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# **Twenty-first Century Threats: HIV/AIDS Transcript**

Date: Monday, 27 February 2012 - 6:00PM

Location: Barnard's Inn Hall

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## **Twenty-first Century Threats: HIV/AIDS**

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Professionally, I came across the issue of HIV/AIDS for the first time in 1999. I had just joined the International Monetary Fund as an economist, and was put in charge of the Swaziland desk. How do you assess the economic prospects, and provide economic policy advice in a country where 25 percent of the adult population is infected with a deadly disease, and expected to die over the next 10 years? I have later worked with people at the IMF, The World Bank, UNAIDS, and other places to provide answers to these questions.

Over the last few years, I have worked more closely with the World Bank and UNAIDS to understand the fiscal consequences of HIV/AIDS and the national response to it, and inform the financing and the design of HIV/AIDS programs.

Today's presentation builds on this experience, describing HIV/AIDS as a complex health and development challenge or – as this lecture series puts it – a twenty-first century threat. In addition to the immediate health impacts, we will be looking at macroeconomic, distributional, and social aspects of the epidemic, and discuss the global response to HIV/AIDS from this angle.

### The State of the Epidemic

HIV/AIDS is a relatively new disease. It is thought to have emerged as early as the 1930s. However, the first cases of AIDS were documented only in 1981 among gay men in the United States. Soon after, a wasting disorder that had spread in Eastern Africa was attributed to AIDS. By 1984, the human immunodeficiency virus was established as the cause of AIDS. By the mid-1980s, cases of HIV infection among heterosexual people became more common. At this time, the scale of the epidemic in Africa, and especially in Uganda, became increasingly apparent. The first drug for treating AIDS was approved in 1987.

By the late 1980s, the epidemic had spread globally, and it is estimated that 9.5 million people were already living with HIV/AIDS in 1990. From that time on, the epidemic continued to escalate. The number of new infections rose from 1.8 million annually in 1990 to 3.2 million in 1994, and peaked at about 3.4 million in 1997. Since then, HIV incidence has declined, but new infections remain high, at 2.7 million as of 2010. Consequently, the number of people living with HIV/AIDS continues to increase, to 27 million in 2000, and 34 million in 2010.

From about 2004, the course of the epidemic reflects a major new development – the global scaling-up of treatment. Initially, very few people – about 100,000 – in developing countries were receiving treatment. Expanding access to treatment was a priority of the global response to HIV/AIDS, and the focus of the World Health Organisation's "3 by 5" Initiative – aiming to extend treatment to 3 million people by 2005. This drive to scale up treatment was largely successful. By 2010, the number of people receiving treatment across low- and middle-income countries reached 6.6 million, and the number of AIDS deaths was reduced by about one-third. However, the WHO and UNAIDS estimate that at least 15 million people were requiring treatment in that year. This means that less than one-half of people in need of treatment were receiving it.

The perception of HIV/AIDS as a major global health and development challenge has motivated an unprecedented global response. The Joint United Nations Program on HIV/AIDS – in short: UNAIDS – was established in 1995, and charged with coordinating the international response. The United Nations have held several Special Sessions on HIV/AIDS, and have placed HIV/AIDS highly among the Millennium Development Goals. The concerns about HIV/AIDS have also motivated the establishment of the Global Fund to Fight HIV/AIDS, Tuberculosis, and Malaria. The Global Fund is largely funded by national governments, and is providing support to national programs to fight these diseases. About 60 percent of its budget is dedicated to funding HIV/AIDS programs.

The exceptional role that the international community has attributed to HIV/AIDS is also apparent from the financial support to the global response to HIV/AIDS. UNAIDS estimates that HIV spending from public sources amounted to US\$ 15.9 billion across low- and middle-income countries in 2009, of which external aid accounted for almost one-half (US\$ 7.6 billion). This is a staggering number: It means that HIV/AIDS disbursements accounted for 5 percent of global development assistance, and for 38 percent of disbursements in the areas of health and population policies.

In spite of these achievements, the global response to HIV/AIDS appears to be in a state of crisis. HIV/AIDS funding has not kept pace with the increasing costs of the global response to HIV/AIDS. Most visibly, the Global Fund has recently postponed its call for funding proposals, because of concerns about its own funding sources. As a consequence, the head of the Global Fund has resigned.

### The Global Health Impact of HIV/AIDS

What explains, or justifies, the status of HIV/AIDS as a global challenge or, as the title of this lecture series puts it, as a "Twenty-first Century Threat?" To find an answer to this question, I will look at two aspects of the epidemic – the contribution to the global burden of disease and the distribution of the epidemic across countries. The reasoning is that an epidemic qualifies as a global health challenge if it scores high according to two criteria:

It contributes, or threatens to contribute, significantly to the burden of disease. It is correlated with other development challenges.

The second criterion deserves some explanation, as it transcends the sphere of public health. However, it does reflect a powerful motive behind the global response. The vast majority of people living with HIV/AIDS are located in developing countries, and – unsurprisingly – a disproportionate share of deaths occurs there. At the outset, it is therefore a legitimate concern that HIV/AIDS is widening global disparities in living standards, and that it undermines the development prospects among some of the most disadvantaged countries.

From a global bird’s-eye perspective, the impact of HIV/AIDS is fairly small. HIV/AIDS-related mortality accounted for about 3 percent of all deaths. Over the last 20 years, crude mortality declined by 14 percent globally, and would have declined by 17 percent in the absence of HIV/AIDS. This means that HIV/AIDS has wiped out the equivalent of health gains in other areas achieved in about 4 years.

Compared to other sources of mortality, HIV/AIDS accounts for one in seven deaths from communicable diseases. 20 times more, people die from non-communicable diseases than die from AIDS-related causes.

The profile of HIV/AIDS-related deaths, however, is peculiar, as mortality is concentrated among young adults. It therefore makes more sense to look at the impact of HIV/AIDS among mid-age adults, or premature adult deaths. The WHO, for example, reports deaths between ages 15 and 59, which excludes deaths among infants and children, and most deaths from typical age-related conditions. By this count, the impact of HIV/AIDS appears much more pronounced, accounting for 8 percent of premature adult deaths.

One important aspect of HIV/AIDS is the fact that it is concentrated in a number of countries, especially in sub-Saharan Africa. Of 33 million people living with HIV/AIDS globally, 23 million are located in sub-Saharan Africa. This is significant because the region also includes many of the poorest countries globally. At least in terms of crude regional averages, it therefore appears that the health impact of HIV/AIDS exacerbates economic disadvantages in living standards. The role of HIV/AIDS across sub-Saharan Africa is also apparent from the mortality data. HIV/AIDS accounts for 13 percent of all deaths. Compared to the global average, this rate understates the impact of HIV/AIDS in Africa in one important regard. Other sources of mortality are also more prevalent in Africa. In absolute terms, the contribution of HIV/AIDS to mortality is 5 times higher in Africa, compared to the global average.

As noted earlier, crude mortality is a mixed bag, as far as the contribution of HIV/AIDS to the burden of disease is concerned, as it also includes age groups where HIV/AIDS plays little or no role. The contribution of HIV/AIDS to premature adult deaths therefore gives a sharper picture of the health impact of HIV/AIDS. Across Africa, HIV/AIDS accounts for more than one-quarter of deaths between ages 15 and 59.

One word of caution – it is well-known that the HIV epidemic is concentrated in sub-Saharan Africa. At the same time, there are large differences in HIV prevalence across countries. The region includes a number of countries, like Eritrea, Niger, and Mauretania, where HIV prevalence is below one percent, similar – for example – to the United States. On the other hand, the region includes a number of countries where HIV prevalence exceeds 10 percent, and a few countries where it is over 20 percent. While it is true that the HIV epidemic is concentrated in sub-Saharan Africa, it is also distributed very unevenly across Africa.

One of the aspects of the “threat” of HIV/AIDS is the extent to which it is bound up with other development challenges. Let’s take a closer look at this economic dimension. It is also a good opportunity to compare HIV/AIDS with some other diseases commonly tied up with economic development or poverty. Judging from the contribution to mortality, tuberculosis, HIV/AIDS, and malaria are all diseases of development, playing a disproportionate role in developing countries.

|                     | World       | Lower-Middle-Income Countries |                    | Low-Income Countries |                    |
|---------------------|-------------|-------------------------------|--------------------|----------------------|--------------------|
|                     | (Thousands) | (Thousands)                   | (Percent of Total) | (Thousands)          | (Percent of Total) |
| Total Population    | 6,737,480   | 3,834,641                     | 56.9               | 826,417              | 12.3               |
| Total deaths        | 56,888      | 30,650                        | 53.9               | 9,290                | 16.3               |
| Infectious Diseases | 8,721       | 4,687                         | 53.7               | 3,149                | 36.1               |
| o/w TBC             | 1,342       | 845                           | 63.0               | 402                  | 30.0               |
| o/w HIV/AIDS        | 1,776       | 656                           | 36.9               | 725                  | 40.8               |
| o/w Malaria         | 827         | 343                           | 41.5               | 481                  | 58.2               |

Source: WHO, 2011, "The Global Burden of Disease: 2008 update" (Geneva: WHO).

[Note that the table uses some development shoptalk. The World Bank classifies the 35 poorest countries globally as low-income countries, e.g. Ethiopia, Kenya, Malawi, Mozambique, and Zimbabwe. The tier of lower-middle-income countries includes the next 56 countries, including some HIV/AIDS hotspots like Lesotho or Swaziland. Some of the countries with the highest HIV prevalence rates, like Botswana or South Africa, are classified as upper-middle-income countries.]

According to the burden of disease across income groups, however, both HIV/AIDS and tuberculosis are not straightforward diseases of development. Tuberculosis is concentrated in lower-middle-income countries, but

less so in the lowest income group. Fewer HIV/AIDS deaths – 77 percent – occur among low- and lower-middle-income countries than is the case for infectious diseases more generally, where 90 percent of deaths occur in these countries. This number could be misleading, though, as South Africa, an upper-middle-income country, plays such a large role. According to the burden of mortality, the typical disease of development is malaria. Over 99 percent of deaths occur in low- and lower-middle-income countries, and mortality is tilted towards the poorest countries in this group. On the other hand, the contribution of HIV/AIDS to mortality in absolute terms is higher than for malaria both in low-income- and in lower-middle income countries.

I don't mean to conduct a horse race. I am trying to come to grips with the challenges posed by HIV/AIDS. The extent to which it is tied up with economic development is important because it is meaningful in terms of a country's capacities to respond to the epidemic, in terms of the impacts of the epidemic on the household level, and in terms of motives for support along the lines of development assistance. These broad assessments of the impact of HIV/AIDS – by region or income – do not capture one critical aspect of HIV/AIDS. It is distributed very unevenly across countries. I had noted that HIV prevalence in sub-Saharan Africa is lower than in the United States in some countries, but the continent also includes countries with HIV prevalence as high as 20 percent. Most people have a broad idea of the global distribution of income and would consider it uneven. Looking at the distribution of HIV/AIDS through the same lens, it appears that it much more uneven than the global distribution of income. For example, the richest countries with 5 percent of the global population control 28 percent of global income, and countries representing 9.4 percent of the global population control 50 percent of global income. With HIV/AIDS, the worst-affected countries with 1 percent of the global population represent 22 percent of the global population of people living with HIV/AIDS. Outside this group, HIV prevalence is already sharply lower – 8.2 percent of the global population account for 50 percent of people living with HIV/AIDS.

This country-specific perspective also offers additional insights on the challenges posed by the impact of the epidemic. As noted, HIV/AIDS is not a straightforward disease of development. The statistical association between HIV prevalence and GDP per capita is very weak. The impact of HIV/AIDS can be seen across the global income distribution. There is a cluster of countries with fairly high HIV prevalence at low levels of income. And HIV prevalence is low among high-income countries. In between, countries with very high HIV prevalence coexist with countries with very low HIV prevalence at all levels of the global income distribution.

Let's return to the discussion of diseases tied up with barriers to economic development, specifically malaria. As for HIV/AIDS, malaria deaths are clustered at low levels of economic development, and there also are countries with endemic malaria across the middle-income bracket. There are, however, three apparent differences between malaria and HIV/AIDS. First, the average number of AIDS deaths is higher than it is for malaria. Second, HIV/AIDS is distributed more unevenly. Third, whereas malaria-related mortality does not exceed 0.2 percent in any country, AIDS-related mortality well exceeds 0.5 percent in a number of countries, and can be much higher.

Where does this take us? I would draw at least three lessons. First, HIV/AIDS is tied up with other development challenges. HIV prevalence and especially mortality tend to be higher in low-income countries. Second, in this regard, HIV/AIDS does not stand out from other infectious diseases, which may be concentrated even more among less developed countries. Third, a peculiar aspect of HIV/AIDS is the high concentration in a number of countries – 1 percent of the global population account for 22 percent of people living with HIV/AIDS. This means that HIV/AIDS represents a massive challenge in a number of low-income countries with high HIV prevalence. It also explains the focus on HIV/AIDS in countries like South Africa or Botswana – countries which are among the most successful developing economies, but where the devastating impact of HIV/AIDS has reversed health gains achieved over many decades, and where managing and financing the response to the epidemic poses steep challenges, even given their economic and fiscal resources.

#### Economic Development Impacts of HIV/AIDS

We are now turning to some of the countries with very high HIV prevalence, where the health and economic impacts are most apparent. The most immediate and serious impacts of HIV/AIDS, of course, occur in the area of public health.

The scale of the health consequences of HIV/AIDS is apparent from estimates of life expectancy over time, as illustrated for 8 countries with very high HIV prevalence. Southern Africa, including countries like Botswana, Lesotho, Namibia, South Africa, and Swaziland, was a very successful region in terms of health achievements (as well as economically). Between 1950 and the late 1980s, life expectancy rose from between 40 and 47 years to between 55 and over 60 years. Over the next 10 to 15 years, the impact of HIV/AIDS drove up mortality rates, and life expectancy dropped back to about the level last observed in the 1950s. Even in countries with somewhat lower HIV prevalence, like Malawi and Mozambique, the epidemic cut close to 10 years from life expectancy.

The good news in this otherwise dire picture is the rebound that took place in most countries over the last 5 years, largely reflecting the scaling-up of treatment. However, even with very high treatment coverage, as in countries like Botswana, life expectancy remains depressed, and far below the level attained before the epidemic hit. With or without treatment, life expectancy of a person living with HIV/AIDS remains severely reduced.

What are the economic consequences of this health shock? According to the available macroeconomic data, the impacts of HIV/AIDS on GDP per capita are very small. GDP per capita has not grown markedly differently in countries where life expectancy has dropped by 10 years or more, compared to other countries in sub-Saharan

Africa. And in some countries where GDP growth dropped since 1990, there are additional plausible reasons, such as destructive economic policies as in Zimbabwe, or the slowdown in the expansion of the mining sector in Botswana.

This empirical evidence is consistent with evidence from business surveys. HIV/AIDS is not one of the major issues that business managers in South Africa are concerned about. Even before the onset of the global economic crisis, HIV/AIDS would typically be rated towards the bottom of a list of 10 potential business concerns. On the other hand, there is evidence that increased morbidity caused by HIV/AIDS does reduce the productivity of workers.

The solution to the puzzle, I believe, is that the impact of HIV/AIDS differs across sectors. In the most valuable sectors, value added per worker is very high. For example, in the mining sector in Namibia it was US\$71,500 per employee in 2004, which is 25 times the level of value added per employee observed in agriculture. Compared to this, the costs of providing treatment to employees and their families, or of taking measures to avoid health-related disruptions to the production process, are trivial.

This example from Namibia is relevant across Southern Africa, where value-added tends to be concentrated, and income distributions are amongst the most uneven globally. I argue that, because of high economic inequality, the macroeconomic impact of HIV/AIDS in Southern Africa has been small. This coin, however, has two sides. While high inequality mitigates the macroeconomic impact of HIV/AIDS, it exacerbates the social consequences of the epidemic. This is an area where the evidence is sketchy and does not generalise well, so I can offer only some conjectures.

HIV/AIDS has been shown to have a significant impact on the productivity of manual labour, and on crop patterns. Agricultural and other manual workers, or subsistence farmers, however, tend to be located at the lower end of the income distribution, and be reliant on their labour incomes. Additionally, a loss in income at or above the poverty line has immediate consequences for the well-being of household members.

The risks to incomes are exacerbated by inequalities in access to health services. In South Africa, private health insurance is de facto reserved for the highest three or four deciles of the income distribution. While the poorest households spend 1.3 percent of their incomes on health "out of pocket," the richest households spend 1.8 percent of their incomes. However, the richest households additionally spend 4.7 percent of their incomes on private health insurance, but the poorest half of the population only 0.2 percent of their incomes. As a consequence, while incomes between the richest decile and the poorest decile differ by a factor of 17, private health spending differs by a factor of 66, and spending on private health insurance by a factor of 232.

As a consequence, poor households are economically vulnerable to the costs of illness. A recent example from Jamaica illustrates the economic costs of illness to households, and the consequences for access to health services. For households seeking health care because of an episode of illness, the private costs of services and drugs (on top of public services used) amounted to one-half of per capita income for the poorest quintile, whereas it was only 20 percent for the richest quintile. Additionally, the utilisation of health services differed across income groups. Whereas 82 percent of members of the richest quintile who report an episode of illness did seek care, it was only 65 percent for the lowest quintile. In this environment, HIV/AIDS impoverishes poorer households - it is a persistent health condition, not only an episode of illness, and the costs of accessing care are probably above the costs of average health conditions.

In summary, while social inequalities played a role in mitigating the macroeconomic impacts of HIV/AIDS, the epidemic exacerbates social inequalities. In this context, access to HIV/AIDS-related services has a strong social and development component, in addition to the public health consequences.

The prospect that the macroeconomic impact of HIV/AIDS is very small may appear offensive to some who take note of the devastating health consequences. This irritation is justified, but only when living standards are equated to GDP per capita. This is a fairly good idea when economic progress coincides with improvements in health, education, or other dimensions of well-being. This link, obviously, is broken in countries facing a massive health shock like a major HIV epidemic.

There are two approaches which have been developed to assessing the consequences of a health shock to living standards. One is the human development index promoted by the United Nations Development Program. It combines measures of GDP per capita, life expectancy, and educational standards. As an example for the consequences of the impact of HIV/AIDS, consider Swaziland. In 1980, Swaziland's level of human development was at about the same level as in China and Guatemala, and it improved faster than in these countries. Since 1990, Swaziland's level of human development has declined in absolute terms. It is therefore no longer on par with China. Instead, Swaziland's human development index is now at on a level similar to Pakistan (where GDP per capita is about one-half of Swaziland's) and Nepal (where GDP per capita is about one-fifth of Swaziland's).

The other approach starts from individual valuations of health risks - more dangerous occupations demanding higher salaries - or valuations of lives saved used by government agencies. Such data can be interpreted to obtain estimates of the costs of a health shock in percent of GDP. With apologies for the somewhat blurred image, let's look at some of these estimates. HIV/AIDS has resulted in a loss of life expectancy of about half a year in India and the United States, but 13 years in South Africa, and 17 years in Zimbabwe. The costs of

increased mortality are equivalent to about one percent of GDP in the former two countries, but about one-half of GDP in South Africa, and two-thirds in Zimbabwe. These costs appear shockingly or even implausibly high, but it is necessary to bear in mind that the drops in life expectancy reverse several decades of health gains. Another point that strikes the eye is the contribution of HIV/AIDS to the growth of living standards – in several countries (like Kenya or South Africa), the adverse impact of HIV/AIDS has more than offset gains in GDP per capita, so that living standards have declined overall.

### The Global Response to HIV/AIDS

What I have attempted to communicate so far is a perspective of HIV/AIDS as a complex development challenge, which can be described as the most severe adverse global health shock in modern times. Unusually, the impact of this health shock is highly concentrated in a number of countries. While the macroeconomic consequences of HIV/AIDS are unclear, the epidemic exacerbates social inequalities. The concerns about the health and development impacts of HIV/AIDS have motivated an unprecedented global response, which in some regards has been a major success.

Most visibly, the global response has succeeded in extending treatment to 6.6 million people across developing countries, saving millions of lives and improving the living standards of people living with HIV/AIDS and their families. From an economic development angle, the global response to HIV/AIDS has also mitigated widening inequalities in living standards across countries, and also within countries.

The global response to HIV/AIDS, however, is built on a business model that has turned out to be unsustainable. In many countries, the national response to HIV/AIDS depends on external funding. Spending needs continue to increase steeply, largely as a consequence of increasing access to treatment. As mortality among people receiving treatment is reduced steeply, and a large number of people newly seek treatment, the number of people receiving treatment will continue to rise steeply over the coming years. However, new commitments from donors have stagnated over the last years, and actual disbursements have been declining.

This equation does not add up, and institutions like UNAIDS or the Global Fund are now under intense pressure to improve the cost-effectiveness of HIV programs, and to win over increasingly sceptical or cash-strapped donors. This situation also puts the gains achieved by the global response to HIV/AIDS at risk. Not only in terms of the gains achieved in extending access to treatment, but also in terms of containing reversals in living standards among least-developed countries.

Not surprisingly, countries with high HIV prevalence spend more on their national HIV/AIDS programs, both absolutely and relative to GDP. The most important determinant of the challenge of financing the HIV/AIDS program, however, is GDP per capita. Most countries with a very high level of HIV/AIDS spending, in percent of GDP or relative to government revenues, are low-income countries. Moreover, these low-income countries facing a very high financing burden include a number of countries where HIV prevalence is well below 10 percent.

Donors in the past have recognised these challenges, funding over 90 percent of the costs of national HIV/AIDS programs in least-developed countries, and a steadily declining share of the costs as GDP per capita increases. As a consequence, the domestic fiscal burden of financing HIV programs have been fairly even across countries, with few countries where the domestic financing burden exceeded 0.3 percent of GDP.

### Where do we go from here?

One obvious consequence of the current predicament is the need to transform the global response to HIV/AIDS, and improve cost-effectiveness. The global response to HIV/AIDS has been innovative in creating new institutions to coordinate the policy response and its funding, with UNAIDS and the Global Fund. However, in many countries, the management of the national HIV/AIDS program remains accountable to multiple donors, and much of its staff dependent on project funding. Reconciling the different stakeholders and coordinating between the donor objectives and the national health and development strategies can be a challenge.

Moreover, the global response to HIV/AIDS took off in an emergency and learning mode. As experience accumulates, it is necessary and feasible to test interventions in terms of their cost-effectiveness and consistency with national development objectives, and tackle vested interests which have developed in a period in which money was flowing freely.

One of the most complex challenges is reinforcing the drive to bring down the number of new infections. The global response to HIV/AIDS has been rather successful in bringing down mother-to-child infections, achieving safe blood transfusions, and reducing HIV prevalence among young people in many countries. It has been less successful in reducing HIV incidence among certain risk groups like men who have sex with men and injecting drug users. As a consequence, the epidemic in most countries now is characterised as a “concentrated” epidemic, and only few countries experience a “generalised” epidemic. As these risk groups play a large role in passing on the virus, including to the general population, this failure constrains further progress in reducing HIV incidence.

Finally, external support plays a crucial role in low-income countries, and these countries are most vulnerable to a decline in external funding. For a country in which external funding accounts for 90 percent of funding of its national HIV/AIDS program, a decline in external support by 20 percent means that domestic financing would need to almost treble to sustain spending.

Avoiding disruptions in these countries as the global HIV/AIDS financing architecture is changing, will be a major challenge for the sustainability and credibility of the global response to HIV/AIDS.

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