

THE DEMOGRAPHIC IMPACTS OF HIV/AIDS

PERSPECTIVES FROM THE WORLD POPULATION PROFILE: 1996

**Karen A. Stanecki
Peter O. Way**



**International Programs Center
Population Division
U.S. Bureau of the Census
Washington, D.C. 20233**

**IPC Staff Paper
No. 86
March 1997**

IPC STAFF PAPER
No. 86

THE DEMOGRAPHIC IMPACT OF HIV/AIDS

PERSPECTIVES FROM THE WORLD POPULATION PROFILE: 1996

by
Karen A. Stanecki
Peter O. Way

International Programs Center
Population Division
U.S. Bureau of the Census
Washington, D.C. 20233

March 1997

SUMMARY

In countries with high levels of human immunodeficiency virus (HIV) prevalence, acquired immunodeficiency syndrome (AIDS) mortality will have major demographic impacts on populations.

- Crude death rates will increase
- Infant and child mortality rates will increase
- Population growth will slow and in some countries become negative
- Life expectancies will fall

The HIV/AIDS pandemic is the most severe in Sub-Saharan Africa. And in this region, the most dramatic impacts will be in countries which have made the most progress in improving these mortality indicators over the past two decades (e.g., Botswana and Zimbabwe).

The HIV/AIDS epidemics continue to develop in Sub-Saharan Africa. Although HIV seroprevalence levels have stabilized or declined in some areas (Uganda), in other countries the epidemics are increasing rapidly (Botswana, South Africa). Some countries initially spared are now seeing increases in HIV seroprevalence (Nigeria, Cameroon).

The HIV epidemics in Asia are extremely diverse ranging from countries with low HIV prevalence rates (Mongolia, South Korea) to countries with high HIV prevalence (Thailand). The epidemic in India is diverse with high HIV prevalence levels in western and southern India, but low HIV seroprevalence levels in eastern and northern India.

In 1994, population projections for Thailand indicated negative population growth by the year 2010. As a result of increases in condom use and declines of other sexually transmitted diseases (STDs), the projected number of people expected to become HIV positive in Thailand is now less than previously projected. As a result, current projections show that at least through the year 2010, population growth will remain positive.

In the Caribbean and Latin American Region, current levels of HIV prevalence and subsequent AIDS mortality will have impacts on populations in Guyana, Haiti, and Brazil. The level of HIV prevalence in Guyana is similar to those seen in some Sub-Saharan African countries. HIV prevalence in Haiti has remained stable for several years--a pattern similar to the trends seen in Zaire.

The U.S. Bureau of the Census estimates and projects populations, population growth, fertility, life expectancy and infant mortality worldwide. For high HIV prevalence countries, we include the impact of AIDS mortality. This report presents these results.

PREFACE

The International Programs Center conducts specialized studies of population, economics, labor force, health and aging issues. However, the use of data not generated by the U.S. Bureau of the Census precludes performing the same statistical reviews normally conducted on its own data.

This report was supported by funding from the U.S. Agency for International Development.

Comments and questions regarding this study should be addressed to Karen A. Stanecki, Chief, Health Studies Branch, or Peter O. Way, Special Assistant, International Programs Center, Population Division, U.S. Bureau of the Census, Washington, D.C. 20233-8860; telephone (301) 457-1406; e-mail: kstaneck@census.gov or peter_o_way@cmail.census.gov.

TABLE OF CONTENTS

SUMMARY	iii
PREFACE	v
PERSPECTIVES FROM WORLD POPULATION PROFILE: 1996	1
CONCLUSION	8
TEXT FIGURES	11
APPENDIX	31
APPENDIX TABLES	37
BIBLIOGRAPHY	43

Text Figures

Figure

1. Empirical Evidence of AIDS Impact on Mortality	13
2. Crude Death Rate With and Without AIDS, East Africa: 2010	13
3. Crude Death Rate With and Without AIDS, Southern Africa: 2010	14
4. Crude Death Rate With and Without AIDS, West and Central Africa: 2010	14
5. Infant Mortality Rate With and Without AIDS, East Africa: 1996	15
6. Infant Mortality Rate With and Without AIDS, Southern Africa: 1996	15
7. Infant Mortality Rate With and Without AIDS, West and Central Africa: 1996	16
8. Infant Mortality Rate With and Without AIDS, Selected Countries: 1996	16
9. Infant Mortality Rate With and Without AIDS, East Africa: 2010	17

CONTENTS--Continued

10. Infant Mortality Rate With and Without AIDS, Southern Africa: 2010	17
11. Infant Mortality Rate With and Without AIDS, West and Central Africa: 2010	18
12. Infant Mortality Rate With and Without AIDS, Selected Countries: 2010	18
13. Child Mortality Rate With and Without AIDS, East Africa: 1996	19
14. Child Mortality Rate With and Without AIDS, Southern Africa: 1996	19
15. Child Mortality Rate With and Without AIDS, West and Central Africa: 1996	20
16. Child Mortality Rate With and Without AIDS, Selected Countries: 1996	20
17. Child Mortality Rate With and Without AIDS, East Africa: 2010	21
18. Child Mortality Rate With and Without AIDS, Southern Africa: 2010	21
19. Child Mortality Rate With and Without AIDS, West and Central Africa: 2010	22
20. Child Mortality Rate With and Without AIDS, Selected Countries: 2010	22
21. Growth Rates With and Without AIDS, East Africa: 2010	23
22. Growth Rates With and Without AIDS, Southern Africa: 2010	23
23. Growth Rates With and Without AIDS, West and Central Africa: 2010	24
24. Growth Rates With and Without AIDS, Selected Countries: 2010	24
25. Life Expectancy With and Without AIDS, East Africa: 1996	25
26. Life Expectancy With and Without AIDS, Southern Africa: 1996	25
27. Life Expectancy With and Without AIDS, West and Central Africa: 1996	26
28. Life Expectancy With and Without AIDS, Selected Countries: 1996	26
29. Life Expectancy With and Without AIDS, East Africa: 2010	27

CONTENTS--Continued

30. Life Expectancy With and Without AIDS, Southern Africa: 2010	27
31. Life Expectancy With and Without AIDS, West and Central Africa: 2010	28
32. Life Expectancy With and Without AIDS, Selected Countries: 2010	28
33. HIV Seroprevalence for Pregnant Women in Selected Urban Areas of Africa: 1985-1995 .	29
34. HIV Seroprevalence of Adult Population Masaka, Uganda by Age and Sex: 1989-90	29

Appendix Tables

Table

A-1. Empirical Seroprevalence Data For Urban And Rural Areas of Selected Countries	39
Demographic Indicators for 1996 With and Without AIDS	40
Demographic Indicators for 2010 With and Without AIDS	41

Demographic Impacts of HIV/AIDS Perspectives from the World Population Profile: 1996

AIDS Mortality Will Have Major Demographic Impacts on Populations in Countries Where the Epidemic Is Most Severe

Deaths resulting from AIDS are having demonstrable impacts on populations, particularly in countries where HIV prevalence is high. Recent cohort studies in Uganda have reported high levels of mortality due to AIDS in those age groups that generally have low levels of mortality (Figure 1). In Masaka, Uganda, where 8 percent of adults (13 years or more) are HIV positive, 89 percent of deaths between the ages of 25 and 34 are due to AIDS.¹ In Rakai District, where 21 percent of the adult population (15 years or more) is HIV positive, 87 percent of deaths between the ages of 20 and 39 are due to AIDS.²

As a result of these mortality levels due to high HIV prevalence, all mortality indicators will be affected. Within the next decade, crude death rates will increase by more than 50 percent in some countries and will more than double in others. Infant mortality rates and child mortality rates will increase. And perhaps the most significant impact will be seen in projected life expectancies due to the increases in mortality in the young adult ages.

The U.S. Bureau of the Census estimates and projects populations,^{3,4} population growth, fertility, life expectancy and infant mortality worldwide. For high HIV prevalence countries, we include the impact of AIDS mortality. This report presents these results.

Crude Death Rates Will be Higher

The most direct impact of AIDS is to increase the number of deaths in populations affected. By the year 2010, crude death rates, number of people dying divided by the number of people in the

¹Mulder, DW, AJ Nunn, HU Wagner, *et al.* 1994. "HIV-1 Incidence and HIV-1 Associated Mortality in Rural Ugandan Population Cohort." *AIDS*, Vol. 8, no. 1, pp. 87-92.

²Sewankambo, NK, MJ Wawer, RH Gray, *et al.* 1994. "Demographic Impact of HIV Infection in Rural Rakai District, Uganda: Results of a population-Based Cohort Study." *AIDS*, vol. 8, no. 12, pp. 1707-1713.

³U.S. Bureau of the Census. 1996. *World Population Profile: 1996*. Report WP/96, U.S. Government Printing Office, Washington, D.C.

⁴U.S. Bureau of the Census. International Data Base. International Programs Center, Population Division, Washington, D.C.

population, will be considerably higher in those countries severely affected by the HIV/AIDS epidemics.

In Africa, HIV epidemics have had their greatest impact in the eastern and the southern regions. HIV prevalence levels in many urban areas either are at or are approaching 25 percent among the general population. And in many countries in these regions, reports indicate the presence of the virus since the early 1980's.

As a result of these long-term high levels of HIV infection, estimated crude death rates including AIDS mortality will be greater by at least 50 percent to almost 500 percent in eastern and southern Africa over projected crude death rates without AIDS. In eastern Africa, the projected crude death rate with AIDS mortality will be 50 percent greater than the projected crude death rate without AIDS in Ethiopia, will almost double in Burundi, and will more than double in Tanzania and Uganda. In southern Africa, where projected non-AIDS crude death rates are relatively low, AIDS mortality will have an even larger impact on crude death rates. By the year 2010, AIDS mortality will produce an the estimated crude death rate nearly sixfold higher in Zimbabwe, fourfold in Botswana, and threefold in Zambia than would have been expected without AIDS (Figures 2 and 3).

Country	With AIDS	Without AIDS
Burundi	17	9
Ethiopia	18	12
Tanzania	24	9
Uganda	24	9
Botswana	29	6
Zambia	29	9
Zimbabwe	29	5

In west and central Africa, where the prevalence of HIV has remained lower than in eastern or southern Africa, estimated crude death rates with AIDS will still be greater than what would have been expected without AIDS. Crude death rates will be more than double due to AIDS mortality in Burkina Faso, Central African Republic, the Congo, and Côte d'Ivoire. Although the difference between the projected crude death rate with AIDS mortality and the crude death rate that would have been expected without AIDS will be relatively less in Nigeria, 9.2 per 1,000 versus 7.1 per 1,000, the difference will amount to an additional 300,000 deaths due to AIDS in the year 2010 (Figure 4).

In other parts of the world, AIDS mortality will result in higher crude death rates in Thailand, Brazil, Guyana and Haiti over what would have been expected without AIDS.

AIDS Will Reverse the Recent Declines in Infant Mortality Rates....

Infant mortality rates⁵ will increase due to AIDS reversing the declines that had been occurring in many countries over the past decades. Over 30 percent of all children born to HIV infected mothers in Sub-Saharan Africa will themselves become HIV positive. The relative impact of AIDS on infant mortality will depend on both the level of HIV in the population and the infant mortality rate from other causes. Those countries that had significantly reduced non-AIDS infant mortality will see a greater relative impact.

Even today, AIDS is affecting infant mortality rates. In eastern Africa, for example, without AIDS, Kenya would have an infant mortality rate of 46.9 per 1,000 births, but as a result of the AIDS epidemic, the infant mortality is now 55.3. Likewise, in southern Africa, in Zambia and Zimbabwe, estimated infant mortality rates are more than 25 percent higher than what they would have been without AIDS. In Zambia, infant mortality rates are now 96.1 per 1,000 live births rather than 74.3 and in Zimbabwe where infant mortality rates without AIDS would have been 51.7, they are now estimated to be 72.8 with the AIDS epidemic (Figures 5-8).

By the year 2010, Kenya would have expected an infant mortality rate of 32.9 per 1,000 births. With the AIDS epidemic, an estimated 55.9 infants per 1,000 live births will die in the year 2010, 70 percent greater. Projected infant mortality rates in Tanzania and Uganda will be over 40 percent higher than projected rates without AIDS (Figure 9).

In southern Africa, with rapidly increasing epidemics in Botswana and Zimbabwe, projections indicate that deaths due to AIDS will more than double infant mortality rates.

In Malawi, where infant deaths due to other causes are high, AIDS mortality will inflate infant mortality rates more than 40 percent over what would have been expected without AIDS by the year 2010. And in Zambia, infant mortality rates will be more than 60 percent higher (Figure 10).

In countries with a less severe epidemic, for example, in western and central Africa, infant mortality rates are already higher and will be 10 to 25 percent higher over what would have been expected without AIDS by the year 2010. In west Africa, projected infant mortality rates will be over 35 percent higher in Burkina Faso from 73.7 to 101.9 and in Côte d'Ivoire from 48.4 to 65.4 due to AIDS mortality. In Nigeria and Zaire, the infant mortality rates will be about 10 percent higher by the year 2010 (Figure 11).

Selected Infant Mortality Rates: 2010

Country	With AIDS	Without AIDS
Kenya	55.9	32.9
Tanzania	90.9	65.2
Uganda	86.1	58.5
Botswana	66.1	26.3
Malawi	126.1	88.4
Zimbabwe	71.0	29.8
Zambia	97.4	58.4

⁵Infant mortality rate is the number of deaths of infants under 1 year of age from a cohort of 1,000 live births.