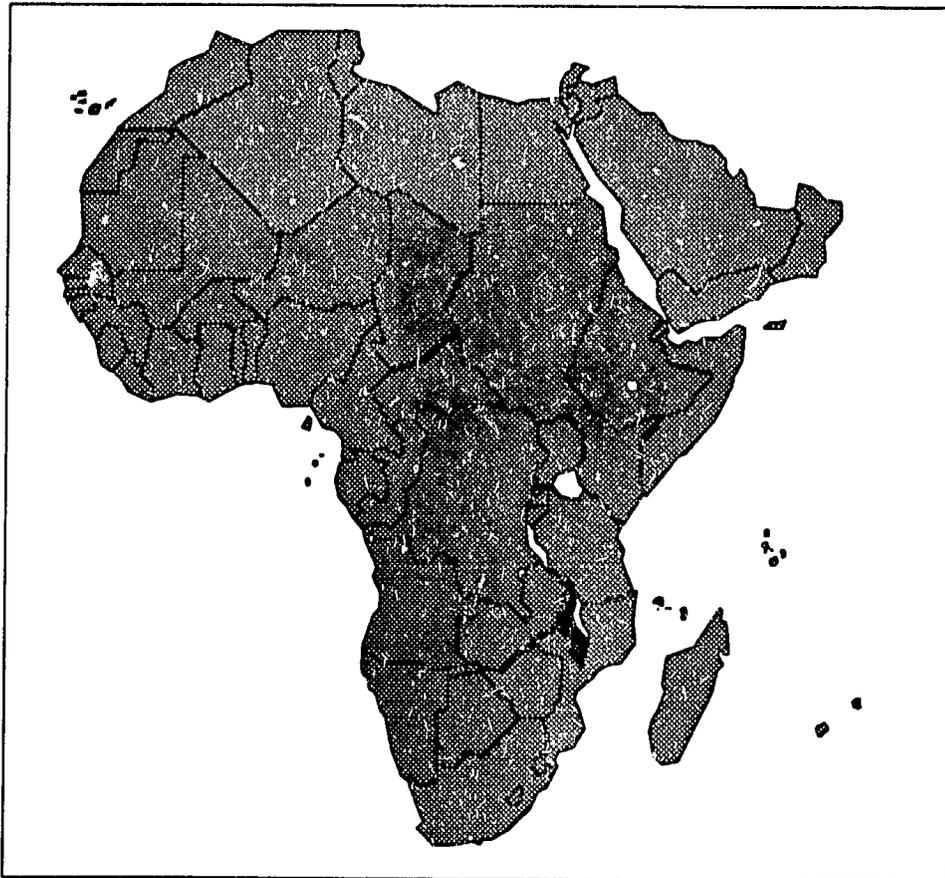


CIHI Country Health Profile Series

MALAWI

Country Health Profile 1995



Center for International Health Information
1601 N. Kent Street, Suite 1014
Arlington, VA 22209

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MALAWI

Country Health Profile

This is one of a series of Country Health Profiles produced by the Center for International Health Information (CIHI). Each profile provides quantitative and qualitative data on current health and demographic conditions and the health care system in a developing country. Profile information is compiled from CIHI's databases and reference library and through research and analysis of other data sources.

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In order to enable CIHI to report the most current health and demographic data, readers are encouraged to provide any more recent or more accurate information by contacting the center directly or through USAID's Office of Health and Nutrition.



CURRENT DEMOGRAPHIC AND HEALTH INDICATORS

Demographic Indicators			
INDICATOR	VALUE	YEAR	SOURCE
Total Population	10,615,200	1993	UNP9200
Urban Population	1,370,200	1993	UNP9200
Women Ages 15-49	2,306,400	1993	UNP9200
Infant Mortality	134	1990	DHS9401
Under 5 Mortality	234	1990	DHS9401
Maternal Mortality	620	1992	DHS9401
Life Expectancy At Birth	44	1993	CALXX01
Number of Births	455,392	1993	CALXX01
Annual Infant Deaths	61,159	1993	CALXX01
Total Fertility Rate	6.7	1992	DHS9401

Child Survival Indicators			
INDICATOR	PERCENT	YEAR	SOURCE
Vaccination Coverage			
BCG	95	1992	DHS9401
DPT 3	84	1992	DHS9401
Measles	70	1992	DHS9401
Polio 3	84	1992	DHS9401
Tetanus 2	73	1992	DHS9401
DPT Drop Out	12	1992	DHS9401
Oral Rehydration Therapy			
ORS Access Rate	56	1988	WHD9000
ORS and/or RHF Use	56	1992	DHS9304
Contraceptive Prevalence			
Modern Methods (15-44)	8	1992	DHS9304
All Methods (15-44)	14	1992	DHS9304
Nutrition			
Adequate Nutritional Status	63	1992	DHS9304
Appropriate Infant Feeding	NA		
A) Exclusive Breastfeeding	3	1992	DHS9401
B) Complementary Feeding	87	1992	DHS9401
Continued Breastfeeding	93	1992	DHS9401

Other Health Indicators			
INDICATOR	PERCENT	YEAR	SOURCE
HIV-1 Seroprevalence			
Urban	33	1994	BUC9408
Rural	12	1993	BUC9408
Access to Safe Water			
Urban	77	1988	AID9012
Rural	36	1988	AID9012
Access to Sanitation			
Urban	70	1988	AID9012
Rural	36	1988	AID9012
Deliveries/Trained Attendants	55	1992	DHS9304

NA = Data not available.

For definitions of indicators, see data notes in Appendix B. For full citations of sources, see Appendix C.



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Acronyms/Abbreviations

AIDS	acquired immune deficiency syndrome
ARI	acute respiratory infection
BCG	Bacillus of Calmette and Guérin vaccine (to prevent tuberculosis)
DPT3	diphtheria, pertussis, tetanus vaccine (three shots)
CDIE	Center for Development Information and Evaluation (USAID)
CHAM	Christian Hospital Association of Malawi
CIHI	Center for International Health Information
DHS	Demographic and Health Survey
EPI	Expanded Programme of Immunization
HIV	Human Immunodeficiency Virus
IMR	infant mortality rate
MMR	maternal mortality rate
MOH	Ministry of Health
GDP	gross domestic product
GNP	gross national product
MASM	Medical Aid Society of Malawi
NGO	non-government organization
ORS	oral rehydration salts
ORT	oral rehydration therapy



Acronyms/Abbreviations (continued)

PHAM	Private Hospital Association of Malawi (precursor to CHAM)
PHC	primary health care
RHF	recommended home fluid (for ORT)
TB	tuberculosis
TBA	traditional birth attendant
TT2+	tetanus toxoid vaccine (two or more shots)
STD	sexually-transmitted disease
UN	United Nations
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
U5MR	under-five mortality rate
WHO	World Health Organization

EDITOR'S NOTES

1. References & Sources. Sources in this profile are referred to by a seven-digit code. Generally, the first three letters refer to a source institution, the following two numbers refer to the year of publication or transmittal, and the final two numbers uniquely identify the individual source. A complete list of sources appears in Appendix C.

2. Statistical Appendix. Much of the quantitative data presented in graph form in this profile also appears in tabular form with specific references in Appendix A.

3. Data Notes. For definitions of indicators and commentary regarding their derivation, the reader is referred to Appendix B.

4. Comparative Graphs. Unless specified otherwise, indicator values for country groupings are median values for groups of available country-level values. Where no date is specified, values used refer to most recent available data. The groups are composed as follows: "Sub-Saharan Africa" includes available data for 47 countries comprising USAID's Africa Region, which does not include Egypt, Libya, Tunisia, Algeria, Morocco and Western Sahara. "Low-income Countries" includes available data for 54 countries classified as such in the World Bank's World Development Report 1993 (WDR 1993). "Developing Countries" indicators are drawn from available data for the 152 nations not classified as "Established Market Economies" in the WDR 1993.



I. COUNTRY OVERVIEW

Geography

Malawi is a densely populated but predominantly rural country in southeastern Africa. Nearly 90 percent of the population of 10.6 million (1993 projection) is estimated to live in rural areas. The country covers 45,750 square miles and is divided into three regions (see map inside back cover). The most densely populated of the three, the Southern Region, is surrounded on three sides by Mozambique and is home to Malawi's largest city, Blantyre (pop. 332,000 in 1987). The Central Region, where the capital, Lilongwe (pop. 234,000 in 1987), is located, and the Northern Region lie between Lake Malawi to the east and Zambia to the west. To the north and northeast is Tanzania. Malawi's official languages are English and Chichewa, the latter of which is spoken by 75 percent of the population (AID9321,UND9401).

History

Malawi is a former British colony which was administered alongside Northern Rhodesia (now Zambia) as "Nyasaland." Independence in 1964 marked the beginning of three decades of single-party rule under President H. Kamuzu Banda. The election of President Muluzi in May 1994 was a major step in the country's transition to a multiparty democracy. The most notable action of the new government thus far has been to implement a policy of free education, resulting in an estimated fifty percent increase in enrollment (AID9501).

Economy

Based on gross national product (GNP) per capita, Malawi is among the ten poorest nations in sub-Saharan Africa. Although its level of \$230 GNP per capita for 1990 is only just over half of the median for the region (see figure 1.1), this far exceeds the levels of two of Malawi's neighbors, Tanzania (\$100) and Mozambique (\$80), which by this measure were the two poorest nations in the world, according to the World Bank (WBK9303). Agriculture accounts for 90 percent of employment and 40 percent of the nation's gross domestic product (GDP)(AID9321). Maize is the main agricultural product and staple food, complemented by fish. As a whole, Malawi has attained self-sufficiency in food production, but this is not necessarily reflected at the household level. Structural adjustment programs since the early 1980s have had greatest negative impact on poor households in rural and urban areas (WHO9306).

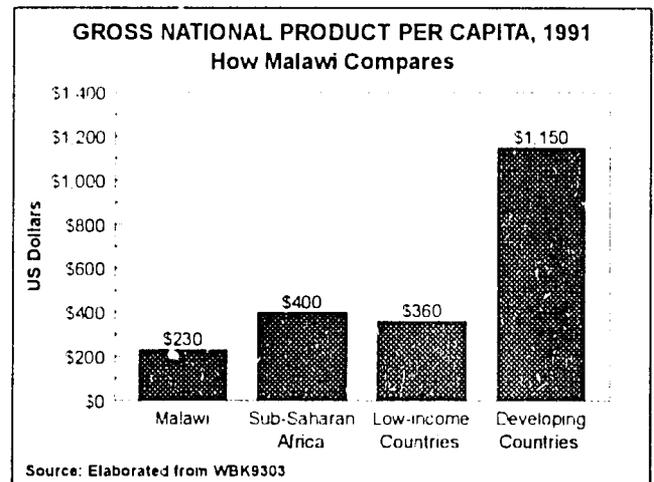


Figure 1.1

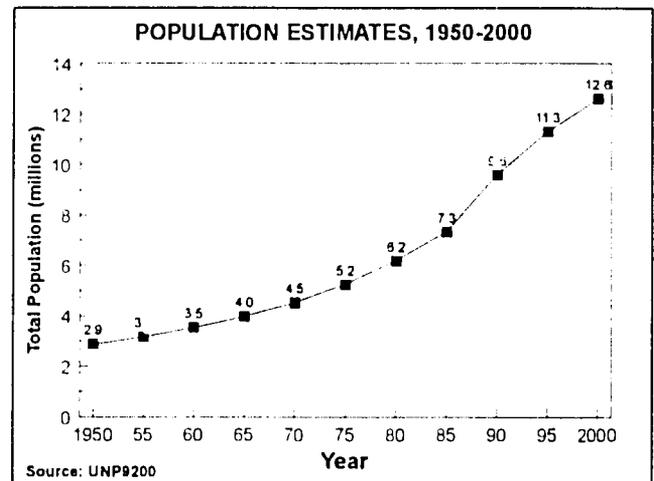


Figure 1.2



With the end of conflict in neighboring Mozambique, Malawi should regain access to traditional trade routes – rail lines to Beira and Nacala – instead of relying on road transport to Durban, South Africa, which is two to three times farther away. This would be welcome relief for Malawi's ailing economy, which is still suffering the damage of major crop failures following two of the nation's worst droughts of the century in 1991/92 and 1993/94. These hardships, combined with questionable fiscal policies of the Government of Malawi, have resulted in severe economic difficulties in the 1990s; inflation in 1994 is estimated at 36-40 percent (AID9501).

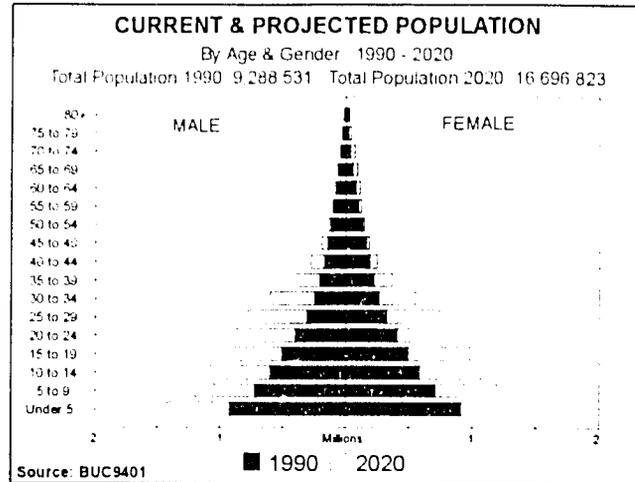


Figure 1.3

Population Dynamics

Malawi is one of the fastest-growing countries in the world. With a population growth rate estimated at 3.8 percent per year in the 1980s, the total population has more than doubled since independence in 1966 (see figure 1.2). One-fifth of the population is under the age of five; nearly half (46 percent) is below the age of fifteen (see figure 1.3). Whereas the crude death rate appears to have declined with improvements in health conditions, the crude birth rate is thought to have risen in recent years from a rate of 41 per thousand indicated by the 1987 census (AID9321). This figure is substantially lower than those suggested by the United Nations, which estimates crude birth rates beginning to decline from a peak of 57 after 1980 (see figure 1.4).

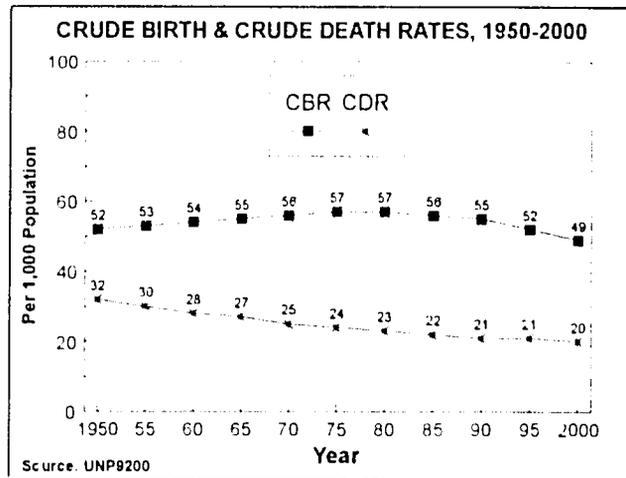


Figure 1.4

The 1992 Malawi Demographic and Health Survey (DHS) found a total fertility rate of 6.7 births per woman (DHS9401), well below the level of 7.6 projected by the United Nations for 1990. Estimates of contraceptive prevalence are slowly rising but remain below ten percent for modern methods, as indicated in figure 1.5. Adding to population pressure has been the presence of Mozambican refugees, who began to flow into Malawi in 1986. According to the United Nations High Commissioner for Refugees, Malawi's refugee population reached a peak of over one million by the end of 1992. As of December 1994, all but 100,000 have returned to Mozambique (UNH9401).

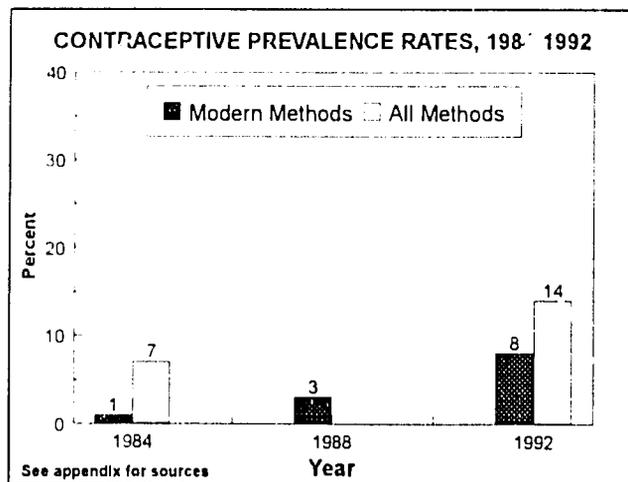


Figure 1.5



II. HEALTH SITUATION ANALYSIS

Basic Health Indicators

Though improving, health conditions in Malawi remain among the poorest in the world. In the 1960s, an estimated one-third of Malawian children died before the age of five; today, that share is down to about one-quarter. Life expectancy at birth in Malawi is just 45 years, one of the lowest in the world, according to the Human Development Report 1994, and five years below the median for sub-Saharan Africa (see figure 2.1).

Deaths among children under five account for 57 percent of all deaths. About one-quarter of these occur in the first month of life and another quarter in the next eleven months (AID9321).

Infant and child mortality rates are improving but remain among the highest in the region (see figures 2.2-2.4). The infant mortality rate (IMR) of 134 deaths per thousand live births is the region's sixth-highest, according to CIHI's database, while the mortality rate for under-fives is the region's fifth-highest at 234. The IMR in rural areas is reportedly twice as high as in urban areas, though the urban poor are not much better off than their rural counterparts.

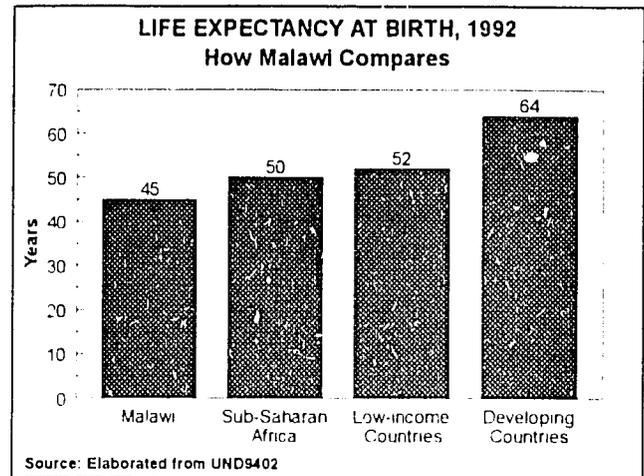


Figure 2.1

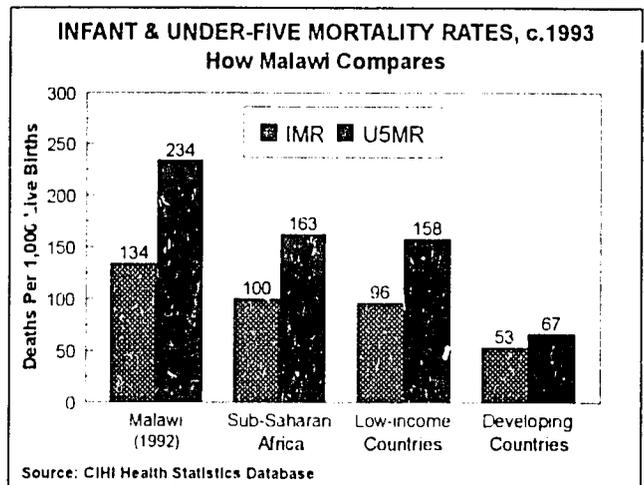


Figure 2.2

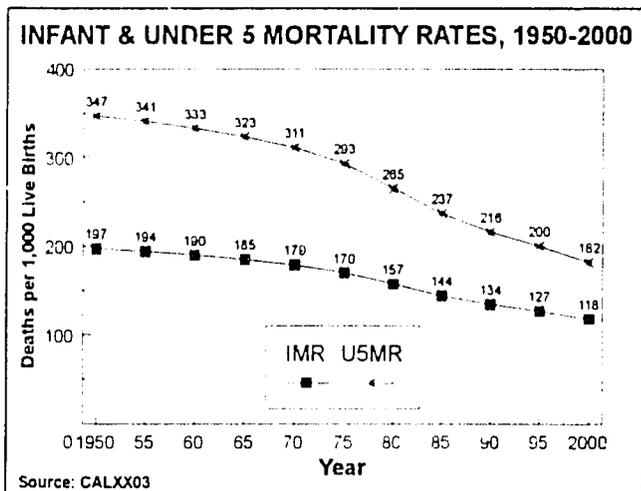


Figure 2.3

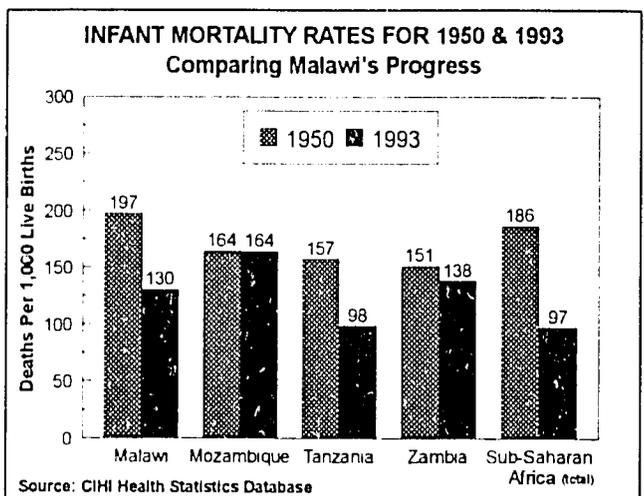


Figure 2.4



Estimates and projections on improvements in infant mortality are supported by DHS responses indicating lower rates in more recent years (see figure 2.5). According to the DHS data, the most substantial and consistent reduction in mortality has occurred among neonatals. Advances to date in improving child survival are now threatened by HIV/AIDS and a marked resurgence of malaria (AID9321).

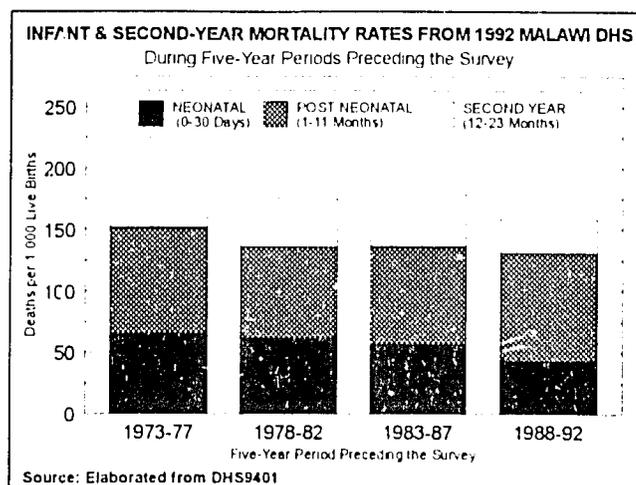


Figure 2.5

Causes of Mortality and Morbidity

Child Mortality

At least 60 percent of child deaths in Malawi are thought to be preventable or treatable through primary health care (WHO9306). Inpatient records from hospitals and health centers indicate that malaria is by far the leading reported cause of child mortality, followed by nutritional deficiencies, anemia, pneumonia and measles.

In 1990, malaria was the cause of 19 percent of recorded deaths among children under five, a sharp rise from the early 1980s, when measles was the leading killer and malaria accounted for just over 10 percent (see figures 2.6 & 2.7). Malaria is also the most common cause of anemia, which has likewise risen as a cause of death among children. Together, malaria and anemia accounted for nearly one-third of reported child deaths in 1990.

Nutritional deficiencies have also risen significantly since 1983 to become the second-leading cause of reported mortality at 17 percent in 1990. Pneumonia and diarrheal diseases have more or less maintained their respective levels of 13 and 8 percent. The latter figure is suspected to understate the role of diarrheal diseases in child mortality. Graphic depiction of these trends and more data on these causes of mortality appear under specific health problems below.

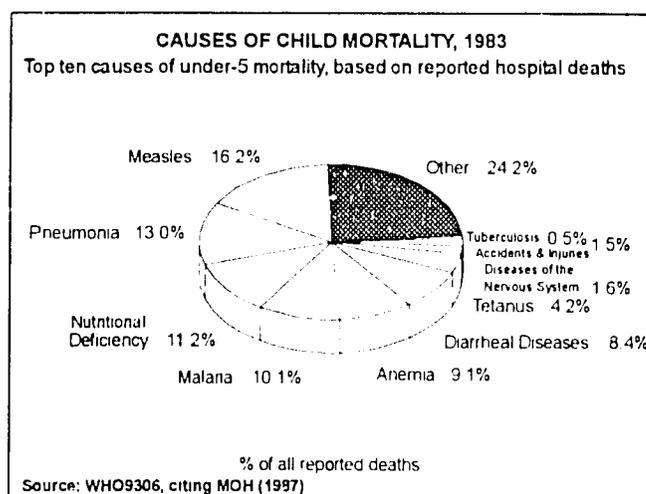


Figure 2.6

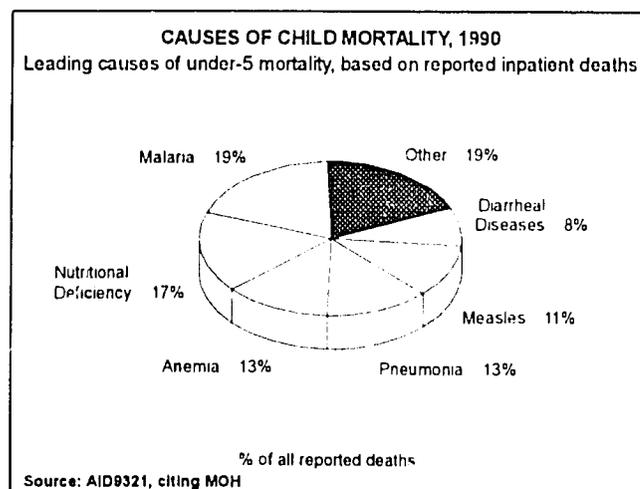


Figure 2.7



Morbidity Among Children

Trends in causes of child morbidity are similar to mortality patterns, with malaria becoming the primary reported cause of both hospitalizations and outpatient clinic visits. The percentage of child hospitalizations attributed to malaria increased from 20 percent in 1985 to about 30 percent in 1990 while measles dropped from roughly 15 percent in 1985 to under 10 percent for the remainder of the decade (except 1987). Together, malaria and anemia accounted for 43 percent of child hospitalizations in 1990 (see figure 2.8).

According to outpatient clinic tallies, malaria accounted for over one-third of child visits in 1990, followed by respiratory illnesses (19 percent). Diarrheal, eye and skin diseases each accounted for about six percent of visits (see figure 2.9). Malaria has been on the rise since 1987 while diarrheal diseases have dropped slightly; otherwise, the proportions of various causes of outpatient visits have remained fairly stable (AID9321). An earlier assessment by WHO produced similar results, with malaria accounting for 25-35 percent of outpatient visits, followed by respiratory infections and abdominal and gastrointestinal complaints; these three together accounted for up to 65 percent of visits. Other illnesses such as schistosomiasis, leprosy, and HIV/AIDS do not appear under these top ten causes, but are nonetheless very significant public health problems among children in Malawi (WHO9306).

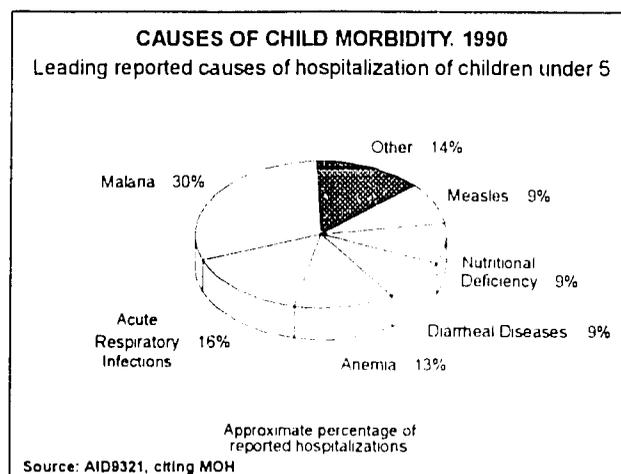


Figure 2.8

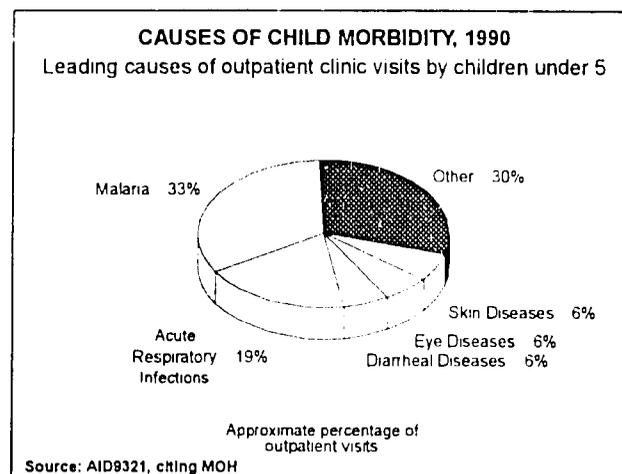


Figure 2.9

Women of Reproductive Age: Maternal Mortality

Among women, death rates due to pregnancy and childbearing are extremely high. Malaria among pregnant women is a serious concern for the health of mothers and infants alike. Recent estimates of Malawi's maternal mortality rate (MMR) range from 100 to 850 maternal deaths per 100,000 live births (AID9321), a wide range which reflects the difficulty of measuring or estimating this indicator (see data notes). Recently reported figures range from 400 to 620 deaths per 100,000 live births (UNI9401, DHS9401). The figure of 620 derives from the most recent and reliable source, the 1992 Malawi DHS, but is still a rough estimate for the time period 1986-1992. Of 79 maternal deaths reported for this period, 41 percent occurred during pregnancy, 31 percent during childbirth, and 28 percent in the six-week period following childbirth or termination of pregnancy (DHS9401). Among MMRs listed for 1988 in the Human Development Report 1994, the rate of 500 for Malawi is well below the median value for sub-Saharan countries (see figure 2.10).

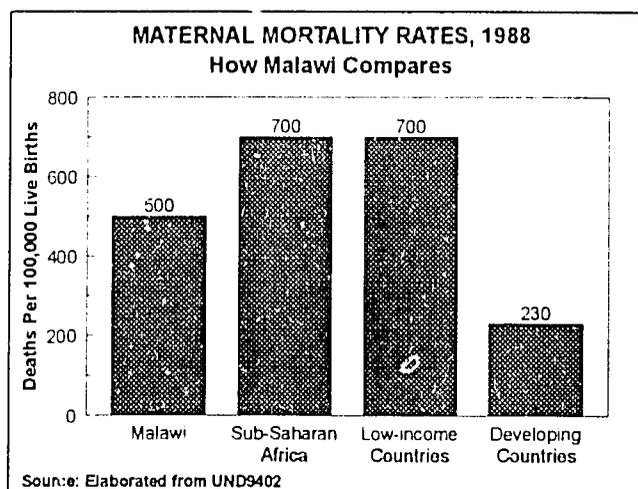


Figure 2.10



Specific Health Problems

Malaria

Malaria is endemic throughout Malawi and has been identified as the main impediment to further decline of infant and child mortality. The disease is the primary reported cause of outpatient visits, hospital admissions, and hospital deaths not only among children, but in nearly all age groups nationwide. Rises in the proportion of reported mortality and morbidity attributable to malaria and related anemia (see figure 2.11) correspond to real increases in prevalence and incidence of malaria since the early 1980s.

Malaria is now more common and more deadly primarily due to the spread of chloroquine-resistant strains, which were first confirmed in Malawi in 1984. Current infection rates are reportedly in excess of 50 percent in Malawian children. The case fatality rate for cerebral malaria is reported to be about 30 percent among children under five, even with appropriate care (AID9321).

The 1992 Malawi DHS gathered data on fever prevalence in order to gain insights about malaria among children. Over 40 percent were found to have had fever in the preceding two weeks, including 41 percent in rural areas and 37 percent in towns and cities. Prevalence was greater in the Northern Region (48 percent) than in the Central Region (42.9 percent) or Southern Region (36.5 percent) (DHS9401). Data presented in figure 2.12 illustrate that the most afflicted age group is children between six and twenty-three months of age.

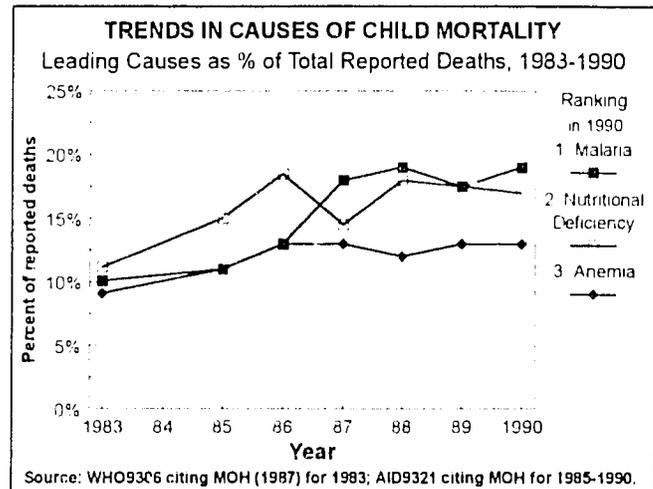


Figure 2.11

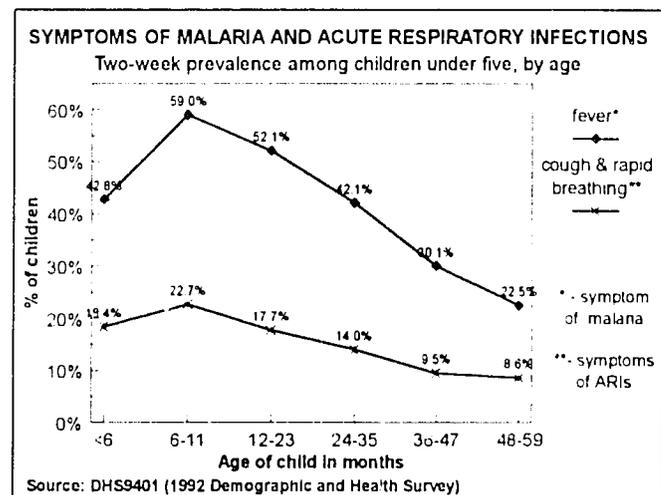


Figure 2.12

In 1992, Malawi became the first country to replace chloroquinol with Sulfadoxine-pyramethamine (SP) as the first-line drug of choice for malaria. USAID's mission in Malawi, which has actively promoted efforts to combat malaria, reports that new malaria prevention and treatment guidelines may be making progress. Recent data from the national health information system suggest a decline in overall outpatient visits due to malaria, according to the mission, and inpatient deaths and hospitalizations due to malaria decreased 40 and 24 percent, respectively, at the Rumph District Hospital between 1993 and 1994 (AID9501).



Malnutrition and Anemia

Malnutrition is highly prevalent, even when agricultural production is abundant, and contributes greatly to increased incidence and morbidity levels of various diseases. Recent droughts have exacerbated this situation. In 1992, over half of the nation's population (including refugees) was classified by the World Bank as drought victims. Malnutrition was rampant into early 1993, when the arrival of foreign food aid prevented more widespread famine. Undernourishment reportedly led to increased incidence of meningitis, measles, cholera, pellagra, and other malnutrition-related diseases (WIA9301).

Protein-energy malnutrition is the major problem and is thought to result not only from maize deficits but also due to poor food preparation, lack of other ingredients, and social changes such as increased involvement of women in agricultural labor. Iron-deficiency anemia, commonly resulting from bouts with malaria or schistosomiasis, contributes to chronic fatigue and illness, low birthweight, and perinatal problems in pregnant and lactating women. Vitamin A deficiency is reportedly a major problem in the Lower Shire Valley, where a study published in 1986 found that 5.4 percent of children under six experienced night blindness and 3.9 percent suffered active corneal disease (AID9321,NRC9301).

A 1987 National Sample Survey of Agriculture found that 65 percent of five-year-olds suffered chronic malnutrition as measured by height for age (stunting) and that twenty percent of these suffer wasting (low weight for height)(WHO9306). This represents a slight rise from the 1980-81 National Sample Survey, which found stunting among 56 percent of children. (Although the appropriateness of this measure for Malawian children has been challenged, evidence suggests that poor nutrition and health—not genetics—are the primary factors responsible for stunting among Malawians (AID9321).) Results of the 1992 Malawi DHS indicate that chronic malnutrition continues to be a major problem among children (see figure 2.13).

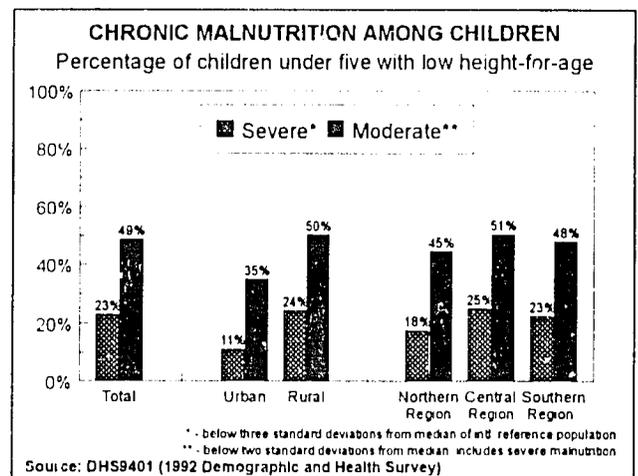


Figure 2.13

Poor nutrition among mothers is closely tied with low birthweight. UNICEF has estimated that 15-25 percent of pregnant women are anemic (WHO9306). Reporting on anemia prevalence among pregnant women throughout Africa, the World Bank cites a much higher figure of nearly 50 percent for Malawi (WBK9303)(see figure 2.14).

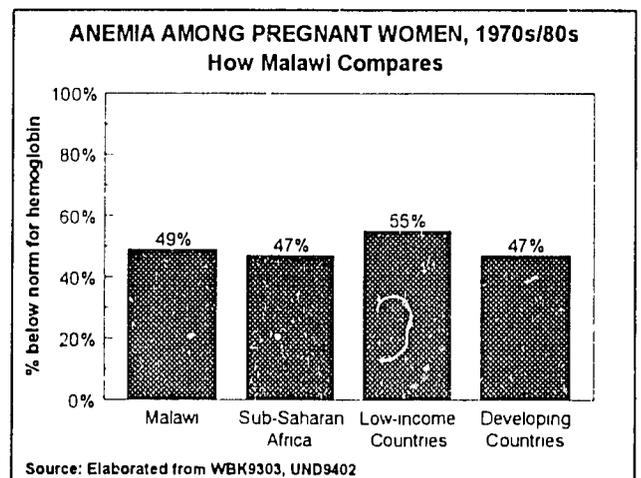


Figure 2.14

Acute Respiratory Infections (ARIs)

Data from the 1992 DHS indicate that symptoms for ARIs – such as pneumonia and influenza – are most prevalent among infants in their second six months, nearly one-quarter of whom were reported to have had a cough and rapid breathing during the two weeks prior to the survey (see figure 2.12 above). As indicated in figures 2.8 and 2.9 above, ARIs were the reported cause of 16-19 percent of child morbidity in 1990. As a cause of reported child deaths, pneumonia has maintained a share of roughly 13 percent since 1983 (see figure 2.15)

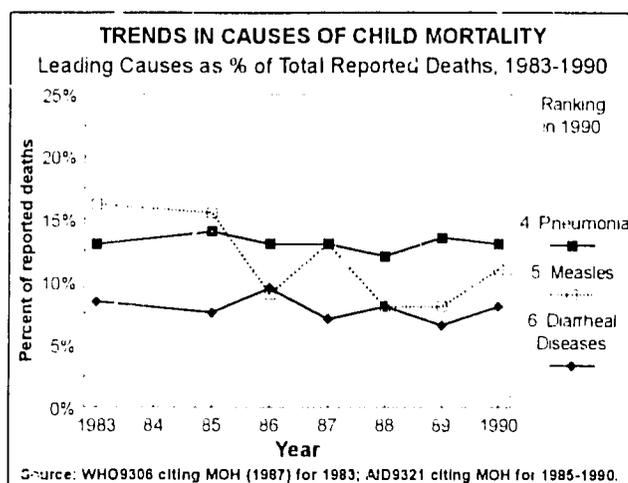


Figure 2.15

Vaccine-preventable Diseases

Tallies of cases of vaccine-preventable diseases reported to the WHO's Expanded Programme of Immunization (EPI) appear in Table 2.1 but by no means provide a full indication of the incidence of these diseases. Calculations of case incidence rates for the two most common, measles and tuberculosis, appear on the following page.

Disease	1989	1990	1991	1992	1993
Measles	93,100	-	5,730	-	3,614
Tuberculosis	9,431	12,364	14,332	6,656	-
Neonatal Tetanus	-	211	-	59	16
Total Tetanus	-	-	90	-	-
Diphtheria	-	-	30	-	-
Pertussis	-	-	30	-	-
Poliomyelitis	4	3	3	0	0

Source: WHO9404, Reported Cases as of Aug. 29, 1994

Table 2.1

In 1987, the Ministry of Health (MOH) reported that 55 percent of children between one and two were fully immunized. Levels of coverage for individual vaccines reported for 1992 are considerably higher (see figure 2.16). As indicated in figure 2.17, the 84 percent coverage level reported for DPT3 measures quite favorably against levels reported not only for sub-Saharan Africa but for developing countries in general.

Such high levels of coverage are typically associated with relatively good health conditions, but this is not the case in Malawi, where infant and child mortality rates remain among Africa's highest. Malawi's progress in increasing coverage by major vaccines in the 1980s is charted in figures 2.13-2.21 and 2.24.

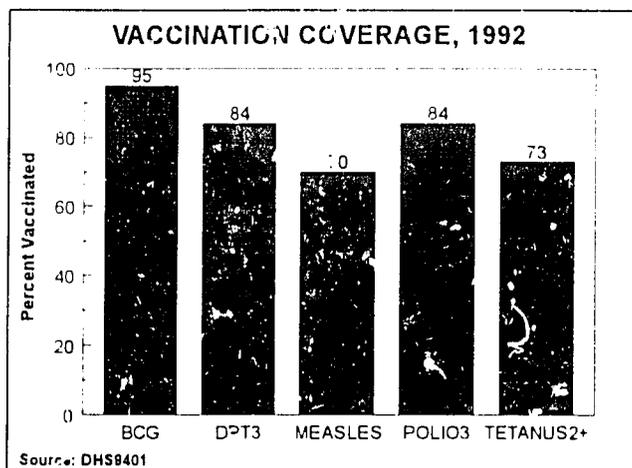


Figure 2.16

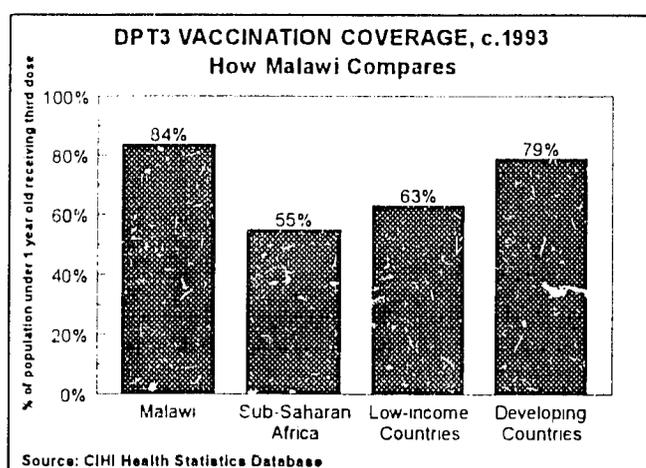


Figure 2.17

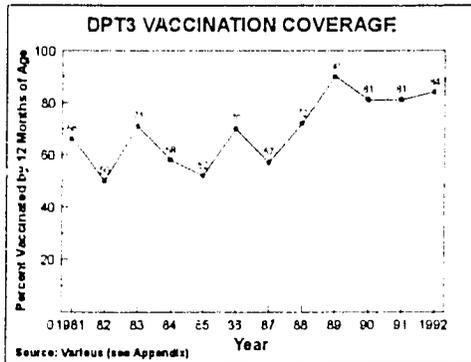


Figure 2.18

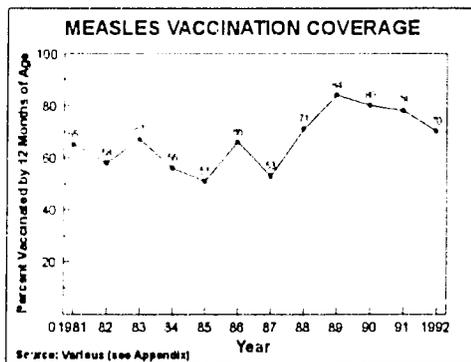


Figure 2.19

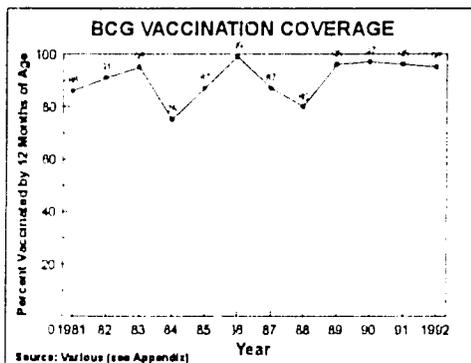


Figure 2.20

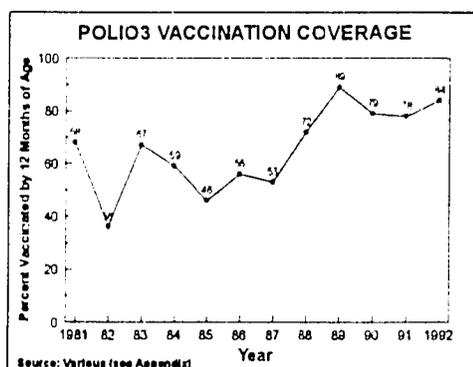


Figure 2.21

Measles. As immunization coverage rose above 80 percent in the late 1980s, measles declined as a leading cause of mortality and morbidity among children. Infection rates among children under five reportedly dropped by 50 percent between 1985 and 1990 (see figure 2.22)(AID9321).

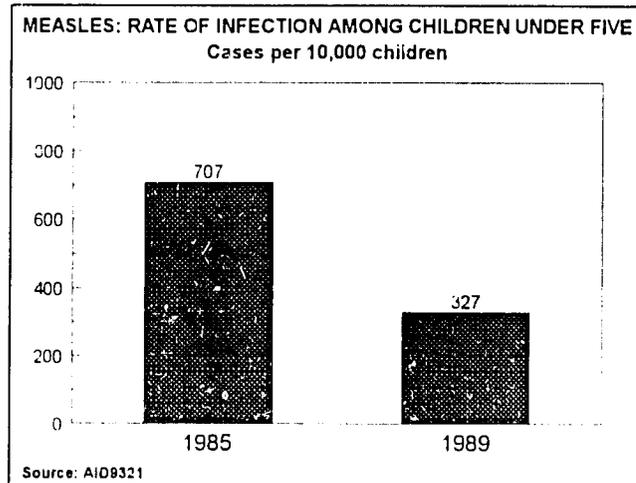


Figure 2.22

Tuberculosis. According to the World Bank, Malawi's tuberculosis (TB) case rate for 1990 was 173 cases per 100,000 population, well below the total rate of 220 for sub-Saharan Africa. Figure 2.23 compares Malawi's TB case rate with median rates among sub-Saharan, low-income and developing countries. Annual cases reported to WHO between 1989 and 1992 appear in Table 2.1. USAID's mission in Malawi reports that annual reported TB cases tripled between 1985 (5,334 cases) and 1993 (17,105 cases), noting that the disease has transformed from one afflicting only the very young and very old to one affecting all age groups. The increase is thought to be

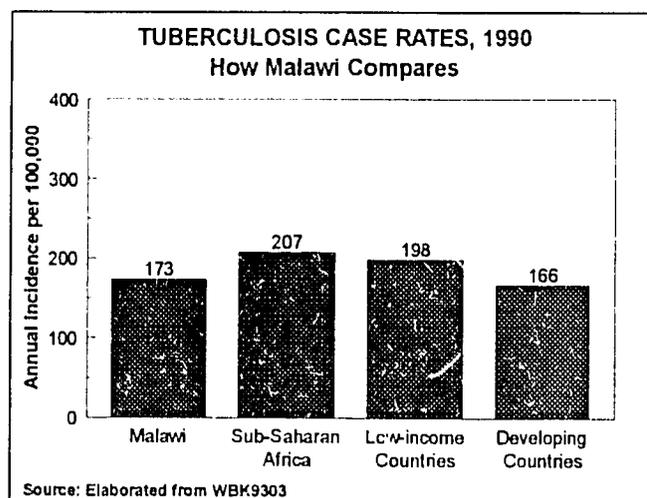


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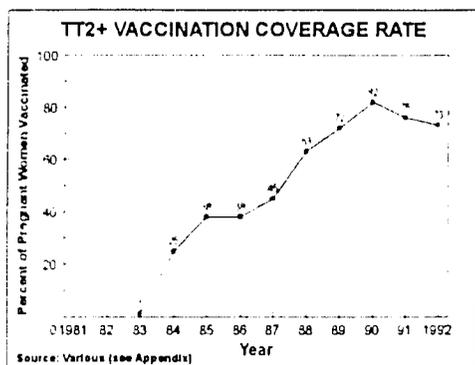


Figure 2.24

attributable to reduced immune response due to HIV infection; an estimated 60 percent of TB cases are HIV-positive. Crowded hospital conditions also serve to facilitate the spread of TB. Resistant strains of the TB bacillus have been appearing in a small but worrisome number of cases (CAB9409).

Tetanus. Reports of neonatal tetanus have declined in recent years, but this may or may not reflect an actual decline of incidence. After immunization of pregnant women began in 1984, the number of cases reported in hospitals dropped in 1986 and 1987, but the change was not thought to be very significant (NRC9301).

Diseases Related to Water and Sanitation

Poor water supply and inadequate sanitation measures lie at the heart of a host of common illnesses, particularly diarrheal diseases and schistosomiasis but also helminth infections, trachoma, and a variety of less common conditions. Figure 2.25 indicates that Malawi's reported levels of access to safe water and adequate sanitation

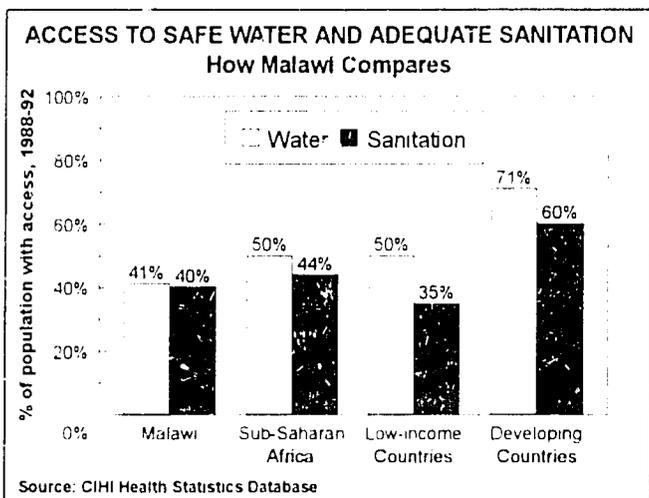


Figure 2.25

Malawi are just below the norm for sub-Saharan Africa at around forty percent of the national population. These estimates of can be highly subjective and vary greatly: the UNDP's Human Development Report, citing WHO, recently reported access to safe water at 53 percent (UND9402) while UNICEF reports a much higher level of access to adequate sanitation at 84 percent (UNI9401). Figures 2.26 and 2.27 present various estimates over time of these access levels for urban and rural populations. The latest estimates are that three-quarters of urban residents but only just over one-third of rural Malawians had access to safe water in 1988. Similarly, adequate sanitation measures were estimated to benefit 70 percent of urban but just 36 percent of rural residents in 1988 (AID9012).

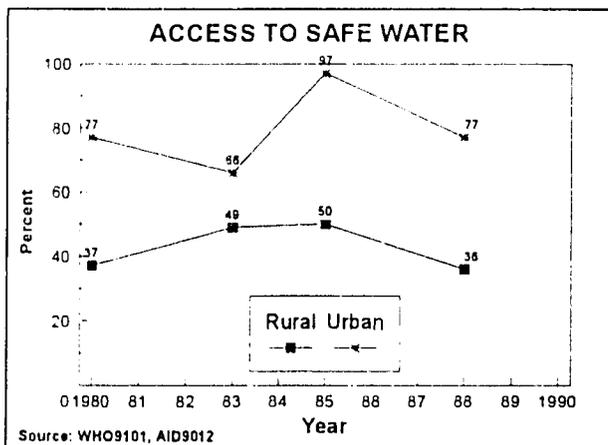


Figure 2.26

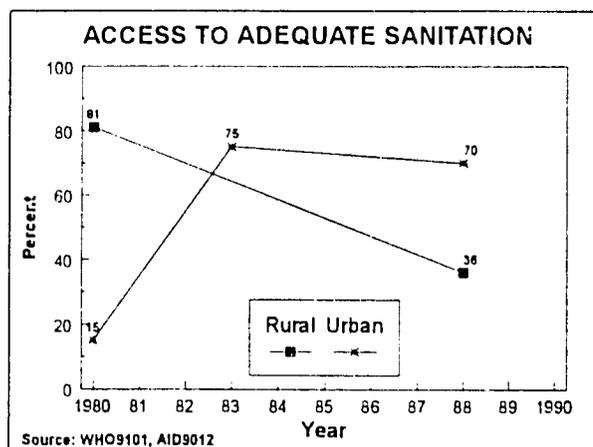


Figure 2.27



Diarrheal Diseases. Evidence suggests that mothers in Malawi may be less likely to take their children to health facilities for diarrhea than for other illnesses (AID9321). Thus, calculations by the MOH that diarrheal diseases accounted for eight percent of child mortality and nine percent of child hospitalizations in 1990 are probably underestimates of the actual degree of mortality and morbidity attributable to diarrhea. WHO estimated that Malawian children averaged six episodes of diarrhea each year in 1988 (WHD9000), the sixth-highest such figure reported by WHO for African nations. It is important to note that large annual fluctuations in diarrheal incidence are not unusual. A program evaluation for USAID noted a dramatic 50 percent decline in diarrheal morbidity rates among the overall population between 1980 and 1989, supporting the notion that diarrhea has declined somewhat as a cause of mortality and morbidity (AID9321).

The 1992 Malawi DHS found that twenty-two percent of children had suffered diarrhea in the two weeks preceding the survey; four percent of the total had experienced bloody diarrhea—indicating dysentery—and seven percent of children had suffered diarrhea within the previous 24 hours. Two-week prevalence was found to be slightly greater among children in rural areas (22.3 percent) than those in urban areas (19.3 percent) and greater in Central and Northern Regions (24.0 and 25.1 percent, respectively) than in Southern Region (19.2 percent). Diarrhea was also found to be more common among children of less-educated mothers. Figure 2.28, presenting DHS data on diarrhea prevalence by age group, illustrates the peak in reported diarrhea among children aged 6-23 months.

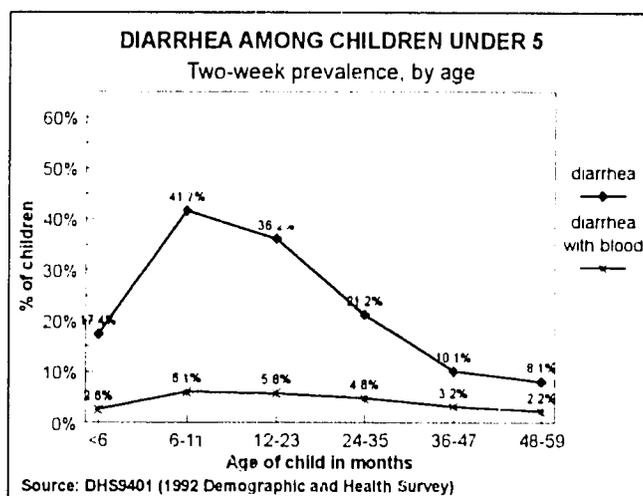


Figure 2.28

Access to oral rehydration salts (ORS) and use of oral rehydration therapy (ORT) to treat diarrhea among children have been reported at above 50 percent for Malawi (see figure 2.29). Figure 2.30, comparing the ORT use rate estimated for Malawi with median values for other groups of nations, indicates that Malawi's reported rate of 56 percent is relatively high.

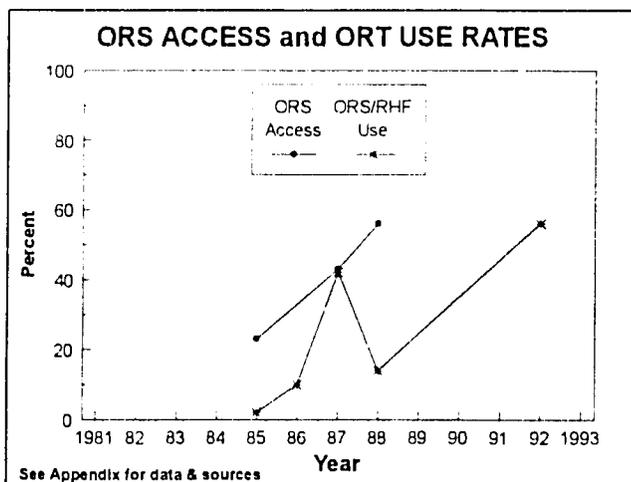


Figure 2.29

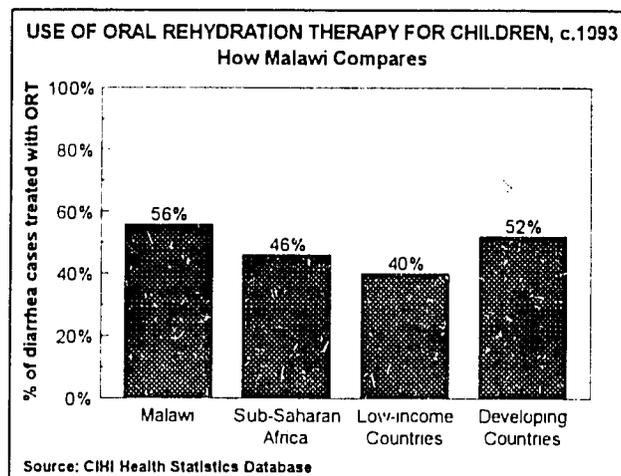


Figure 2.30



Cholera and Dysentery. Among diarrheal diseases, cholera has been endemic in Malawi for years and is associated with feces-contaminated water during the rainy season. Severe outbreaks of cholera occurred in Mozambican refugee camps in Southern Region in late 1992 and subsequently spread to the Malawian population in Southern and Central Regions by early 1993. Between December 1992, and February 1993, over 20,000 reported cases of cholera in Southern Region alone resulted in 142 deaths while 808 reported cases in Central region included 36 deaths, according to official statistics cited by the Malawi Red Cross. A simultaneous outbreak of dysentery resulted in more than 40,000 reported cases in the same time period, including 368 deaths (CAB9320). Incidence of dysentery appeared to be higher among older, more mobile men and was attributed mainly to contaminated food consumed at marketplaces. Management of dysentery was complicated severely by the appearance of new strains of shigella which did not respond to standard practices of treatment (CAB9321).

Malawi reported a total of 25,193 cases of cholera and 524 deaths due to cholera in 1993; both figures were the highest among African nations notifying WHO (WHO9405). In March 1995, WHO reported cholera to be present in Southern Region and in two districts (Chitipa and Karonga) of Northern Region (WHO9503).

Schistosomiasis. Schistosomiasis, a disease borne by snails, is preventable through improved sanitation measures. It accounts for just two percent of total reported morbidity and 1.5 percent of child mortality in Malawi but is a widespread problem in irrigated and non-irrigated areas alike. Surveys in various parts of the country indicate that the carrier rate may be as high as 50 percent (WHO9306). Along with malaria, schistosomiasis is a major contributor to blood destruction resulting in iron-deficiency anemia (AID9321).

Sexually-transmitted Diseases (STDs)

As a group, STDs are reportedly the fourth most-common diagnosis in outpatient clinics for adults in Malawi. A 1993 study under Johns Hopkins University found that over 12 percent of pregnant women in clinics in Blantyre were infected with syphilis. Alarmingly, about the same proportion of the adult population is currently thought to be infected with HIV, the virus leading to AIDS (AID9501). Recent test results indicate an extremely high association of various STDs with HIV infection: in Blantyre, 57 percent of male STD clinic patients with a current genital ulcer and 44 percent of those with urethritis tested positive for HIV in 1994. In a study in Lilongwe, 62 percent of STD patients tested positive for HIV in 1994. Figure 3.31 compares the most recent HIV seroprevalence rates reported for urban areas in Malawi with those in surrounding African nations; Malawi's rates are among the highest in the world (BUC9408).

While the mortality and morbidity data presented here make little mention of HIV/AIDS, the AIDS pandemic is a major public health problem which will have enormous impact on the nation's future. Up to one-third of hospital admissions are now said to be due to HIV-related diseases and incidence of AIDS-related tuberculosis in particular is increasing dramatically. Malawi's MOH projects an increase of up to 34 percent in AIDS-related child mortality by 2002. Accounting for the pandemic's impact, the U.S. Bureau of the Census calculates that Malawi's infant mortality rate will exceed 115 deaths per thousand live births by 2010; in the absence of HIV/AIDS, the rate was projected to drop below 90 by 2010 (BUC9403). The epidemiology of HIV/AIDS and efforts to combat it are treated in more detail in Section IV.

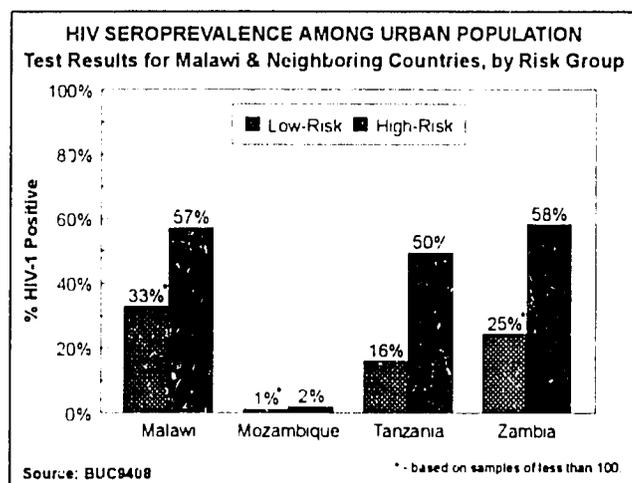


Figure 2.31



III. HEALTH SECTOR ASSESSMENT

Health Care Services

Access to Services

According to UNICEF, about 80 percent of Malawi's population lived within one hour's travelling time to a health facility in the late 1980s (UNI9401). This level of access compares quite favorably with the median levels of access for sub-Saharan and low-income nations (see figure 3.1) and to some degree is a reflection of Malawi's high population density. The Malawi Demographic and Health Survey (DHS) of 1992 similarly found that 82 percent of a sample of nearly 5,000 women lived under ten kilometers from the nearest health facility, including 100 percent in urban areas and 79.5 percent in rural areas. However, while urban residents had a median reported travel time of 30 minutes, the median among rural residents was over 90 minutes. Among Malawi's three regions, access in the Northern Region was lowest at just over 70 percent of women surveyed (DHS9401).

Utilization of Services

The results of various surveys in the mid-1980s suggest that utilization of health services in Malawi is relatively high, finding that Malawians average two outpatient visits per year (including nearly four contacts per year for children under five), 75-85 percent of mothers receive some form of antenatal care, and roughly 60 percent of children attend under-five clinics (AID9109). As figure 3.2 illustrates, this level of prenatal care exceeds levels typically found in other developing countries. The Ministry of Health (MOH) has estimated that 60 percent of births are attended by trained personnel, including traditional birth attendants (TBAs)(WHO9306). The 1992 DHS found that about 90 percent of births between 1987 and 1992 were attended by trained health care personnel (DHS9401). Data from the Human Development Report 1994 do not reflect this more recent finding but still indicate that a greater share of births are attended by trained personnel in Malawi than elsewhere in sub-Saharan Africa (see figure 3.3).

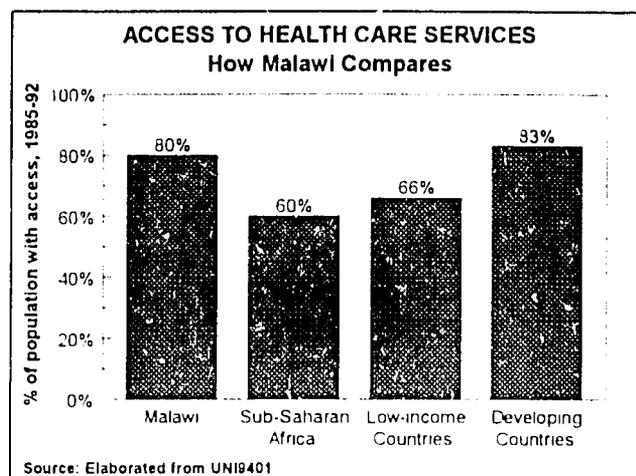


Figure 3.1

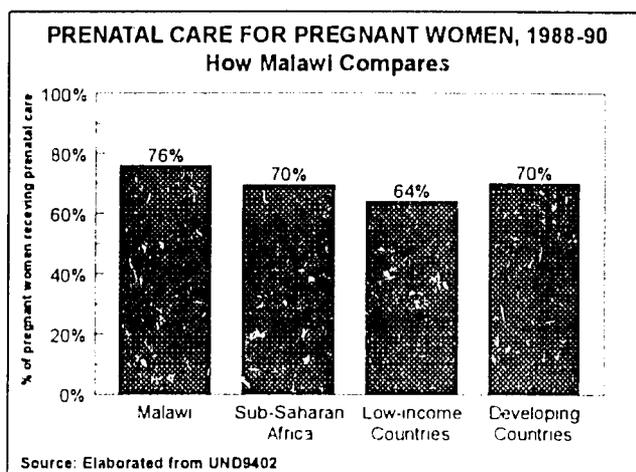


Figure 3.2

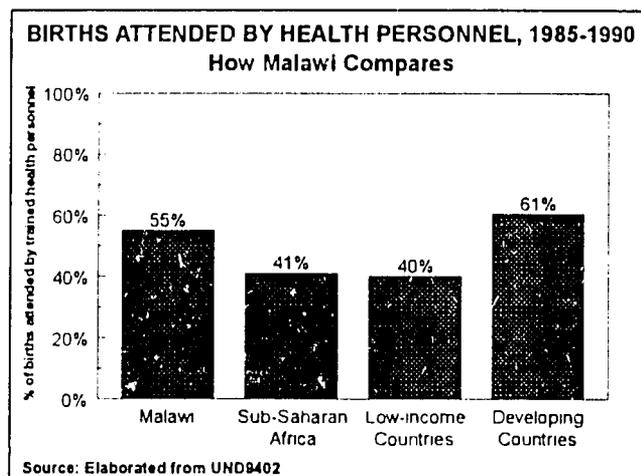


Figure 3.3



Health Care Personnel and Facilities

Modern health care services in Malawi are provided primarily by the MOH and subsidized private facilities affiliated with the Christian Hospital Association of Malawi (CHAM, formerly PHAM). The MOH was estimated to employ 70 percent of all health manpower in Malawi in 1985 while services under PHAM employed just 18 percent (AID9109). Figures 3.4 and 3.5 illustrate relative shares of facilities and service provision by the nation's major institutions. Figure 3.6 provides a breakdown of total facilities and beds by type of facility.

The spread of HIV/AIDS, which is thought to account for up to one-third of hospital admissions, has put new demands on the health care system, further limiting the prospect of improving primary health care (PHC). A recent evaluation by USAID's Center for Development Information and Evaluation (CDIE) identified other major constraints to be excessive centralization of management and over-dependence on donor-funded projects (AID9321).

The quality of health care is limited by a marked shortage in trained personnel and the domination of curative over preventive services. In 1987, the MOH estimated that Malawi had 53,000 inhabitants for each doctor, 3,000 for each nurse, and 7,127 for each hospital bed (WHO9306); all three ratios are quite high even by African standards. The World Bank has reported a similar population per doctor ratio and a much higher ratio of population per nurse for 1990; both figures

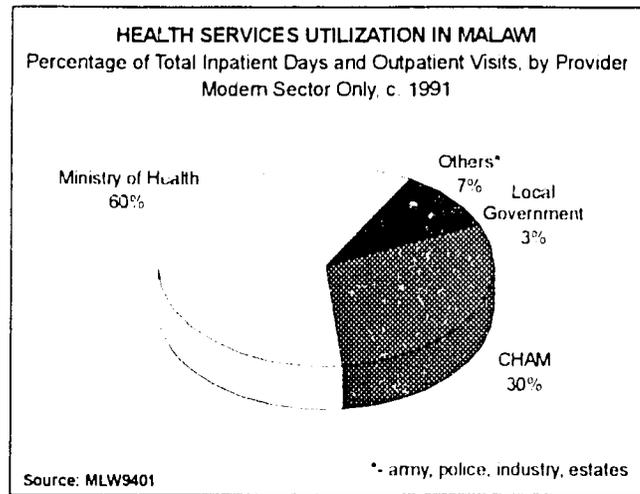


Figure 3.4

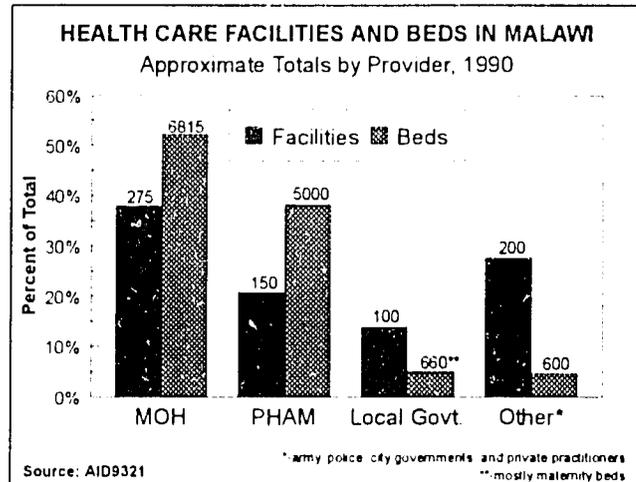


Figure 3.5

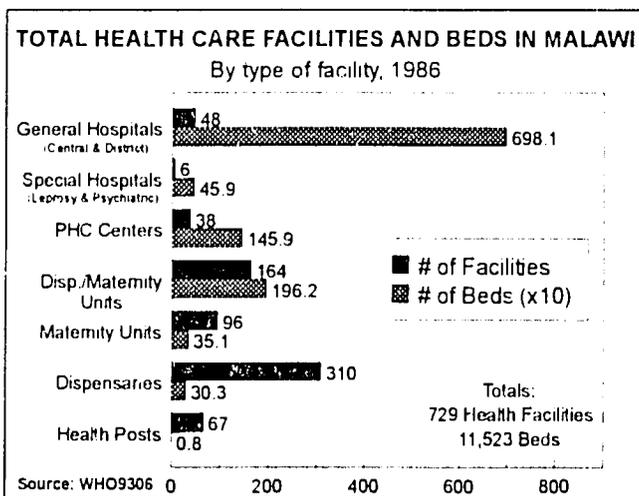


Figure 3.6

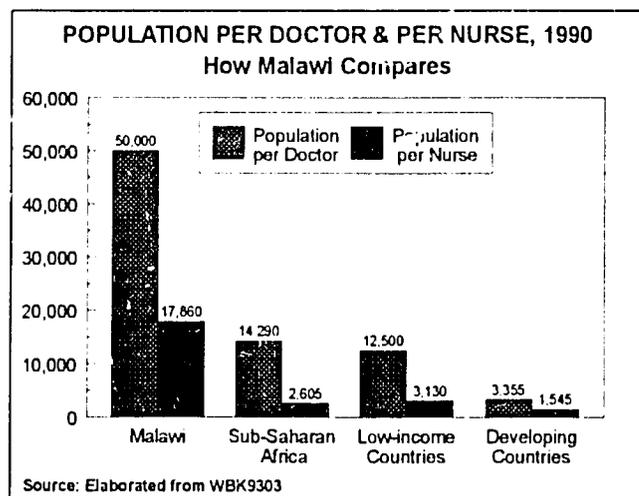


Figure 3.7



dwarf the median ratios among sub-Saharan and other developing nations (see figure 3.7). In light of this, it is difficult to understand how Malawi's indicators for service access and utilization appear to be so favorable.

In order to expand access to PHC services, Malawi's current National Health Plan sets a goal of deploying 3,500 community-level health workers known as health surveillance assistants (HSAs). By late 1994, a total of about 1000 HSAs had been trained and were employed by the MOH or non-governmental organizations (NGOs). Three training centers supported by USAID's Promoting Health Interventions in Child Survival (PHICS) Project have produced over 600 HSAs (AID9501).

Public Sector Services

Public health care services are organized on five levels: the community level, health centers and rural hospitals, district hospitals, central hospitals, and special hospitals (MLW9401). The national health system relies heavily on private, non-profit facilities, which comprised nearly half of the nation's 41 district hospitals in the late 1980s (AID9109). A recent study recommends the division of the country into 39 Health Delivery Areas to be headed by 15 CHAM hospitals, 21 MOH district hospitals, and three District Health Offices in the districts where tertiary hospitals are located (MLW9401).

Despite policy priorities favoring PHC, patterns of public investment and the placement of personnel continue to favor curative care. Three-quarters of permanent service-delivery staff are found in central and district hospitals. Preventive services remain underdeveloped, never receiving more than seven percent of the government's recurrent health budget in the 1980s (AID9321). Inefficiency in hospital-based care is evidenced by a recent study finding a wide variation of average lengths of stay (five to twelve days) among hospitals with a similar case mix (WBK9303). Dissatisfaction with the services of health centers, reflected by a high rate of self-referral to district hospitals, only serves to reinforce the over-emphasis of curative care (AID9109).

Medical training programs exist for nurses at Zomba General Hospital's School of Nursing and for doctors and other health professionals at the Lilongwe School for Health Sciences, which has been hampered by chronic management problems (AID9328). In order to solve personnel shortages, the government is establishing a new medical school in Blantyre which will produce up to 20 new doctors each year. In the past, many Malawian doctors who trained abroad failed to return to Malawi. In 1990, there were reportedly 90 expatriate doctors practicing medicine in the country while native Malawian doctors numbered only 30 (SAE9101).

Ministry of Health. The MOH is responsible for developing health policies, strategies and programs and providing health care services in its hospitals and health centers. According to a recent review of the national health care system, 60 percent of the nation's total outpatient visits and inpatient days take place in MOH facilities (see figure 3.5)(MLW9401). Tertiary hospitals under the MOH include three central hospitals (Kamuzu Central in Lilongwe, Queen Elizabeth Central in Blantyre, and Zomba General in Zomba) and 24 district hospitals with a total of 6,815 beds. Roughly 250 secondary-level facilities of various types provide curative care, maternal and child care, and community health services. Primary level services concentrate on maternal and child health care; integrated daily clinical services have replaced the former practice of holding different PHC clinics on different days(AID9321). HSAs and community volunteers are relied on to promote family health and nutrition at the community level (AID9501).

The MOH is administratively organized on regional, district, and peripheral levels. According to the evaluation by CDIE, management of health services at the district and peripheral levels is fragmented and often redundant. The evaluation found that all three levels suffer poor communication and need to strengthen planning, training, and accounting practices (AID9321). Personnel shortages have a profound impact on service delivery: in 1986,



50 percent of technical posts were not filled, 50 percent of districts lacked a medical officer, and 75 percent of health subcenters had no nurse or trained midwife (AID9109). The CDIE evaluation also found service delivery hampered by inadequate transportation and shortages of supplies and equipment (AID9321).

Other Public Providers. The Ministry of Local Government is responsible for health care delivery at the district level and below (DHS9401), operating more than 190 health units with about 660 beds, mostly for maternity care. Its units are poorly equipped compared to MOH and CHAM facilities, according to the CDIE evaluation (AID9321). Other public agencies active in health care include the army, the police, and city governments. Another public entity, the Central Medical Stores, serves to supply drugs for public health care facilities and CHAM affiliates (MLW9401).

Private Sector Services

The private health sector consists primarily of non-profit services under CHAM and the services of traditional providers. Private, for-profit practice is limited but has increased in recent years, encouraged by the creation of private health insurance schemes and a change in government policy allowing public sector physicians to conduct private practice outside of public facilities. In 1991, consultants to USAID estimated that Malawi had only 35 physicians in private medical practice in urban areas. Informal practitioners, however, were estimated to include 18,000 traditional healers and 5,000 TBAs (AID9109). Traditional practitioners are currently organizing under the "Herbalists' Association." Other private sector providers include industry and large estates, whose health care provision is usually overseen by the MOH. Private concerns such as Malawi Pharmacies are active in the manufacture and sale of over-the-counter and prescription drugs (MLW9401).

CHAM was originally organized by Catholic and Protestant missionary groups in 1967 as the Private Hospital Association of Malawi (PHAM). Members of CHAM currently operate roughly 150 health care facilities, including urban and rural hospitals and health centers, with 5000 beds (AID9321). CHAM is active in all 24 districts and provides about one-quarter of overall health services, according to a recent estimate provided by USAID/Malawi (CAB9502). The MOH calculated that CHAM was providing about thirty percent of health services in 1991 (see figure 3.4). CHAM members charge user fees for most curative care while MOH facilities provide most services free of charge. As a result, according to the MOH study, CHAM facilities are relatively under-utilized, receiving only 12 percent of all outpatient visits, while MOH facilities take in 72 percent (MLW9401). According to the CDIE evaluation, CHAM's hospitals account for about one-third of inpatient admissions and nearly half of other services; overall CHAM services are estimated reach about 1.3 million people annually (AID9321).

Because CHAM institutions are heavily reliant on public subsidies and play an integral role within the national health system, the association may more accurately be described as an extension of the public sector. Government control, however, is limited primarily to licensing authority and regulation of staff salaries. Anticipated regulatory changes may more effectively integrate CHAM facilities with the MOH in order to better facilitate cross-referral of patients (MLW9401).



Health Care Financing

The World Bank estimates that Malawians spent \$93 million on health in 1990, amounting to five percent of the nation's Gross Domestic Product (GDP) and about eleven dollars per person. Public sector expenditures represented nearly 60 percent of this total but include \$21.6 million in foreign aid flows (WBK9303). As illustrated in figure 3.8, Malawi's total health spending as a percentage of GDP is slightly above average for sub-Saharan Africa and for developing countries in general.

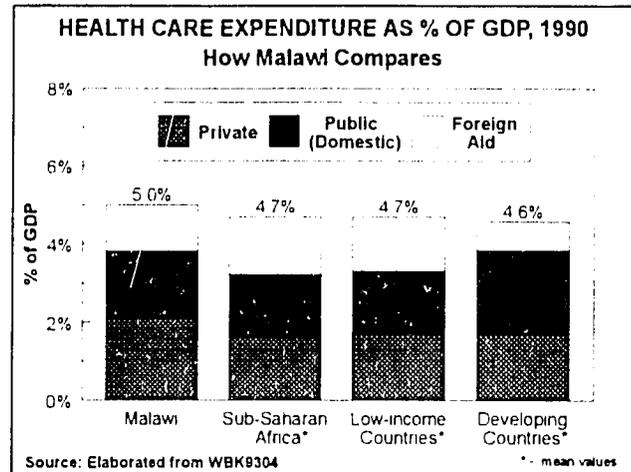


Figure 3.8

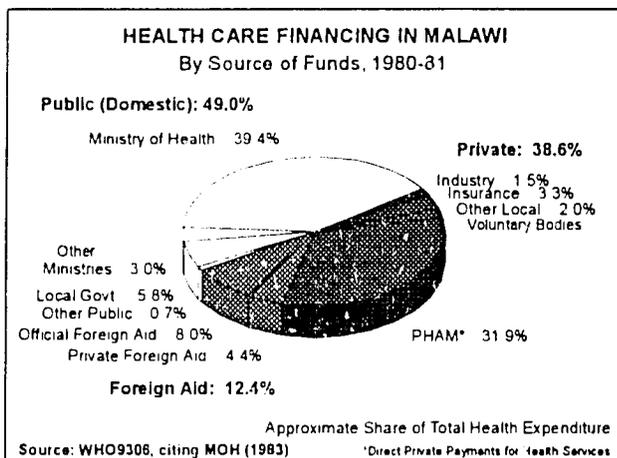


Figure 3.9

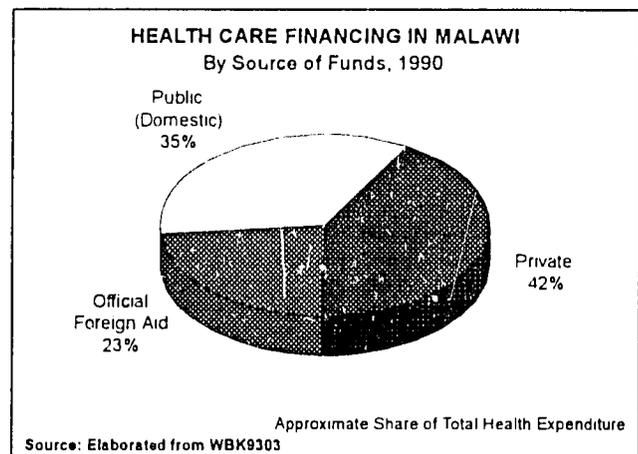


Figure 3.10

Figures 3.9 and 3.10 illustrate the relative weights of domestic government, external, and private sources of funds for the health sector. The first figure is a more detailed but dated estimation for 1980-81 while the second draws on the World Bank's data for 1990. Together the figures suggest that Malawi has become much more dependent on foreign aid and PVO activities to keep its health system going.

Foreign aid for health—at nearly one-quarter of total health expenditures in 1990—presented a considerable rise over annual totals reported for 1984 (\$12.5 million) and 1985 (\$3.6 million). However, whether measured per-capita or as a percentage of total spending, foreign aid for health in Malawi falls well short of the median values for sub-Saharan nations in 1990 (see figures 3.11 and 3.12).

Historically, the World Bank has played a particularly large role in financing health sector activities in Malawi (AID8703). Along with the European Community, the World Bank remains among the major multilateral contributors, followed by UNICEF and

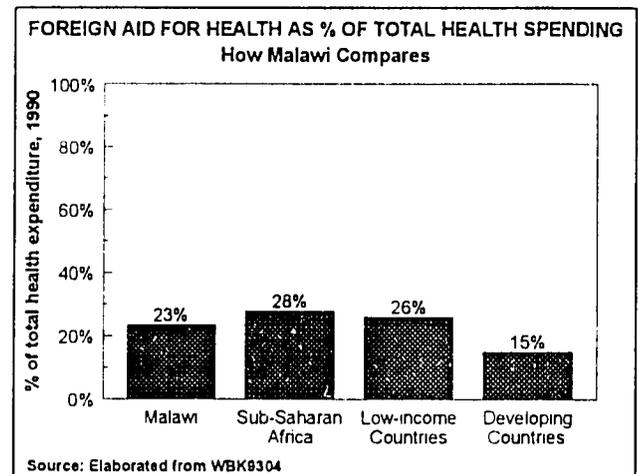


Figure 3.11

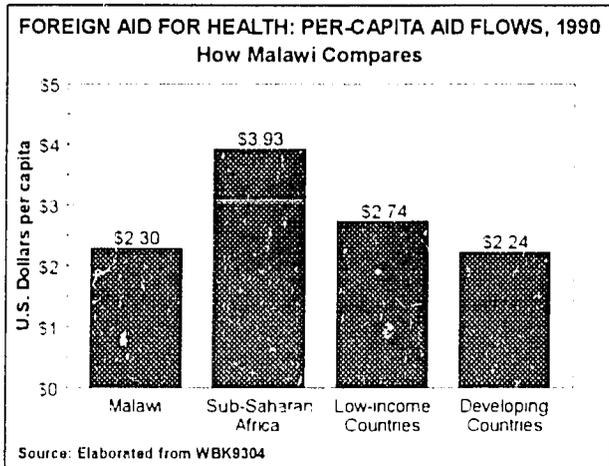


Figure 3.12

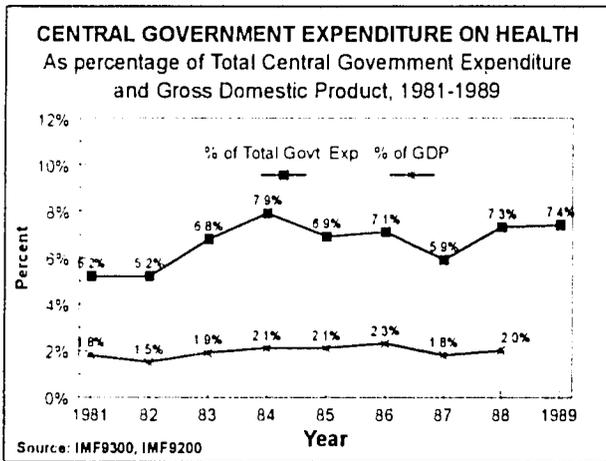


Figure 3.13

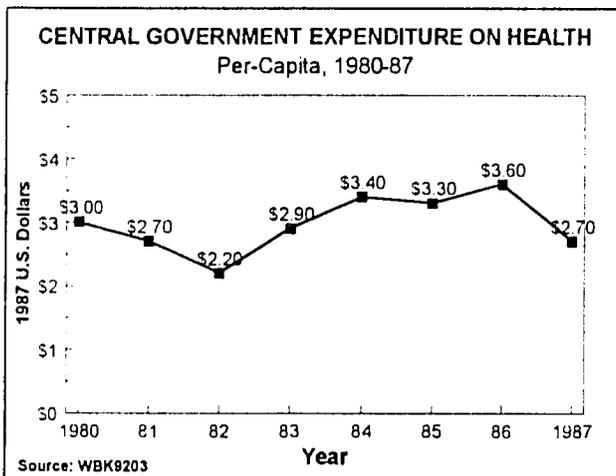


Figure 3.14

WHO. The major bilateral donors to Malawi's health sector are the United States, Netherlands, and Germany; also contributing are Japan and Great Britain (CAB9502).

Public Sector

Sources of Funding. The Government of Malawi has historically assigned a low budgetary priority to social programs. Allocations of roughly six to seven percent of total expenditures to health care in the 1980s translate to about three dollars per person, one of Africa's lower levels of public health spending (see figures 3.13 and 3.14). Recent estimates by the World Bank suggest a current level of between six and seven dollars per person, but this includes foreign aid.

The World Bank and the government agreed at the onset of the 1990s that allocations to the health sector should gradually increase to 11 percent of the government's recurrent budget by 1995 (AID9321). Public finance figures provided to USAID suggest that the government has attained this level in terms of investment spending but has not succeeded in raising recurrent health expenditures above previously established percentage levels (see figure 3.15 below and table A6 in appendix). Likewise, in real terms the MOH's recurrent budget has remained about the same while the investment budget has been increasing markedly in recent years (AID9321). The USAID mission notes that a drop in public health spending in 1992 was due to the diversion of resources to drought relief and emphasizes that the government remains committed to increasing health sector resources (AID9328).

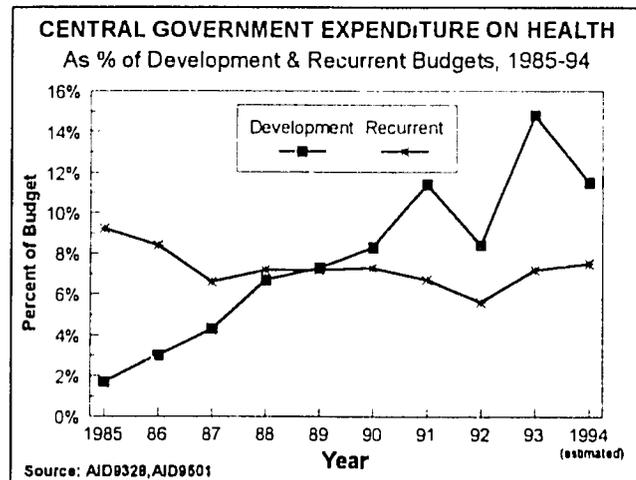


Figure 3.15



Cost Recovery. Opportunities for significant cost-recovery in health care provision are very limited, according to a recent evaluation of AID's child survival program in Malawi (AID9321). Services provided by the MOH have traditionally been offered free of charge in order to encourage utilization. While some hospitals charge fees for some services, anyone can demand exemption. Fees collected by tertiary hospitals cover only two to three percent of expenditures and are surrendered directly to the central treasury, reducing the facilities' incentive to collect payments more aggressively (MLW9401). The government has been reluctant to consider fee-for-service schemes within the MOH but has recently taken steps to implement improved cost recovery measures in certain circumstances in major urban hospitals (AID9321).

Allocation of Public Expenditure. At least 85 percent of the MOH budget is destined to hospitals and their associated health centers, another three to five percent is spent on training institutions, and most of the remainder covers administrative expenses (MLW9401). Preventive care never received more than seven percent of the MOH's recurrent health budget in the 1980s (AID9321). The three major hospitals consumed thirty percent of the estimated 1991-1992 MOH recurrent health budget, according to the CDIE child survival evaluation (AID9321). Another source reports their share at just under half of total expenditure on facilities in 1989-90 (see figure 3.16).

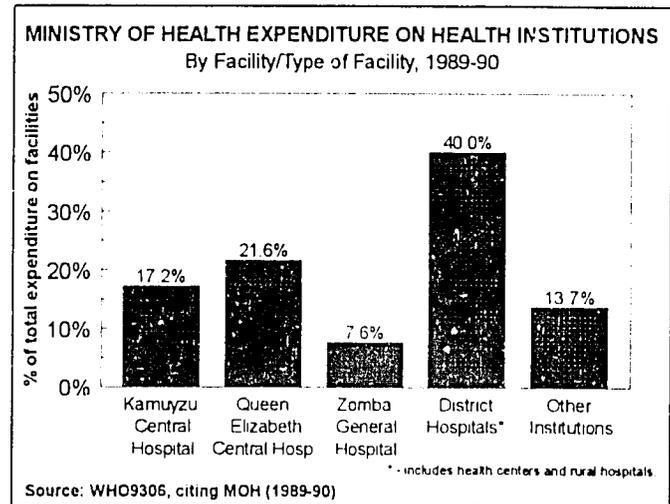


Figure 3.16

The MOH also provides a sizable annual subsidy to cover personnel, training and some other operating expenses of private, non-profit services under CHAM. Subsidies to CHAM's predecessor, PHAM, were estimated at seven percent of total MOH expenditures in 1986 (AID8703).

Drug Supply. The Central Medical Stores are responsible for supplying pharmaceuticals to public health institutions and facilities belonging to CHAM. Since 1984, as Malawi has sought to decrease subsidies in accordance with its structural adjustment program, the stores have worked to become self-financing through a special fund established for that purpose. Unfortunately, this appears to have increased the cost of drugs to hospitals and further limited the supply of essential drugs (WHO9306).

Private Sector

The major source of private funds for health is CHAM (WHO9306). Overall private expenditure on health is limited and unlikely to provide the basis for expansion in for-profit health care, which is currently provided primarily on a fee-for-service basis (AID9321). Private for-profit hospitals charge the highest fees and are entirely self-supporting but only serve expatriates and the most wealthy Malawians. While their fees are not currently regulated, the recent formation of the Medical Council of Malawi may lead to the introduction of standardized fees (SAE9101).

Private health insurance is becoming more important as a source of health care financing but the premiums charged are well beyond the means of most Malawian households. Many commercial organizations subscribe to the Medical Aid Society of Malawi (MASM) for insurance on behalf of their employees. MASM had over 27,000 subscribers in late 1992, of which nearly 800 were organizations or firms. Other health insurance providers include FIDE Insurance and various independent parastatal organizations which have been encouraged by the



Government of Malawi to institute medical schemes or operate clinics for their staff (MLW9401). The growth of private insurance has mostly benefitted people living in Blantyre, Zomba and Lilongwe, where private practitioners have opened facilities including two hospitals in Blantyre with twenty beds (SAE9101).

In the non-profit sector, CHAM is currently thought to account for 12 percent of total health sector expenditures while providing roughly 30 percent of health services (HPP9401). Members of CHAM depend increasingly on government support to partially cover salaries, other operating expenses and training of personnel (WBK9303). The government has also indirectly subsidized drug supply by allowing CHAM access to the Central Medical Stores (WHO9306). User fees are charged for curative services while preventive services are provided free of charge (AID9321); fees for services in special private wards are much higher (SAE9101). Unlike MOH facilities, CHAM hospitals typically retain these funds and thus have more incentive to collect fees (MLW9401).

Figure 3.17 provides an estimate of the relative weights of various funding sources for PHAM in 1983. Two of the major sources appear to have dropped in significance in the past ten years: external donations are thought to have dropped to under ten percent of total funding (MLW9401) while patient fees have been covering only about 15 to 20 percent of recurrent costs, according to a 1990 study (CAB9210). As CHAM affiliates become more reliant on the Government of Malawi for financing health care, they face severe financial difficulties and several member hospitals have requested that the government take over their services (AID9321).

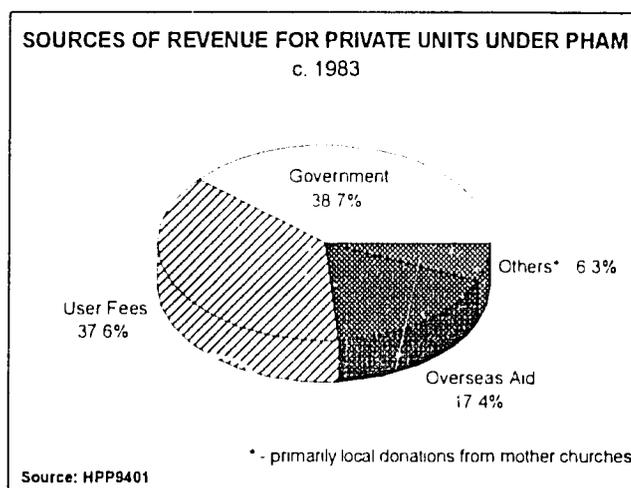


Figure 3.17



IV. HIV INFECTION AND AIDS

The HIV/AIDS pandemic has hit Malawi particularly hard. Malawi's National AIDS Control Programme (NACP) and the World Health Organization (WHO) estimate that 84,000 Malawians died of AIDS in 1993 alone and projected a toll of 114,000 for 1994, which would make AIDS the leading cause of death for adults and among the top ten causes for children under five years of age. An alarming 12 percent of the adult population and one percent of children under five are currently estimated to be infected with HIV, the virus that leads to AIDS (CAB9409) (see figure 4.1). Local factors which have complicated efforts to control HIV/AIDS include the prevalence of seasonal, migratory labor in agriculture and the presence of over one million refugees (AID9310).

Between 1985, when the nation's first case of AIDS was diagnosed, and September 1994, there were over 34,000 AIDS cases officially reported, among Africa's highest cumulative tallies despite Malawi's relatively small population. Annual incidence rates based on reported cases were the continent's highest in 1991 (85.4 per million population) and fourth-highest in 1992 (51.7 per million). The rate for 1993 remained about the same at 52.8 cases reported per million population (WHO9402, WHO9501). Figure 4.2 charts the increase in cumulative cases reported since 1986. Reported cases of AIDS represent only a fraction of the true number of cases, particularly in Malawi, where the case definition for AIDS requires confirmation by blood test. Pediatric AIDS is suspected to be particularly underreported due to the difficulty of identifying AIDS in children. Age distributions for reported cases place the vast majority between 20 and 39 years of age, though males with AIDS tend to be significantly older than females with AIDS. Children under five with AIDS currently represent 4.4 percent of total reported cases (CAB9409).

The results of HIV seroprevalence surveys provide a far more reliable basis for understanding the scale of the HIV/AIDS epidemic. Tests since 1985 at antenatal clinics in Blantyre and Lilongwe have indicated consistently rising levels of HIV infection in urban areas, reaching one-third of pregnant women tested in early 1994 (see figure 4.3)

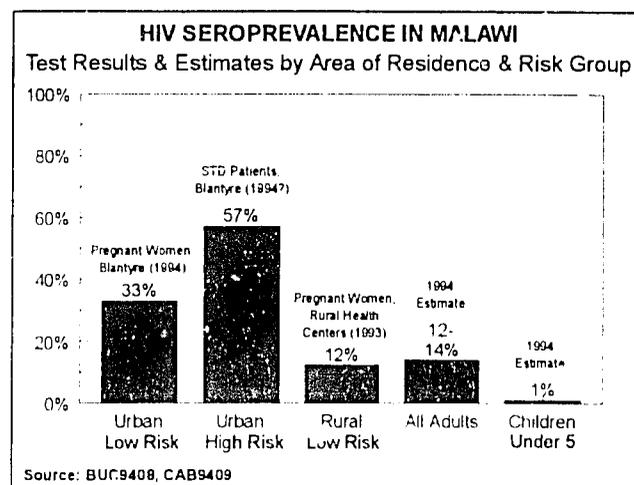


Figure 4.1

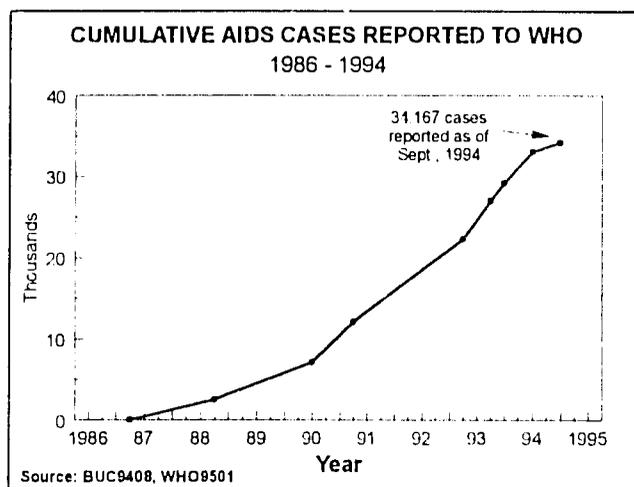


Figure 4.2

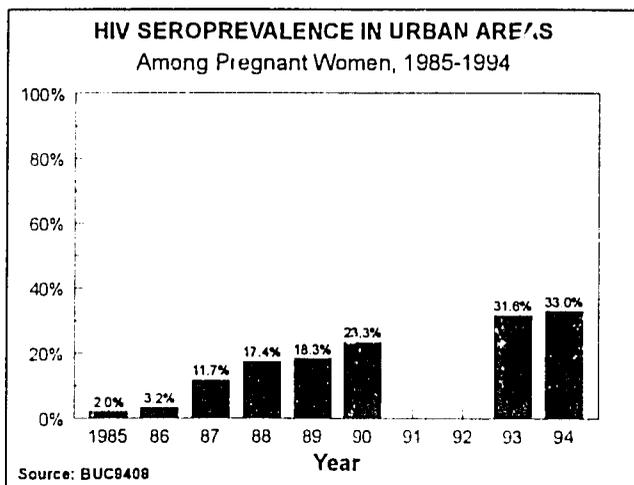


Figure 4.3



Other test results indicate an alarming increase in seroprevalence level in rural areas: among 700 pregnant women in ten rural health centers in late 1993, 12.3 percent tested positive for HIV, compared with just 7.6 percent among a nearly identical sample in 1992 (see figure 4.4). Estimates based on these and other recent test results place the rural rate of infection at roughly 12 percent and overall adult seroprevalence at up to 14 percent, among the highest in the world (CAB9409).

Accounting for the impact of HIV/AIDS in Malawi between 1985 and 2010, the U.S. Bureau of the Census projects an under-five mortality rate of over 200 and an infant mortality rate of over 115 deaths per thousand live births by 2010, representing respective increases of over fifty percent and 28 percent over rates projected without HIV/AIDS (see figure 4.5). The Bureau also projects life expectancy to drop to just thirty-three years of age by 2010 (BUC9403).

The overall impact of HIV/AIDS is hardly limited to those who are infected with HIV. As the more skilled and productive segments of society are disproportionately targeted by HIV/AIDS, the national economy as a whole suffers immensely. A study in 1992—based on lower HIV seroprevalence levels than are now evidenced—projected that death and illness due to AIDS would cause a 14 percent loss in GDP by 2004. The health care system is also under great strain with many districts reporting over half of hospital beds to be occupied by patients with illnesses related to HIV/AIDS (CAB9409).

While the toll of children with AIDS and associated diseases rises, several hundred thousand more are expected to be orphaned by AIDS by the year 2000 (AID9321). Also of great significance is a marked rise in cases of tuberculosis which is thought to result from infections spread by people with HIV (CAB9409).

National AIDS Control Program

National AIDS Control Programme (NACP), Ministry of Health, Lilongwe. The NACP is responsible for coordinating and implementing various public health and education efforts to control HIV/AIDS. Program policy is guided by a multi-sectoral National AIDS Committee, which first met in 1989 and has held semi-annual meetings since then. While multi-sectoral implementation of the NACP's Medium Term Plan has been slow at the national level, USAID's mission in Malawi reports that several districts have very active District AIDS Coordinating Committees drawing membership from local government and health service staff as well as from primary and secondary schools and agricultural extension offices (AID9501). Malawi's new government has reportedly taken a more open and pragmatic stance on HIV/AIDS than its predecessors, sponsoring a national briefing, press conference, and a march against AIDS led by President Muluzi in August 1994 (CAB9409).

The earliest actions to combat the spread of HIV/AIDS were free distribution of condoms at all government hospitals and the establishment of blood screening centers at central and mission hospitals (SAE9101). The

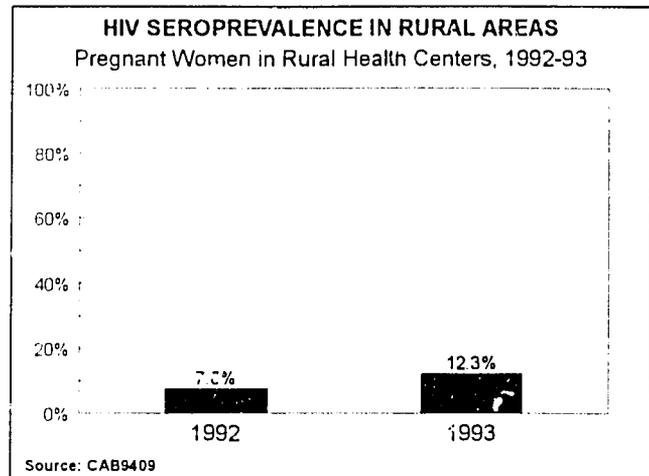


Figure 4.4

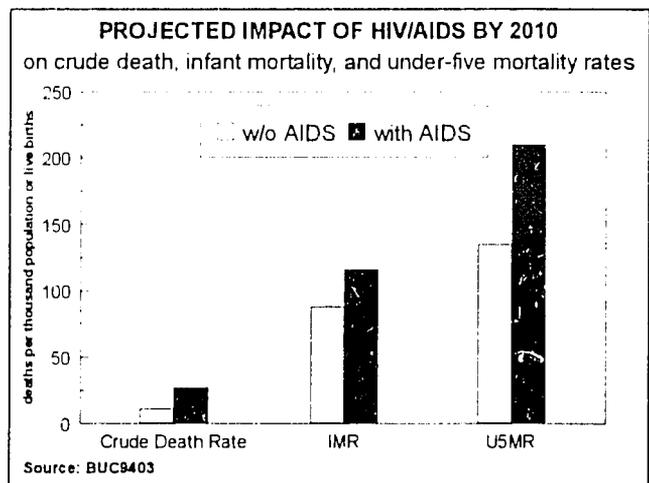


Figure 4.5



MOH's AIDS Secretariat, the body responsible for program implementation, has since worked to increase condom distribution, promote HIV/AIDS awareness, strengthen STD programs, and expand private and community-based service delivery. With assistance from USAID, UNICEF, and the U.S. Peace Corps, the AIDS Secretariat and the MOH's Health Education Unit have collaborated closely with the Ministry of Education and Culture and the Ministry of Community Services to conduct an AIDS awareness campaign targeting youth at primary and secondary schools and students at post-secondary institutions. Activities include publication and distribution of more than 250,000 texts on AIDS for students and teachers, radio broadcasts, production and distribution of educational videos, and performances by drama groups. Rural villages are targeted through popular musical performances and puppet plays by the "Health Education Band" (AID9213, AID9310).

Local Non-Governmental Organizations with AIDS Activities

Christian Health Association of Malawi (CHAM) provides health care services for people with HIV/AIDS and has worked with Project HOPE to train religious leaders in HIV/AIDS counselling and education (AID9310).

Malawi Red Cross Society runs an HIV/AIDS education program for blood donors.

Medical Association of Malawi worked with USAID's AIDSCOM project to promote HIV/AIDS awareness.

Private Schools of Malawi collaborated with the AIDSCOM project promoting HIV/AIDS education (AID9213).

International NGOs with AIDS activities in Malawi

(NCI9201, WHO9102, CAB9312, CAB9413, QUE9400)

Action Aid	Johns Hopkins U., HIV/AIDS Prevention in Africa
Adventist Development and Relief Agency	Margaret Sanger Center of Planned Parenthood
American Foundation for AIDS Research	Marie Stopes International, London
American Refugee Committee	Medical Mission Institute of Würzburg, Germany
Botswana Red Cross Society	Medical Missionaries of Mary, Ireland
Canadian Public Health Association	Memisa Medicus Mundi, Rotterdam
Catholic Fund for Overseas Development (CAFOD)	Network of AIDS Researchers of Eastern & Southern Africa (NARESA), Nairobi
Catholic Relief Services	Population Services International (PSI)
Center for Development and Population Activities	Project Hope
Danchurchaid, Copenhagen	Save the Children Federation (SCF)
Family Health International	Supply of Equipment to Charity Hospitals Overseas (ECHO), London
Institute for Resource Development	United Society for the Propagation of the Gospel
International Center for Research on Women	World Vision Relief and Development
International Council of Nurses, Geneva	
International Eye Foundation	

International Donors supporting AIDS activities in Malawi

(GAP9200, UNF9200, AID9213, CAB9409)

Danish International Development Agency (DANIDA)	United Nations Population Fund (UNFPA)
European Economic Community (EEC)	United States Agency for International Development (USAID)
German Agency for Technical Cooperation (GTZ)	United States Peace Corps
Overseas Development Authority (ODA), U.K.	World Health Organization, Global Programme on AIDS (WHO/GPA)
United Nations Children's Fund (UNICEF)	
United Nations Development Programme (UNDP)	



APPENDIX A: STATISTICAL APPENDIX

Trends in Selected Demographic and Health Indicators

INDICATOR	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	SOURCE
Total Population (000s)	2 881	3 169	3 529	3 975	4 518	5 244	6 183	7 335	9 582	11 304	12 612	UNP9200
Infant Mortality	197	194	190	185	179	170	157	144	134	127	118	CALXX03
Under Five Mortality	347	341	333	323	311	293	265	237	216	200	182	CALXX03
Crude Birth Rate	52	53	54	55	56	57	57	56	55	52	49	UNP9200
Crude Death Rate	32	30	28	27	25	24	26	22	21	21	20	UNP9200
Avg. Annual Growth Rate	1.79	2.03	2.27	2.47	2.77	3.14	3.36	4.38	4.33	2.75	2.51	UNP9200
Total Fertility Rate	6.8	6.8	6.9	7.1	7.3	7.5	7.6	7.6	7.6	7.3	6.8	UNP9200

Table A1. Population Growth and Mortality Trends, 1950-2000

CONTRACEPTIVE PREVALENCE			
YEAR	Modern Methods	All Methods	SOURCE
1984	1	7	CAB8400,PRB9000
1985	NA	NA	
1986	NA	NA	
1987	NA	NA	
1988	3	NA	
1989	NA	NA	AID9302
1990	NA	NA	DHS9304
1991	NA	NA	
1992	8	14	
1993	NA	NA	

Table A2. Contraceptive Prevalence, 1984-1992

YEAR	ACCESS TO SAFE WATER		ADEQUATE SANITATION		SOURCE
	Rural	Urban	Rural	Urban	
1980	37	77	81	75	AID9012 WHO9101
1981	NA	NA	NA	NA	WHO9101
1982	NA	NA	NA	NA	
1983	49	66	NA	75	WHO9101
1984	NA	NA	NA	NA	
1985	50	97	NA	NA	
1986	NA	NA	NA	NA	WHO9101
1987	NA	NA	NA	NA	
1988	36	77	36	70	AID9012
1989	NA	NA	NA	NA	AID9012
1990	NA	NA	NA	NA	
1991	NA	NA	NA	NA	
1992	NA	NA	NA	NA	
1993	NA	NA	NA	NA	

Table A3. Access to Safe Water and Adequate Sanitation, 1980-1988

YEAR	ORS Access	ORS/RHF Use	SOURCE
1985	23	2	WHD8700
1986	NA	10	WHD8800
1987	43	42	WHD8900
1988	56	14	WHD9000,WHD9001
1989	NA	NA	DHS9304
1990	NA	NA	
1991	NA	NA	
1992	NA	56	DHS9304
1993	NA	NA	

Table A4. CRS Access and ORS/RHF Use, 1985-1992



YEAR	VACCINATION COVERAGE					SOURCE
	BCG	DPT3	Measles	Polio 3	Tet. 2	
1981	86	66	65	68	NA	WHE8700
1982	91	50	58	36	NA	WHE8801
1983	95	71	67	67	1	WHE8801
1984	75	58	56	59	25	WHE8801
1985	87	52	51	46	38	WHE8800,WHE8801
1986	99	70	66	56	38	WHE8800,WHE8801
1987	87	57	53	53	45	WHE8800,WHE8801
1988	80	72	71	72	63	WHE8802,WHE8900
1989	96	90	84	89	72	WHE9001
1990	97	81	80	79	82	WHE9100,WHE9200
1991	96	81	78	78	76	WHE9202
1992	95	84	70	84	73	DHS9401
1993	NA	NA	NA	NA	NA	

Table A5. Vaccination Coverage, 1981-1992

Health Care Financing Trends

PUBLIC EXPENDITURE ON HEALTH CARE IN MALAWI					
Year	% of total spending	% of rec. spending	% of dev. spending	% of G.D.P.	\$ per capita
1981	5.2%	-	-	1.8%	\$2.70
1982	5.2%	-	-	1.5%	\$2.20
1983	6.8%	-	-	1.9%	\$2.90
1984	7.9%	-	-	2.1%	\$3.40
1985	6.9%	9.2%	1.7%	2.1%	\$3.30
1986	7.1%	8.4%	3.0%	2.3%	\$3.60
1987	5.9%	6.6%	4.3%	1.8%	\$2.70
1988	7.3%	7.2%	6.7%	2.0%	-
1989	7.4%	7.2%	7.3%	-	-
1990	-	7.3%	8.3%	-	-
1991	-	6.7%	11.4%	-	-
1992	-	5.6%	8.4%	-	-
1993	-	7.2%	14.8%	-	-
1994	-	7.5%	11.5%	-	-
Source	IMF9300	AID9328,AID9501		IMF9300	WBK9203

Table A6. Public Expenditure on Health Care in Malawi, 1981-1994



APPENDIX B: DATA NOTES

Notes On Mortality Estimation

References to infant and under 5 mortality rates for individual countries or groups of countries are largely drawn from CIHI's Health Statistics Database. In past years, the primary source of data on infant mortality was the World Population Prospects, a set of estimates updated every two years by the Estimates and Projections Section of the Population Division of the Department of International Economic and Social Affairs, United Nations. The primary source of data on under 5 mortality was a special report published in 1988 by the same group. Where another source, such as a recent Demographic and Health Survey or a national census, was available for a given country, the reported values from that source were cited in place of the United Nations estimates if the technical staff of USAID in the Country Mission and/or the appropriate regional bureaus confirmed the validity of the alternative source.

United Nations estimates, known as indirect estimates, are generated from accepted demographic models which combine the results of all available surveys and censuses in a given country to produce a single time series of estimates and projections. When new empirical data become available for a given country, the entire time series of estimates and projections is updated. Thus, using conventional demographic approaches, a survey done in 1990 may generate a new estimate of a mortality rate for 1970 or 1980.

In 1993, a new set of estimates for mortality was generated for 82 countries for publication in the World Development Report 1993 and UNICEF's The Progress of Nations. Based on a curve-fitting model, the methodology applied to generate these new estimates purports to depict more accurately the trend derived

from all available data sources for a country. Like the estimates generated using conventional demographic models, the entire time series might change upon the addition of a new empirical source. These estimates were made available to USAID through the courtesy of the World Bank and UNICEF.

The selection of the mortality rates was done through a consultative process involving representatives of the Office of Health in USAID's Research and Development Bureau, USAID's Regional Bureaus and, in many cases, the USAID Country Missions. The source determined to best reflect the reality in a country for the current values of infant and under 5 mortality was identified and one of a number of a computation procedures, depending on the source selected for the current value, was applied to estimate the longitudinal rates. The consideration of the additional source of data developed for the World Development Report and UNICEF during the consultative process has prompted some changes in the reporting of mortality rates from those reported in recent years.

Definitions

Demographic Indicators:

Annual Infant Deaths: An estimate of the number of deaths occurring to children under age one in a given year.

Average Annual Rate of Population Growth: An estimate of the rate at which a population is increasing (or decreasing) in a given year.

Children Under Age 1: Mid-year estimate of the total number of children under age one.

Contraceptive Prevalence Rate: An estimate of the proportion of women, aged 15 through 44 (or, in some countries, 15 through 49), in union or married, currently using a modern method of contraception. Where sources fail to

distinguish modern and traditional methods, the combined rate is shown.

Crude Birth Rate: An estimate of the number of live births per 1,000 population in a given year.

Crude Death Rate: An estimate of the number of deaths per 1,000 population in a given year.

Infant Mortality Rate: The estimated number of deaths in infants (children under age one) in a given year per 1,000 live births in that same year. This rate may be calculated by direct methods (counting births and deaths) or by indirect methods (applying well-established demographic models).

Life Expectancy At Birth: An estimate of the average number of years a newborn can expect to live. Life expectancy is computed from age-specific death rates for a given year. It should be noted that low life expectancies in developing countries are, in large part, due to high infant mortality.

Maternal Mortality Ratio: The estimated number of maternal deaths per 100,000 live births where a maternal death is one which occurs when a woman is pregnant or within 42 days of termination of pregnancy from any cause related to or aggravated by the pregnancy or its management. Although sometimes referred to as a rate, this measure is actually a ratio because the unit of measurement of the numerator (maternal deaths) is different than that of the denominator (live births). The measure would be a rate if the units were the same. Extremely difficult to measure, maternal mortality can be derived from vital registration systems (usually underestimated), community studies and surveys (requires very large sample sizes) or hospital registration (usually overestimated).

Total Population: The mid-year estimate of the total number of individuals in a country.

Total Fertility Rate: An estimate of the average number of children a woman would bear during her lifetime given



current age-specific fertility rates.

Under 5 Mortality Rate: The estimated number of children born in a given year who will die before reaching age five per thousand live births in that same year. This rate may also be calculated by direct or indirect methods.

Urban Population: Population living in urban areas as defined according to the national definition used in the most recent population census.

Child Survival Indicators:

Adequate Nutritional Status: An individual child of a certain age is said to be adequately nourished if his/her weight is greater than the weight corresponding to "two Z-scores" (two standard deviations) below the median weight achieved by children of that age. The median weight and the distribution of weights around that median in a healthy population are taken from a standard established by the National Center for Health Statistics, endorsed by the World Health Organization (WHO). The indicator for the population as a whole is the proportion of children 12 through 23 months of age who are adequately nourished.

Appropriate Infant Feeding: A composite estimate of the proportion of infants (children under age one) being breastfed and receiving other foods at an appropriate age according to the following criteria: breastfed through infancy with no bottle-feeding, exclusively breastfed through four months (120 days) of age, and receiving other foods if over six months of age (181 days). Water is not acceptable in the first four months (120 days). ORS is considered acceptable at any age. Surveys are the only source of data to form this indicator. Surveys yield an estimate of how many infants are being fed correctly at the moment of the survey. They do not give an indication of the proportion of individual children fed appropriately throughout their first year of life. A number of sub-indicators may be calculated from the data used to form the composite, of which two are presented here.

Complementary Feeding: An estimate of the proportion of infants six to nine

months of age (181 days to 299 days) still breastfeeding but also receiving complementary weaning foods.

Continued Breastfeeding: An estimate of the proportion of children breastfed for at least one year. In this report, all values presented for this indicator are the proportion of children 12 to 15 months of age at the time of the survey still receiving breast milk.

DPT Drop-out Rate: An estimate of the proportion of living children between the ages of 12 and 23 months who received at least one DPT vaccination but who did not receive the entire series of three vaccinations before their first birthdays.

Exclusive Breastfeeding: An estimate of the proportion of infants less than four months (120 days) of age who receive no foods or liquids other than breast milk.

ORS Access Rate: An estimate of the proportion of the population under age five with reasonable access to a trained provider of oral rehydration salts who receives adequate supplies. This is a particularly difficult indicator to measure and, therefore, it may fluctuate dramatically from year to year as improved methods of estimation are devised.

ORT Use Rate (ORS and/or RHF Use Rate): An estimate of the proportion of all cases of diarrhea in children under age five treated with ORS and/or a recommended home fluid. ORT use may be determined using administrative means or surveys. In general, administrative estimates are based on estimates of the number of episodes of diarrhea in the target population for a given year and the quantity of ORS available. Thus, changes in the estimates of the frequency of diarrhea episodes can alter the ORT use rate as well as "real" changes in the pattern of use. Surveys are more precise in that they focus on the actual behavior of mothers in treating diarrhea in the two-week period prior to the survey.

Vaccination Coverage In Children: An estimate of the proportion of living children between the ages of 12 and 23 months who have been vaccinated before their first birthday -- three times in the cases of polio and DPT and once for both

measles and BCG. Vaccination coverage rates are calculated in two ways. Administrative estimates are based on reports of the number of inoculations of an antigen given during a year to children who have not yet reached their first birthday divided by an estimate of the pool of children under one year of age eligible for vaccination. Survey estimates are based on samples of children between the ages of 12 and 23 months.

Vaccination Coverage In Mothers: An estimate of the proportion of women in a given time period who have received two doses of tetanus toxoid during their pregnancies. This indicator is being changed in many countries to account for the cumulative effect of tetanus toxoid boosters. A woman and her baby are protected against tetanus when a mother has had only one or, perhaps, no boosters during a given pregnancy so long as the woman had received the appropriate number of boosters in the years preceding the pregnancy in question. (The appropriate number of boosters required during any given pregnancy varies with number received previously and the time elapsed.) The revised indicator is referred to as TT2+. Rates are computed using administrative methods or surveys.

Other Health and Health Sector Indicators:

Access to Adequate Sanitation: Definitions vary over time. In the past, this indicator has been an estimate of the proportion of the population with sanitation service provided through sewer systems or individual in-house or in-compound excreta disposal facilities (latrines). WHO changed its indicators and definitions in the late 1980s. Now this indicator is defined as the proportion of the population with reasonable access to sanitary means of excreta and waste disposal, including outdoor latrines and composting.

Access to Health Services: Usually an estimate of the proportion of the popu-



lation that can reach appropriate local health services by the local means of transport in no more than one hour. Recently WHO has revised its definition to the proportion of the population having treatment for common diseases and injuries and a regular supply of the essential drugs on the national list within one hour's walk or travel.

Access to Safe Water: The percentage of the population with reasonable access to safe water supply, including treated surface waters or untreated but uncontaminated water such as that from springs, sanitary wells and protected boreholes. Different definitions are used to define reasonable access in urban and in rural areas:

Access to Safe Water, Urban: An estimate of the proportion of all persons living in urban areas (defined roughly as population centers of 2,000 or more persons) who live within 200 meters of a standpipe or fountain source of water.

Access to Safe Water, Rural: An estimate of the proportion of all persons not living in urban areas with a source of water close enough to home that household members do not spend a disproportionate amount of time fetching water. Reporting on access to safe water, as well as adequate sanitation, can be highly subjective.

Anemia among Pregnant Women: Prevalence of anemia among pregnant women is the proportion of pregnant women whose blood hemoglobin level is below the WHO norm of 110 grams per liter.

Births Attended by Trained Personnel: An estimate of the proportion of births attended by at least one physician, nurse, midwife, trained primary health care worker, or trained traditional birth attendant.

Gross Domestic Product: Total output of goods and services for final use produced by residents and non-residents, regardless of the allocation to domestic and foreign claims.

Gross National Product: Total domestic and foreign value added claimed by residents.

Health Care Expenditure. Data from the World Development Report 1993 on health expenditure include "outlays for prevention, promotion, rehabilitation, and care; population activities; nutrition activities; program food aid; and emergency aid specifically for health." Spending on water and sanitation is not included. Expenditure is expressed in official exchange rate U.S. Dollars. **Public Expenditure** includes government and parastatal health expenditure and foreign aid. Domestic public expenditure does not include foreign aid. Where IMF data is used for time series, this definition may vary. **Private Expenditure** is an estimate of total household spending on health based on surveys or (where indicated) imputed from regressions based on GDP per capita. **Foreign Aid** represents total official aid flows, the sum of all assistance for health by bilateral and multilateral agencies and by major international NGOs.

HIV-1 Seroprevalence, Urban: An estimate of the proportion of the "low-risk" population living in urban areas infected with HIV-1, the most virulent and globally prevalent strain of the human immunodeficiency virus.

HIV-1 Seroprevalence, Rural: An estimate of the proportion of the "low-risk" population living in rural areas infected with HIV-1.

HIV Seroprevalence among High-Risk Population: An estimate of the proportion of all persons with known risk factors infected with HIV. These estimates are typically drawn from test results among commercial sex workers, their clients, or patients at sexually-transmitted disease clinics.

HIV Seroprevalence among Low-Risk Population: An estimate of the proportion of all persons with no known risk factors infected with HIV. These estimates are typically drawn from test results among pregnant women, the general population, or blood donors.

Population per Doctor & per Nurse: Estimates of the ratios of total population per doctor and total population per nursing person. Because definitions of doctors and nursing personnel vary, the data for these two indicators are not strictly comparable across countries. "Nursing persons" may include auxiliary nurses and paraprofessional personnel such as trained traditional birth attendants.

Prenatal Care for Pregnant Women: The percentage of pregnant women who attended prenatal care clinics in a given year.



APPENDIX C: SOURCES

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