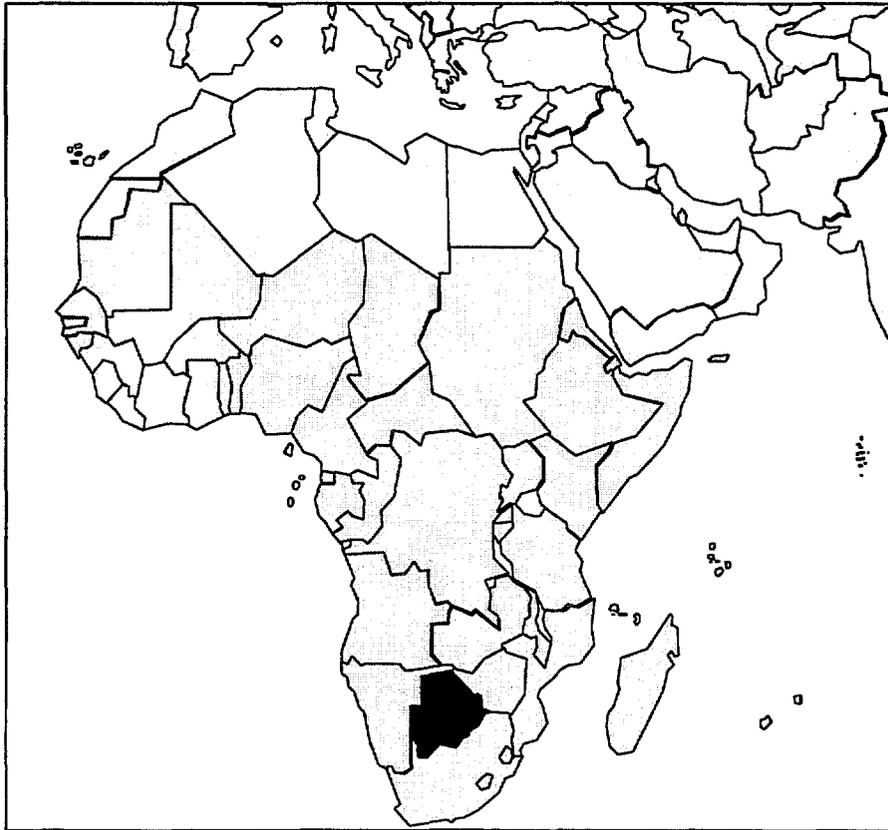


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CIHI Country Health Profile Series

BOTSWANA

Health Statistics Report 1996



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

The Center for International Health Information (CIHI) is a project managed by Information Management Consultants, Inc. (IMC), with the International Science & Technology Institute (ISTI) and The Futures Group (FUTURES). CIHI prepared this document under the Data for Decision Making Project (936-5991.05), under contract number HRN-5991-C-00-3041-00 with the Office of Health and Nutrition, Center for Population, Health and Nutrition, Bureau for Global Programs, Field Support and Research, U.S. Agency for International Development (USAID).

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BOTSWANA

Health Statistics Report

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

CIHI's Health Statistics Reports are intended to provide data in a concise format for individuals and organizations involved in health sector policy and decision-making. Contact CIHI at the address on the preceding page for information on the availability of country health profiles and health statistics reports, or look for these reports on the Internet at the following address: *www.cihi.com*.

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.

EDITOR'S NOTES

1. Data Notes. For definitions of indicators and commentary regarding their derivation, the reader is referred to Section II.

2. 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 Section III.

3. Comparative Graphs and Tables. Unless otherwise specified, indicator values for country groupings are median values for the countries in each aggregate grouping for which data are available. Regional groupings include: (1) Sub-Saharan Africa, which includes the 47 countries comprising USAID's Africa Region; (2) No. Africa & Mideast, which corresponds to USAID's Near East Sub-region and includes 21 countries from Morocco in the West to Afghanistan in the East; (3) Asia, which corresponds to USAID's Asia Sub-region and includes 24 developing countries from Pakistan eastward; (4) Latin Am. & Carib. which includes 46 countries of Central and South America and the Caribbean and corresponds to USAID's Latin America and Caribbean region. Income groupings are based on the classifications used by the United Nations' Human Development Report 1995, which are defined as: (1) Low -Income Countries (GNP per capita = \$696 or less), (2) Middle-Income Countries (GNP/capita \$696-\$8,625); (3) High-Income Countries (GNP/capita >\$8,625). "Developing Countries" indicators are based on 107 countries which are not regarded as "Established Market Economies" by the World Bank's World Development Report 1994.

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I: HEALTH & DEMOGRAPHIC OVERVIEW

Current Demographic and Health Indicators

Demographic Indicators			
INDICATOR	VALUE	YEAR	SOURCE
Total population (000s)	1,392	1995	BUC9401
Urban percent	28	1995	UNP9400
Women ages 15-49 (000s)	340	1995	CAL9602
Infant mortality rate	38	1995	JEE9510
Under 5 mortality rate	62	1995	JEE9504
Maternal mortality rate	250	1990	UNI9601
Life expectancy at birth	66	1995	UNP9400
Number of births (000s)	50	1995	CAL9603
Annual infant deaths (000s)	2	1995	CAL9604
Total fertility rate	4.7	1995	UNP9400

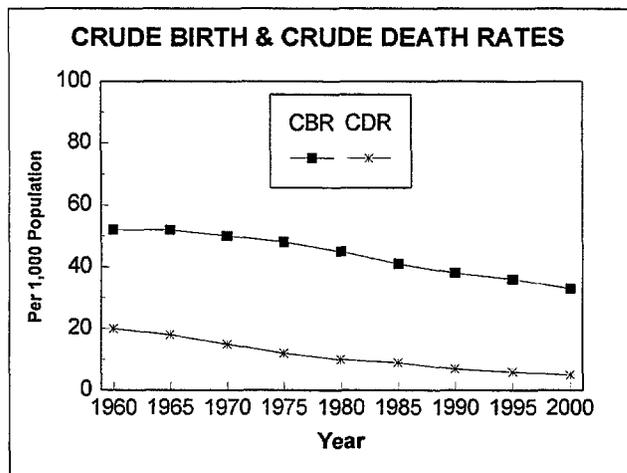
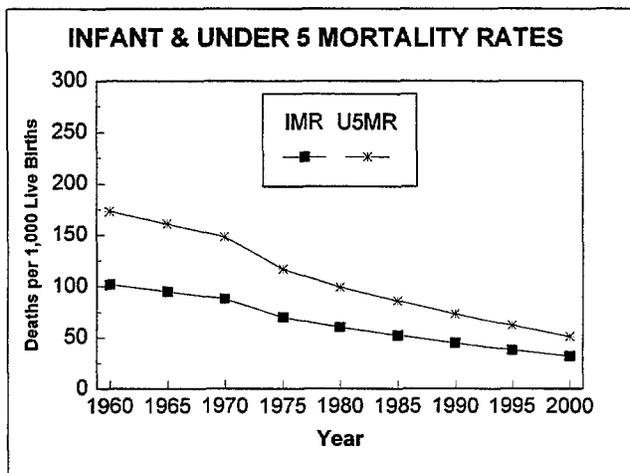
Child Survival Indicators			
INDICATOR	VALUE	YEAR	SOURCE
Vaccination Coverage (%)			
BCG	81	1995	WHE9601
DPT3	78	1995	WHE9601
Measles	68	1995	WHE9601
Polio 3	78	1995	WHE9601
TT2+	56	1995	WHE9601
DPT drop out rate	NA		
Oral Rehydration Therapy (%)			
ORS access rate	95	1991	WHD9201
ORT use rate	64	1991	WHD9201
Contraceptive Prevalence (%)			
CPR, modern methods	32	1988	DHS8902
CPR, all methods	33	1988	DHS8902
Nutrition (%)			
Adequate nutritional status	NA		
Exclusive breastfeeding	41	1988	DHS8902
Complementary feeding	82	1988	DHS8902
Continued breastfeeding	77	1988	DHS8902

Other Health Indicators			
INDICATOR	VALUE	YEAR	SOURCE
HIV Prevalence			
Adults (per 100,000)	18,012	1994	WHO9601
Access to Improved Water (%)			
Urban	100	1990	WHO9200
Rural	88	1990	WHO9200
Access to Sanitation (%)			
Urban	100	1990	WHO9200
Rural	85	1990	WHO9200
Delivery Conditions			
Deliveries by trained attendants (%)	77	1988	DHS8902

NA=Notavailable

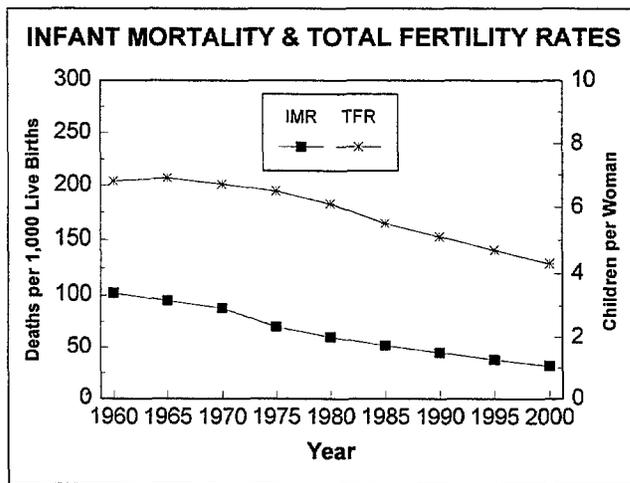
Trends in Selected Demographic and Health Indicators

INDICATOR	1960	1965	1970	1975	1980	1985	1990	1995	2000	SOURCE
Infant Mortality Rate	102	95	88	70	60	52	45	38	32	JEE9510
Under 5 Mortality Rate	173	161	148	117	99	86	73	62	51	JEE9504
Crude Birth Rate	52	52	50	48	45	41	38	36	33	UNP9400
Crude Death Rate	20	18	15	12	10	9	7	6	5	UNP9400
Avg Annual Growth	2.4	2.8	3.2	3.5	3.5	3.4	3.2	3.0	2.8	UNP9400
Total Fertility Rate	6.8	6.9	6.7	6.5	6.1	5.5	5.1	4.7	4.3	UNP9400



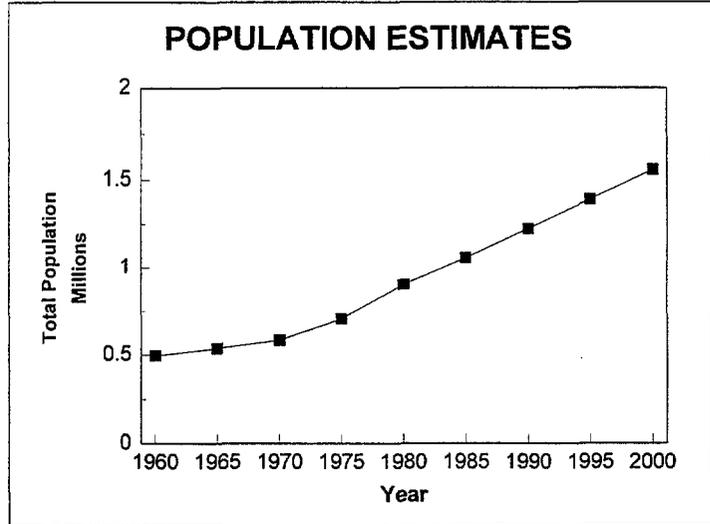
IMR and TFR

The relationship between IMR and TFR is currently a subject under review by the scientific community. While there is not conclusive evidence that the IMR and TFR are causally linked and necessarily decline together, there is empirical evidence for suspecting that such a reinforcing relationship exists as the pattern is observable in most countries.



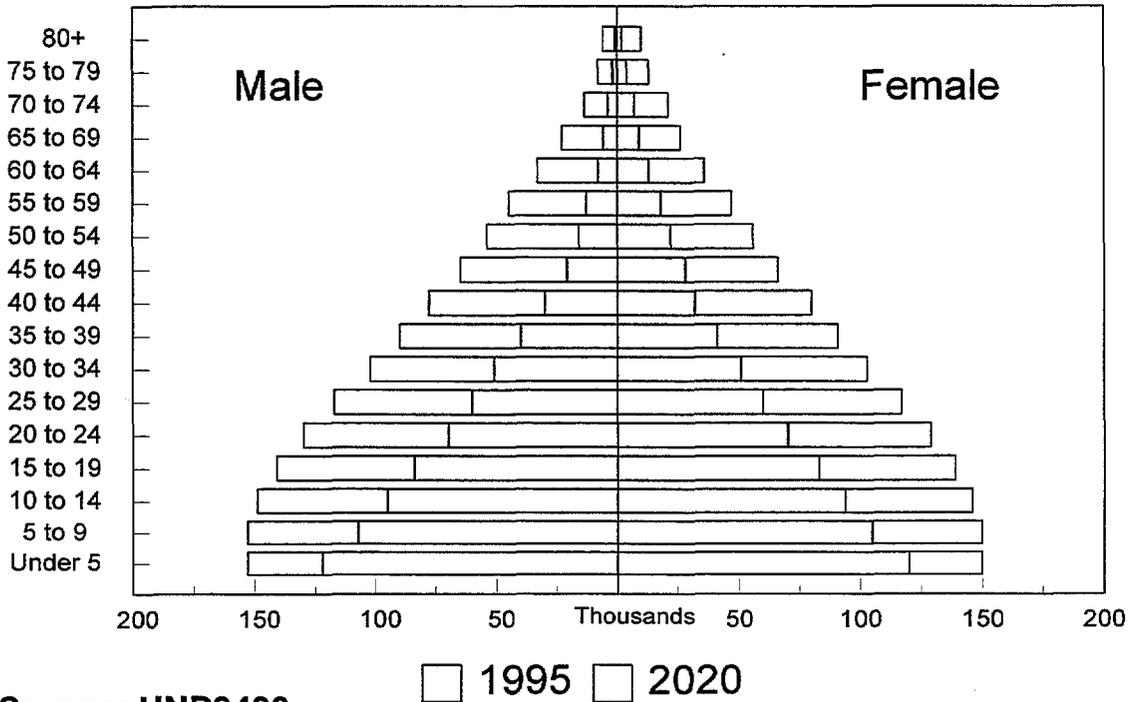
Population Estimates/Pyramid

POPULATION ESTIMATES		
YEAR	VALUE	SOURCE
1960	496,695	BUC9401
1965	538,100	BUC9401
1970	583,999	BUC9401
1975	705,343	BUC9401
1980	902,640	BUC9401
1985	1,057,480	BUC9401
1990	1,224,380	BUC9401
1995	1,392,410	BUC9401
2000	1,554,400	BUC9401



CURRENT & PROJECTED POPULATION

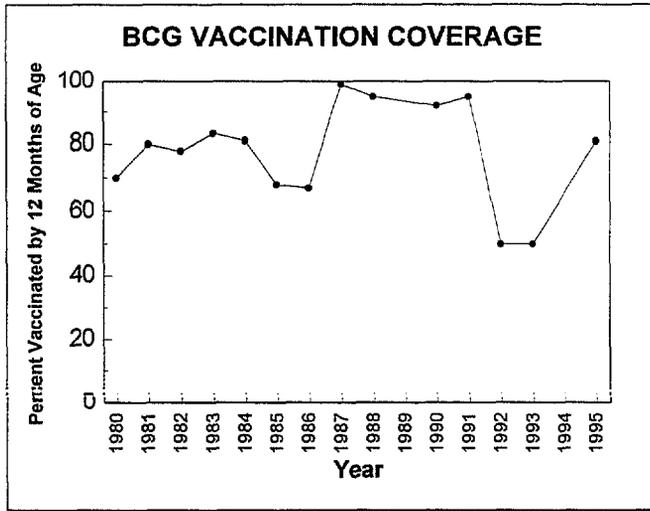
By Age & Sex: 1995 & 2020



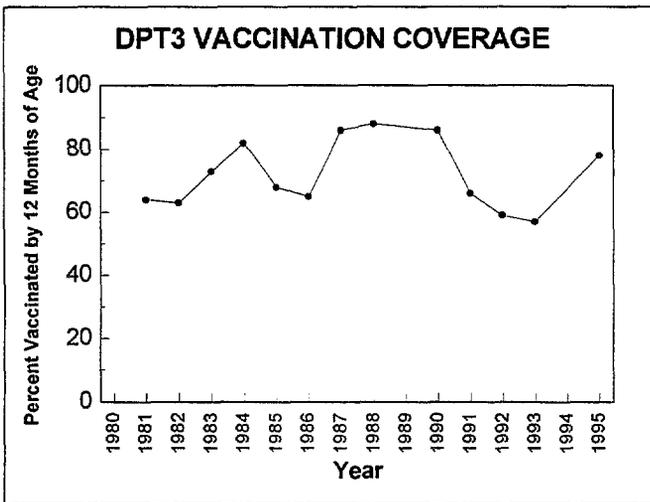
Source: UNP9400

Trends in Selected Health and Child Survival Indicators

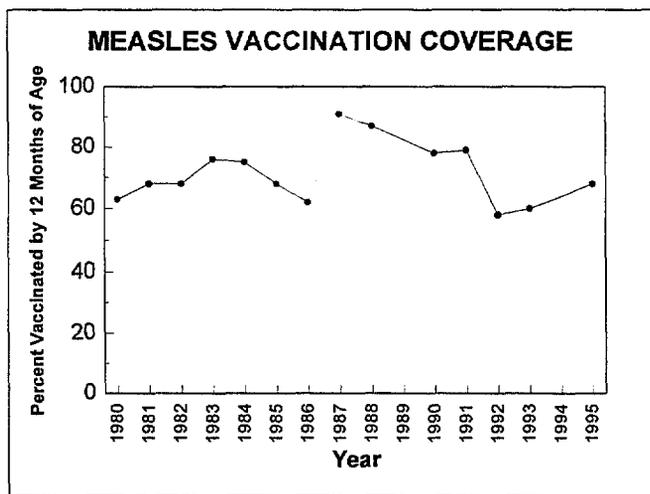
Vaccination Coverage Rates



BCG COVERAGE		
YEAR	PERCENT	SOURCE
1980	70	WHE8700
1981	80	WHE8700
1982	78	WHE8700
1983	83	WHE8700
1984	81	WHE8700
1985	68	WHE8800
1986	67	WHE8701
1987	99	WHE8801
1988	95	DHS8902
1989	NA	
1990	92	WHE9100
1991	95	WHE9200
1992	50	WHE9301
1993	50	WHE9501
1994	NA	
1995	81	WHE9601

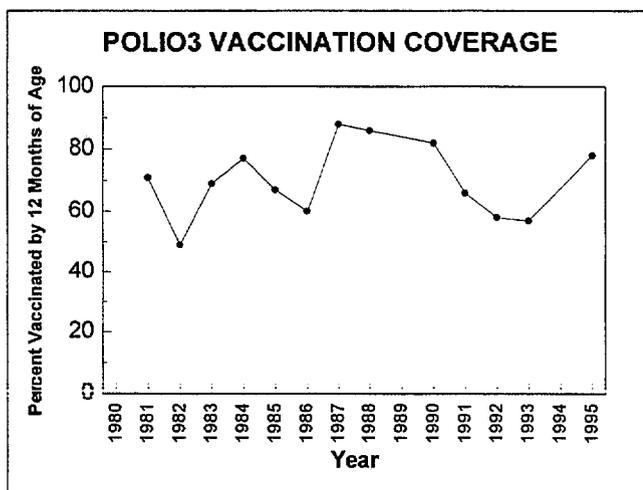


DPT3 COVERAGE		
YEAR	PERCENT	SOURCE
1980	NA	
1981	64	WHE8700
1982	63	WHE8700
1983	73	WHE8700
1984	82	WHE8700
1985	68	WHE8800
1986	65	WHE8800
1987	86	WHE8801
1988	88	DHS8902
1989	NA	
1990	86	WHE9100
1991	66	WHE9200
1992	59	WHE9301
1993	57	WHE9501
1994	NA	
1995	78	WHE9601

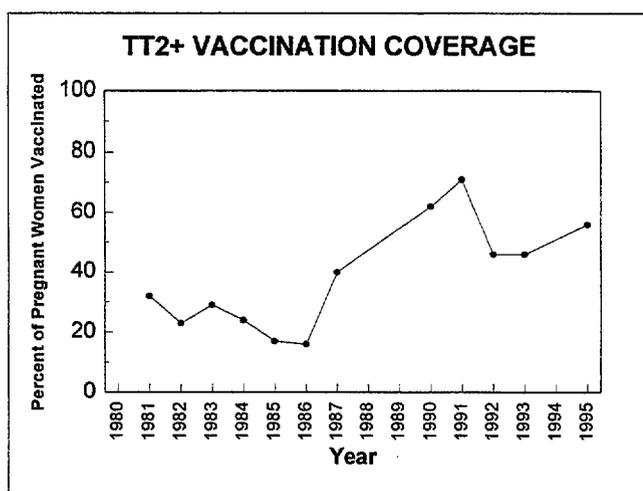


MEASLES COVERAGE		
YEAR	PERCENT	SOURCE
1980	63	WHE8700
1981	68	WHE8700
1982	68	WHE8700
1983	76	WHE8700
1984	75	WHE8700
1985	68	WHE8800
1986	62	WHE8701
1987	91	WHE8801
1988	87	DHS8902
1989	NA	
1990	78	WHE9100
1991	79	WHE9200
1992	58	WHE9301
1993	60	WHE9501
1994	NA	
1995	68	WHE9601

Vaccination Coverage Rates, continued

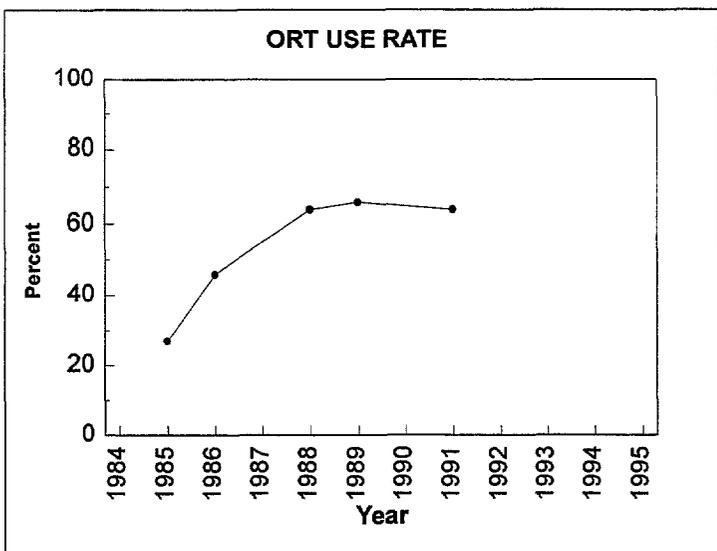


POLIO3 COVERAGE		
YEAR	PERCENT	SOURCE
1980	NA	
1981	71	WHE8700
1982	49	WHE8700
1983	69	WHE8700
1984	77	WHE8700
1985	67	WHE8800
1986	60	WHE8701
1987	88	WHE8801
1988	86	DHS8902
1989	NA	
1990	82	WHE9100
1991	66	WHE9200
1992	58	WHE9301
1993	57	WHE9501
1994	NA	
1995	78	WHE9601



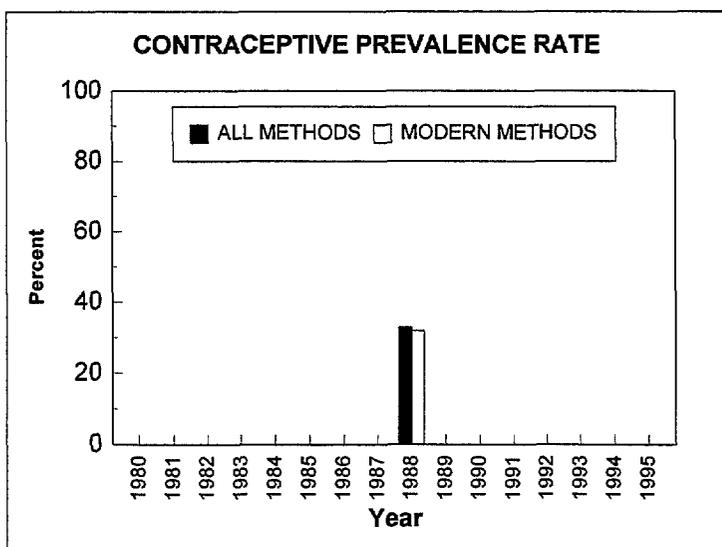
TT2+ COVERAGE		
YEAR	PERCENT	SOURCE
1980	NA	
1981	32	WHE8700
1982	23	WHE8700
1983	29	WHE8700
1984	24	WHE8700
1985	17	WHE8800
1986	16	WHE8701
1987	40	WHE8801
1988	NA	
1989	NA	
1990	62	WHE9100
1991	71	WHE9202
1992	46	WHE9301
1993	46	WHE9501
1994	NA	
1995	56	WHE9601

ORT Use Rate



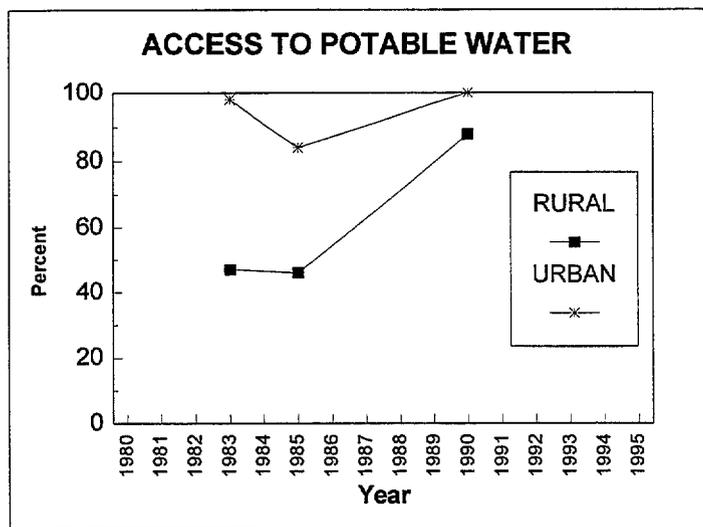
ORT USE RATE		
YEAR	PERCENT	SOURCE
1984	NA	
1985	27	WHD8700
1986	46	WHD8800
1987	NA	
1988	64	WHD9001
1989	66	WHD9100
1990	NA	
1991	64	WHD9201
1992	NA	
1993	NA	
1994	NA	
1995	NA	

Contraceptive Prevalence Rate



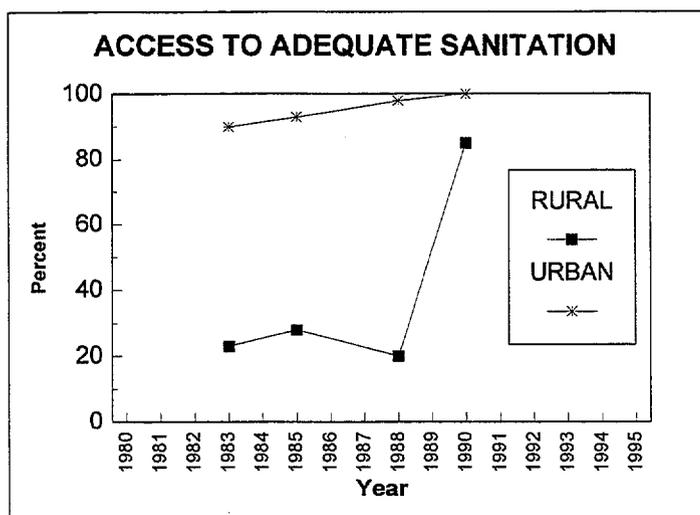
YEAR	ALL METHODS		MODERN METHODS	
	SOURCE	PERCENT	SOURCE	PERCENT
1980		NA		NA
1981		NA		NA
1982		NA		NA
1983		NA		NA
1984		NA		NA
1985		NA		NA
1986		NA		NA
1987		NA		NA
1988	DHS8902	33	DHS8902	32
1989		NA		NA
1990		NA		NA
1991		NA		NA
1992		NA		NA
1993		NA		NA
1994		NA		NA
1995		NA		NA

Access to Potable Water



YEAR	RURAL SOURCE	URBAN SOURCE
1980	NA	NA
1981	NA	NA
1982	NA	NA
1983	47 WHO9101	98 WHO9101
1984	NA	NA
1985	46 WHO9101	84 WHO9101
1986	NA	NA
1987	NA	NA
1988	NA	NA
1989	NA	NA
1990	88 WHO9200	100 WHO9200
1991	NA	NA
1992	NA	NA
1993	NA	NA
1994	NA	NA
1995	NA	NA

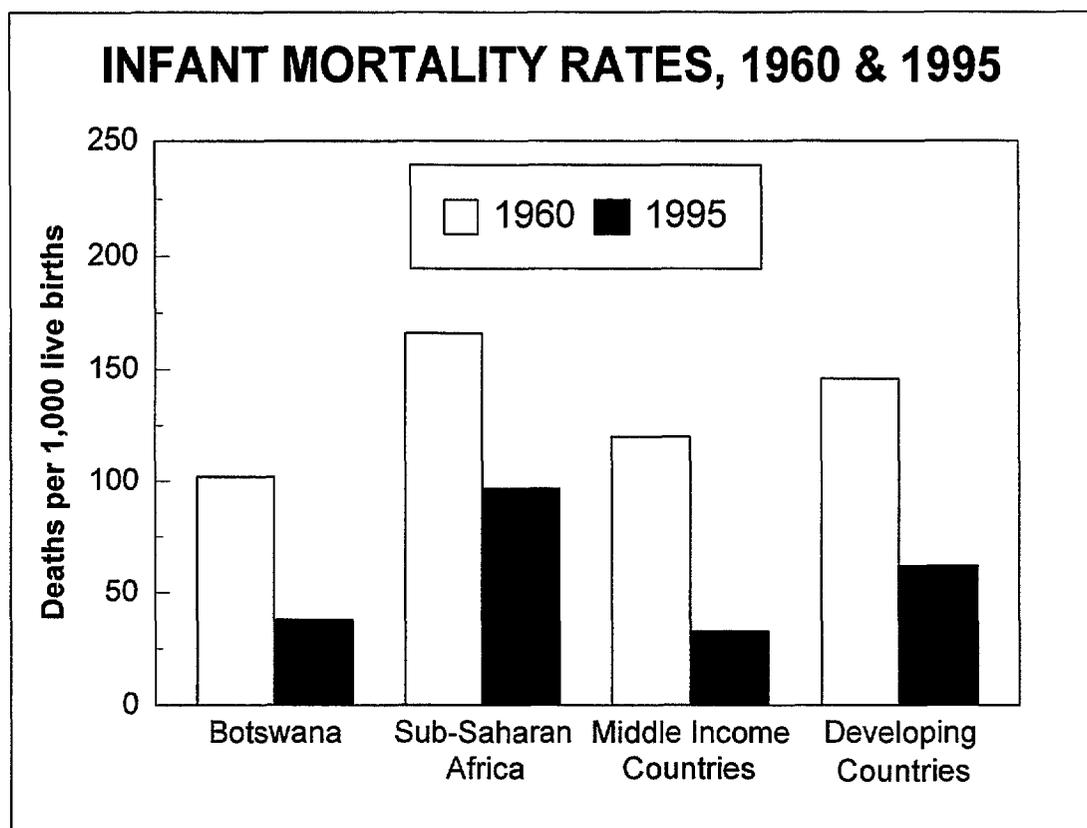
Access to Adequate Sanitation



YEAR	RURAL SOURCE	URBAN SOURCE
1980	NA	NA
1981	NA	NA
1982	NA	NA
1983	23 WHO9101	90 WHO9101
1984	NA	NA
1985	28 WHO9101	93 WHO9101
1986	NA	NA
1987	NA	NA
1988	20 WHO9101	98 WHO9101
1989	NA	NA
1990	85 WHO9200	100 WHO9200
1991	NA	NA
1992	NA	NA
1993	NA	NA
1994	NA	NA
1995	NA	NA

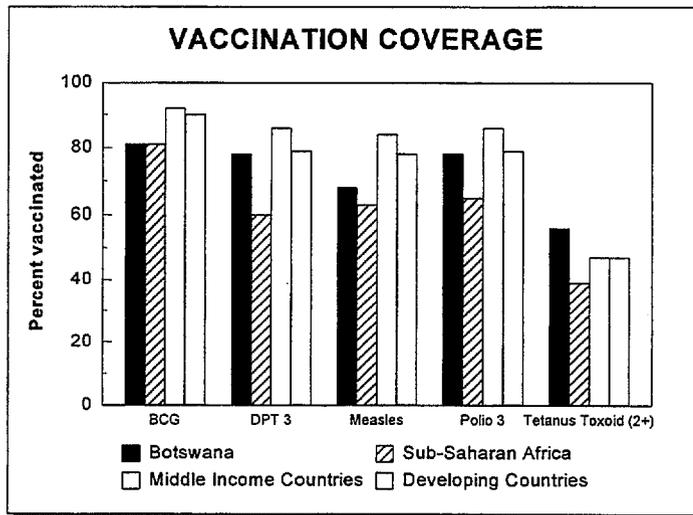
COMPARATIVE INDICATORS

Comparative Infant Mortality Rates



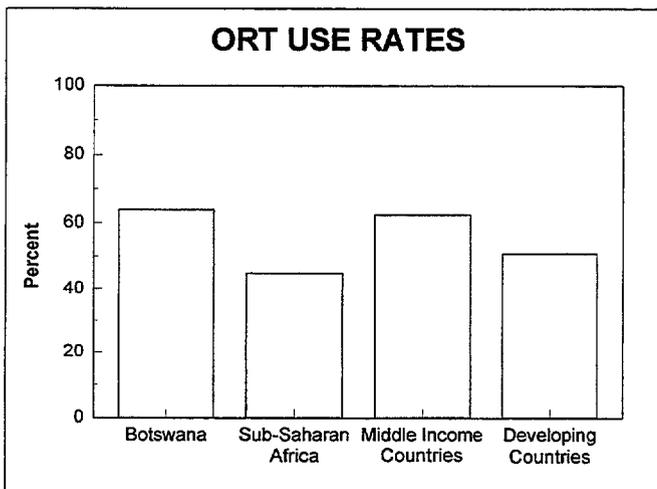
YEAR	1960	1995	Source
Botswana	102	38	JEE9510
<i>Median values for country groupings:</i>			
Sub-Saharan Africa	166	97	CAL9606
Middle Income Countries	120	33	CAL9606
Developing Countries	146	62	CAL9606

Comparative Vaccination Coverage Rates



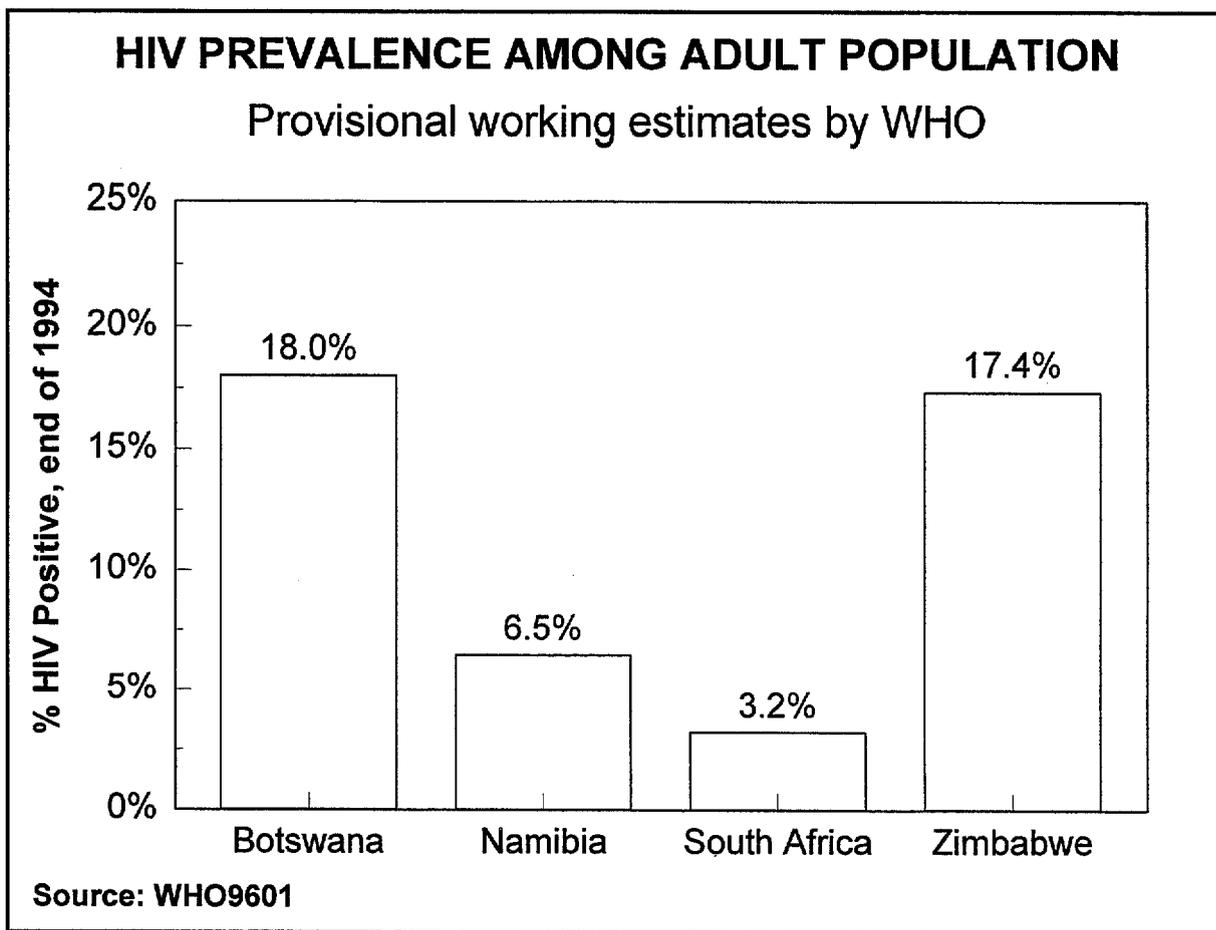
Vaccination Coverage	Botswana	Year	Source	Median values for country groupings: (CAL9606)		
				Sub-Saharan Africa	Middle Income Countries	Developing Countries
BCG	81	1995	WHE9601	81	92	90
DPT 3	78	1995	WHE9601	60	86	79
Measles	68	1995	WHE9601	63	84	78
Polio 3	78	1995	WHE9601	65	86	79
Tetanus Toxoid (2+)	56	1995	WHE9601	39	47	47

Comparative ORT Use Rates



COUNTRY	ORT USE RATE	YEAR
Botswana	64	1991
Source	WHD9201	
Median values for country groupings:		
Sub-Saharan Africa	45	1995
Middle Income Countries	63	1995
Developing Countries	51	1995
Source	CAL9606	

Human Immunodeficiency Virus (HIV) Prevalence Rates



II: DATA NOTES

I. Note On Mortality Estimation

Various organizations produce mortality estimates for the developing countries and regions. The three largest sources are the United Nations Population Division, the World Bank and the United States Bureau of the Census. CIHI's Health Statistics Database draws upon the work of these three larger organizations as well as other sources in order to reconcile the various estimates and provide the most reasonable current and historical estimates available.

CIHI has also created the only comprehensive time series of under-five mortality estimates for all developing countries. This has been accomplished by developing mathematical equations from empirical data that describe the relationship between infant and under-five mortality. Using these equations it is possible to make estimates of under-five mortality from infant mortality or *vice-versa*. More details regarding CIHI's methodology for specific data sets are provided in the source references.

II. 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: Estimate of the proportion of women

aged 15 through 44 (sometimes 15 through 49) currently using a modern method of contraception. For some countries, this data is only available for women in union or married. 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. Low life expectancies in developing countries are in large part due to high infant mortality.

Maternal Mortality Rate (or Ratio): 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. 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: Mid-year estimate of total number of individuals in a country.

Total Fertility Rate: 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 age five per 1,000 live births in that same year. May 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 WHO. The indicator for the population as a whole is the proportion of children 12 through 23 months of age who are adequately nourished.

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. Values presented in this report 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 indicator is particularly difficult to measure and may fluctuate dramatically as various methods of estimation are devised.

ORT Use Rate: Estimate of the proportion of cases of diarrhea in children under five treated with ORS and/or RHF (a recommended home fluid). ORT use may be determined using administrative means or surveys. Administrative estimates are generally based on estimates of the number of episodes of diarrhea in the target population for a given year and the quantity of ORS available; these estimates are highly sensitive to changes in estimates of the frequency of diarrhea episodes. Surveys more precisely focus on the actual behavior of mothers in treating diarrhea in the two-week period prior to the survey.

Vaccination Coverage In Children: 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). 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: Estimate of the proportion of women in a given time period who have received two doses of tetanus toxoid (TT) during their pregnancies. A revised indicator, referred to as TT2+, is now commonly used to account for the cumulative effect of TT 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. (This number varies with number received previously and the time elapsed.) Rates are computed using administrative methods or surveys.

Other health sector indicators:

Access to Adequate Sanitation: Definitions vary over time. In the past, this 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). After WHO changed its indicators and definitions in the late 1980s, this is now defined as the proportion with reasonable access to sanitary means of excreta and waste disposal, including outdoor latrines and composting.

Access to Health Services: An estimate of the proportion of the population that can reach appropriate local health services by 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: Proportion 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 or protected boreholes. Reporting can be highly subjective. Varying definitions are used for reasonable access in urban/rural areas:

Access to Safe Water, Urban: 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: 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.

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 birth attendant.

HIV Prevalence: Estimate of the proportion of a given population infected with HIV.

III: SOURCES

- BUC9401 U.S. Bureau of the Census (BUCEN). International Data Base. Version dated March, 1994.
- CAL9602 Calculations of the annual number of women in the population ages 15-49. For each country, a percentage was derived from UN data on total population and women 15-49 and the percentage was then applied to the preferred estimate of total population.
- CAL9603 Calculated number of live births to women of reproductive years (15-49) in 1995. Calculated from the population multiplied by the crude birth rate for each country.
- CAL9604 Calculated number of deaths occurring to children under the age of 1 in a given year (1995). Figures based on the number of births multiplied by the infant mortality rate.
- CAL9606 Median value for aggregate of countries. Calculated using most recent preferred indicator values for all countries in the aggregate.
- DHS8902 Central Statistics Office, Ministry of Finance and Development Planning, Family Health Division, Ministry of Health, and Institute for Resource Development/Macro Systems, Inc. Botswana Family Health Survey II 1988. Columbia, MD: IRD, 1989.
- JEE9504 Under-five mortality (5q0) calculated from infant mortality (q0) using other sub-Saharan Africa equation (i.e. excluding West Africa): $5q0 = 1.35622 * \{q0\}^{1.04864}$.
- JEE9510 Infant Mortality Rate (1q0) curve based on BUCEN International Database estimates extrapolated to 1950.
- UNI9601 United Nations Children's Fund (UNICEF) and World Health Organization (WHO). Revised 1990 Estimates of Maternal Mortality: A New Approach by WHO and UNICEF, April, 1996.
- UNP9400 Department of International Economic and Social Affairs, United Nations. World Population Prospects 1994. (Tape) New York: UN, 1994.
- WHD8700 World Health Organization. Programme for Control of Diarrhoeal Diseases: Interim Programme Report 1986. (WHO/CDD/87.26) Geneva: WHO, 1987.
- WHD8800 World Health Organization. Programme for Control of Diarrhoeal Diseases: Sixth Programme Report 1986-1987. (WHO/CDD/88.28) Geneva: WHO, 1988.
- WHD9001 World Health Organization, Programme for Control of Diarrhoeal Diseases facsimile, March 27, 1990.
- WHD9100 World Health Organization. Programme for Control of Diarrhoeal Diseases: Interim Programme Report 1990. (WHO/CDD/91.36) Geneva: WHO, 1991.
- WHD9201 Programme For Control Of Diarrhoeal Diseases. Eighth Programme Report 1990-1991. WHO/CDD/92.38. Geneva: World Health Organization, 1992.
- WHE8700 World Health Organization. Expanded Programme on Immunization Information System Report, January 1987. Geneva: WHO, 1987.

- WHE8701 World Health Organization. Expanded Programme on Immunization Information System Report, July 1987. Geneva: WHO, 1987.
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