and that African governments, perhaps in conjunction with these companies ought to create 'Drug Information Centers'²⁹ throughout the country which could be staffed by medical students. Not only should the Societes provide some health care to the workers and their children but could also be required to provide pharmaceutical information.

It is also clear from this and many other studies that the greatest killer of children in East Cameroon stems from intestinal disorders, with diarrhea--an ailment which is treatable with simple methods--being the greatest culprit. Obviously, the intensification of health awareness campaigns is the best solution, using visual illustrations and common language to drive the message across.

One cannot reiterate enough the need to improve the provision of water supply in the area. The scarcity of water contributes highly to the unsanitary conditions one encounters in homes in the East Province, where the infant is, of course, the easiest victim. Thus, where both overcrowding and lack of acceptable latrines prevail, the home becomes a breeding ground for diseases rather than a shield against children's infection and illnesses. We realize that the provision of water and other necessary facilities to improve sanitation and health care are part of the five-year plan, of the Cameroon government, but one cannot echo loud enough the desperate need the children (and the adults) of the East Province have for water supply.

We also urge that, when health programs are planned, the beliefs of the targeted populations be carefully studied, as some hold stronger beliefs than others. In the East Province, at least in the Kadey Division, the strategies that work for the Kaka may not work for the Baya or the Fulani. It would appear, for example, that it is much more difficult to change the perception of disease causality among the Kaka than among the Baya. Of the two, the Kaka are also the least likely to take a sick child to the health center.

The Baya, on the other hand, are known for their traditional curative practices of which many are unhealthy. For example, they cut the umbilical cord with the peel of a sugar cane; they treat a human bite with chicken excrement; they use dirt on a fresh wound to cure and prevent scars; they treat burns with clay or salt or use salt water mixed with cassava flour and burnt wood ashes; they make the child drink the same water in which he finished bathing to speed his growth; and elders spit into the mouth of an infant immediately following birth to make him/her as eloquent as they are.³⁰ These and other beliefs and practices underscore the perils of Western assumptions when cultural factors are overlooked.

The constructive role of the traditional healer is slowly being accepted and modernized due to enlightened and culturally-conscious and influential professionals. Authorities should always keep in mind, however, that people, notwithstanding their new religious tenets introduced from the West and Western education, hardly abandon completely their deep-seated values. The government has to determine, for example, to what extent must people be systematically discouraged from believing that certain diseases can only be cured by the traditional healer. Should, for example, the traditional midwife be given power over the life or death of an infant, as it happens in some of the Baya and Fulani villages?

Likewise, the prevailing beliefs about the causes of abortion and its impact on infertility and on children's physical or mental deformity and handicap must be examined carefully because they do contribute to a sense of unnecessary fatalism, particularly when modern science can actually remove the ill or at least improve the abnormal or unhealthy condition.

Significantly, our study provides validity to the claim made by cultural anthropologists that, as long as governments and agencies do not consider the beliefs, attitudes, and practices of a region when they plan long-range medical programs, they will never achieve their goals and objectives. Africans have deep-seated values and outlooks on life that neither modern Western religions or education can easily

erase. A holistic approach, therefore, encompassing cultural and scientific factors, must go hand in hand in planning as the most effective way to save the Cameroonian child from disease debilitation and death.

For AID, this consideration must be one of its priorities to minimize the possibility of failure of its health projects in Africa. One scholar noted, for example, that "a recent analysis of two U.S.A.I.D. supported PHC projects in Mali and Senegal ...[reveals] that, along with the carcasses of drought-afflicted cattle in Africa's rural landscape are the 'skeletons' of numerous failed interventions in primary health care (PHC)."³¹ One of the major reasons for such failures seems to be the neglect to consider cultural values and beliefs. We therefore recommend in current and future A.I.D.-funded health care projects that there be an awareness of cultural factors in both the administration and provision of health care services.

It would be naive, of course, to suggest that any action by the government will change people's attitudes overnight. We realize that the process is a long one because values and attitudes are part of an individual's being. We believe, however, that the earlier in the life of a child the process of change begins to occur, the greater is the chance of success. Consequently, we recommend that basic lessons on health care practices and attitudes (whose existence was denied by 50 percent of the "opinion leaders") start as early as possible--in kindergarten and primary school, to continue beyond the secondary school system.

Unfortunately, educating the youngsters will not bring the intended results easily as long as the children confront parents at home who tend to defy change and therefore undo all that is learnt in school. It is imperative, as a result, that the child's health care education go hand in hand with the parents' attendance at simple nutrition, hygiene, and sanitation sessions provided by the government in the village setting.

Sillonville's work and experience in Menoua Division among the Bamileke proves the point. With periodic lessons to parents, particularly pregnant women, his program succeeded in reducing infant mortality in general from 240 per thousand in 1968 to 43 per thousand by 1984, and among children 0-5 years old from 250 per thousand to 122 per thousand. Sillonville advises that "it is necessary to educate simultaneously the parents and the children," because, he adds, "...the student (child) has no chance of truly assimilating the useful concepts for his entire life if he does not have the opportunity to put them into practice in his own family."³²

Thus, to strengthen students' good health habits, elementary and essential health instruction must become an integral part of university education, because combatting negative physical and social environment will be a lifelong undertaking for the Baya and the Kaka child in the East Province.

We likewise recommend that all A.I.D.-supported health care providers and administrators in Africa be specifically trained in local cultural settings before designing and implementing any project. In the same vein, we hope that, as a result of this study and others, in the future, A.I.D. will fund more projects whose objective is to ascertain a priori people's cultural receptability to specific modern health care services intended to reduce infant mortality.

In summary, these are our recommendations to the Cameroon government and the United States Agency for International Development, as well as to health care providers and administrators, educators, and researchers:

1. Unambiguity over the priority of preventive over curative health care through organized primary health care campaigns throughout the villages;
2. Encouragement of improvement in house-ventilation to prevent unacceptable levels of smoke inhalation by infants;
3. Increased immunization campaigns, particularly against polio, in concert with the World Health Organization Program, and the reactivation of adequately-maintained mobile health units in the East Province;
4. A careful but deliberate campaign by locally-rooted individuals to change people's perceptions of the causality and especially the mode of transmission of diseases;
5. Culture-oriented training for all university medical, nurse, and social work students before they are posted throughout the country;
6. Agreement by public health physicians on a basic drug list to provide appropriate treatment of prevalent illnesses at affordable cost (e.g. aspirin, chloroquine, a reasonable range of antibiotics for common disease such as nitroglycerine for cardiovascular disease);
7. Establishment of community pharmacies or drugstores near every health care center with emphasis on effective drug or medication prescription and dispensation by doctors and nurses;
8. Reassessment and elimination of unnecessary bureaucratic practices and limitations (such as complicated report forms which slow the delivery and dispensation of medication by scarce medical providers);
9. Better coordination and clearer delineation of responsibility in health care related matters among the various Ministries of the government;
10. Creation of mechanisms that will make the Societes (companies) government and regional partners in the provision of health care and pharmaceutical information for the children and the spouses of their employees;
11. Greater commitment to campaigns designed to eliminate the curse of diarrhea and resulting dehydration among the children in the East Province through techniques such as oral dehydration therapy (ORT);

12. Accelerated water supply projects for general needs as well as for basic hygiene and sanitation purposes;
13. Careful study and knowledge of cultural values and attitudes before projects are designed and implemented by health care providers and administrators;
14. Continued careful assessment and monitoring of the role and power of the traditional healers and midwives and their training to supplement modern medicine with traditional medicine;
15. Systematic research and awareness of local cultures and implementation of strategies to modify beliefs related to disease, death, abortion, infertility, marital infidelity, and nutrition;
16. Training of health care providers to sensitize them about their patients' cultural upbringing related to health and disease as an integral part of all A.I.D. health projects in the Third World;
17. Village-held basic health care instruction targeting all adults, particularly pregnant women;
18. Basic health care instruction throughout the Cameroon educational system; and
19. A.I.D. funding of more projects whose objective is to determine beliefs and attitudes of local populations toward infant mortality and the use of health care centers.

SUMMARY OF FINDINGS

Although many of the findings in this study are not unique to Cameroon and the East Province, they nevertheless underscore the government authorities' urgent need to address them aggressively. The study confirms the poverty of the area, reflected by overcrowding in the homes and lack of acceptable standards of hygiene and sanitation which are aggravated by the reinforcement climate and the absence of long and permanent rivers. Notwithstanding the fact that most people live a short distance from the health care centers, traditional beliefs, poverty, and the lack of medical provisions, prevent them from utilizing these facilities effectively, including even those who are supposedly "enlightened" by Western religion and education. Children, born from families with an average of five children who often have lost from four to five infants or pregnancies, are raised in an environment easily susceptible to disease---diarrhea, measles, malaria, yellow fever, kwashiorkor, convulsions, and spleen ailments. Weaned at the age of twelve to twenty-four months, infants are subjected to nutritional taboos that weaken them physically and make them an easy prey of early death.

As a result of traditional beliefs that tend to explain death, disease, spontaneous abortion, sterility, and infertility, in terms of unnatural causes (God, witchcraft, sorcery, curse from ancestors, and punishment), government efforts to reduce mortality suffer intermittent setbacks that make the East Province one of the most depressing sites of the naturally-endowed Cameroon Republic. The belief that deceased children may transmit diseases to the unborn child or haunt the mother during pregnancy or during childbirth and the traditional perceptions that unfaithfulness in marriage and the breaking of the post-partum abstinence can cause infant death are prevalent in the area and certainly create a sense of fatalism and undue anxieties.

The study also revealed that, most likely because infant death is such a common daily occurrence, dead children, in contrast to deceased adults, are mourned only briefly, and buried immediately. On the other hand, the traditional healer and midwife play a disproportionate role, at times, because of their prominent place in society, which allows power over the life of the infant. The crucial campaigns for the elimination of infectious diseases through inoculations are not yet well understood by the populace in the Kadey division, while the most successful results in immunization are obtained in the village setting itself rather than at the health care center, as intended by the authorities. Unfortunately, the use of health mobile units, effectively used in earlier periods, has been discontinued in most areas of the Division.

For obvious reasons, parents prefer male over female children. Unlike during the colonial period, the government should rest assured that parents provide accurate information on their offspring when requested by the authorities. Also, in general, parents tend not to interference in other families' affairs, even when children might be abused. Finally, the study strongly suggests that the Kaka have more imbedded beliefs concerning the non-natural causation of disease in the East Province, while the Baya allow greater roles to the traditional

healer and the midwife. These characteristics transcend, by an large, religion, occupation, and income, and in most cases, even education

NOTES

- ¹For further details, see Jennifer Seymour Whitaker, How Will Africa Survive (New York: Harper and Row, 1988), pp. 87-125.
- ²Dennis Warren and Z.A. Ademuwagun (eds.), African Therapeutic Systems (Los Angeles: Crossroad Press, 1979).
- ³For further details on conditions in the East Province, see CARE, Programme d'assistance pour le developpement (Yaounde: CARE, 1988).
- ⁴Thomas C. Nchinda, "A Household Study of Illness Prevalence and Health Care Preferences in a Rural District in Cameroon," International Journal of Epidemiology, 6, 3(September 1977): 239.
- ⁵Daniel Lantum, Traditional Medicine-Men of Cameroon. The Case of Bui Division (Yaounde: Public Health Unit, University Centre for Health Sciences, 1985), pp. 35-36.
- ⁶Frank Sillonville, Manuel pratique pour infirmiers et educateurs africains. Guide de l'education pour la sante (Dakar: Presses de la Grande Imprimerie Africaine, 1979), p. 3.
- ⁷Lantum, Traditional Medicine-Men, p. 298.
- ⁸Bernard Hours, L'Etat sorcier. Sante publique et societe au Cameroun (Paris: L'Harmattan, 1985), p. 152.
- ⁹Lloyd, Timberlake, Africa in Crisis: The Cause, the Cures of Environmental Bankruptcy (Philadelphia, PA: New Society Publications, 1985) pp. 46-47.
- ¹⁰Ibid, p. 53.
- ¹¹Landja Sanwogou, Les coutumes de nos ancetres face a la vie (Yaounde: Imprime sur les Presses du Centre d'Editeur, 1973), p. 39.
- ¹²Frank Sillonville, Nos enfants vivront (Paris: L'Harmattan, 1988), p. 18.
- ¹³Carl Kendall et al., "Anthropology, Communication, and Health: The Mass Media and Health Practices Programs in Honduras," Human Organization, 42, 4(1983): 353-360.
- ¹⁴See Timberlake, pp. 53-54
- ¹⁵Nchinda, p. 237.
- ¹⁶Daniel Lantum, Population Dynamics of Rural Cameroon and its Public Health Repercussions (Yaounde: Public Health Unit, University Centre for Health Sciences, 1979), p. 298.

- ¹⁷Timberlake, p. 54
- ¹⁸W.W. Gesler and G. Gage, "Health Care Delivery for Under Five Children in Sierra Leone," Health and Disease in Tropical Africa (Chapel Hill: University of North Carolina Press, 1986), p. 4.
- ¹⁹Nchinda, p. 240.
- ²⁰Ibid.
- ²¹Mario Azevedo and Janet St.-Lawrence, "Health Conditions in Cameroon and Chad," Mario Azevedo (ed.), Cameroon and Chad in Historical and Contemporary Perspectives (Lewiston, N.Y.: Edwin Mellen Press, 1989), p. 128.
- ²²Etienne Berthet in Frank Sillonville, Manuel pratique, p. 4.
- ²³Ministry of Social Affairs, Recherche sur la famille camerounaise. Vol. V. Famille et parente responsable (Yaounde: Ministère des Affaires Sociales, Mars 1988), p. 69.
- ²⁴Daniel Lantun, The Pros and Cons of Traditional Medicine in Cameroon (Yaounde: University of Yaounde, Cuss, 1978), p. 88.
- ²⁵Austine Okwu, "Life, Death, Reincarnation, and Traditional Healing in Africa," Issue, a Quarterly Journal of Opinion, II, 3(Fall, 1979): 22.
- ²⁶See Paul Ursol, "Quantitative and Functional Change in T Cells of Primiparous Mice Following Infection of Benzo (a) Pyrene at the Second Trimester of Pregnancy," Immuno Pharm Immunotox, 10 (1988): 179-217 and his other article "Specific Identity of T Cells and the Interactions with Macrophages in Benzo (a) Pyrene Exposed Mice," Immuno Pharm Immunotox, 10, (1988): 195-217.
- ²⁷Frank Sillonville, "La promotion de la sante chez les bamileke du Cameroun," paper presented at the World Conference on Health Education (Dublin), September, 1985, p. 1.
- ²⁸Charles Good, "Creating Effective Participation of Traditional Healers in Africa, Primary Health Care," paper presented at the Southeastern Regional Seminar in African Studies, University of Virginia, 1987, p. 3.
- ²⁹Assumpta Madu and Christian Madu, "Ethical and Moral Issues in the Transfer and Administration of Pharmaceutical Services to Less Developed Countries," paper presented at the Meeting of the Association for the Advancement of Policy, Research and Development in the Third World, November 19-25, 1988, pp. 17-19.
- ³⁰Landja Sanwogou, Les coutumes de nos ancetres, pp. 29-40.
- ³¹C. S. Gray, "State-Sponsored Primary Health Care in Africa: The

Current Cost of Performing Miracles," Social Science and
Medicine, 22, 3(1986): 361.

³²Sillonville, Nos enfants viveront, p. 92.

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