

# **THE IMPACT OF THE AIDS EPIDEMIC ON SCHOOLING IN SUB-SAHARAN AFRICA**

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## **LIST OF ACRONYMS**

AiW	Aids in the Workplace
ARVs	Anti-retroviral drugs
CBOs	community based organisations
COTB	Children on the Brink
CSO	Central Statistical Office
DFID	Department for International Development
DHS	Demographic and Health Surveys
EFA	Education for All
G&C	Guidance and Counselling
HPCs	High prevalence countries
ILO	International Labour Organisation
NACA	National AIDS Coordinating Council, Botswana
NGOs	non-governmental organisations
SMRs	Standardised mortality rate
SSA	sub-Saharan Africa
STDs	sexually transmitted diseases
UNDP	United Nations Development Programme
UNICEF	United Nations Childrens Fund

## **ABSTRACT**

This report assesses the actual and likely impacts of HIV/AIDS epidemic on schooling in sub-Saharan Africa. In particular, it reviews available evidence concerning the school attendance of orphans and morbidity and mortality among teachers in high prevalence countries. The main conclusion is that, while the epidemic poses a sizeable threat to the provision of basic and other education and training in some African countries, the likely overall impact of the epidemic in the continent as a whole will not be as catastrophic as has been widely suggested.

## EXECUTIVE SUMMARY

This report reviews the available evidence on the actual and likely impacts of the AIDS epidemic on teachers and pupils in sub-Saharan Africa. It focuses on the main findings of three country studies, which provide detailed empirical evidence of the impact of the epidemic on the education sector. The three countries are Botswana, Malawi and Uganda. In addition, information from other impact assessments and relevant information has also been drawn upon.

The main conclusion of this review is that the epidemic poses a sizeable threat to the provision of basic and other education and training in some African countries. However, the likely overall impact of the epidemic in the continent as a whole will not be as catastrophic as is widely suggested.

Chapter 2 focuses on the impact of the epidemic on teachers with respect to increased morbidity and mortality. The AIDS epidemic is expected to have a highly adverse impact on the overall staffing in the education sector, especially in the high prevalence countries (HPCs). Unless appropriate measures are taken, the morale, motivation, and overall performance of all teachers and support personnel could be adversely affected. This in turn would lead to some deterioration in the quality of education. It is also frequently asserted that teachers are a high-risk group with respect to HIV infection and that they will therefore be more seriously affected by the epidemic than the adult population as a whole. However, the findings of the three country studies combined with additional information from other countries indicate that teachers are probably not a high-risk group with respect to HIV infection.

AIDS-related morbidity is expected to be one of the most serious impacts of the epidemic on school systems in SSA. Sickness lowers teaching quality and results in higher rates of teacher absenteeism. Longer-term, persistent absenteeism is particularly disruptive. However, even at that this late stage of the epidemic, no good-quality data is available on the extent and causes of teacher absenteeism over time in any country in SSA. Low teacher morale and motivation is a significant problem in many, perhaps the majority, of schools in Africa. However, the school surveys found little evidence to show that lower teacher morale and motivation could be directly attributed to the impact of the epidemic. Furthermore, there was little serious overt discrimination against teachers and pupils directly affected by HIV/AIDS.

Chapter 3 looks at the three groups of schoolchildren whose lives are most directly affected by the AIDS epidemic, namely children who are HIV positive, children in households with sick family members, and children whose parents or guardians have died of AIDS. Information on the numbers of children directly affected by the epidemic is very limited in most countries in SSA. Detailed surveys have rarely been undertaken and, typically, estimates of the sizes of these three groups vary considerably in any one country. The most widely used estimates of national orphan populations seriously overestimate the size of the orphan population in most countries in SSA. Data from household surveys shows that in the worst affected countries between 3 to 5 per cent of children were double or maternal orphans in the mid-late 1990s and that the increase in the incidence of orphans during the 1990s was much less than is usually suggested. In

some countries (including Tanzania and Uganda) the incidence of two-parent orphans actually declined.

The education of children who are most directly affected by the epidemic can be adversely affected in a number of ways. The main contention is that, given very difficult home situations, both orphans and children in AIDS-affected households are often forced to dropout of school altogether with little chances of ever returning to school. However, the school surveys in Botswana, Malawi and Uganda as well as other more recent studies indicate that the relationship between parental status and school attendance is very complex and the impact of orphanhood on school performance is often not as great as is generally believed to be the case. For example, in Botswana, overall rates of absenteeism among orphans are relatively low. There are three main reasons for this. First, household demand for child labour is generally low and can usually be met during out of school hours. Second, orphans have particularly strong material and emotional/psychological incentives to attend school. And thirdly, the provision of school meals is a strong material incentive to attend school among disadvantaged children.

In very poor countries, such as Malawi and Uganda, the overriding issue is that absenteeism is very high among most primary schoolchildren, regardless of their parental status. This is a consequence of the high incidence of chronic poverty with the large majority of children facing a range of problems, which prevent them from attending school regularly. Although absenteeism tends to be higher among orphans, in the context of these very high rates of absenteeism among the primary school population as a whole, the differences between the two groups of children are generally not that large.

An analysis of household survey data from over 20 countries in SSA also indicates that it is not possible to reach broad generalisations about the impact of orphanhood on school attendance. The median attendance rate differentials between, on the one hand, non-orphans and paternal, maternal, and two-parent orphans, on the other, are 4.1, 3.1, and 7.1 percentage points respectively. Thus, orphans are only slightly more vulnerable to dropping out of school in many countries.

To date, most studies have not properly contextualised the impact of orphanhood on schooling in Africa. An analysis of the living arrangements of primary school children at the survey schools shows that even when both parents are alive, very large proportions do not live with both parents.

All three school surveys found that it is orphans from the poorest socio-economic backgrounds who generally face the greatest difficulties with their education. Thus, while there are problems that relate specifically to orphanhood, it is the existence of endemic poverty in all three countries, particularly in rural areas, that is largely responsible for many of the difficulties faced by orphans as well as other 'needy' children. Teachers and students at the survey schools identified a range of problems that affect orphans who are in difficult circumstances. These include: behavioural problems that affect relationships with teachers and students (disruptive/ aggressive, withdrawn, crying in class), limited concentration, poorly dressed and nourished, difficulties completing homework assignments, physical and/or sexual abuse by adults living in the carer's household, and general isolation at school and in the community at large.

Chapter 4 looks at the likely future impact of the epidemic on teachers. HIV/AIDS impact assessments for the education sector have focused on demographic modelling in order to generate projections of the primary and secondary school-aged populations, orphans, and AIDS-related teacher mortality. However, both the methodologies and the assumptions that underpin these modelling exercises are problematic in a number of key respects. Thus, apart from alerting education policy makers to the likely overall impacts of the epidemic, these projections have little operational value for planning purposes.

Not only are actual mortality rates among teachers much lower than predicted, but it is also the case that the trend in teacher mortality is downwards and not upwards in a number of countries (including Botswana, Uganda, and Zambia). There are two main reasons for these declines in mortality, namely changes in the sexual behaviour of teachers and the availability of anti-retroviral drugs. UNAIDS data shows that overall adult HIV prevalence rates had already peaked in over half of the HPCs by late 2001. It was mainly in Southern Africa where prevalence rates continued to increase appreciably during the late 1990s up to 2001. Given the nature of the epidemic, mortality can be expected to continue to rise for some years to come. If, however, teachers changed their sexual behaviour well before the bulk of the adult population then their mortality rates may have already started to fall. This must be the main reason in countries such as Zambia, where life-prolonging anti-retroviral drugs have not been available at all.

No in-depth research has yet been undertaken that would allow robust estimates to be made of the AIDS epidemic on the overall number of days lost through increased teacher absenteeism. Estimates of the overall likely magnitude of AIDS-related absenteeism among teachers vary considerably from one impact assessment to another. None of these estimates are based on detailed empirical research of attendance patterns of affected teachers. Coupled with the wide margins of error of the AIDS demographic models, this means that projected morbidity and absenteeism rates for teachers are little more than inspired guesses.

Chapter 5 focuses on the number of children who are likely to be directly affected by the epidemic in the next 10-15 years. While it is important to estimate the likely numbers of these children over the coming decades, the demographic projections that have been made are seriously problematic and are subject to possibly very wide margins of error. The total number of AIDS maternal and two-parent orphans for SSA as a whole is expected to increase from 9.85 million in 2001 to 18.67 million in 2010. However, as noted earlier, these projections are almost certainly serious over-estimates of the future size of the orphan population in Africa. And, even on the basis of these flawed projections, the incidence of orphans is expected to increase significantly in a relatively small group of countries, most notably Botswana, Central African Republic, Lesotho, Mozambique, Namibia, South Africa, Swaziland and Zimbabwe. This group of countries accounts for less than 10 percent of the total population of SSA.

Chapter 6 outlines the three main components of a comprehensive HIV/AIDS strategy for the education sector, namely school-based education, and prevention and mitigation for teachers and pupils. Every Ministry of Education in Africa should implement a comprehensive AIDS in the Workplace strategy for the education sector. The twin objectives of this strategy are to prevent further HIV infection and create a supportive environment for all staff, both those who are living with AIDS and those who are not.

The main components of a comprehensive AiW programme are: prevalence and risk assessment, education and prevention, counselling and support groups, voluntary counselling and testing, deployment and transfers, medical aid including the provision of anti-retroviral drugs, anti-discrimination, substitute teachers, and teacher support networks.

The overall level and quality of support for orphans from government agencies as well as other non-governmental organisations will largely determine the extent to which the AIDS epidemic will negatively impact on national education systems in SSA. Ministries of education cannot act in isolation. Supporting affected children is the responsibility of the entire community working closely with government and other organisations at the national and local level. Consequently, the impact of the epidemic on the education sector will, to a large extent, depend on the overall level and effectiveness of the assistance given to these children and their carers *outside of school*. This highlights the importance of governments developing comprehensive national policy frameworks in order to tackle the AIDS crisis. There are three main policy areas outside of education that have a particularly important bearing on the extent to which the epidemic will impact on the education sector itself. These are poverty reduction, child protection legislation, and support for the sick and orphans.

While schools should do a lot more to support affected children, it is equally clear that they cannot do everything. Given available resources, schools are very constrained in taking on additional responsibilities in support of these children. The school surveys indicate that there are six priority areas for school-based support for orphans and other needy and affected children: identification, referral and monitoring, school feeding, pastoral care and counselling, financial assistance with fees and other school-related expenses, involvement of guardians and carers, support for children living with AIDS.

## **1. INTRODUCTION**

The recently published ‘framework strategy’ produced by the UNAIDS Inter Agency Working Group on AIDS, Schools and Education notes that the attainment of the Millennium Development Goals for education ‘cannot be achieved without urgent attention to HIV/AIDS’ (UNAIDS, 2002: 8). Father Michael Kelly, who has written extensively on this topic, also concludes that ‘HIV/AIDS appears to be in the ascendancy and to have virtually overcome education, swamping it with a wide range of problems’ (Kelly, 2000a: 24). These problems ‘threaten to overwhelm the very fabric and structure of education organisation, management and provision, as we have traditionally known it.... The school in an AIDS-infected world cannot be the same as the school in the AIDS-free world’ (Kelly, 2000b: 24) Similarly, another leading commentator, Carol Coombe states that ‘education systems (in Africa) will collapse unless we change our understandings of the pandemic and how we in education respond to it’ (Coombe, 2001:3). Newspapers and other media also regularly report on the seriousness of the epidemic with respect to teachers and schooling in general in Africa. For example, a major article in the New York Times concluded that the African continent ‘remains ill-prepared to deal with the effects of AIDS on education. If unchecked, the trend is expected to prove catastrophic in the near future’ (New York Times, 2000).

A key contributory factor that is regularly highlighted is that education is ‘person-intensive’ and thus is likely to be particularly vulnerable to the epidemic. As the high-profile UNICEF publication, *The Progress of Nations*, notes ‘although HIV affects all sectors, its most profound effects are concentrated in the education sector’ (UNICEF, 2000:10). Teachers are regularly singled out as being particularly vulnerable to HIV infection.

Given the seriousness of the AIDS crisis, some commentators believe that schools themselves must be ‘transformed’ into altogether new types of institution that can provide comprehensive care and livelihood opportunities for children adversely affected by the epidemic. This is particularly the case in countries where governments are unable to provide basic welfare and other benefits.

### **Supply and demand impacts**

The AIDS epidemic affects the supply of and demand for primary and secondary schooling, especially in high HIV prevalence countries (HPCs), in a variety of ways. Student intakes will be lower than expected as a result of lower fertility levels, higher infant and adult mortality, and increased poverty among AIDS-affected households. In countries with very high prevalence rates (in excess of 25 per cent), it is anticipated that school-aged populations will contract. As the numbers of orphans, child carers, and children with AIDS-related illness increase, the educational performance of these children is also expected to deteriorate markedly with higher repetition and dropout rates and generally poorer learning outcomes.

On the supply side, the number of teaching staff who will die of AIDS-related illnesses is projected to increase rapidly over the next 10-15 years. It is widely argued that education personnel in SSA will be particularly badly affected by the AIDS epidemic because ‘for reasons that are not entirely clear, HIV seroprevalence is very high among

teachers and school administrators' (UNICEF, 2000). Infected teachers will eventually become chronically ill resulting in marked increases in absenteeism and generally lower morale and productivity.

### **Report objectives and data sources**

The terms of reference state that the study should focus on the actual and likely future impacts of the AIDS epidemic on education quality in Africa. However, given intractable methodological problems, it is virtually impossible to establish how precisely the epidemic has or will negatively impact on the learning process and outcomes. Clearly, increased teacher morbidity and mortality will directly undermine the human resource capacity of education teaching systems to deliver education of a minimum acceptable quality. And, with regard to the pupils themselves, the rapid growth in the numbers of orphans and other children directly affected by the epidemic in some countries will also adversely impact on learning outcomes. However, not only are the likely impacts of the epidemic on teachers and pupils very uncertain, there are also a myriad of other factors that determine learning outcomes.

While there is a broad consensus on the actual and likely impacts of the epidemic on the education sector in SSA, relatively little robust empirical research has been undertaken on this issue, (especially in the HPCs in Eastern and Southern Africa). A number of country impact assessments have now been completed<sup>1</sup>, but nearly all of these rely heavily on demographic models to make projections of student enrolments and teacher requirements. A number of more qualitative factors have also been identified that are likely to affect the supply of and demand for schooling, but these have not been analysed in detail with adequate supporting evidence. In particular, very little systematic research has been successfully undertaken in schools themselves.

This report reviews the available evidence on the impact of the epidemic on teachers and pupils. It focuses on the main findings of three country studies, which do provide detailed empirical evidence of the impact of the epidemic on the education sector. The three countries are Botswana, Malawi and Uganda (Bennell, Hyde and Swainson, 2002a; Bennell et al 2000b, Kadzamira et al, 2001; Hyde et al, 2002). These three countries have been among the worst affected by the AIDS epidemic in SSA. However, they differ in a number of important respects. The AIDS epidemic has peaked in Uganda and adult prevalence rates had fallen to around 8 per cent in 1999 and 5 per cent in 2001. In marked contrast, adult HIV prevalence was 35 per cent in Botswana in 1999 and 38.8 per cent in 2001. The corresponding figures for Malawi are 20 and 15 per cent (UNAIDS, 2002). The research methodology used for the three country studies is summarised in Annex 1.

In addition, information from other impact assessments and relevant research has also been drawn upon. Data on levels and trends in mortality among schoolteachers and university lecturers in all HPCs in Eastern and Southern Africa was requested from Ministries of education, universities, and donor agencies as part of the preparation of this report.

Since a considerable amount of research has already been undertaken on the role of schools in HIV prevention among young people, this area of concern will not be covered. However, some important findings that have emerged during the preparation of

this report about HIV prevalence and prevention among teenagers are presented in Annex 2.

### **Report structure and acknowledgements**

The discussion is divided into two parts. Part 1 looks at the impacts to date of the epidemic on the two main groups in the education sector who are most directly affected, namely teaching staff and orphans. The second part then discusses what the potential impact of the epidemic could be on these two groups and then outlines the key components of a comprehensive strategy that is needed in all HPCs in order to mitigate the affects of the epidemic over the next 10-15 years.

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## **2. IMPACT ON TEACHERS**

In the late 1990s, around 2.1 million teachers, 42 per cent of who are women were employed in primary schools throughout sub-Saharan Africa. The corresponding figures for secondary school teachers were 0.65 million and 32 per cent respectively (see Bennell, Hyde and Swainson 2002 and Bennell 2002). The AIDS epidemic is widely expected to have a highly adverse impact on the overall staffing situation throughout the education sector in the HPCs. Unless appropriate measures are taken, the morale, motivation, and overall performance of all teachers and support personnel could be seriously undermined. It is also frequently asserted that teachers are a high-risk group with respect to HIV infection and that they will therefore be more seriously affected by the epidemic than the adult population as a whole.

One of the most remarkable features of the AIDS epidemic in Africa is that, like no other pandemic before it, there is very little accurate information about the extent of mortality across the main socio-economic groups in society. The main reason for this is that most governments in Africa do not keep vital registration statistics, which accurately record the details of all those who die, including residence, age and occupation. Even for a key occupation such as teachers, it is often very difficult to ascertain how many have died during the last 5-10 years (for whatever reason) in most African countries. Concerted efforts were made to obtain this information for all HPCs in Eastern, Central and Southern Africa. However, for some countries (in particular Angola, Democratic Republic of the Congo, Lesotho, Mozambique, and South Africa) no mortality data whatsoever could be obtained.

In the absence of reliable mortality data, we have to rely on the expertise of demographers to make projections about the numbers of people who have died and will die in the future as a result of the scourge. However, as will be discussed in some detail, most of these projections are likely to be very unreliable.

### **2.1 ARE TEACHERS A HIGH-RISK GROUP?**

It is widely asserted that the AIDS epidemic will cut ‘a swath’ through Africa’s teachers. The following quote from the above mentioned article in the New York Times neatly summarises why teachers are believed to be so vulnerable: ‘Most African teachers are men, and, especially in Muslim countries, are more likely to be educated beyond primary school. The elite status afforded by their education makes such men particularly susceptible. When, young and single, they enter remote villages for their first teaching jobs: young village women compete for their attention. The result is multiple sexual relationships, made riskier because of ignorance about AIDS and because men are unlikely to use condoms’ (New York Times, 2000). Other high-profile media reporting continues to single out teachers as being particularly high-risk. A notable example was a report on the impact of AIDS and famine in Malawi that was broadcast by the television news channel, BBC World in late November 2002. The report concluded with the extraordinary statistic that ‘one in seven teachers in Malawi are expected to die of AIDS in this year alone’.

Teachers are believed to be more ‘prone’ to higher-risk sexual behaviour because they have relatively high social status and income, are geographically mobile, and are frequently separated from their spouses or partners. Mobility and spouse separation are

occupational-specific characteristics whereas higher status and income are, by definition, universal characteristics of higher socio-economic groups in general. However, both sets of factors are seen to be mutually reinforcing.

In key respects, teachers are regarded in the same way as other economic migrants in Africa since they are often separated from their spouses and families due to lack of suitable housing. This coupled with the reluctance of their spouses and children to live in rural locations could lead to teachers having more sexual partners than less mobile occupational groups. Separation and mobility are further compounded by relative affluence, which enables teachers to engage in commercial and other forms of 'transactional' sex. Finally, it is argued that the status, authority and power enjoyed by teachers in schools and the wider community results in the widespread sexual abuse of female students, which also increases their risk profile. Thus, teachers themselves are increasingly seen as being 'sugar daddies' who are particularly well placed to take advantage of schoolgirls who are seen to be 'clean'.

The findings of the three country studies combined with additional information from other countries indicate however that teachers are probably not a relatively high-risk group with respect to HIV infection (see Bennell, 2003). Firstly, the impact of the epidemic varies very significantly among male and female teachers and between primary and secondary schools. It is wrong therefore to treat teachers as though they are a homogeneous occupation with respect to the impact of the epidemic. Much of the discussion of the impact of HIV/AIDS on the teaching profession is based on an implicit occupational stereotype of the African teacher, who is predominantly male, married, and living apart from his wife or partner. However, this bears little relationship to the diverse composition of the teaching profession across Africa. For example, in the HPCs of Southern Africa, the majority of primary school teachers are female whereas male primary schoolteachers predominate in most Francophone countries in Africa. Marital status also varies markedly. In Botswana, for example, nearly 70 per cent of female primary schoolteachers are single, but the corresponding figure in Swaziland is only 31 per cent. Given this degree of heterogeneity, it is not possible to generalise about the risk profile of teaching staff in Africa.

Secondly, there no longer exists a strong statistically positive relationship between socio-economic status and HIV prevalence. If anything, the available data suggests that higher socio-economic groups have changed their sexual behaviour and are now at less risk than the general population (Glynn and Hargreaves, 2001). Extremely few population-based HIV surveys have been undertaken. However, a major survey conducted in Manica Province in Zimbabwe in 2000 shows that age-adjusted HIV prevalence rates for teachers are lower than the overall adult population (see Gregson, 2001). More of this type of evidence is urgently needed and should be collected as part of in-depth and comprehensive risk assessment exercises (see below).

And thirdly, teacher mortality rates are generally much lower than for the adult population as a whole. In Malawi, mortality rates for primary and secondary school teachers were 1.01 per cent and 0.8 per cent respectively in 1998 compared to the overall mortality rate of 1.37 per cent for the 20-49 adult population<sup>2</sup>. Given the age and gender profiles of teachers, one would have expected much higher mortality rates among teachers than for the adult population as a whole. A 2002 study on morbidity and mortality in the public service in Malawi also found that mortality rates for teachers

were considerably lower than expected. The standardised mortality rate measures the extent to which mortality is above average for a particular group. The SMRs were 95 and 61 for secondary and primary teachers respectively (Malawi Institute of Management, 2002). Finally, a survey of the secondary school students in Zambia found that the mortality rate among fathers who are or were teachers was 11 per cent compared to an overall mortality rate for fathers as a whole (see Bennell et al, 2003b).

Actual mortality rates among teachers are typically two to six times lower than projected mortality rates, which are calculated on the assumption that teachers have the same HIV prevalence profile as the rest of the adult population. In Zimbabwe, for example, one percent of all teachers died in 2001 (from all causes) which is four times less than the level of AIDS-related deaths predicted by the standard demographic model that is used to estimate the impact of AIDS. In Botswana, which has the highest HIV prevalence rates in the world, the difference is six-fold (i.e. 3.0 percent predicted and 0.5 per cent actual in 2002). In Zwa Zulu Natal Province, projected teacher mortality was projected to be over 1000 when actual mortality was only 620.

Probably the main reason why these large disparities exist is that it is the poor in Africa who are being most seriously affected by HIV/AIDS. Even within the education sector itself, mortality rates among support staff at universities (cleaners, cooks, maintenance personnel, gardeners, etc) are typically three-four times higher than for academics. For example, during 2001 and 2002, four academics died at the main campus of the University of Malawi in Zomba compared to over 35 deaths among maintenance and other support staff. At the University of Botswana, 19 support staff but only one academic died in 1999/2000<sup>3</sup>. At the University of Dar Es Salaam, 14 academics and 35 support staff died between 2000 and 2002. Even within the teaching profession, mortality rates are typically higher among primary than secondary schoolteachers, who are better educated and usually receive higher salaries<sup>4</sup>.

Other evidence for this link between socio-economic status and AIDS mortality comes from the civil service in Botswana. Drivers, labourers and other semi and unskilled workers employed by both central and local governments were dying at two-three times the rate of professionals and other senior public servants in 2000 (see Table 1)<sup>5</sup>. More generally, HIV prevalence rates among sampled pregnant women in the capital Gaborone in 2002 were 18.2 percent for those with university education, but a staggering 55.9 percent for women with only primary education (See NACA, 2002).

**Table 1 Mortality rates for Ministry of Education and all Central Government staff by grade in Botswana in 1999/2000: percentages**

Grade	Ministry of Education		Central Government	
	Female	Male	Female	Male
A	1.31	2.82	2.28	1.88
B	0.95	2.08	0.68	1.2
C	0.73	1.1	0.53	0.91
D	0	0	0.37	0.68
E	0	0	0	0
F	0	0	0	0

Notes: Grade A unskilled workers, Grade F permanent secretary

Source: Government of Botswana, Inifinium human resource database

A tracer survey of nearly 5000 university and secondary school leavers in four African countries (Malawi, Tanzania, Uganda and Zimbabwe) also found that the cumulative mortality rates for Form Four leavers were two-three times higher than for university graduates of roughly the same age (see Al Samarrai and Bennell, 2003).

## 2.2 LEVEL AND PATTERNS OF TEACHER MORTALITY

The mortality rates for teachers in the three study countries and Tanzania are presented in Table 2. It is important to emphasise that this is mortality from all causes and that it is not possible to establish precisely the proportion of these deaths that are AIDS-related. However, it is likely that at least two-thirds of adult deaths are AIDS-related in Botswana and Malawi. There are sizeable differences in mortality rates among teachers between these four countries, which reflects differences in the stage of the epidemic and overall national prevalence levels. Whereas in Botswana and Uganda, annual mortality rates for teachers were between 0.6 per cent and 0.9 per cent, they were closer to two percent in Malawi<sup>6</sup>.

**Table 2 Mortality rates for primary and secondary teachers in Botswana, Malawi, Tanzania and Uganda during the late 1990s: percentages**

Country	Year	Primary		Secondary	
		Female	Male	Female	Male
Botswana	1999/00	0.76	1.21	0.21	0.36
Malawi	2000	2.49	1.96	0.93	1.02
Uganda	1998	0.92	0.97	1.3	0.93
Tanzania	1999	0.58	1.10	Na	Na

The most quoted statistic on the impact of AIDS on teacher mortality comes from Zambia. ‘In Zambia, death rates among teachers had risen to 3.9% by the late 1990s and mortality was reported to be 70 per cent higher than in the general population’ (Kelly, 2000). According to UNAIDS, ‘in 1998, Zambia lost around 1300 teachers to HIV/AIDS, the equivalent of two-thirds of its training college output, and levels were expected to exceed college output by the year 2000’ (UNAIDS, 2000). These figures have been very influential in shaping the policy response of governments and donor agencies. However, they are misleading for a number of reasons. First, they are now out of date (see below). Second, the overall mortality rate was in fact 2.7 per cent because the original calculation failed to include secondary school teachers in the denominator. And thirdly, not all these deaths were AIDS-related.

### Type of teacher

Mortality rates were higher among both male and female primary school teachers in Botswana and Malawi and roughly the same among primary and secondary school teachers in Uganda. More data is needed from other countries, but the impact of the epidemic on primary school teachers appears to be far more serious. As noted above, the lower levels of education and professional training among primary school teachers is likely to be a key factor. However, considerably more primary school teachers are employed at schools in rural areas, which, *ceteris paribus*, should make them a lower risk group.

## **Gender and marital status**

In most countries in SSA, HIV prevalence rates in the 20-35 age groups for females are considerably higher than males. Furthermore, female teachers tend to be more heavily concentrated in urban areas where prevalence rates are usually much higher. Given the young age profile of the teaching profession<sup>7</sup>, one would expect therefore that female mortality rates would be considerably higher than male teachers. However, this is only the case among primary school teachers in Malawi and secondary school teachers in Uganda. In Namibia and Tanzania, also, mortality rates among male teachers are two-three times higher<sup>8</sup>. It could be, therefore, that male teachers are a higher-risk group than their female colleagues. If this is the case, male teachers should be the main target group for school-based prevention activities.

The marital status profile of teachers could also be a key factor in influencing the impact of the epidemic. In Botswana, for example, single female primary school teachers have significantly higher mortality rates than married female colleagues whereas the opposite appears to be the case among male teachers. Some of these differences are age-related, but marital status is likely to have an independent impact on sexual behaviour.

## **Place of work**

Teacher mortality rates appear to be positively correlated with the overall levels of HIV prevalence in the areas in which they work. Among the survey schools in Malawi, mortality rates between 1994 and 2000 were three times lower in rural primary and secondary schools. In Botswana, mortality rates for male primary school teachers working in the very high prevalence Northern Region were well over double the national average, although it is significant that inter-regional mortality rate differentials were much less among female primary school teachers. In Uganda, while mortality rates for primary school teachers vary considerably from one district to another, they were over 1.5 per cent in only 4 out of a total of 45 districts in 1999.

## **2.3 OVERALL ATTRITION**

In a relatively large country, such as Tanzania or Kenya, an AIDS-related teacher mortality rate of one per cent means that over 1000 teachers die each year. This is an appalling loss of human life and is a tragedy for the affected teachers and their families. However, given the high overall levels of teacher attrition that exist in most countries in sub-Saharan Africa, AIDS deaths may only account for a relatively small proportion of teacher 'wastage'. In Uganda, for example, AIDS-related mortality was only 20-25 per cent of teacher attrition when the epidemic peaked in the mid-late 1990s. Similarly in Botswana, total teacher turnover was 14 per cent in 2001, which is nearly 18 times greater than total teacher mortality in that year. The ratio of total attrition to deaths was 12.0 to 0.4 per cent in Rwanda and 2.4 to 1.6 percent in Zambia in 2002

A survey of secondary schools in Lusaka Province in Zambia in April 2003 found that the large majority of headteachers were far more concerned about the large numbers of teachers who had gone on study leave than AIDS-related sickness and mortality (see Bennell and Bulwani, 2003). Throughout most of rural Africa, headteachers have always had to contend with high rates of teacher turnover.

## 2.4 MORBIDITY AND ABSENTEEISM

AIDS-related morbidity is expected to be one of the most serious impacts of the epidemic on school systems in SSA<sup>9</sup>. Sickness lowers teaching quality and results in higher rates of teacher absenteeism. Longer-term, persistent absenteeism is particularly disruptive. However, even that this late stage in the epidemic, there is no good-quality data on the extent and causes of teacher absenteeism over time in any country in SSA.<sup>1</sup> In the three study countries, poor record keeping by most schools made it impossible to track rates of teacher absenteeism over time. Most impact assessments have made projections of teachers with AIDS, but these are likely to be as inaccurate as mortality projections.

In the three survey countries, rates of teacher absenteeism (percentage of days lost) among primary school teachers were relatively low (with the exception of female teachers in Botswana) (see Table 3). They were lower still for secondary school teachers in Botswana and Malawi, but much higher in Uganda. In all three countries, female teachers had higher rates of absenteeism than their male colleagues. Only around 8-12 per cent of absences totalled more than five days per term in each country.

**Table 3 Teacher absenteeism rates at survey schools in Botswana, Malawi and Uganda (percentage of total days absent)**

	Primary			Secondary		
	Botswana	Malawi	Uganda	Botswana	Malawi	Uganda
Female	7.4	4.5	4.3	6.1	3.4	12.6
Male	4.2	4.6	2.4	3.7	2.4	9.1

Only very small percentages of teachers at the survey schools had ‘long-term’ illnesses, which were likely to be AIDS-related and were also absent for long periods of time. In Malawi, for example, 1 per cent of teachers fell into this category. The general pattern was that sick teachers continued to teach for as long as they could despite the fact that most of them were unable to cope in the classroom. In Botswana, the mass provision of anti-retroviral drugs (ARVs) appears to have prevented the emergence of significant levels of absenteeism (see below). Only 0.28 per cent teachers took long-term sick leave in 2002<sup>10</sup>. The AbT impact assessment in Botswana estimated that, without the provision of ARVs, nearly 2000 teacher (8.4 per cent of the total employed) would have full-blown AIDS in 2002.

Most teachers and students in the survey schools in Botswana, Malawi and Uganda did not regard teacher absenteeism as a ‘serious problem’. However, it was clear from the focus group discussions that absenteeism particularly to attend funerals had been increasing rapidly. There are five main reasons for absenteeism: sickness of self, attendance at funerals, looking after sick relatives, school-related (in particular attendance at in-service training workshops), and ‘other’ (most notably maternity leave, collecting pay, not required to be in school etc). Personal illness accounted for 35-45% of absences (of least one day) in Botswana and Malawi, but only 20-30% of absences in Uganda, where school-related absences are the most important reason of absenteeism in both primary and secondary schools. In Malawi, attendance at funerals accounted for roughly the same level of teacher absences as personal sickness (approximately 35-40

<sup>1</sup> None of the other impact assessments provide estimates of teacher absenteeism rates.

per cent), but only 10-20 per cent of absences in Botswana and Uganda. Looking after sick relatives was not a major reason for teacher absenteeism in any of the three countries.

The impact assessment for Zimbabwe estimated that total AIDS cases among primary and secondary school teachers would exceed 5000 by 2002. However, only 17 per cent of headteacher who were interviewed stated that teacher absenteeism was a 'serious' problem. Another 40 per cent thought that it was 'sometimes' a problem. The main reasons were funeral attendance (47 per cent of school heads), sickness (30 per cent) and family issues (22 per cent) (see AbT Associates, 2002).

### **Motivation and morale**

Low teacher morale and motivation is a serious problem in many, perhaps the majority, of schools in Africa. In Botswana and Malawi, well under one-half of the teacher questionnaire respondents at the survey schools agreed with the statement that 'teacher morale at this school is high'. However, the school surveys found little evidence to show that lower teacher morale and motivation could be directly attributed to the impact of HIV/AIDS. While many teachers are being adversely affected by increasing levels of staff morbidity and mortality, the overall incidence of AIDS-related deaths and illness is too low in most schools to have a major impact on morale. In focus group discussions with teachers, low pay, poor conditions of service and inept school management were invariably cited as the most important causes of low morale. But, given this situation, many teachers are reluctant to take on more duties and responsibilities as a result of increasing morbidity and mortality among AIDS-affected colleagues. Many teacher respondents pointed out that what it is happening in their personal lives outside of school that often has a much greater impact on their morale. Visits to 10 primary schools in Botswana and 18 secondary schools in Lusaka Province Lusaka in April-May 2003 confirmed that this remains the case in two of the worst affected countries (see Bennell, 2003a and 2000b).

### **Discrimination**

The general consensus is that teachers living with AIDS in Africa are seriously discriminated against by school managers, teaching colleagues, and students (see Kelly, 2000). The findings of the school surveys do show high levels of secrecy and denial among teaching staff concerning the likely extent of HIV infection and clinical AIDS in their schools. Given the level of stigma that is attached to HIV/AIDS, teachers are not usually prepared to reveal their HIV status for fear of the adverse reaction among colleagues and the community as a whole. In some schools, very ill teachers continued to work for fear of being talked about as being infected. However, there was relatively little serious overt discriminatory behaviour towards affected teachers at the survey schools. The following comment made by a head teacher of a senior secondary school in Botswana is typical of verbal and written responses on this issue: 'There is no discrimination against the sick in this school, but in the outside community there is lots of gossip and discrimination'. In nearly every school, numerous examples were given of the ways (financial, emotional, and professional) in which teaching staff had supported sick colleagues.

Teacher responses to questionnaire statements concerning discrimination also support this view. Fewer than 10 per cent of respondents agreed with the statements that teachers with AIDS are discriminated against by Ministry officials, school management, or other teachers. However, large proportions of respondents indicated that they were 'not sure' if discrimination was occurring, which is symptomatic of the secrecy that surrounds this whole issue coupled with the fact that relatively few teachers were ill. While there is little overt discrimination, many teaching staff were clearly concerned about the risks of working with infected teachers. Various incidents were reported concerning the sharing of cooking and eating utensils and toilet facilities in the three case study countries. With appropriate education programmes, most of these concerns could be allayed.

The summary report of the main findings of impact assessments undertaken in Kenya, Mozambique, Tanzania and Uganda during 2002 also concludes that 'teachers do not face discrimination from school management, or pupils generally. However, some teachers report discrimination from the community. Many of the school visited have formed their own welfare associations to assist staff in time of emergencies. Much of the expenditure covers medical bills and funeral expenses' (Carr-Hill and Peart, 2003: 9).

### **3. IMPACT ON CHILDREN**

There are three groups of schoolchildren whose lives are most directly affected by the AIDS epidemic and whose education is, therefore, potentially at greatest risk: children who are HIV positive, children in households with sick family members, and children whose parents or guardians have died of AIDS. The extent to which the education of these children is adversely affected depends heavily on the level of physical and emotional support they receive from the extended family, the school, the community, and central and local governments.

#### **3.1 NUMBERS OF CHILDREN DIRECTLY AFFECTED**

Information on the numbers of children directly affected by the epidemic is very limited in most countries in SSA. Detailed surveys have rarely been undertaken and, typically, estimates of the sizes of these three groups vary considerably for any one country. A major part of the problem is that it is often difficult to establish whether a child, parent or carer is ill with or has died as a result of an AIDS-related illness. Another complicating factor is that there is no standard definition of an orphan. Schools themselves rarely keep accurate and up to date records, even on the parental status of children.

#### **Children Living With AIDS**

The silence, secrecy and denial that surrounds HIV/AIDS makes it especially difficult to obtain accurate information on schoolchildren who are HIV positive and/or have AIDS-related illnesses. Without medical intervention, around one-third of infected pregnant women pass the virus on to their babies. However, over 90 per cent of these children die before they are old enough to attend school. Consequently, even in HPCs such as Botswana, less than one percent of primary schoolchildren are likely to be infected and no more than 0.2 per cent have AIDS-related sicknesses. In the mid-1990s, around one percent of secondary school students randomly sampled by the Aids Information Centre in Uganda were HIV positive. For SSA as a whole, an estimated 1.01 million children were living with HIV/AIDS in 1999, which is 0.44 per cent of the under-15 population.

Very few teachers working at the survey schools were able to identify children who were likely to have AIDS-related illnesses. Mortality rates among both primary and secondary students were also low. In Malawi, for example, mortality rates for primary and secondary students were 0.09 per cent and 0.12 per cent respectively at the survey schools, although these were increasing rapidly.

#### **Orphans**

The survey schools were purposively selected from very high HIV prevalence areas in each country. Consequently, the proportions of children who had lost one parent were very high, both in relation to the overall incidence of orphans in each country and for the continent as a whole. As Table 4 shows, this was particularly the case in Malawi and Uganda, where over 35 per cent of student questionnaire respondents indicated that one or both of their parents was deceased. Around 10-12 per cent of the children attending the survey schools in Malawi and Uganda had lost both parents and 3-4 per cent in

Botswana. Due to the infection patterns of HIV, there is a high probability that maternal and paternal orphans will become two-parent orphans when parents co-habit.

**Table 4: Incidence of orphans in survey schools and total under 15 population: percentages**

Country	Level	Paternal	Maternal	Double	Total	National <15
Botswana	Primary	11	3.9	3.7	18.6	16
	Secondary	16.5	3.2	2.9	22.6	
Malawi	Primary	22.5	6.3	12.7	41.4	20
	Secondary	19.9	5.1	10.6	35.6	
Uganda	Both	16.2	8.6	10.2	35	20

The most cited estimates of the current and projected numbers of orphans are those produced by Hunter and Williamson for the high profile publication, *Children on the Brink (COTB)*. All these estimates are generated using a particular demographic model of the impact of HIV/AIDS on the parental status of children. They estimate that there were 11 million ‘AIDS orphans’ in SSA in 2001, which is 3.8 per cent of the under-15 population. Nearly 80 per cent of this group had lost their mother or both parents (see Table 5). It is important to point out though that less than one-third of all orphans were ‘AIDS-orphans’. Thus, quite apart from the AIDS epidemic itself, there are still very sizeable populations of orphans, particularly in conflict-affected countries. Orphans already exceeded 20 per cent of the under-15 population in six countries - Congo, Malawi, Rwanda, Uganda, Zambia, and Zimbabwe (Hunter and Williamson, 2002).

The other main data source on the parental status of children is national Demographic and Health Surveys. These are very large surveys of representative samples of rural and urban households that are undertaken periodically (usually every five years) throughout the developing world, including 23 African countries. What is striking is the extent of the divergences in the incidence of orphans reported in the DHS surveys and the COTB estimates. Typically, the COTB figures over-estimate the proportions of orphans by 30-50 per cent (see Annex table 1). This also suggests that the projected AIDS-related mortality rates generated by the demographic models developed by the US Bureau of the Census are also likely to be serious over-estimates.

Annex table 2 summarises the actual incidence percentage of double, maternal and paternal orphans from the most recent DHS data sets. It is noticeable that:

- In the worst affected countries, between 3 to 5 per cent of children were double or maternal orphans in the mid-late 1990s.
- The increase in the relative size of the orphan population during the 1990s was much less than is usually suggested. For example, the percentage point increase in children who were double orphans was 0.5 in Kenya (1993-1998), 0.6 in Malawi (1992-1998), and 1.1 in Zambia (1992-1996). In Tanzania and Uganda, the incidence of double orphans actually declined (by 0.7 and 0.1 percentage points respectively). One would not expect therefore any dramatic change in overall enrolments and dropouts, even in HPCs. A large survey of orphans in Uganda by Busingye et al (2003) also shows that orphan rates peaked around 1997/98 and have declined, albeit slowly, since then (see Annex table 3). At the height of the

epidemic, the overall prevalence of orphans (aged under-15) was 16.8 per cent, and 8.0 per cent of children were double and maternal orphans<sup>2</sup>.

- Paternal orphans typically account for two-third of all orphans (in both conflict and non-conflict affected countries). In part, this is because fathers are a lot older than mothers in many countries in SSA. But more research is required in order to find out why male mortality rates are so much higher.

**Table 5 Orphan prevalence in sub-Saharan Africa, mid-late 1990s and projections for 2010 (rounded percentages)**

COUNTRY	DATA	AIDS ORPHANS	ALL ORPHANS	MATERNAL & DOUBLE	ALL ORPHANS
	Year	Per cent <15 POP	Per cent < 15 POP	per cent <15 2010	per cent <15 2010
BENIN	1998	1	11	2	11
BOTSWANA	1996	9	16	19	37
BURKINA FASO	1995	4	13	5	13
BURUNDI	1998	7	18	6	18
CAMEROON	1997	3	9	3	9
CAR	1991	5	na	14	31
CONGO	1998	3	33	2	10
COTE D'IVOIRE	1996	4	17	6	16
DRC	1998	2	9	Na	na
ETHIOPIA	1996	3	17	7	18
GABON	1996	1	11	4	13
GHANA	1991	1	7	2	8
KENYA	1995	4	9	5	12
LESOTHO	1997	3	9	9	20
MALAWI	1997	6	20	9	22
MOZAMBQUE	1997	3	18	11	27
NAMIBIA	1998	7	16	16	32
NIGERIA	1995	2	9	4	11
RWANDA	1991	6	30	9	22
SOUTH AFRICA	1996	3	9	16	30
SWAZILAND	1997	2	15	15	32
TANZANIA	1998	4	10	5	11
TOGO	1997	3	7	4	9
UGANDA	1999	8	20	4	14
ZAMBIA	1998	10	27	10	23
ZIMBABWE	1998	14	24	18	34
<b>TOTALS</b>		<b>4</b>	<b>13</b>	<b>6</b>	<b>17</b>

Source: Hunter and Williamson, 2000

### Children looking after sick family members

It is often difficult to estimate with any degree of accuracy the number of children whose parents or guardians have AIDS and who are likely therefore to have to shoulder all or some of the burden of care. Sometimes though data are available. For example, the 1999 National Household Survey in Uganda reports that 8.8 per cent of households had someone with an AIDS-related illness (Government of Uganda, 2000). Other

research in Uganda shows that HIV prevalence among the surviving parent of (one-parent) orphans is four to five times higher than among the parents of non-orphans (see Busingye et al, 2003). Consequently, the probability that orphans will have a sick parent is much greater than other children.

### **3.2 EDUCATIONAL IMPACT**

It is widely believed that the education of children who are most directly affected by the epidemic is adversely affected in a number of ways. The main contention is that, given very difficult home situations, both orphans and children in AIDS-affected households are often forced to dropout of school altogether with little chances of ever returning to school. 'The growth in the number of orphans is taxing the coping strategies of families and society at large. In many cases, the extended family is finding it extremely difficult to cope economically and psychologically with the numbers it is required to absorb. Few orphans are able to pay their school or training fees. Many others have to care for others in the homes where they live. Many have to work to support themselves or younger siblings dependent on them' (Kelly, op. cit.: 57). In addition, 'because of HIV/AIDS in their families, many children do want to attend school. For some, the deterrent is the fear of the stigma and scorn that they encounter in school' (ibid: 51).

However, the school surveys in Botswana, Malawi and Uganda as well as other more recent research studies have found that the relationship between parental status and school attendance is very complex. Moreover, the impact of orphanhood on school attendance is often not as great as is generally believed to be the case.

#### **School surveys**

As noted earlier, it is difficult to identify schoolchildren who are looking after sick household members and the tiny minority who are themselves persistently sick with AIDS-related illnesses. The school surveys focused therefore on orphans since the parental status of children could be established fairly easily and orphans are by far the largest of the three groups of directly affected children. Data on three key performance indicators was collected - absenteeism, repetition, and school interruption as well as more qualitative data from individual interviews and focus group discussions.

For all three countries, information on rates of student absenteeism over time could not be collected because proper schools records are not available. It was possible, however, to collect information on current levels of student absenteeism in each survey school. Overall rates of absenteeism in Botswana were relatively low. Furthermore, orphans attending primary school in Botswana had consistently much lower rates of absenteeism compared with non-orphans (see Table 6). In fact, none of the two-parent orphans had been absent during the month prior to the survey. There are four probable reasons for this. First, household demand for child labour appears to be generally low and/or can be met during out of school hours. Secondly, orphans have particularly strong material and emotional/psychological incentives to attend school. Although the school-environment is often not very child-friendly, attending school is still an important part of leading a 'normal' life. In other words, orphans want to be like everyone else, especially in a country such as Botswana where most children attend primary and junior secondary school. Thirdly, the provision of nutritious school meals is also a major incentive to attend school among disadvantaged children. And fourthly, the home environment for

orphans is likely to be much less attractive than school, with little or nothing to do during the day and/or relatively inattentive carers.

**Table 6 Percentage point difference in absenteeism rates between orphans and non-orphans**

	PRIMARY STUDENTS				SECONDARY STUDENTS			
	Botswana	Malawi F	Malawi M	Uganda	Botswana	Malawi F	Malawi M	Uganda
Paternal orphan	-8	16	6	9	1	4	12	-16
Maternal orphan	0	0	5	10	19	-3	11	-2
Double orphan	-21	14	1	-9	-10	22	14	27
Absenteeism rate Among non-orphans	21	47	49	63	23	33	32	52

In Malawi and Uganda, which are more typical low-income countries, the overriding issue is that absenteeism is very high indeed among all primary schoolchildren. Over half of children surveyed had been absent at least once during the previous two weeks in both countries. This is a consequence of the high incidence of chronic poverty with the large majority of children facing a range of problems, which prevent them from attending school regularly. Although absenteeism tends to be higher among orphans, in the context of these very high rates of absenteeism for the primary school population as a whole, the differences between the two groups of children was generally not that large. Only female paternal and two-parent orphans in Malawi had significantly higher (i.e. more than 20 per cent) absenteeism rates. Again, it is noticeable that the attendance record for two-parent orphans in Uganda was better than among non-orphans.

The reasons for absenteeism are illuminating. Illness of the self accounted for well over half of all absences from schools in the three countries. This is particularly serious, therefore, in Malawi and Uganda where rates of absenteeism are so high. Poor children are frequently ill, which seriously affects their education. Much higher levels of illness-related absenteeism among orphans would indicate that these children are not being as well looked after than other children. Interestingly, however, there is no evidence to suggest that orphans were any sicker than non-orphans were. Nor were orphans 'needed at home' significantly more than non-orphans were. In Malawi, the death of a mother did appear to lead to an appreciable increase in household demand for female child labour. In Uganda, on the other hand, it was the loss of the father that increased the demand for child labour. What is striking is that, in all three countries, 'needed at home' as a reason for absenteeism is so much lower among two-parent orphans than other types of orphans as well as two-parent students.

Illness in the family was not a major reason for absenteeism with the exception of maternal and two-parent orphans in Uganda. However, relatively large numbers of children were sent home from school by headteachers and teachers. In Uganda, nearly one-third of children at the survey primary schools had been sent home during the previous two weeks because of non-payment of fees, lack of materials, and discipline problems. However, orphans were slightly less likely to be sent home than non-orphans. Being sent home was a much less important reason in Malawi, but lack of appropriate clothing did result in quite high levels of absenteeism among some orphan schoolchildren. In focus group discussions, orphans in Malawi indicated that lack of

clothes and money to buy detergent for washing clothes as well as food and other basic needs were the main reasons why they miss school.

Repetition rates are a reasonably good indicator of academic performance in all three countries. Less than 20 per cent of Standard 4 and 6 students in the survey primary schools in Botswana had ever-repeated. Ever-repeated rates were lower among paternal and two-parent orphans, but much higher among maternal orphans (see Table 7). It is not clear why this was the case. In Malawi, nearly 70 per cent of the primary schoolchildren surveyed had repeated a grade at least once. Poor student performance is the result of a myriad of factors including irregular attendance and generally poor quality of schooling. Ever-repeated rates were consistently lower among male orphans and only slightly higher among female paternal and maternal orphans. In Uganda, over one-third of students had repeated a grade. Ever-repeated rates were again lower for maternal and two-parent orphans, but higher among paternal orphans.

**Table 7 Percentage point difference in ever-repeated rates between orphans and non-orphans**

	PRIMARY STUDENTS			SECONDARY STUDENTS		
	Botswana	Malawi F M	Uganda	Botswana	Malawi F M	Uganda
Paternal orphan	-3	6 -5	7	-1	6 2	-5
Maternal orphan	18	5 -8	-12	0	-25 -2	-1
Double orphan	-3	0 -3	-4	5	-20 1	3
Ever-repeated rate among non-orphans	18	68 70	35	8	65 59	26

Student questionnaire respondents were also asked if they had ever stopped attending school for any reason. Orphans, and two-parent orphans in particular, were more likely to interrupt their schooling than non-orphans in all three countries (see Annex table 4). This is especially the case for two-parent orphans at secondary schools in Uganda and for male two-parent orphans at secondary schools in Malawi where financial constraints were far more serious. Female paternal orphans at primary schools in Malawi were also particularly vulnerable. For Uganda and Botswana, interrupted schooling was more of a problem for maternal than paternal orphans. Even where ‘ever- stopped attending’ rates among orphans were lower, this could simply have been because these children were less likely ever to return to school once their education had been interrupted.

Other information on school attendance in the three survey countries was also analysed. Drawing on detailed and up to date data from a national survey of orphans, the Botswana study concludes that in the three districts in which the survey schools were located ‘dropout rates among orphans are not significantly higher than among non-orphans’ (Bennell et al, 2002: 36). The reasons for low orphan dropout in Botswana have already been mentioned, namely low household demand for child labour, a strong schooling culture, a comprehensive school feeding programme, and difficult home environments. In addition, two other factors are very important. First, since 2000, the Government of Botswana has provided relatively generous food rations and other kinds of material support directly to the households of all registered i.e. disadvantaged orphans. And secondly, there appears to be little serious discrimination against orphans by teachers and students in both primary and secondary schools. The Malawi and

Uganda country reports also reach similar conclusions with respect to stigmatisation and discrimination.

While the available evidence in Malawi is less comprehensive, the study concludes that ‘most orphans are in primary school’. Consequently ‘the alleged correlation between dropping out and orphan-hood is more apparent than real’ (Kadzamira et al, 2002: 46). Only 18 of the 111 (16.2 per cent) orphans who were located and interviewed in the communities served by the survey schools were not in school. This is a biased sample, but it suggests that dropout rates among orphans were probably not appreciably higher.

The financial costs of attending secondary school in Malawi and Uganda are a major constraint for all children from poorer backgrounds, including orphans. Again, without a proper dropout survey, it is difficult to establish precisely whether orphans are disproportionately affected. In Botswana and Malawi, the number of orphans attending secondary schools was 4-6 percentage points lower than in primary school.<sup>11</sup> In Uganda, on the other hand, the proportion of orphans attending secondary school was 2.5 per cent higher than at primary schools. Secondary education is free for all children in Botswana and school fees are waived for girls in Malawi.

To date, most studies have not properly contextualised the impact of orphanhood on schooling in Africa. An analysis of the living arrangements of primary school children at the survey schools shows that even when both parents are alive, very large proportions do not live with both parents (Botswana 63 per cent, Malawi 23 per cent, Uganda 44 per cent). The same is true among secondary school students (see Annex table 5). Orphanhood implies that a child ‘loses’ one or both parents. However, for many children, especially those in female-headed households, they have never lived with their father. It is essential therefore to take into account the living arrangements of children and to assess the extent to which parental death actually affects children, both emotionally/psychologically and materially.

It is also the case that secondary school pupils in much of Africa tend to come from better-off households where the impact of the death of a parent is likely to be considerably less than for poor households. In addition, large proportions of secondary school pupils are boarders, which can significantly mitigate the impact of orphanhood.

### **Other evidence**

Other impact assessments have not attempted to rigorously analyse the impact of parental status on school attendance.<sup>12</sup> Consequently, the evidence that is produced is almost all qualitative and quite impressionistic. For example, the South African report simply notes that ‘orphans and other affected children are likely to have their schooling compromised by economic, social, and psychological impacts of HIV/AIDS in their households’ (AbT, 2000: 3).

**Table 8 Primary school enrolment differentials between orphans and non-orphans, mid-late 1990s (percentage points)**

Country	Year	Overall Enrolment rate	Orphan differential		
			Paternal	Maternal	Both parents
Cameroon	1998	77.5	1.1	-11.3	-5.4
CAR	1994/95	66.1	-10.1	-8	-16.7
Cote d'Ivoire	1994	52.3	-8.4	-9.2	-14.5
Ghana	1998	78.8	-11.8	-3.1	-7.1
Kenya	1998	90.4	-4.1	-7.1	-18.5
Mozambique	1997	60.1	-1.8	2.4	-29.3
Nigeria	1999	67.6	5.9	3.5	-1.3
South Africa	1998	93.2	-0.5	2	-2.7
Tanzania	1996	54.3	6.2	2.5	7
Uganda	1999/00	90.1	-2.5	2.1	-2
Zambia	1996/97	67.6	-6.6	-1.7	-4.2
Zimbabwe	1999	89.1	-1.6	-4.5	-10

Notes: Enrolment rates are for the 7-14 age group so excludes children who do not start primary school on time  
Source: Computed from Ainsworth and Filmer, 2002

The most comprehensive statistical evidence again comes from national Demographic and Health Surveys. An extensively cited study by UNICEF presents DHS data from 20 African and Latin American countries, which shows generally much lower enrolment rates among two-parent orphans than non-orphans. For the median country, the enrolment differential for the 10-14 age cohort is 19 percentage points (UNICEF, 1999). However, an analysis of more recent DHS data sets by Ainsworth et al concluded that ‘the extent to which orphans are under-enrolled relative to other children is country-specific, at least in part because the correlation between orphan status and education status is not consistent across countries. Indeed, it cannot be assumed that enrolment differentials exist between orphans and non-orphans or, when they exist, why’ (Ainsworth et al, 2002:32). Table 8 presents the enrolment differentials between two-parent and maternal and paternal orphan students in HPCs<sup>13</sup> in sub-Saharan Africa for the age group 7-14. This differential was less than five percentage points for maternal orphans in eight of the 12 countries and six and five countries for paternal and two-parent orphans respectively. The median percentage point differentials for paternal, maternal, and two-parent orphans are -4.1, -3.1, and -7.1 respectively. The highest differentials for two-parent orphans are generally found in countries with the lowest overall enrolment rates, Kenya being the main exception. While orphans are slightly more vulnerable to dropping out of school, the overall risk of them dropping out is surprisingly small in many countries. More research is needed (especially drop out surveys) that carefully identifies the parental status and living arrangements of students since birth as well as the examination performance of orphans and non-orphans.

Another research group has subsequently re-analysed the DHS data sets for Africa using different statistical techniques and come to almost opposite conclusions! Once again, this highlights the complexity of this issue and that the fact that differences in attendance rates between orphans and non-orphans are frequently not large. A major finding of this study is that ‘children living in households headed by non-parental relatives fare systematically worse than those living with parental heads, and those living in households headed by non-relatives fare worse still. Much of the gap between

the schooling of orphans and non-orphans is explained by the greater tendency of orphans to live with more distant relatives or unrelated caregivers’ (Case, Paxson, and Ableidinger, 2003: 3). Also, the study concludes that ‘contrary to existing literature, we do not find that female orphans are disadvantaged relative to males’ (p.26) with respect to school attendance.

The only detailed multivariate analysis of the impact of adult mortality on primary school enrolment has been undertaken by Ainsworth et al for primary schooling in the Kagera Region of Tanzania during the early 1990s. In particular, the study controls for a wide range of household and other variables, which are likely to influence school attendance. Their main conclusion is that ‘Tanzanian households are coping with adult deaths by delaying enrolment of young children (7-10), while maintaining enrolment of older children (11-14). Among orphans, only maternal orphans are being held back. We find no evidence that older orphans (11-14) or older children in households with an adult death drop out of primary school’ (Ainsworth, 2002b: 22). Three main reasons are advanced for these findings, namely the effectiveness of household coping mechanisms, lower than anticipated opportunity costs of child labour, and the availability of targeted assistance for orphan households.

Evidence from the 1998 Living Conditions Monitoring Survey in Zambia also indicates that the main impact of orphanhood may be to delay entry into school. Table 9 shows quite large enrolment gaps between orphans and non-orphans aged between 7-13, but enrolment rates were generally higher among orphans in the 14-18 age group.

**Table 9 Orphan and all children enrolment rates in Zambia, 1998**

	<b>Maternal orphan</b>	<b>Paternal orphan</b>	<b>Both dead</b>	<b>All children</b>
<b>Age 7-13</b>				
Rural	63	61	53	61
Urban	70	79	73	80
<b>Age 14-18</b>				
Rural	51	46	53	49
Urban	55	62	73	63

Source: CSO, Zambia, Living Conditions Monitoring Survey II, 1998

A recent study of orphans in Uganda finds that there are minimal differences between orphans and non-orphans aged 6-14 with respect to ever-enrolled and school survival rates (see Busingye, 2003). There were no differences in absenteeism rates between these two groups of children aged 5-9 years. Among the 10-14 aged group, 25 percent of the orphans and 20 per cent of the non-orphans were absent on the day that they were interviewed (but the P value is only 0.08).

Another study in Tanzania found that ‘orphans tend to have problems with their (primary) school attendance for much the same reasons as non-orphans, and these tend to be either a lack of money and having to work, or problems inherent in the school system. It is concluded that since there is a large group of children who are as disadvantaged as orphans, that orphans have unfavourable school attendance records for similar reasons as other children, and that problems inherent in the school system itself are an important reason for non-attendance, HIV/AIDS should not be excessively blamed for problems in achieving UPE’ (Huber and Gould, 2002: 1).

## Attendance rates over time

DHS survey data exists for three HPCs that enable comparisons over time to be made in orphan enrolment rates. In Malawi, these rates for maternal and double orphans are still somewhat less than for non-orphans, but between 1992 and 2000, there was a noticeable improvement in the enrolment rates for orphans (see Table 10). The same is also true for maternal orphans in rural Tanzania for the period 1992 to 1999. In Zambia, enrolment rates for female maternal and double orphans remained unchanged in urban areas and improved in rural areas between 1992 and 1996. However, there was a significant decline in these rates for male orphans in both areas.

**Table 10 Change in orphan enrolment rates over time in Malawi, Tanzania and Zambia**

Country	Parental status	Year	URBAN		RURAL	
			Male	Female	Male	Female
Malawi	Maternal and double	1992	na	68*	71	71
Malawi	Maternal and double	2000	96	94	89	89
Tanzania	Maternal and double	1992	na	Na	85	91
Tanzania	Maternal and double	1999	na	Na	106*	99*
Zambia	Maternal	1992	95*	85	99	92
Zambia	Maternal	1996	83	85	85	96

Source: DHS

More generally, no simple correlation exists between orphan and non-orphan enrolment rate differentials and HIV prevalence levels. HPCs tend to have the lowest enrolment differentials mainly because these countries have high enrolment rates coupled with a strong schooling culture that keeps most children in primary school. It should also be pointed out that student repetition and dropout rates for primary and secondary education in Botswana, Malawi and Uganda fell during the 1990s. Free universal primary education was introduced in Malawi and Uganda in the mid-1990s. In Uganda, this led to a threefold increase in primary school enrolments at the same time that the AIDS epidemic (in terms of teacher mortality) appears to have reached its peak.

For the other HPCs also, there is no evidence to show that HIV/AIDS has resulted in appreciable decreases in enrolment ratios and dropout and repetition rates (see Annex table 6). As Carr-Hill and Peart point out ‘there has been no obvious reduction in the number of students because fees have either been reduced or eliminated as part of the drive towards EFA’ (Carr-Hill and Peart, 2003: 8).

## Orphans in difficult circumstances

All three school surveys found that it is orphans from the poorest socio-economic backgrounds who generally face the greatest difficulties with their education.<sup>14</sup> Thus, while there are problems that relate specifically to orphanhood, it is the existence of endemic poverty in all three countries, particularly in rural areas, that is largely responsible for many of the difficulties faced by orphans as well as other ‘needy’ children.

Teachers and students at the survey schools identified a range of problems that affect orphans who are in difficult circumstances. These include: behavioural problems that affect relationships with teachers and students (disruptive/ aggressive, withdrawn, crying in class), limited concentration, poorly dressed and nourished, difficulties completing homework assignments, physical and/or sexual abuse by adults living in the carer's household, and general isolation at school and in the community at large.

## 4. THE FUTURE IMPACT ON TEACHERS

A well conceived strategy to mitigate the potentially very serious adverse impacts of the AIDS epidemic on the education sector in Africa must be based on detailed information about the impacts to date and, more important still, robust projections of the likely impacts over the next 10-15 years.

### 4.1 AIDS DEMOGRAPHIC PROJECTION MODELS

HIV/AIDS impact assessments for the education sector have focused primarily on demographic modelling in order to generate projections of the primary and secondary school-aged populations, orphans, and AIDS-related teacher mortality. However, both the methodologies and the assumptions that underpin these modelling exercises are problematic in a number of key respects. Thus, apart from alerting education policy makers to the likely overall impacts of the epidemic, these projections have little operational value for planning purposes. Given the large divergences between projected and actual mortality and orphan rates, these demographic models quite seriously over-estimate the overall impact of the epidemic with respect to the overall number of AIDS-related deaths.

There are four main shortcomings of these projection exercises:

**Occupational categorisation:** Teachers are treated as a homogeneous occupational category. It is assumed, therefore, that all types of teachers will be affected identically by the epidemic, which as was discussed earlier, is not the case.

**HIV prevalence:** In the absence of information about actual HIV prevalence rates among samples of teachers and other education personnel, it is assumed that teachers have the same HIV profile as the adult population as a whole. Key factors, such as education and professional training, marital status, and work location are, therefore, ignored. Given the widespread assertion that teachers are a high-risk group (with respect to their sexual behaviour), the implication is that the 'same HIV' modelling projections are probably under-estimates of actual prevalence and mortality rates among teachers.

**Projected HIV prevalence rates:** There is very considerable uncertainty involved in projecting HIV prevalence rates. In Kenya, for example, Goliber argues that 'no one knows how much further prevalence will rise'. He assumes that HIV prevalence will plateau in Kenya at 15 per cent by 2003 until 2010 (World Bank, 2000). Similarly, the entire modelling exercise for the impact assessment of the education sector in Mozambique hinges on the assumption that adult HIV prevalence will increase from 16 per cent in 1998 to 17.1 per cent in 2010<sup>15</sup>. In South Africa, projected HIV prevalence among teachers is projected to increase from around 13 per cent in 2000 to almost 30 per cent by 2010 [AbT Associates, 2001]. The report notes however that there are 'many uncertainties around many aspects of the demographic and HIV/AIDS impact data' (AbT Associates, 2000).

**Intervention scenarios:** Most of the earlier impact assessments did not develop alternative mortality projections based on different intervention scenarios that would reduce infection and/or mortality among teaching staff. In part, this was because it was believed that relatively little could be done to reduce mortality rates over the next

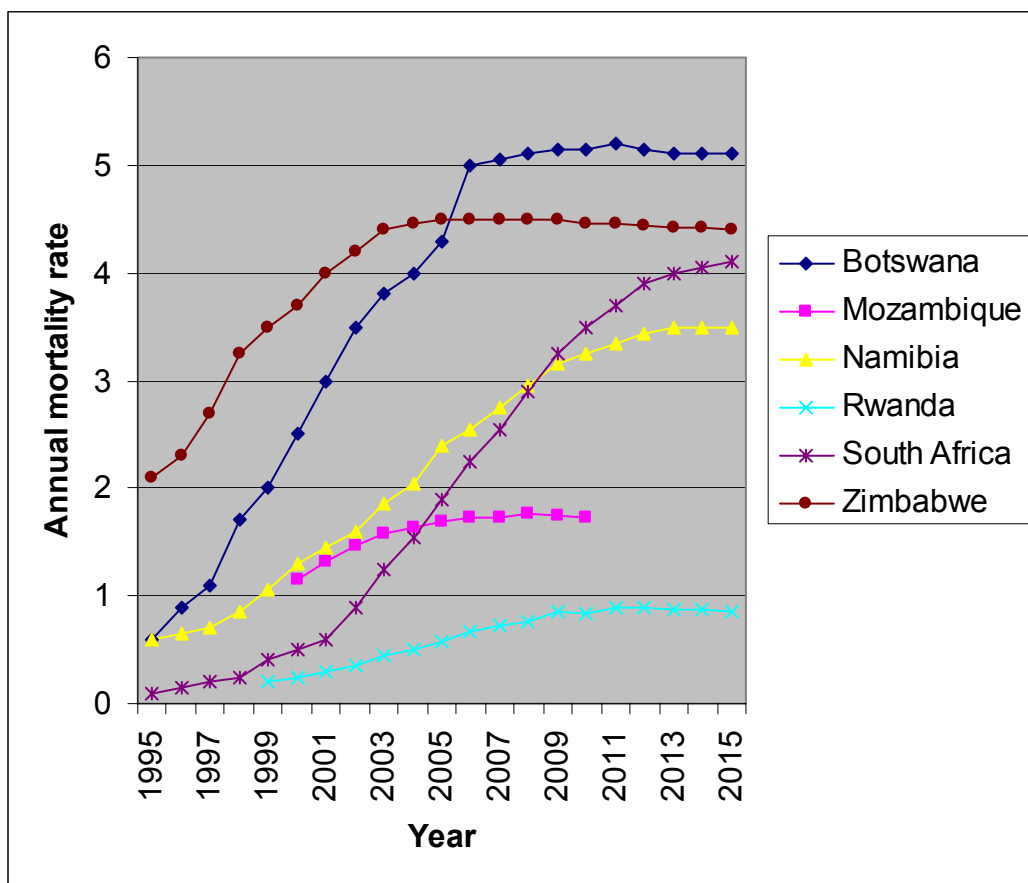
decade among teachers who were already infected. However, this is unduly pessimistic because reducing infection rates will result in reductions in mortality within five years and the widespread availability of anti-retroviral drug therapies has an almost immediate impact on both rates of morbidity and mortality. The availability of ARVs for all infected teachers could reduce AIDS-related teacher mortality in Africa by well over a half.<sup>16</sup>

**Impact on repetition and dropout rates:** Impact assessments have not generally taken into account the impact of the AIDS epidemic on student repetition and dropout rates. Even small changes in these rates can have a significant impact on future enrolments and thus teacher requirements.

#### 4.2 PROJECTED AIDS-RELATED MORTALITY

Figure 1 presents the ‘worse case’ scenario projections of AIDS-related mortality that have been generated using these demographic models for eight HPCs in Eastern and Southern Africa. AbT Associates, using the Doyle and Metropolitan-Life models, did all but one (Mozambique) of these country projections. Average annual teacher mortality rates for the period 2000-2010 are all between 8-11 per cent of adult HIV prevalence rates in 1999.

**Figure 1: Projected teacher mortality rates in HPCs, 1995-2015 (%)**



In Botswana, Namibia, South Africa, teacher mortality rates are estimated to peak around 2008-2012 at between 3.5 per cent to over 5 per cent annum. Mortality rates of this magnitude would have a very significant impact on teacher availability and productivity. However, as noted above, these projected mortality rates are well over double the actual level of teacher mortality. Thus, it is likely that the projected rates need to be adjusted downwards by a factor of at least two or three. While even these levels of mortality are still tragically high, they do not pose a catastrophic threat to the education system as a whole in any of these countries.

**Table 11: Teacher mortality rates in eight high HIV prevalence countries in Africa**

	1994	1995	1996	1997	1998	1999	2000	2001	2002
Botswana						0.7	0.6	0.5	0.5
Malawi – Chiradzulu				1.0	1.8	3.6	2.5	2.2	1.9
Malawi – Blantyre				1.2	1.3	2.9	3.3	2.5	3.2
Namibia	0.1		0.6		0.5		0.4		
South Africa –KZN					0.6	0.7	1.0	0.9	
Tanzania							0.8	0.9	0.8
Uganda-primary		0.9	1.0	1.1	0.9				
Uganda-secondary		1.3	1.1	1.0	1.0	1.0	1.0		
Zambia				2.7			2.0	2.0	1.6
Zimbabwe						0.4	0.9	1.0	

Source: AbT impact evaluations (Namibia, Zimbabwe)<sup>17</sup>, Babcock Walters et al<sup>18</sup> (KwaZulu Natal), Bennell and Kadzamira (Malawi)<sup>19</sup>, Bennell et al<sup>20</sup>(Zambia), Teacher Service Commission(Tanzania), Bennell (Botswana)<sup>21</sup>, and Hyde et al (Uganda)<sup>22</sup>

Not only are actual mortality rates much lower than predicted, but it is also the case that the trend in mortality is downwards and not upwards in a number of countries (see Table 11). In Uganda, mortality rates for secondary school teachers peaked in 1995 (at 1.3 per cent) and, for primary school teachers, two years later in 1997 (at 1.11 per cent). Mortality rates for primary and secondary teachers were 0.9 per cent and 0.71 per cent respectively in 1999<sup>23</sup>. In Zambia, mortality rates fell by almost a half between 1997 and 2002. They fell by one-third in Namibia between 1996 and 1999<sup>24</sup>. In Botswana primary school and secondary teacher mortality rates both fell by around 20 per cent between 1999 and 2002 (see Table 12). In Tanzania, it appears that teacher mortality may also have peaked.

**Table 12 Teacher mortality rates among teachers in Botswana, 1999-2002**

	1999	2000	2001	2002
<b>Primary</b>				
Female	0.66	0.63	0.46	0.5
Male	1.02	1.1	0.8	0.88
All	0.73	0.73	0.53	0.58
<b>Secondary</b>				
Female	0.51	0.38	0.3	0.4
Male	0.68	0.53	0.45	0.58
All	0.6	0.46	0.38	0.49

Source: Inffinium

In Malawi, primary teacher mortality rates were increasing rapidly in the late 1990s, but they were falling among secondary school teachers - from 2.3 per cent in 1996 to less than 1.0 per cent in 1998 (see Kadzamira et al, 2002). A survey of 39 schools was undertaken in May 2003 in two relatively high HIV prevalence districts, namely Blantyre (the commercial capital) and Chiradzulu (a contiguous, mainly rural area) (see Bennell and Kadzamira, 2003). The survey found that annual mortality rates among

secondary school teachers were less than 1.0 per cent between 2000 and 2002, although the trend was upward at secondary schools in Chiradzulu. Among primary school teachers, mortality rates are much higher, but appear to have peaked in 1999 and 2000, certainly among the Chiradzulu schools (see Table 13).

At the main campus of the University of Malawi in Zomba, the average number of deaths among lecturers and senior administrators fell from 5.5 in 1999 and 2000 to 3.0 in 2001 and 2002. However, annual deaths among support staff remained largely unchanged (15.5 in 1999 and 2000 and 14.5 in 2001-2). At the University of Botswana, the annual mortality rate for lecturers fell from 0.44 per cent in the academic years 1995/96 and 1996/97 to 0.35 per cent in 2000/01 and 2002/. As noted earlier, no lecturers died during 2002 02 (see Bennell and Chilisa, 2003).

There are two main reasons for these declines in mortality, namely changes in the sexual behaviour of teachers and lecturers and the availability of anti-retroviral drugs. UNAIDS data shows that overall adult HIV prevalence rates had already peaked in over half of the HPCs by late 2001. It was mainly in Southern Africa where prevalence rates continued to increase appreciably during the late 1990s up to 2001 (see Annex table 7). Given the nature of the epidemic, mortality can be expected to continue to rise for some years to come. If, however, teachers changed their sexual behaviour well before the bulk of the adult population then their mortality rates may have already started to fall. This must be the main reason in countries such as Zambia, where life-prolonging anti-retroviral drugs have not been available at all.

Where teachers have been to access these drugs, the impact on morbidity and mortality has been highly positive. This is particularly the case in Botswana, but it seems that these drugs are increasingly available among teachers in Namibia and South Africa. Thus, depending on the uptake, teacher mortality rates could also be declining in these two countries.

Given the gravity of the AIDS epidemic in Botswana, the government has recently embarked on an ambitious multi-sectoral national HIV/AIDS strategy. The twin goals of the strategy are to prevent further infection especially among the youth and to do everything possible to mitigate the impacts of the epidemic through various kinds of support measures for those who are sick as well as for orphans. A much-publicised component of the strategy is the provision of life-prolonging anti-retroviral drugs to all people in the country who are living with AIDS. However, what it is less well known is that the majority of the country's public servants have had access to these drugs for over five years because the government has had the financial means to make them freely available through its public service medical aid scheme. Botswana is blessed with enormous deposits of diamonds and, despite AIDS, the economy is still booming.

The growth in the numbers of public sector employees taking these drugs has been phenomenal. Among the country's 24,000 primary and secondary schoolteachers, only 62 were benefiting in 1999. But, by April 2002, this had increased nearly eightfold to 474, two percent of the total employed. The impact of these drugs on AIDS-related mortality has been dramatic. Without them, the AIDS-related mortality rate for teachers was projected to be 3.0 percent in 2002. The actual mortality rate in 2002 (for all causes) was only 0.5 percent, in other words six times less than this. What is more, the total number of teacher deaths fell from 140 in 1999 to 124 in 2002.

The mass provision of these drugs among the other 51,000 public servants in the country has also had a similar positive impact on mortality. Up until the end of 2001, mortality rates among this group had been climbing sharply. However, during 2002 the number of deaths per month went from 80 in January to 50 in December, a fall of nearly 40 percent.

**Table 13 : Annual mortality rates among teachers in Malawi**

**PRIMARY**

	1997	1998	1999	2000	2001	2002	Av annual mortality
<b>BLANTYRE</b>							
Female	1.0	1.2	3.1	2.6	2.4	2.8	2.2
Male	2.5	2.5	2.7	7.4	3.5	6.8	4.2
All	1.3	1.4	3.1	3.3	2.6	3.4	2.5
<b>CHIRADZULU</b>							
Female	3.0	2.8	3.7	2.0	2.6	1.0	2.5
Male	0.0	2.2	4.8	3.4	2.0	1.4	2.3
All	1.4	2.4	4.3	2.8	2.3	1.2	2.4

**SECONDARY**

	1997	1998	1999	2000	2001	2002	Av annual mortality
<b>BLANTYRE</b>							
Female	0.0	0.0	0.0	0.0	2.0	0.0	0.3
Male	0.0	0.0	0.0	2.0	0.0	0.0	0.3
All	0.0	0.0	0.0	0.9	1.0	0.0	0.3
<b>CHIRADZULU</b>							
Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Male	0.0	0.0	2.6	2.4	2.6	4.4	2.0
All	0.0	0.0	2.2	2.0	2.1	3.8	1.7

Source: Bennell and Kadzamira, 2003

### 4.3 PROJECTED MORBIDITY

No in-depth research has yet been undertaken that would allow robust estimates to be made of the AIDS epidemic on the overall number of days lost through increased teacher absenteeism. Two key issues have to be addressed. First, in any one country, what is the average period between the onset of AIDS-related illnesses and death? The overall productivity of the teacher is most likely to be affected during this period. And secondly, what proportion of this period does the affected teacher take-off sick? This depends very heavily on a variety of factors including the overall quality of medical treatment, sickness benefit regimes, and the support given by school management and teaching colleagues.

Estimates of the overall likely magnitude of AIDS-related absenteeism among teachers vary considerably from one impact assessment to another. A World Bank study of four HPCs (Kenya, Uganda, Zambia and Zimbabwe) assumes that each infected teacher loses a total of 18 months of working time. (World Bank, 2000) The corresponding estimates used in the impact assessments for South Africa and Swaziland are 4-6 and 12 months respectively. The Botswana study assumed that a teacher with clinical AIDS is

off sick for six months per year. More recently, researchers from Imperial College London state that an infected person is likely to be unable to teach for a total of 260 days prior to death from AIDS. This estimate has been used by Mingat and Bruns in a major World Bank study that models the total financial requirements for attaining EFA in 48 developing countries (see World Bank, 2002).

It is important to stress that none of these estimates are based on detailed empirical research of attendance patterns of affected teachers. Coupled with the wide margins of error of the AIDS demographic models, this means that projected morbidity and absenteeism rates for teachers are little more than inspired guesses. Furthermore, if anti-retroviral drugs can be made widely available to affected teachers, projected morbidity among teachers may not be that much higher than in the pre-AIDS situation. Consequently, absenteeism rates could begin to decline rather than increase rapidly as is widely expected. The worst affected countries are heavily concentrated in Southern Africa, which have the financial and medical infrastructure needed to administer effectively ARVs to large numbers of people.

#### **4.4 AFRICA-WIDE IMPACT**

Turning to the Africa region as a whole, it is possible that 260,000 teachers, 9.4 per cent of the total employed in 1999, could die of AIDS-related illnesses over the next decade. This projection is based on the three key assumptions, namely that teachers have the same age and HIV profiles as the rest of the adult population, that the 1999 adult HIV prevalence rate in each country will not increase, and teachers are unable to access life-prolonging ARVs. Five countries will account for nearly two-thirds of these AIDS-related deaths among teachers<sup>25</sup> - Kenya (25,400), Nigeria (22,100) South Africa (44,900), Uganda (14,900), and Zimbabwe (16,200).

Assuming that these deaths are evenly spread over an eight-year period, then one out of every nine primary schools in SSA can, on average, expect to have an AIDS-related death each year. The worst affected country will be Botswana where, on the basis of the above assumptions, each school will, on average, lose one teacher every year to AIDS during this period. This will mean that instead of each school having to recruit, on average, one new primary teacher every year as was the case in the late 1990s, school management will have to find two new teachers. Staff turnover averages three teachers per annum at secondary schools so the impact of AIDS-related deaths will be to increase school-level recruitment by roughly one-third. Relatively high levels of teacher attrition and/or turnover (especially at rural schools) in many of the other HPCs also mean that the impact of the AIDS-related teacher deaths at the school level will be much smaller than expected. One obvious way of cutting down the disruption caused by AIDS deaths is, therefore, to try to reduce the overall level of staff turnover in the education system as a whole.

#### **4.5 FUTURE TEACHER REQUIREMENTS**

The net impact of the epidemic on total teacher requirements will depend on how the epidemic affects the overall school-age population, repetition and dropout rates, teacher mortality rates, and other types of attrition. Various enrolment and teacher requirement scenarios can be developed using conventional simulation models. However, to

reiterate, because there is so much uncertainty about how these parameters will be affected by the epidemic, all projections will be subject to very large margins of error.

It is generally believed that teacher recruitment will have to be expanded rapidly in order to make up for much higher levels of attrition and that this will have a very detrimental impact on the attainment of the Education for All objectives. 'The high rates of AIDS-related mortality may raise the demand for new college graduates above the supply, prolonging the dependence of schools on unqualified teachers' (Kelly, 2000: 65). However, this is only likely to be true for a minority of HPCs because, with lower than expected school-age populations, fewer teachers will be required to educate these children. Estimates have been made for six countries (the three country studies and also Kenya, Zambia, and Zimbabwe). In all six countries, the reduced demand for teachers outweighs the increase in AIDS-related mortality over the next decade. Somewhat perversely, therefore, the AIDS epidemic will make it easier to reduce student-teacher ratios and meet Education for All targets. As Goliber points out the 'the epidemic seems to influence the demand for educational services moderately more than the supply' (World Bank, 2000:45). However, additional teachers will still be needed in order to cover for teachers who have clinical AIDS (see below).

Enrolment projections contained in the recent Strategic Plan for the Education Sector in Zambia 2003-2007 show that there is likely to be a serious over-supply of teachers over the next five years or so. Teacher training capacity has been increased from less than 2000 to nearly 6000 since the late 1990s (see Government of Zambia, 2003). There are also mounting concerns about the likely over-supply of teachers from the six teacher training colleges in Botswana during the next 5-10 years<sup>26</sup>.

The impact of HIV/AIDS on other types of attrition, in particular, resignation rates could be potentially very significant. It has been frequently suggested that the education sector could lose large numbers of teachers to both the public and private sectors as AIDS-related labour shortages increase over time. However, attrition rates could also decrease in a number of countries. This is mainly because the proportions of fully qualified teachers who enjoy generally much better pay than untrained teachers is expected to increase rapidly over the next decade both through upgrading of untrained teachers and recruitment of qualified teachers. More generally, the AIDS crisis heightens the need to professionalise the teaching cadre as quickly as possible and improve teacher morale through better remuneration and other conditions of service (in particular housing)

Three other factors also need to be taken into account. First, the marketability of untrained primary teachers will remain very low in most countries. Second, higher mortality rates will improve promotion prospects. And thirdly, there are already large teacher surpluses in a number of countries (including South Africa, Tanzania and Uganda<sup>27</sup>).

## **5. PROJECTED NUMBERS OF AFFECTED CHILDREN**

While it is important to estimate the likely numbers of children in each of these three groups over the coming decades, demographic projection models are seriously problematic in a number of key respects and are subject to possibly very wide margins of error (see below). Most projections make conservative assumptions about the impact of various interventions that can reduce infection and mortality. Consequently, great care needs to be taken in interpreting these estimates.

### **5.1 CHILDREN LIVING WITH AIDS**

The number of children who will be living with AIDS is particularly difficult to estimate. This is because the provision of inexpensive anti-retroviral drugs to pregnant women dramatically reduces the level of mother-to-child HIV transmission. The Ministry of Health in Botswana provides AZT to all pregnant women with HIV free of charge. If completely successful, the level of transmission could be halved very quickly - from around 35 per cent to 17 per cent. This would mean that, even in the worst affected country, less than 0.4 per cent of six-seven year olds enrolling in primary schools would be infected over the next 5-10 years.

AIDS mortality among the 15-19 age group in Botswana is projected to remain constant at 0.24 per cent between 2000 and 2010 in which case the number of AIDS-related deaths among secondary students in Botswana will increase by around 25 per cent - from 435 in 1999 to 558 in 2009. While this is tragically high, it is only 0.25 per cent of the projected secondary school-age population in 2010.

### **5.2 CHILD CARERS**

Total AIDS cases will increase very rapidly during the next decade, especially in the HPCs. In Botswana, they are projected to double - from around 20-25,000 in 2000 to 45-50,000 in 2010 (Republic of Botswana and UNDP, 2003). In Malawi, it is estimated that new AIDS cases will increase from 57,000 in 1998 to nearly 100,000 per annum in 2010. Without appropriate levels of support by adult carers, it is likely, therefore, that many more children will become directly involved in caring for the sick as well as undertaking household activities, which can no longer be performed by affected parents and other family members. Unless governments adopt comprehensive measures to reduce the household burden of care, repetition, dropout and absenteeism rates could increase significantly among these children.

### **5.3 ORPHANS**

Table 5 presents the COTB projections of the relative size of the orphan population in 2010. The total number of AIDS maternal and two-parent orphans for SSA as a whole is expected to increase from 9.85 million in 2001 18.67 million in 2010. However, as discussed earlier, these projections over-estimate the future size of the orphan population in Africa.

Even on the basis of these flawed projections, it can be observed that there is group of seven HPCs (Botswana, Central African Republic, Lesotho, Mozambique, Namibia, South Africa, Swaziland and Zimbabwe) where the percentage of orphans (from all

causes) is projected to increase significantly over the next decade. However, in the remaining 21 countries which are listed in the table, this percentage will remain largely unchanged (Benin, Burkina Faso, Burundi, Cameroon, Côte d'Ivoire, Ethiopia, Gabon, Ghana, Kenya, Malawi, Nigeria, Tanzania, Togo, Zambia) or fall quite appreciably (Democratic Republic of the Congo, Rwanda, Uganda). Thus, while the numbers of orphan schoolchildren in Africa will continue to increase, it is only in a handful of HPCs (accounting for around 10 per cent of the total population of SSA) where the overall proportion of orphans in the school-age population will increase markedly.

## **6. DEVELOPING A COMPREHENSIVE STRATEGIC RESPONSE**

A comprehensive HIV/AIDS strategy for the education sector should comprise of three components, namely school-based education, and prevention and mitigation for teachers and pupils. Many of the work place ‘best practices’ with respect to AIDS have been incorporated into the ILO’s Code of Practice on HIV/AIDS and the World of Work (see ILO, 2001).

### **6.1 AIDS IN THE WORKPLACE PROGRAMMES**

Every Ministry of Education in Africa should implement a comprehensive AIDS in the Workplace (AiW) strategy for the education sector. The twin objectives of this strategy are to prevent further HIV infection and create a supportive environment for all staff, both those who are living with AIDS and those who are not. The size of the challenge in developing effective interventions should not be under-estimated: Public education systems are made up of a very large number of highly dispersed and relatively small workplaces (schools) usually with relatively poor quality management and low paid and quite demoralised staff. An effective AiW programme requires very high levels of management commitment and expertise and has sizeable resource implications.

The main components of a comprehensive AiW programme are: prevalence and risk assessment, education and prevention, counselling and support groups, voluntary testing, deployment and transfers, medical aid including the provision of ARVs, anti-discrimination, substitute teachers, and teacher support networks.

#### **Prevalence and risk assessment**

Each Ministry of Education should undertake a detailed assessment of HIV prevalence and risk among teachers and support staff. This is not only essential for planning purposes, but also in order to design effective prevention programmes. Two types of information are required. First, teachers at randomly selected schools should be requested to participate in a voluntary, anonymous testing programme. And secondly, Knowledge, Attitudes, and Practices surveys should be undertaken in order to identify the extent to which teachers and other staff are at risk from HIV infection.

#### **Education and prevention**

Intensive education and prevention programmes should be introduced, which cover all teachers and support staff. The main objectives are:

- to confront the silence, denial, and secrecy about HIV/AIDS among teachers and to create a culture of openness and acceptance;
- provide information and appropriate life skills training that will prevent infection; ensure easy access for staff to contraceptives in every school and other education workplace;
- highlight the benefits of voluntary testing and counseling; counter discrimination and encourage supportive behaviour for colleagues who are infected and sick.

## **Counseling and support groups**

Teachers and other staff must be able to access high quality counseling support and be assured of total confidentiality. In the worst affected countries, specialist ‘AIDS counselors’ should be employed who can make regular visits to schools to meet with staff both individually and in groups. Living positively support groups should also be established among teaching staff in each district.

## **Deployment and transfers**

There are no easy solutions to the serious problems that arise when deploying teaching staff to schools across large geographical areas and at remote and unattractive locations. The HIV/AIDS epidemic will further aggravate these deployment problems. It is very important that information systems are developed, which provide comprehensive up-to-date information on staff deployment and transfers.

## **Teaching cover**

Where teacher mortality continues to increase, additional teaching staff will be required in order to ensure that all schools are properly staffed. In particular, schools that have sick teachers will need extra teaching cover. New sickness regulations should also be introduced, which carefully balance both individual and institutional needs. While sick teaching staff must not be discriminated against in any way, each Ministry of Education has a duty to take all necessary steps in order to prevent any serious deterioration in teaching and learning that may occur as a result of higher levels of staff morbidity.

## **Medical support**

With proper medical support and high levels of patient compliance, the provision of anti-retroviral drugs to all infected teaching and support staff would be the single most effective intervention to mitigate the impact of the AIDS epidemic on the education sector. As noted earlier, on the basis of the few evaluations that have been undertaken, morbidity and mortality rates could be at least halved.

Given the scale and nature of the epidemic in the HPCs, it is crucial that all teaching and support staff should receive adequate medical support. Where voluntary medical aid schemes already exist, every effort should be made to maximise membership. However, in most countries in SSA, these types of schemes do not cover teachers and other public servants. In order to mitigate the impact of the epidemic on critical human resources, governments should take decisive steps to improve the availability of medical treatment. Although this clearly raises extremely difficult equity issues, there is a strong case for the establishment of medical aid schemes (at least for the duration of the epidemic) in order to ensure the availability of public services that are critical for the attainment of poverty reduction and other development objectives.

## **6.2 SUPPORTING AFFECTED CHILDREN**

The overall level and quality of support for orphans from government agencies as well as other non-governmental organisations will largely determine the extent to which the AIDS epidemic will negatively impact on national education systems in SSA. A

common finding of the three country studies is that, to date, schools have provided relatively little targeted support for orphans and other children affected by HIV/AIDS. The main reasons for this limited response are:

- the failure of Ministries of Education to develop comprehensive and coherent policy frameworks
- the negative attitudes of school managers and teacher concerning what schools should do to support orphans and other disadvantaged children
- chronic and pervasive resource constraints (except in Botswana)
- the generally unsupportive school environment with only a minority of schools being child-friendly
- the absence of serious overt discrimination against children directly affected by the epidemic.

### **National strategies and policies**

Ministries of education and other education institutions cannot act in isolation. Supporting affected children is the responsibility of the entire community working closely with government and other organisations at the national and local level. Consequently, the impact of the epidemic on the education sector will, to a large extent, depend on the overall level and effectiveness of the assistance given to these children and their carers *outside of school*. This highlights the importance of governments developing comprehensive national policy frameworks in order to tackle the AIDS crisis.

National HIV/AIDS strategies have been adopted in all HPCs. Important lessons learned from earlier efforts to design and implement comprehensive policy frameworks to tackle the AIDS crisis are being incorporated into these national strategies. The most effective have national AIDS agencies or commissions with the expertise, resources, and authority to ensure that HIV/AIDS prevention and mitigation policies are mainstreamed in all government ministries and that there is a co-ordinated multi-sectoral response at both the national and local level. Closely co-ordinated inter-agency action is essential in order to ensure community-wide mobilisation. With respect to schoolchildren, this involves school managers, teachers, and parents working closely with officials from the ministries of education, health, social welfare and community development and a wide range of NGOs and CBOs.

There are three main policy areas outside of education that have a particularly important bearing on the extent to which the epidemic will impact on the education sector itself. These are poverty reduction, child protection legislation, and support for the sick and orphans. The most effective way to combat both the causes and consequences of HIV/AIDS is to achieve large and sustained reductions in the incidence of poverty, particularly in the rural areas. Social welfare provision should also be extended in order to meet the basic needs of children in especially difficult circumstances. Over the next decade, it is likely that the care of orphans will have to shift away from the present reliance on the extended family. As the number of orphans rises, alternative methods will need to be introduced in the worst affected countries, in particular community-based residential care using 'family models' and more extensive fostering arrangements.

With 30-40 per cent of all children projected to be orphans by 2010 in the worst affected countries, government 'safety net' funding will have to increase very significantly if the basic needs of these children are to be adequately catered for<sup>28</sup>. All disadvantaged orphans should be provided with food, clothing and, where necessary, shelter. In addition, a much-enlarged cadre of social workers will be needed who can work closely with schools.

Much greater emphasis should also be given to the rights of children. Child protection legislation must be firmly based on the principle that the interests of the child are paramount. In many countries in SSA, the interests of children continue to be compromised by pervasive concerns about not wishing to upset 'traditional' cultural beliefs and practices. If orphans and other children are seriously abused they should be removed immediately from the home and be accommodated in 'places of safety'.

Finally, with rising levels of AIDS-related morbidity, children will have to shoulder some of the burden of caring for affected household members, which could affect their education. Well-resourced home-based care and other material support for the terminally ill would not only provide relief to those affected, but would help to mitigate any adverse impacts on schooling.

### **School-based support**

While schools should do a lot more to support affected children, it is equally clear that they cannot do everything. Given available resources, schools are very constrained in taking on additional responsibilities in support of these children. To reiterate, it is the level of support given by government and other organisations that will ultimately determine the overall impacts of the epidemic on the education system.

While providing reasonable quality basic education to all children should remain the central objective of all schools, there are some important steps that can realistically be taken that will significantly improve school-based support for affected children. Even without the AIDS epidemic, decisive action would still be needed to improve the school environment so that it is both more child-friendly and teacher-friendly. The AIDS crisis dramatically increases the urgency of addressing this fundamental weakness of the school system, which exists in nearly all countries in SSA. Without substantial improvement in this area, school-based HIV/AIDS prevention and mitigation interventions are likely to founder.

School managers and teachers should be more proactive in identifying students who are affected by HIV/AIDS and in supporting their learning needs. More openness is needed if schools are to play an effective supportive role. Appropriate pre- and in-service training will help to promote the required change in the attitudes and behaviour of school managers and teachers. However, most teachers do not have sufficient time, resources, and incentives to be able to support students properly. Most already feel heavily over-burdened by a crowded curriculum and other work-related commitments. Consequently, the right enabling environment has to be created so that they can perform this key function effectively.

The school surveys indicate that there are six priority areas for school-based support for orphans and other needy and affected children: identification, referral and monitoring,

school feeding, pastoral care and counselling, financial assistance with fees and other school-related expenses, involvement of guardians and carers, support for children living with AIDS.

Schools should keep close track of orphans and other children who may be in difficult circumstances. At the very least, every school should undertake a simple needs assessment and carefully monitor school performance, including dropouts. All teachers should be trained to counsel and provide pastoral care to students, but particularly those who are most in need. It is important, however, that there are professionally trained guidance and counselling (G&C) teachers who can take overall responsibility with school managers for all school-based support for orphans and other needy children. Larger schools should have full time G&C staff.

Providing a free school meal is not only important in ensuring that at least some of the nutritional needs of children are met, but it is also a major incentive for orphans and other disadvantaged children to attend school. Where poverty is endemic, a strong case exists for all children to have one nutritious meal each day at school, which should be free or nearly free of charge. Where this is not financially possible, children in need should be targeted.

Given the already high incidence of poverty in most HPCs coupled with the likely impacts of the AIDS epidemic, increased cost recovery for primary and secondary schooling could seriously affect school attendance and performance. Basic education should, therefore, be free and targeted assistance to meet essential schooling costs (fees, clothing, examination fees, and transport) should be provided for needy children as part of a comprehensive package of support.

## **7. CONCLUSION: CATASTROPHE OR CRISIS?**

The main conclusion that can be drawn from this review is that the AIDS epidemic does pose a significant threat to education provision, especially in high HIV prevalence countries. However, the available evidence does not support the view that this impact is likely to be catastrophic. This is mainly because schooling systems should be able to deal with higher AIDS-related mortality rates among teaching staff and, with appropriate support, orphans should be able to attend school. Furthermore, teacher mortality rates will probably be less than expected. Uganda is perhaps the best example of a HPC that has a mature epidemic, but where the government has still been able to introduce successfully universal primary education and where secondary school enrolments have increased very rapidly since the late 1990s.

More generally, this review also highlights the importance of grounding the analysis of the impact of the AIDS impact on the education sector on continuous and in-depth empirical research in each affected country. Given the gravity of the AIDS crisis in many countries, it is essential that politicians and policymakers be convinced of the need to take decisive action to prevent and mitigate the impacts of the epidemic. However, advocacy-without-facts is not a sound basis for the development of well-conceived prevention and mitigation strategies. Instead, it tends to encourage an excessively negative and simplistic assessment of the impacts of the epidemic, which, in some ways, is as serious in its consequences as the denial about the epidemic, which it seeks to counter.

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## **ANNEX 1: HIV PREVALENCE AND PREVENTION AMONG TEENAGERS IN AFRICA**

The headline statistics about AIDS in sub-Saharan Africa are well known: nearly one in ten adults, a staggering 26 million people, are estimated to be infected with the deadly HIV virus. In eight countries in Southern Africa, the overall adult prevalence rate is now well over 25 per cent. But, unlike no other pandemic before it, there is very little accurate information about just how many people have died of AIDS-related illnesses during the last decade or so. This is because most governments in Africa do not keep 'vital registration' statistics, which accurately record the details of each death, including residence, age and occupation.

In the absence of accurate and up to date mortality statistics in most countries in SSA, almost exclusive reliance has been placed on HIV prevalence estimates that are based on the random, anonymous testing of pregnant women attending antenatal clinics. With some, usually fairly minor, adjustments these test results are used to derive estimates of HIV prevalence among all adults in the population as a whole. However, from the limited evidence that is available, HIV infection among teenagers is much lower than the HIV prevalence estimates from antenatal clinic surveys for this age group.

Clearly, pregnancy is the result of unprotected sexual intercourse, which is the dominant mode of HIV transmission in Africa. But not all teenagers are sexually active and many are now using condoms, especially with casual partners. In Botswana, for example, which has the highest adult HIV prevalence rate in the world, only one-quarter of both females and males are sexually active before they are 18 and, for those who are, condom use is very high. In a recent survey, 88 percent of male and 75 percent of female respondents aged 15-24 indicated that they had used a condom the last time they had had sex with a 'non-marital, non-cohabiting partner' (NACA, 2002). Increased condom use is in turn resulting in a lower incidence of sexually transmitted diseases. The reported cases of STDs for the adult population as a whole fell by nearly 10 percent in just one year (1999, latest published data).

The only way to obtain an accurate picture of the extent and pattern of HIV infection is to test large representative samples of the entire population. Such comprehensive population-based surveys are very rare, which again is extraordinary given the extent of the epidemic. But where they have been done, they show that HIV incidence among teenagers is much lower than among pregnant women of the same age. In Botswana, Zambia and Zimbabwe, three of the worst affected countries in the world, most teenagers are not infected. This is particularly the case for males where infection levels are very low. Two recent surveys in Zambia<sup>3</sup> and Zimbabwe<sup>4</sup> both show that 6-7 per cent of females and 1-2 per cent of males aged 15-19 were infected. Similarly, in Botswana, 11 per cent of females and 1 per cent of males in this age group who were

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<sup>3</sup> Central Statistical Office, Central Board of Health and ORC Macro. 2002. Zambia Demographic and Health Survey 2001-2002. Preliminary Report. CSO: Lusaka. October

<sup>4</sup> Gregson S., H. Waddell, and S. Chandiwana. 2000. School education and HIV control in sub-Saharan Africa: from harmony to discord. *Journal of International Development*.

tested at voluntary testing and counseling centres were sero-positive<sup>5</sup>. Given that a very high portion of those wanting to be tested are likely to have had unprotected sex, HIV prevalence in the 15-19 population as a whole is almost certainly much lower still.

The population-based rates are dramatically lower than the estimates that are derived from antenatal clinic sentinel surveys. Unfortunately, only the latter are usually available and are widely used by AIDS advocacy organisations for HIV/AIDS prevention programmes (see Annex table 1). These figures are in turn picked up by the media. For example, the Daily Mail in Zambia recently published an article that stated that ‘According to the Ministry of Health latest findings, 17 per cent of youth between the ages of 15 and 19 are HIV positive’ (Daily Mail 28 April 2003). But the reality is that HIV infection is over eight times lower for males and nearly three times lower for females in this age group.

**Estimated HIV prevalence rates 15-24 year olds that are frequently reproduced by UNESCO, UNICEF and other international organisations, late 1990s**

Country	Female	Male
Botswana	34	16
Burundi	12	5.7
Ethiopia	12	7.5
Kenya	13	6.4
Lesotho	26	12
Malawi	15	7
Mozambique	15	6.7
Namibia	20	9.1
Rwanda	11	5.2
South Africa	25	11
Tanzania	8.1	4
Uganda	7.8	3.8
Zambia	25	11

Source: UNICEF

A real concern is that seriously over-inflated estimates of HIV prevalence could exacerbate already high levels of despondency and even fatalism about the epidemic among many young people in Africa. When asked if they have changed their sexual behaviour in order to avoid infection, a frequent response of teenage survey respondents, particularly in very high prevalence countries, is that there is little point in doing so since ‘we are all dead already’. The lesson here is clear. While over-exaggerating the extent of infection among teenagers is perhaps understandable given the severity of the epidemic, excessive reliance on misinformed ‘scare tactics’ could have serious unintended consequences. AIDS prevention programmes for teenagers, both in and out of school, must be based on accurate and up to date information about HIV prevalence across all age cohorts. The starting point for these prevention programmes should therefore be to reassure teenagers that most of them are HIV negative. But, they must also be convincingly informed that it is their behaviour after they have left school that will determine whether or not they will become infected.

<sup>5</sup> National AIDS Coordinating Agency. 2002. Botswana 2002 Second Generation HIV/AIDS Surveillance. Gaborone, November 2002

Finally, it is very important to tell teenagers that that very large numbers of young people in Africa do appear to be changing their sexual behaviour in order to avoid infection. In Botswana, for example, HIV prevalence among pregnant teenagers peaked in 1998 (at 28.6%), but fell to 21% in 2002. Large declines have also been observed in other countries (including Uganda, Malawi, and Zambia), especially in urban areas.<sup>6</sup> These changes in behaviour are already impacting on the overall adult prevalence rate in much of Africa. HIV prevalence rates (based on antenatal clinic survey estimates) for the 15-49 age group fell or remained largely unchanged (i.e. appear to have peaked) in the following high prevalence countries between 1997 and 2001: Burkina Faso, Burundi, Congo, Cote d'Ivoire, Ethiopia, Malawi, Mozambique, Rwanda, Tanzania, Togo and Uganda. It was mainly in Southern Africa (particularly Botswana, Lesotho, South Africa, Swaziland, and Zimbabwe) where prevalence rates increased very significantly during this four year period<sup>7</sup>.

Unfortunately, good quality time-series data on key aspects of sexual behaviour is not available. However, DHS surveys have recently started to incorporate questions on sexual behaviour into their surveys so it will at last be possible to monitor behaviour change over time for a large number of countries. Annex table 2 shows the incidence of condom use and sex with commercial sex workers among youth in countries where there this data has been collected. However, it is important to note that much of this data is now quite out of date.

### Condom use and commercial sex among young people in Africa

Country	Year	Commercial sex last year		Condom use Last high risk sex	
		15-19	20-24	15-19	20-24
Benin	1996	..	24	..	24
Burkina Faso	1998/99	7	15	45	63
Cameroon	1998	10	27	30	32
CAR	1994/95	9	20	..	..
Cote d'Ivoire	1998	2	3	53	58
Guinea	1999	5	4	27	37
Kenya	1998	..	..	38	48
Malawi	2000	12	10	29	47
Mali	1996	6	18	27	34
Nigeria	1996	7	10	49	61
Rwanda	2000	0	1	..	..
Tanzania	1999	..	..	26	36
Togo	1999	5	8	39	43
Uganda	2000	0	2	52	71
Zambia	1996	24	29	30	47
Zimbabwe	1999	1	7	59	75

Source: DHS

<sup>6</sup> See Bennell, P, N. Swainson and K. Hyde. 2001. The impact of the AIDS epidemic on primary and secondary schooling in Africa. Centre for International Education, University of Sussex, Brighton

<sup>7</sup> Based on UNAIDS data from annual reports on the HIV/AIDS epidemic.

## **ANNEX 2: DATA SOURCES FOR THE BOTSWANA, MALAWI AND UGANDA COUNTRY STUDIES**

For each country study, information was collected from three main sources in order to assess the impacts of the epidemic on students and teaching staff.

- Surveys of 10-20 primary and secondary schools were undertaken in two high HIV prevalence districts (one rural and one urban) in each country. Schools were randomly selected within each district. Both qualitative and quantitative information was collected from each school. Semi-structured interviews were conducted with school managers and random samples of teachers in order to obtain key statistical information as well as views and perceptions on the impact of the epidemic on both students and staff. Random samples of students in specific grades also completed questionnaires and participated in semi-structured focus group discussions.
- Senior managers and other professional staff in all the major departments in each Ministry of Education were interviewed. In addition, interviews were conducted with other stakeholders in the education sector, officials in other key Ministries (most notably health, social welfare and community development, and finance and development), and staff in service organisations engaged in HIV/AIDS prevention and mitigation and support for disadvantaged children.
- Relevant secondary data from all available sources (in particular education and health statistics).

The school surveys and interviews were completed during March-December 2000 in all three countries.

### ANNEX 3: ADDITIONAL TABLES

**Annex table 1: Divergence between Children on the Brink and DHS orphan estimates**

Country	Year Survey	DHS	Total orphans		% difference	
			Hunter & Williamson 1990	2000	1990	2000
Burkina Faso	1992	7.7	11.4		48	
Cameroon	1998	9		10.9		21
Cote d'Ivoire	1994	6	10.2		70	
Ghana	1998	5.9		9.5		61
Kenya	1998	9.4		12.4		32
Malawi	1992	8.9	11.8		33	
Malawi	2000	11.5		17.5		52
Mozambique	1997	12.1		15.5		28
Namibia	1992	7.1	9.4		32	
Nigeria	1999	6		10.3		72
Rwanda	2000	26.8		17.5		-35
South Africa	1998	10.1		10.3		2
Tanzania	1999	8.7		12		38
Uganda	2000/01	12.6		14.6		16
Togo	1998	9		10.9		21
Zambia	1992				38	
Zambia	1996	11.8	10.9	17.6		49
Zimbabwe	1999	14.4		17.6		22

**Annex table 2: Parental status of children (under 15) in selected countries**

Country	Year Survey	DOUBLE		MATERNAL		PATERNAL	
		Male	Female	Male	Female	Male	Female
Burkina Faso	1992	0.9	1.1	2.2	2.1	4.5	4.4
Cameroon	1991	0.5	0.4	2.0	1.7	4.8	4.2
Cameroon	1998	0.6	0.7	2.4	2.2	6.0	6.0
CAR	1994/95	0.7	0.9	3.1	3.0	6.8	6.4
Cote d'Ivoire	1994	0.4	0.4	1.6	1.7	3.9	4.2
Ghana	1998	0.5	0.3	2.0	1.9	3.7	3.4
Kenya	1998	0.8	1.0	1.8	1.8	6.6	6.6
Madagascar	1992	0.6	0.7	3.6	3.4	5.8	5.5
Madagascar	1997	0.4	0.5	2.8	2.9	5.1	4.7
Malawi	1992	1.1	1.1	3.4	2.8	4.4	4.8
Malawi	2000	1.8	1.9	2.7	3.3	6.5	6.4
Mozambique	1997	1.2	0.9	3.9	4.7	7.2	6.2
Namibia	1992	0.5	0.4	1.6	1.5	4.7	5.4
Nigeria	1999	0.7	1.0	2.1	1.6	3.0	2.8
Rwanda	1992	0.6	0.8	2.3	2.2	6.3	6.8
Rwanda	2000	4.5	5.3	4.1	3.5	18.0	18.0
South Africa	1998	0.8	0.7	1.4	1.5	7.8	7.4
Tanzania	1991/92	0.5	0.4	2.3	1.6	4.3	5.0
Tanzania	1999	1.4	0.7	2.1	2.4	5.0	5.6
Togo	1998	0.7	0.5	2.4	2.2	6.1	6.0
Uganda	2000/01	2.3	2.2	2.7	3.1	6.9	7.6
Zambia	1992	0.5	0.6	2.2	2.1	4.7	5.4
Zambia	1996	1.6	1.4	3.0	2.8	8.1	6.6
Zimbabwe	1999	1.9	2.2	2.4	2.7	9.1	9.6

Country	Year	Double	Maternal	Paternal
Kenya	1993	1.4	1.4	5.1
	1998	1.9	1.8	6.5
Malawi	1992	1.7	3.0	4.6
	2000	2.3	2.9	6.5
Tanzania	1992	2.3	1.9	4.6
	1999	1.6	2.2	5.3
Uganda	1995	2.8	3.0	8.0
	2000	2.7	2.9	7.2
Zambia	1992	1.2	2.2	5.0
	1996	2.3	2.9	7.4
Zimbabwe	1994	1.6	1.9	6.5
	1999	3.4	2.6	9.3

Source: DHS

**Annex table 3: Incidence of orphans by age group in Uganda 1990/91- 2000/01**

Year	0 to 4	5 to 9	10 to 14	All
1990/91	4.5	10.9	16.9	10.4
1997/98	5	15.2	27.4	16.8
2000/01	4.7	14.5	26.8	15.4

Source: Busingye et al, 2003

**Annex table 4: Percentage point difference in ever-stopped attending rates between orphans and non-orphans**

	PRIMARY			SECONDARY		
	Botswana	Malawi F M	Uganda	Botswana	Malawi F M	Uganda
Paternal orphan	-3	17 7	0	0	0 1	2
Maternal orphan	-3	10 16	10	15	-4 4	7
Double orphan	12	1 13	13	11	1 23	27
Ever-stopped attending rate among non-orphans	3	3 7	14	2	4 10	16

**Annex table 5: Living arrangements of students at survey primary schools: rounded percentages**

**PRIMARY SCHOOL PUPILS**

LIVING WITH	BOTH PARENTS ALIVE			PATERNAL ORPHAN			MATERNAL ORPHAN			DOUBLE ORPHAN		
	B*	M	U	B	M	U	B	M	U	B	M	U
Both parents	37	77	56	0	0	8	0	0	10	0	0	0
Mother only	30	7	20	49	68	61	0	0	14	0	0	4
Father only	4	1	9	3	0	0	29	19	43	0	0	4
Grand Parents	15	4	9	21	13	22	21	23	29	35	23	58
Siblings	7	3	2	8	8	3	7	11	0	15	15	4
Child-headed	0	0	0	0	2	0	0	0	0	0	6	0
Other relatives	7	6	1	3	6	6	14	23	5	28	30	23
Orphan-Age	0	0	0	0	0	0	0	8	0	0	21	0
Other	0	2	0	1	3	1	21	16	0	23	5	0

\*Botswana, Malawi, Uganda

## SECONDARY SCHOOL PUPILS

LIVING WITH	BOTH PARENTS ALIVE			PATERNAL ORPHAN			MATERNAL ORPHAN			DOUBLE ORPHAN		
	B	M	U	B	M	U	B	M	U	B	M	U
Both parents	59	41	56	9	0	8	8	0	0	13	0	0
Mother only	19	6	22	60	33	58	0	0	0	0	0	0
Father only	2	1	7	0	0	4	0	0	42	0	0	0
Grandparents	9	2	3	4	3	12	25	6	25	38	17	29
Siblings	5	6	8	11	5	0	17	12	17	13	17	21
Child-headed	0	0	0	0	0	0	0	6	0	0	7	0
Other relatives	5	5	2	7	8	12	33	12	8	13	27	29
Boarding	0	36	0	0	42	4	0	59	0	0	30	0
Orphanage	0	1	0	0	0	0	0	0	0	0	0	0
Other	1	3	1	7	9	4	17	11	8	23	2	29

Notes: Paternal and maternal orphans in Uganda include 'mother and stepfather' and 'father and stepmother'

**Annex table 6: Gross enrolment ratios and Grade 4 survival rates for HPCs, 1990/91 to 1999/00**

	Primary GER		Secondary GER		Survival to Grade 4	
	1990/91	1999/00	1990/91	1999/00	1990/91	1999/00
Botswana	113.2	108.4	42.7	81.8	97.3	89.4
Burkina Faso					72	76.6
Burundi	72.8	62.5	5.6	10		
Cameroon	101.1	91.1	28	19.6		
Cote d'Ivoire	67.1	76.9	22			
Ethiopia	32.7	70.8	14.2	5.2		
Kenya	95		24.1	20.4		
Lesotho	111.8	103.5	25.3	28	76.7	76.2
Malawi	67.9	158.1	7.7	45.2		
Mozambique	66.9	85.4	7.6	13.9	43.6	57.4
Namibia	129.3	113.2	43.8	59.8		
Rwanda	69.6	122.4	8	12.1	68.5	58.1
South Africa	121.6	118.7	74.3	90.2	76.3	79.2
Swaziland	111.3	124.6	44.3	60	80.4	81.3
Uganda	71.3	140.9	13.2			
Tanzania	69.7	63	4.9	5.3	84.2	86.5
Zambia	98.7	78.7	23	25.5		
Zimbabwe	115.7	96.6		45.3		

**Annex table 7: Estimated adult (15-49) HIV prevalence rates (percentages)**

<b>INCREASING</b>	<b>1997</b>	<b>1999</b>	<b>2001</b>	<b>Dif 97-01</b>
Botswana	25.1	35.8	38.8	13.7
Cameroon	4.9	7.7	11.8	6.9
Kenya	11.6	14	15	3.4
Lesotho	8.4	23.6	31	22.6
Namibia	19.9	19.5	22.5	2.6
Nigeria	4.1	5.1	5.8	1.7
South Africa	12.9	19.9	20.1	7.2
Swaziland	18.5	25.3	33.4	14.9
Zambia	19.1	20	21.5	2.4
Zimbabwe	25.8	25.1	33.7	7.9
<b>PEAKED/DECLINING</b>				
Burkina Faso	7.2	6.4	6.5	-0.7
Burundi	8.3	11.3	8.3	0
CAR	10.8	13.8	12.9	2.1
Congo	7.8	6.4	9.7	1.9
Cote d'Ivoire	10.1	10.8	9.7	-0.4
DRC	4.4	5.1	4.9	0.5
Ethiopia	9.3	10.6	6.4	-2.9
Ghana	2.4	3.6	3	0.6
Malawi	14.9	16	15	0.1
Mozambique	14.2	13.2	13	-1.2
Rwanda	12.8	11.2	8.9	-3.9
Togo	8.5	6	6	-2.5
Uganda	9.5	8.3	5	-4.5
Tanzania	9.4	8.1	7.8	-1.6

Source: UNAIDS

	1999	2000	2001
<b>Primary</b>			
Female	0.66	0.63	0.46
Male	1.02	1.1	0.8
All	0.73	0.73	0.53
<b>Secondary</b>			
Female	0.51	0.38	0.3
Male	0.68	0.53	0.45
All	0.6	0.46	0.38

Source: Infinium

## ENDNOTES

<sup>1</sup> Assessments have been completed in Kenya, Uganda, Zambia and Zimbabwe (World Bank, 2000), Mozambique (Verde Azul, 2001), Swaziland (MTK Consulting, 2000), South Africa (AbT Associates, 2001), Botswana, Namibia and Zimbabwe (AbT Associates, 2002) and Rwanda (Health and Development Africa, 2003). The reports for Rwanda, South Africa and Zimbabwe have not yet been officially released. Impact assessments are currently being undertaken in Lesotho and Zambia (by SIAPAC). An impact assessment for Nepal has also been recently published (see Bennell et al 2003).

<sup>2</sup> Over 90 per cent of teachers in Malawi are aged between 20 and 49. Adult mortality is an actual figure from the 1998 Population Census.

<sup>3</sup> No academics at the University of Botswana died from any causes during 2002 (see Bennell and Chilisa, 2003).

<sup>4</sup> The much higher levels of mortality among male teachers is also unexpected, given much higher levels of prevalence among females in the 20-29 age cohorts in most countries (see Bennell et al, 2001). Comparisons between teacher and adult mortality rates over time are also needed, but data are not available.

<sup>5</sup> Mortality rates need to be adjusted for age. However, senior civil servants are likely to have older age profiles than unskilled public servants and thus adjusting for age would increase AIDS-related mortality rate differentials with respect to grade.

<sup>6</sup> Fragmentary data on teacher mortality is also available for other HPCs: Côte d'Ivoire 0.97 per cent (1997/98), Kenya 0.57 per cent (1998), Namibia 0.41 per cent female and 1.21 per cent male (1998) and 1.5 per cent (2000-2001), Swaziland 0.84 per cent

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(1999), Tanzania primary schools 0.87 per cent (1999), and Zimbabwe 0.98 per cent (2001).

<sup>7</sup> Over 80 per cent of primary school teachers are under 40 years old in Malawi and Uganda.

<sup>8</sup> In Namibia, male mortality rate was 1.21 per cent compared with 0.41 per cent for female teachers in 1998. The corresponding figures for primary school teachers in Tanzania were 1.05 per cent and 0.58 per cent respectively in 1999.

<sup>9</sup> Grassly et al estimate that 70 per cent of the total economic costs of the epidemic on the education sector in Zambia are attributable to teacher absenteeism (see Grassly et al, 2002).

<sup>10</sup> Interviews with teachers and headteachers at 10 primary schools in and around Gaborone in April 2003 also confirmed that teacher absenteeism is not generally considered to be a major issue.

<sup>12</sup> The Zimbabwe report notes for example that 'it was not possible to rigorously quantify impacts of orphanhoods on outcomes' (AbT, 2002: 41)

<sup>13</sup> These have been defined as countries where adult HIV prevalence rates are over 5 per cent.

<sup>14</sup> Information from focus group discussions in all three countries.

<sup>15</sup> Adult HIV prevalence was in fact 12.4 per cent in 2002.

<sup>16</sup> The impact assessment in Namibia projects teacher mortality to be 3.25 per cent in 2010 without ARVs and 1.4 per cent with ARVs (see AbT, 2002).

<sup>17</sup> AbT Associates. 2002. Impacts of HIV/AIDS on education in Namibia; The impact of HIV/AIDS on the education sector in Zimbabwe, Johannesburg.

<sup>18</sup> Babcock Walters, P., C. Desmond, D. Wilson, W. Heard. 2003. Educator mortality in-service in KwaZulu Natal. HEARD. University of Natal.

<sup>19</sup> Bennell, P.S. and E. Kadzamira. 2003. The impact of the AIDS epidemic on teachers and university staff in Malawi. Forthcoming.

<sup>20</sup> Bennell, P.S. with G. Bulwani and M. Musikanga. 2003. Secondary education in Zambia: a situational analysis with special reference to cost and funding issues. Study prepared for the World Bank Secondary Education in Africa research programme. Centre for International Education. Sussex University, Brighton.

<sup>21</sup> Bennell, P.S. 2003. The impact of the AIDS epidemic on teachers in Botswana. Forthcoming.

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<sup>22</sup> Hyde, K., A. Ekatan, P. Kiage and C. Barasa. 2002. The impact of HIV/AIDS on formal schooling in Uganda, Centre for International Education, Sussex University, Brighton.

<sup>23</sup> Another 0.41 per cent of primary school teachers and 0.39 per cent of secondary school teachers retired due to 'prolonged illness' during 1999.

<sup>24</sup> The data for Namibia comes from AbT Associates, 2002. More recent data on teacher mortality in Namibia could not be obtained. Data from Tanzania was obtained directly from the Teacher Service Commission and only covers 'HIV/AIDS deaths'.

<sup>25</sup> Three countries Kenya, Nigeria, and South Africa will account for nearly half of all AIDS-related teacher deaths (47.3 per cent).

<sup>26</sup> Despite the AIDS crisis, the Ministry of Education in Botswana is phasing out the employment of expatriate teachers in most subject areas.

<sup>27</sup> See Bennell and Sayed, 2002