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ORPHANS AND VULNERABLE CHILDREN IN HIGH HIV-PREVALENCE COUNTRIES IN SUB-SAHARAN AFRICA

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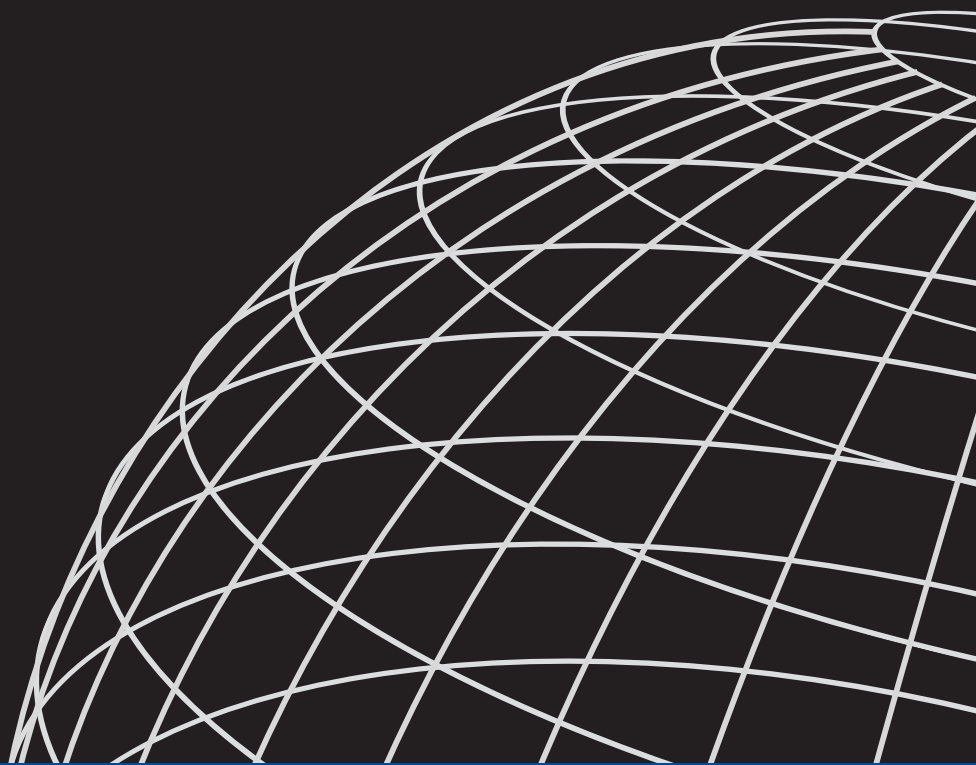

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MEASURE DHS assists countries worldwide in the collection and use of data to monitor and evaluate population, health, and nutrition programs. Additional information about the MEASURE DHS project can be obtained by contacting Macro International Inc., Demographic and Health Research Division, 11785 Beltsville Drive, Suite 300, Calverton, MD 20705 (telephone: 301-572-0200; fax: 301-572-0999; e-mail: reports@macrointernational.com; internet: www.measuredhs.com).

The main objectives of the MEASURE DHS project are:

- to provide decisionmakers in survey countries with information useful for informed policy choices;
- to expand the international population and health database;
- to advance survey methodology; and
- to develop in participating countries the skills and resources necessary to conduct high-quality demographic and health surveys.

DHS Analytical Studies No.15

Orphans and Vulnerable Children in High HIV-Prevalence Countries in Sub-Saharan Africa

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Contents

List of Tables

List of Figures

List of Appendix Tables

Preface

One of the most significant contributions of the MEASURE DHS program is the creation of an internationally comparable body of data on the demographic and health characteristics of populations in developing countries.

The *DHS Comparative Reports* series examines these data across countries in a comparative framework. The *DHS Analytical Studies* series focuses on analysis of specific topics. The principal objectives of both series are to provide information for policy formulation at the international level and to examine individual country results in an international context.

While *Comparative Reports* are primarily descriptive, *Analytical Studies* comprise in-depth, focused studies on a variety of substantive topics. The studies are based on a variable number of data sets, depending on the topic being examined. A range of methodologies is used in these studies including multivariate statistical techniques.

The topics covered in *Analytical Studies* are selected by MEASURE DHS staff in conjunction with the U.S. Agency for International Development.

It is anticipated that the *DHS Analytical Studies* will enhance the understanding of analysts and policymakers regarding significant issues in the fields of international population and health.

Ann Way
Project Director

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Executive Summary

This study provides estimates of the size and distribution of orphans and vulnerable children (OVC) in eight sub-Saharan African countries with relatively high HIV prevalence (Cameroon, Cote d'Ivoire, Kenya, Lesotho, Malawi, Tanzania, Uganda, and Zimbabwe), and assesses their situation over several dimensions including schooling and health care. The study uses data collected in recent nationally-representative Demographic and Health Surveys (DHS) and AIDS Indicator Surveys (AIS) that included HIV testing of adult women and men.

The study finds that substantial proportions of children in these countries are OVC, and that the prevalence of OVC varies widely across countries and across different population sub-groups—with countries and sub-regions with a higher prevalence of HIV having a higher prevalence of OVC as well.

Regarding dimensions of OVC's well-being, the study finds that OVC are disadvantaged in schooling compared to non-OVC. The study also finds that orphans are disadvantaged in the use of mosquito nets and thus are more vulnerable than non-orphans to morbidity and mortality associated with malaria. The study analyzes specific vulnerabilities of adolescent OVC and finds that the main vulnerability of orphaned adolescents concerns their schooling: orphaned adolescents are less likely to be in school than non-orphaned adolescents, although they do not seem to be more exploited for their work than non-orphans. In all countries considered and regardless of sex, orphaned adolescents who are not in school are much less likely to be working than non-orphaned adolescents who are not in school. Adolescent OVC are also less likely to practice sexual abstinence than non-OVC, but they are not necessarily more prone than non-OVC to other risky sexual behaviors or vulnerable to sexual exploitation.

The study finds little evidence that OVC are disadvantaged in health, nutritional status, and health care compared to non-OVC. Nor does the study find a clear disadvantage of OVC in having their basic material needs met, although controlling for unobserved household characteristics by focusing on households with both orphans and non-orphans, the study finds that orphans seem disadvantaged compared to non-orphans in this respect.

Finally, the study finds that in the countries considered not only few primary caregivers of children make arrangements for succession planning but also that most OVC and their families are not receiving the necessary care and support.

The study highlights the heavy burden and the multi-dimensional nature of the OVC problem in sub-Saharan Africa. While considerable attention is already being given to the needs of orphaned children, the findings of this study reinforce the need to strengthen child welfare programs in sub-Saharan Africa. Notably in urgent need are children made vulnerable by parental HIV infection or chronic household illness. Our finding regarding the disadvantage of orphans in mosquito-net use has implications for malaria control programs in the region. Our findings regarding vulnerabilities of adolescent OVC suggest the need to strengthen programs to promote continued schooling and sexual abstinence among youth. Finally, the levels of external care and support for OVC remain unacceptably low, needing vigorous efforts to reach a large and growing population of OVC and their families in the region.

1

Introduction

HIV/AIDS is reversing many of the hard-won development gains in many countries and leaving populations more vulnerable to poverty, malnutrition, ill health, and mortality. The adverse effects of the AIDS epidemic are felt most severely in some of the world's poorest countries in sub-Saharan Africa, where one of its consequences has been an upsurge in the number of orphaned children (UNICEF 2003; UNICEF, UNAIDS and USAID 2004; UNICEF and UNAIDS 2006). More than four-fifths of all children orphaned by HIV/AIDS worldwide live in sub-Saharan Africa, where every eighth child is an orphan—that is, has lost one or both parents. In countries like Botswana, Zimbabwe, and Lesotho that are hardest hit by HIV/AIDS, up to one in every four children are orphaned. The orphan crisis is projected to worsen in the coming years, reflecting the AIDS crisis. If it were not for HIV/AIDS, the total number of orphans in sub-Saharan countries would be decreasing (UNICEF, UNAIDS and USAID 2004), as in all other world regions.

HIV/AIDS not only orphans children but also makes children more vulnerable in a number of ways. First and foremost, in many countries HIV/AIDS has reversed improvements in child morbidity and mortality rates achieved during the last several decades. The epidemic influences child survival both directly through mother-to-child transmission and indirectly through diverting resources and attention away from children to the care and treatment of a sick parent. In several sub-Saharan African countries, infant and child mortality rates have already risen substantially and are expected to increase further in the coming years (Nicoll et al. 1994; Foster 1998; Newell et al. 2004; UNICEF, UNAIDS and USAID 2004).

In addition, HIV/AIDS importantly affects children's life and the families of children's caregivers. Children of HIV-positive parents suffer from the trauma of sickness and eventual death of a parent and associated hardships. The burden of caring for a sick parent often falls on children, and many are forced to drop out of school and take on adult roles as a result (UNICEF 2003; Case et al. 2004; UNICEF and UNAIDS 2006). Parental HIV-related illness and death often substantially diminish household resources due to treatment costs and job loss, which often affect children's health care and nutritional status.

Death of even one parent could force changes in living arrangements, displacement, and availability of resources for schooling, health care, and food for children. Care providers for orphans tend to be elderly, often grandparents, who are generally less likely to know about and to be capable of providing proper health care, nutrition, and schooling. Grandparents suffer emotionally from the illness and untimely death of their children and suffer financially as well from the burden of supporting their ailing children and then their orphaned grandchildren.

For adolescents, parental sickness or loss may lead to risky behaviors, sexual exploitation or abuse, as well the burden of finding employment to support an ailing parent or younger siblings. Parental HIV seropositive status affects the psychosocial adjustment of children and makes them more prone to stigma and discrimination. Orphaned and fostered children are more likely to be discriminated against in schooling and health care, and they are more prone to neglect and abuse (UNICEF 2003; UNICEF and UNAIDS 2006).

Despite the rapidly growing burden of orphans and vulnerable children (OVC) in sub-Saharan Africa due to the spread of the HIV/AIDS epidemic, many countries in the region do not have effective programs to support OVC and their caregivers. This problem is mainly due to a lack of detailed information on the prevalence and spread of OVC in various population groups and regions in these countries. Moreover, our understanding of possible discrimination against OVC and their relative disadvantage in education, nutrition, health care, and other indicators of well-being remains limited. This information is particularly lacking on the vulnerabilities of OVC in their adolescent years.

To fill these gaps, in the present study we analyze data from eight recent nationally-representative Demographic and Health Surveys (DHS) and AIDS indicator Surveys (AIS) in sub-Saharan Africa with relatively high HIV prevalence to assess the situation of OVC. We attempt to address several key questions, including:

- What is the burden of OVC in countries with high HIV prevalence?
- How does the OVC population vary across different population groups and regions in each country?
- Are the basic material needs of OVC met?
- Are OVC less likely to attend school, more likely to be undernourished, and less likely to receive health care than non-OVC?
- In households with both orphans and non-orphans, are orphans more vulnerable or disadvantaged than non-orphans?
- Are adolescent OVC more likely to engage in risky sexual behavior than non-OVC?
- Are female adolescent OVC more likely to be sexually exploited than non-OVC?
- Are OVC and their families receiving the necessary external care and support?

The report is organized as follows. Chapter 2 reviews the literature on orphans and vulnerable children in sub-Saharan Africa. Chapter 3 discusses the data and the methodological approach used for the study. Chapter 4 presents our estimates of the proportion of children age 0-17 years in each of the eight countries studied who are: orphans (maternal, paternal, double); fostered children; children living in households with an HIV-infected adult; children living in households with a chronically-ill adult; children living in households affected by a recent adult death due to chronic illness; children living in households with no adults; and children living in households with orphans.

Chapter 5 applies the estimates above to national population totals for children age 0-17 years to estimate the numbers of OVC in different population groups and regions of each country. Chapter 6 presents evidence as to whether the basic needs of OVC are met. Chapter 7 evaluates the vulnerabilities of OVC concerning school attendance. Chapter 8 examines undernutrition, anemia rates, immunization coverage, vitamin A supplementation, and treatment seeking for recent episodes of acute respiratory infections and diarrhea among OVC.

Chapter 9 explores other vulnerabilities of OVC, such as those related to mosquito-net use, work, birth registration, and stigma and discrimination. Chapter 10 evaluates external care and support for OVC. Chapter 11 focuses on the specific behaviors and vulnerabilities of adolescent OVC. Chapter 12 concludes by summarizing key findings, discussing the study limitations, and highlighting program and policy implications.

2

Background

In this chapter, we review studies that have examined OVC's vulnerabilities related to key aspects such as schooling and nutritional and health status, as well as the literature on the specific behaviors and vulnerabilities of adolescent OVC, and on the care and support available to OVC in Africa. Orphans are agreed to include children who have lost a mother, father, or both, but the definition of the term "vulnerable children" varies considerably from one study to another, and there is no consensus as to which children should fall into this category. (Refer to section 3.2 in the next chapter for a definition of vulnerable children used in this study.)

Most studies reviewed in this chapter focus on orphans rather than including vulnerable children as well, for both methodological and substantive reasons. From a methodological point of view, the definition of orphans is generally unambiguous, so that data on orphans can be more easily analyzed and compared across countries. In contrast, from a substantive point of view, most studies have focused on orphaned children as the most obvious and most dramatic consequence of the AIDS epidemic in Africa. Yet with few exceptions, in the studies reviewed here orphans cannot unequivocally be classified as "AIDS orphans" because HIV testing data or other medical information for their parents is not available.

2.1 Implications of Orphanhood for School Attendance

A number of recent studies have shown that orphans are more vulnerable than non-orphans with respect to schooling. Case et al. (2004), using cross-sectional data from 10 sub-Saharan African countries, concluded that orphans are less likely to be enrolled in schools than non-orphans with whom they live. This study also found that orphans who lived with distant relatives and unrelated caregivers had lower school enrollment than those who lived with a close relative. A descriptive study of 40 nationally representative household surveys in sub-Saharan Africa observed that orphans were considerably less likely to attend school than non-orphans, and double orphans were most likely of all to be disadvantaged in schooling (Monasch and Boerma 2004). Another study of cross-sectional survey data from five sub-Saharan African countries found that orphaned children were less likely to be attending the appropriate grade level for their age (Bicego et al. 2003). This study also noted that double orphans were particularly disadvantaged, and that the loss of a mother was more detrimental for schooling than loss of a father. The disadvantage was more pronounced for primary education than secondary education.

Studies using longitudinal data have also shown the detrimental effects of parental death on the education of their children. Case and Ardington (2006) found that, in a rural area of South Africa with high HIV prevalence, the mother's death was causally related to her children's educational outcomes. Orphans were less likely to be enrolled in school, and among those enrolled in school less money was spent on an orphan's education relative to a non-orphan. Analyzing longitudinal data on more than 20,000 Kenyan children, Evans and Miguel (2007) similarly found substantial decreases in school attendance following a parental death. They also found that the effects of orphanhood on school attendance were significantly stronger among children who performed poorly in class before the death of a parent. While Evans and Miguel found that the decrease in school participation among Kenyan children occurred mostly after

parental death, Ainsworth et al. (2005) found evidence indicating that reductions in school hours started well before the death of a parent (possibly during care for a chronically ill parent), and that after the death of a parent orphans returned to school. They also found that the death of a parent disproportionately affected the education of girls (Ainsworth et al. 2005).

Most studies on orphanhood and education also found that the detrimental effects of parental loss on children's education are significantly more important in the event of maternal death. In the study by Case and Ardington (2006), for example, the loss of a father had little effect on school attendance of children, and this effect was mediated by the loss of household economic status following paternal death. Only Timaeus and Boler (2007) and Parikh et al. (2007) found significant benefits for children's school progress associated with living with their fathers. Because the living arrangements of children vary considerably between populations of sub-Saharan Africa, especially with respect to co-residence with fathers (Hosegood et al. 2007), the relative effects of the death of a parent might differ across local contexts. Double orphans, however, appear significantly disadvantaged across all local contexts, except in a study conducted in rural Zimbabwe (Nyamukapa and Gregson 2005).

Despite the large number of studies documenting the detrimental effects of parental loss on the education of orphaned children, not all studies have found adverse effects. For example, Ainsworth and Filmer (2002) identified a considerable variation in the effect of orphanhood on school attendance, including higher school attendance rates for orphans than non-orphans in some countries. Another study in rural Zimbabwe found no difference between orphans and non-orphans in primary school completion rates, although maternal orphans (but not paternal or double orphans) were less likely to complete primary school education than non-orphans (Nyamukapa and Gregson 2005). Parikh et al. (2007) found no significant differences in educational outcomes between orphans and non-orphans living in the same household. The results of this latter group of studies, however, should be interpreted with caution since they are generally based on small samples or on highly localized populations, where community support systems may be in place to mitigate the effects of orphanhood on children's educational outcomes. For this reason, Timaeus and Boler (2007) "caution against drawing general conclusions about the impacts of the AIDS epidemic" from a few studies of small populations.

Studies on the impact of child fostering on schooling attendance are more limited, and their results are mixed. Akresh (2004) found that fostered children in Burkina Faso were significantly more likely than their biological siblings to be enrolled in school after fostering. Fostering decisions of living parents could thus be a significant investment in children's schooling rather than an event leading to increased vulnerability. Yet in Kenya Mishra et al. (2007) found that that fostered children were considerably less likely to be attending school than non-vulnerable children.

2.2 Orphans' Nutritional Status and Health Outcomes

Studies on the consequences of parental illness and death for their children's health and nutritional status are scarcer than studies of how orphanhood affects children's education, and they have mixed results. There is strong evidence that maternal HIV seropositive status is linked to an increased risk of infant and child mortality (Ryder et al. 1994; Nakiyingi et al. 2003; Crampin et al. 2003). A large study of the association between adult HIV prevalence and changes in the under-5 mortality rate in 25 countries with DHS surveys has noted that the increase in under-5 mortality was most noticeable in countries with high HIV prevalence (Adetunji 2000). Also, a recent study in Uganda (Mermin et al. 2008) has found that the mortality disadvantage of children of HIV-positive mothers has decreased after the introduction of antiretrovirals (ART).

Evidence on the health status of OVC is less clear, however. A cross-sectional study in urban Uganda found no differences between orphans and non-orphans in reported treatment-seeking behavior and in

anthropometric measures (Sarker et al. 2005). Comparing orphans and non-orphans living in the same households in a rural area of South Africa, Parikh et al. (2007) found no significant health disadvantage for orphans on a series of wellbeing indicators. A study in rural western Kenya similarly compared several health and nutritional indicators (including fever, malaria, history of illness, anemia, and stunting) for orphaned and non-orphaned children under age 6 and concluded that orphaned children are at no greater risk of poor health than non-orphaned children (Lindblade et al. 2003), although orphans were somewhat more likely to be wasted than non-orphans.

Panpanich et al. (1999) also failed to find any significant differences in health conditions of orphans and non-orphans in rural Malawi, although younger children living in orphanages in the study area were more likely to be undernourished than orphans and non-orphans living outside the orphanages. However, a recent study using nationally-representative data for Botswana found that orphans were 49 percent more likely to be underweight than non-orphans, after controlling for household poverty (Miller et al. 2006). In another recent report Andrews et al. (2006) indicated that orphans in sub-Saharan countries are more vulnerable than non-orphans on a series of health indicators. Using data from Zimbabwe, Watts et al. (2007) also found strong associations between OVC status and nutritional and health outcomes such diarrhea, acute respiratory infection, and underweight status even after controlling for household poverty. In a recent study in Kenya, Mishra et al. (2007) found that children (age 0-4 years) of HIV-infected parents were significantly more likely to be underweight and wasted and less likely to have received medical care for acute respiratory infections and diarrhea than children living with both parents who were not HIV infected.

Yet at least a few recent studies have unequivocally documented the potential consequences of orphanhood on children's psychological well-being and emotional health. In Dar-es-Salaam, Tanzania, Makame et al. (2002) found adverse psychological consequences of orphanhood, such as anxiety, sense of failure, pessimism, and suicidal tendency. In Uganda Atwine et al. (2005) found much higher levels of anxiety, depression and anger among orphans than among non-orphans. In Rwanda Thurman et al. (2006a) found that orphans living in youth-headed households were significantly more likely than those in adult-headed households to report emotional distress, depressive symptoms and social isolation. And in rural Zimbabwe, Nyamukapa et al. (2007) found that orphans had significantly higher psychosocial distress than non-orphans. The authors suggested that these emotional problems might subsequently lead to earlier onset of sexual activity and elevated risk of HIV infection.

Orphaned children have also been consistently shown to have an increased risk of being HIV-positive compared to non-orphans. In turn, HIV-infection transmitted at birth or in early childhood may lead to growth faltering and may contribute to greater morbidity and mortality. A prospective study in eight European countries of 184 HIV-infected and 1,403 uninfected children of infected mothers followed from birth to 10 years of age found that there were no significant differences in the height and weight of infected and uninfected children at birth, but that infected children grew more slowly than the uninfected children; by age 10, infected children were on average 7.5 cm shorter and 7 kg lighter than uninfected children (Newell et al. 2003). Another prospective cohort study of growth progression in HIV-infected and non-HIV-infected children in Kinshasa, Democratic Republic of Congo, reached similar conclusions (Bailey et al. 1999). However, a third prospective cohort study comparing HIV-positive and HIV-negative children born to HIV-positive mothers and HIV-negative children born to HIV-negative mothers in Nairobi, Kenya, did not find any significant differences in feeding practices and growth of children in the three cohorts (Sherry et al. 2000).

Little is known about the health and nutritional status of fostered children and children living with HIV-infected parents. A study of fostered children in rural Mali concluded that fostering *per se* has little impact on children's nutritional status (as measured by their weight-for-age Z-scores), but that the context of fostering matters (Castle 1995). In this study, children who were fostered due to poverty or other

unfavorable circumstances had poorer nutritional status than other fostered children. A study in Sierra Leone found that fostered children were underrepresented in hospital admissions and that younger fostered children were more likely to be undernourished, but not the older children (Bledsoe et al. 1988).

2.3 Vulnerabilities of Orphaned Adolescents

Despite the attention surrounding the orphan crisis in sub-Saharan Africa, few studies have investigated the consequences of orphanhood for the health and wellbeing of adolescents, in particular with respect to their exposure to HIV infection. Overall these studies have documented orphanhood status as a risk factor for early sexual activity, unprotected sexual activity, and HIV infection among adolescents of southern Africa, stemming from poverty, emotional distress, and/or lack of parental or societal control.

Gregson et al. (2005), for example, found that female OVC in Zimbabwe age 15-18 were significantly more likely than non-OVC to be infected with HIV, experience symptoms of STIs, or have ever been pregnant, although for males age 17-18 OVC status was not associated with HIV infection or other negative reproductive health outcomes. In South Africa Thurman et al. (2006b) found that orphans age 14-18 were significantly more likely than non-orphans to have ever engaged in sexual activity. Hallman (2006) similarly found that in KwaZulu-Natal, South Africa paternal orphans were more likely to initiate sex at an early age, and maternal orphans were less likely to use a condom correctly, compared with non-orphans. Birdthistle et al. (2008) found that female adolescent orphans in urban Zimbabwe were at higher risk of HIV and HSV-2 infection than non-orphans because of their higher likelihood of having had multiple sexual partners, having used condoms more inconsistently, and having experienced forced sex.

2.4 External Care and Support for OVC

With the sharp increase in adult mortality following the spread of HIV, a large generation of children in sub-Saharan Africa has lost or will lose at least one parent at an early stage of their life. Historically, children in sub-Saharan Africa have often been cared for by extended family members including grandparents, uncles and other relatives. This tradition of child fostering has become an essential coping mechanism in the face of increased adult mortality due to AIDS. It is also a solution to the "orphan crisis" that is locally and culturally acceptable (Madhavan 2004; Deininger et al. 2003; Foster et al. 2000), whereas institutional arrangements such as fosterage in orphanages have been deemed adequate only in desperate situations (e.g., for street children). Households fostering orphans in sub-Saharan countries are also frequently supported (financially and otherwise) by other households in their communities (Madhavan 2004).

However, there is growing recognition that the AIDS epidemic jeopardizes these existing systems of child care. There are several possible reasons: some adult members of a kinship group may have died or may require care because of AIDS; high levels of fertility may imply that surviving households have to care for several orphans; urbanization and migration from rural communities may weaken traditional kinship networks; and AIDS may also limit income-generating abilities of households receiving fostered children.

Several studies have documented the strain that the AIDS epidemic puts on traditional caregivers and support systems of OVC as well as the changing characteristics of caregivers in the context of the pandemic. Nyambedha et al. (2001; 2003) documented the changing pattern of orphan care in western Kenya, from traditional kinship-based networks to persons outside of this traditional network guaranteeing "acceptable" fosterage of orphans. This study further showed that among these new caregivers the HIV/AIDS-related burden was significant, especially because their old age limited their ability to provide adequately for the fostered children. A study in Northern Uganda by Oleke et al. (2005) complements this finding, indicating that close to two-thirds of orphans in the study area were cared for by individuals outside of the primary (patrilineal) kinship group, most notably grandmothers, widows,

and other single women whose social status in the community was marginalized. In a survey in Zimbabwe, Howard et al. (2006) also found that the large majority of caregivers were "female, older, poor, and without a spouse". In rural Zimbabwe Nyamukapa and Gregson (2005) showed how the AIDS epidemic affects kinship networks after a maternal death. Because women tend to care for orphans, the death of a mother significantly contributes to the increased vulnerability of orphaned children by limiting children's access to resources. Households headed by elderly non-working individuals (e.g., grandmothers) often lack the resources to provide adequate care for sick children or orphaned or fostered grandchildren. Using qualitative data, Ssengonzi (2007) showed how the elderly are adversely affected by caring for sick adults and their children, including concerns about their own health and well-being.

The mechanisms leading to the disruption of traditional kinship networks of care and assistance are complex and varied. In rural Zimbabwe remarriage and co-residence with stepmothers or half-siblings were particularly detrimental to maternal orphans because paternal resources were diverted from the orphaned children (Nyamukapa and Gregson 2005).

Due to increasing AIDS-related adult mortality, not only are traditional forms of orphan care jeopardized by the depletion of lineages, but working households also are facing growing economic constraints due to rising demands for care and support. In a study in Botswana, Miller et al. (2005) found that more than half of all working households who were fostering orphans faced economic difficulties of various kinds because they often had to care simultaneously for orphans and sick adults. Analyzing qualitative data from Ethiopia, Abebe and Aase (2007) similarly showed that the capacity of extended family structures to cope with the orphan burden varies greatly between urban and rural areas, which resulted from structural differences and socio-cultural and economic values associated with children.

3

Data and Methods

3.1 Data

This study uses data collected in recent nationally-representative Demographic and Health Surveys (DHS) and AIDS Indicator Surveys (AIS) in sub-Saharan Africa that included HIV testing of adult women and men. Of the 14 countries with available data, we selected 8 countries (Cameroon, Cote d'Ivoire, Kenya, Lesotho, Malawi, Tanzania, Uganda, and Zimbabwe) with HIV prevalence among adults aged 15-49 years greater than 4 percent (Table 1).

Table 1. DHS/AIS with HIV testing, sub-Saharan Africa

Country	Survey year	Survey type	HIV prevalence (adults age 15-49)
Burkina Faso	2003	DHS	1.8
Cameroon	2004	DHS	5.5
Cote d'Ivoire*	2005	AIS	4.7
Ethiopia*	2005	DHS	1.4
Ghana	2003	DHS	2.2
Guinea	2005	DHS	1.5
Kenya*	2003	DHS	6.7
Lesotho	2004/05	DHS	23.5
Malawi*	2004/05	DHS	11.8
Rwanda*	2005	DHS	3.0
Senegal	2005	DHS	0.7
Tanzania*	2003/04	AIS	7.0
Uganda*	2004/05	AIS	6.4
Zimbabwe*	2005/06	DHS	18.1

* PEPFAR country.

The DHS/AIS surveys carried out in these eight countries were conducted during the period 2003-2006, and collected information on the survival and residence status of the biological parents of all children under 18 years of age[1], on chronic illness of all adults in the household[2], as well as on schooling,

[1] For each child under age 18, the household informer was asked: "Is (NAME)'s natural mother alive?" If alive, the household informer was further asked: "Does (NAME)'s natural mother live in this household?" Similar information was collected about each child's biological father.

[2] For all household members, the household informer was asked: "Has (NAME) been ill for 3 of the past 12 months?" Additional questions were asked to determine whether any adult death due to chronic illness (so defined) had occurred in the three years prior to the survey.

nutritional status, and care and support for OVC. For children whose mothers were interviewed, additional information on vaccinations and health care was also collected.

The DHS and AIS surveys select random sample clusters from a national sampling frame, usually from the national population census. Within the selected clusters, a full listing of all households is done prior to the survey and a systematic random sample of households is taken. The household head or another responsible adult available at the time of the survey are interviewed using a household questionnaire to gather information about the household and all household members and visitors, and to identify adult women and men, usually age 15-49 and 15-59, respectively, for individual interview and HIV testing.[3]

In all surveys, HIV testing follows the same protocol. First, a few drops of capillary blood are collected on filter paper from a finger prick from respondents who voluntarily consented to the test. The blood spots are subsequently dried and transported to a medical laboratory where they are tested for HIV using standard laboratory and quality control procedures. HIV test results are not disclosed to the participants, and are anonymously linked to information in the individual and household survey questionnaires after the completion of fieldwork in each country (Mishra et al. 2006).

Details about the sampling design and data collection procedures used in each survey are available in the individual country reports (CBS [Kenya], MOH, and ORC Macro 2003; CSO [Zimbabwe] and Macro International 2007; INS [Cameroun] and Macro International 2004; INS [Cote d'Ivoire] and Macro International 2006; MOH [Lesotho], BOS, and Macro International 2005; MOH [Uganda] and Macro International 2006; NSO [Malawi] and Macro International 2005; TACAIDS [Tanzania], NBS, and Macro International 2005).

In the present study, all analyses are restricted to children age 0-17 residing in households selected for HIV testing in the surveys.[4] In the eight countries considered, the number of households selected for HIV testing ranges from 4,183 in Lesotho to 9,529 in Uganda; and the number of children age 0-17 ranges from 7,733 in Lesotho to 29,097 in Uganda (Table 2).

Table 2. Sample sizes, selected DHS/AIS with HIV testing in sub-Saharan Africa

Country	Survey year	Survey type	Number of households**	Number of children***			
				0-4	5-14	15-17	Total
Cameroon	2004	DHS	5,313	4,147	7,027	1,577	12,750
Cote d'Ivoire*	2005	AIS	4,368	3,660	6,409	1,422	11,491
Kenya*	2003	DHS	4,245	2,858	5,200	n/a	8,059
Lesotho	2004/05	DHS	4,183	1,958	4,634	1,142	7,733
Malawi*	2004/05	DHS	4,573	3,676	6,087	883	10,647
Tanzania*	2003/04	AIS	6,499	5,422	9,561	1,871	16,854
Uganda*	2004/05	AIS	9,529	9,400	16,849	2,848	29,097
Zimbabwe*	2005/06	DHS	9,285	5,809	12,365	2,734	20,908

n/a: Not available.

* PEPFAR country.

** Households selected for HIV testing.

*** Children in households selected for HIV testing.

[3] In some surveys, HIV testing was limited to a sub-sample of all selected households.

[4] In Kenya, the analysis was limited to children aged 0-14 years.

3.2 Defining OVC

As we indicated in the previous chapter, the definition of OVC varies substantially in the literature. Although there is a consensus as to the definition and measurement of the orphan population, the population of 'vulnerable children' remains elusive. It is generally defined as the population of children made vulnerable by the AIDS epidemic because their survival, well-being, or development is threatened by HIV/AIDS (UNICEF, UNAIDS and USAID 2004) or, more specifically, because they may live with chronically ill parents (and thus be required to work or put their education on hold as they take on household and caregiving responsibilities), in poverty because of the disease, or because they themselves may be at high risk of HIV or subject to stigma and discrimination due to their association with a person living with HIV (UNICEF and UNAIDS 2006). Such a comprehensive definition implies that, in most studies, only well-defined sub-groups of the population of vulnerable children are monitored, notably children with chronically ill parents (USAID 2004; UNICEF and UNAIDS 2006), children living in households in which one person or more is infected by HIV, and children living in poverty in countries or regions highly afflicted by the AIDS epidemic (UNICEF and UNAIDS 2006). This lack of a homogeneous definition of OVC is one of the main reasons currently limiting understanding of the magnitude and spread, vulnerabilities, and needs of the OVC population.

In this report we develop a rigorous definition of OVC that exploits all currently available information from DHS and AIS surveys. First, we use information on the survival and residence status of the biological parents of children under age 18, as well as on the chronic illness of all household members and on the HIV status of the adults living in the household who were tested, to group all children in the eight countries considered into the following nine categories:

1. Orphaned children: children whose biological parent(s) have died. Orphans are further divided into maternal orphans (children whose mother has died but whose father is alive), paternal orphans (children whose father has died but whose mother is alive), and double orphans (children whose biological parents have both died).

2. Fostered children: children whose biological parents are both alive, but who are not co-residing with either one of them.

3. Children living in households with an HIV-infected adult.

4. Children living with chronically ill parent(s): children living with a parent who has been ill for 3 of the previous 12 months.

5. Children living in households with any chronically ill adult: children living in a household with one or more adults age 18-59 who have been ill for at least 3 of the previous 12 months.

6. Children living in households affected by a recent adult death due to chronic illness: children living in a household where an adult age 18-59 has died during the past year after having been ill for 3 of the 12 months before his/her death.

7. Children living in households with too old or too young caretaker(s): children living in a household with no adults age 18-59.

8. Children living in households with orphans: children living in a household where any father or mother of any child in the household has died.

9. Children of HIV-negative parents: children living in a household with both parents (the mother and her current husband/partner) who are not HIV infected or who were not tested for HIV in the survey.

Note that these categories of OVC are not mutually exclusive and exhaustive. For example, a child could both be an orphan and live in a household with a chronically ill adult.

From these nine categories, we then define OVC in two ways. Our first, broader definition includes children who are orphaned or live with chronically ill parents (categories 1 or 4). This definition matches the definition used in the latest UNICEF reports on OVC (UNICEF and UNAIDS 2006). Our second, more restrictive definition includes children who are orphaned, who live in households with HIV-infected adults, who live in households with chronically ill adults or where an adult has recently died due to chronic illness, who live in households with no adults age 18-59, or who live in households with orphaned children (categories 1, 3, 5, 6, 7, or 8). This second definition combines elements of the most recent definitions of OVC adopted by different governmental and non-governmental agencies (USAID 2004; UNICEF and UNAIDS 2006). Children of HIV-negative parents (category 9) are used as the comparison group for the purposes of the present analysis.

3.3 Indicators of Vulnerability

We compare children in the individual OVC categories illustrated above according to a range of indicators of vulnerability:

Basic material needs:

I1. Proportion of children (age 5-17) with a pair of shoes;

I2. Proportion of children (age 5-17) with a blanket or sheet to cover them when sleeping;

I3. Proportion of children (age 5-17) with at least two sets of clothes;

I4. Proportion of children (age 5-17) with all three basic material needs met;

I5. In households with both orphans and non-orphans, proportion of children (age 5-17) with all three basic material needs met.

Schooling:

I6. Proportion of children (age 5-17) who were attending school at the time of the survey;

I7. School attendance ratios for children age 5-17;

I8. In households with both orphans and non-orphans, proportion of children (age 5-17) who were attending school at the time of the survey;

I9. In households with both orphans and non-orphans, school attendance ratios for children age 5-17.

Health and nutritional status[5]:

I10. Proportion of children (age 0-4) who were undernourished (underweight) at the time of the survey[6];

I11. Proportion of children (age 0-4) who were moderately-to-severely anemic at the time of the survey[7];

I12. Undernourishment and anemia ratios for children age 0-4;

I13. Proportion of children (age 12-23 months) who were fully immunized[8];

I14. Proportion of children (age 12-35 months) who received a dose of Vitamin A in the previous six months;

I15. Among children (age 0-4) who were sick with acute respiratory infection[9] in the two weeks preceding the survey, proportion who received advice or treatment from a health professional;

I16. Among children (age 0-4) who were sick with diarrhea in the two weeks preceding the survey, proportion who received advice or treatment from a health professional.

Work:

I17. Proportion of children (age 5-14) who worked during the week preceding the survey.

Use of mosquito nets:

I18. In households with a mosquito net and with both orphans and non-orphans, proportion of children (age 0-17) who slept under a mosquito net the previous night.

Birth registration:

I19. In households with both orphans and non-orphans, proportion of children (age 0-4) whose birth was not registered with the civil authorities[10].

[5] All indicators on children's health and nutritional status were calculated only for children of interviewed mothers.
[6] A child is defined as underweight if his/her weight-for-age is more than two standard deviations below the median of an international reference population recommended by the World Health Organization (Dibley et al. 1987a; 1987b).
[7] A child is defined as moderately-to-severely anemic if his/her blood hemoglobin level is less than 10.0 g/dl (moderate anemia: blood hemoglobin level 7.0-9.9 g/dl; severe anemia: blood hemoglobin level less than 7.0 g/dl).
[8] A child is defined as fully immunized if he or she received a BCG vaccination, three doses of DPT vaccine, three doses of polio vaccine (excluding the polio vaccine given at time of birth), and a dose of measles vaccine. According to the guidelines of the World Health Organization, children should be fully immunized by the time they complete their first year of life, so the analysis is limited to children older than one year.
[9] Acute respiratory infection (ARI) is defined as coughing accompanied by short, rapid breathing.
[10] Children who did not have a birth certificate at the time of the survey and whose birth had not been registered with the civil authorities.

Succession arrangement:

I20. Among women and men (age 15-49) who were primary caregivers of children under age 18, percentage who have made arrangements for someone else to care for their children in the event of their own inability to do so due to illness or death.

Stigma and discrimination:

I21. Proportion or children (age 0-17) living in households with accepting attitudes toward people with HIV.[11]

Vulnerabilities of adolescent OVC:

I22. In households with both orphans and non-orphans, proportion of children (age 15-17) attending school or working during the previous 12 months;

I23. Among never married adolescents (age 15-17), proportion who never had sex;

I24. Among adolescents (age 15-17) who ever had sex, proportion who had their first sex before age 15;

I25. Among adolescents (age 15-17) who had sex in the past 12 months, proportion who used a condom at last sex;

I26. Among never married female adolescents (age 15-17) who had sex in last 12 months, proportion who had sex with a partner 10 or more years older;

I27. Among never married female adolescents (age 15-17) who ever had sex, proportion who had forced sex (either forced at first sex or in the last 12 months).

Care and support for OVC:

I28. Proportion of OVC whose households received care and support for the OVC (emotional/psychological, social, medical, school-related, or material support);

I29. Proportion of OVC whose households received at least one type of support.

Most of these indicators correspond to the core set of indicators to be addressed and monitored at the national level that were developed by the Inter-Agency Task Team on Orphans and Other Vulnerable Children to reflect the strategies defined within UNICEF's *Framework for the Protection, Care and Support of Orphans and Vulnerable Children Living in a World with HIV and AIDS* (UNAIDS and UNICEF 2003; UNICEF 2005).

[11] Respondents with accepting attitudes toward people living with HIV are those who: 1) are willing to care for a family member with HIV in their home; and 2) would buy fresh vegetables from a shopkeeper who has HIV; and 3) say that a female teacher with HIV and is not sick should be allowed to continue teaching; and 4) would not want to keep secret that a family member got infected with HIV.

It is important to stress that the information required to calculate these indicators was not collected in all countries considered in the present analysis. The age range for which the information was gathered also varied from survey to survey. Finally, when specific information on OVC is gathered by the survey (notably, about care and support for OVC), the definition of OVC adopted generally varies, and does not necessarily coincide with the definition of OVC we use in this report. Table 3 provides details on the information available for each country considered.

Table 3. Information availability for the countries included in the analysis, and age range of children[1] for whom the indicated information is available

Indicator	Cameroon	Cote d'Ivoire	Kenya	Lesotho	Malawi	Tanzania	Uganda	Zimbabwe
Parents' survival	0-17	0-17	0-14	0-17	0-17	0-17	0-17	0-17
Chronic illness	15-59[2]	18-59[3]			5-54[2]	0-59[3]	18-59[2]	18-59[3]
Recent death in the household due to chronic illness		yes				yes	yes	yes
Basic needs		5-17						3-17
Schooling	3-24	6-24	4-24	5-24	5-24	5-24	5-24	3-24
Anthropometry	0-5		0-5	0-5	0-5			0-5
Anemia testing	0-5			0-5	0-5			0-5
Child health care[4]	yes		yes	yes	yes			yes
Mosquito nets	yes	yes	yes		yes			yes
Succession planning		yes						yes
Birth registration		yes						yes
Care and support for OVC[5]		yes[5a]				yes[5b]	yes[5c]	yes[5a]
Age mixing in sexual relations	yes	yes	yes	yes	yes	yes	yes	yes
Forced sex		yes[6,7]				yes[6]	yes[7]	yes[6,7]
Child labour[8]					yes			

[1] Children in households selected for HIV testing.

[2] For all co-resident household members.

[3] For each living parent who does not reside in the household and for all co-resident household members.

[4] Includes: immunizations; vitamin A supplementation; treatment for ARI; treatment for diarrhea. Available only for children of interviewed mothers.

[5] Includes 3 modules: care and support for chronically ill adults in the household; care and support for persons who recently died of chronic illness; and care and support for OVC.

[5a] OVC are defined as children age 0-17 who are: orphans; or living with a parent (living in the household or not) who is chronically ill; or living in a household with any other chronically ill adult; or living in a household with a recent death.

[5b] OVC are defined as children age 0-17 who are: orphans; or living with a parent (living in the household or not) who is chronically ill; or living in a household with any other chronically ill adult; or living in a household with a recent death due to chronic illness.

[5c] OVC are defined as children who are either orphans or living in a household with a recent death.

[6] Information on forced sex during the 12 months preceding the survey.

[7] information on forced first sex.

[8] Module about work during the previous week for all household's children aged 5-14 years.

We examine differentials in the proportion of OVC within each country by selected population groups[12], including by age, sex, urban/rural residence, and household wealth status. We also estimate proportions of OVC by geographic region within each country.

When analyzing all children (including orphaned and fostered children), we apply household survey weights. For the analyses limited to children of interviewed mothers (i.e., not including orphaned and fostered children), and for analyses that involve data on parental characteristics, we apply women's survey weights.

[12] To estimate the number of OVC in different population groups we combine the estimated proportions of OVC from the survey data with projected population size of children for the year corresponding to the survey fieldwork from the most recent census data (US Census Bureau 2007).

4

Prevalence and Differentials in OVC

For each country included in the present analysis, Table 4a presents the distribution of children in the individual OVC categories we described earlier (see Chapter 3).

With almost 30 percent of its children age 0-17 orphaned, Lesotho has the highest rate of orphaning among the countries considered, followed closely by Zimbabwe (24 percent). At the opposite end of the spectrum is Cote d'Ivoire, where 8 percent of children are orphans. In all other countries, at least 10 percent of children are orphans. The proportion of maternal orphans is much lower than the proportion of paternal orphans in all countries, and double orphans represent between 1 and 6 percent of children age 0-17. The proportion of children living in a household with orphans ranges from 17 percent in Kenya to 42 percent in Lesotho.

In all countries but Uganda, the proportion of children living in a household where an adult is infected with HIV is similar to the proportion of children who are orphans. As a source of vulnerability for children, fostering is more common than being orphaned or living with an HIV-infected adult only in Cameroon and Cote d'Ivoire. Ranked in order of importance, the other three sources of vulnerability for children age 0-17 in the eight countries considered are: living with a chronically ill adult, living in a household that experienced a recent death due to chronic illness, and living in a household without any adult age 18-59.

Once the individual OVC categories are combined according to our general definition of OVC (see Chapter 3), OVC in the countries considered represent between 24 percent (Kenya) and 58 percent (Lesotho) of all children age 0-17 (Table 4b) . In contrast, according to the narrower definition adopted by UNICEF (UNICEF 2004), OVC represent between 12 percent (Cote d'Ivoire) and 27 percent (Zimbabwe) of children age 0-17.[13] For all countries with available data, the two definitions thus imply a difference in the proportion of OVC in the range of 15-20 percentage points.

Tables 5-9 demonstrate a clear correlation between age and OVC status: the older the child, the more vulnerable. Overall (Table 9), between 19 percent (Kenya) and 53 percent (Lesotho) of children age 0-4 are vulnerable. This percentage is in the range of 27-59 percent for children age 5-14 and of 50-65 percent for children age 15-17. Age differentials are particularly pronounced for orphans (Table 5), but are almost negligible for children living in households with an HIV-infected or chronically ill adult or who were recently affected by an adult death due to chronic illness (Tables 6 and 7).

There is also a correlation between place of residence and OVC status, with a greater percentage of OVC living in urban than in rural areas in all countries but Lesotho and Zimbabwe (see Table 9). Differentials by sex are negligible for all OVC categories, whether considered individually or combined. Household wealth also does not show a clear association with OVC status.

[13] Kenya and Malawi are excluded from this comparison because no information on chronic illness is available for these countries (see Table 2).

Table 4a. Proportion of children age 0-17 in individual OVC categories

	Orphans						Chronic illness						
Country	Maternal orphans (1a)	Paternal orphans (1b)	Double orphans (1c)	All orphans (1)	Fostered children (2)	Children in hhs with HIV (3)	Children with chronically ill parents (4)	Children in hhs with any chronically ill adult (5)	Children in hhs with a recent adult death due to chronic illness (6)	Children in hhs with no adult age 18-59 (7)	Children in hhs with orphans (8)	Children living with both parents who are not HIV-infected[1] (9)	Number
Cameroon[2] 2004	2.41	6.37	0.89	9.83	13.27	9.90	7.16	14.34	n/a	1.90	22.48	51.98	12,750
Cote d'Ivoire 2005	1.85	5.23	1.02	8.14	13.82	8.77	3.63	5.68	2.66	0.60	24.11	52.10	11,491
Kenya[2, 3, 4] 2003	1.58	7.18	2.11	11.04	6.52	9.64	n/a	n/a	n/a	1.65	17.02	54.01	8,059
Lesotho[2, 3] 2004/05	3.79	18.73	4.63	27.60	11.23	26.79	n/a	n/a	n/a	4.16	41.45	36.64	7,733
Malawi[2] 2004/05	2.66	8.15	3.62	14.53	11.03	11.18	5.48	7.78	n/a	4.30	25.67	50.74	10,647
Tanzania[5] 2003/04	2.73	6.72	1.22	10.80	10.58	10.32	3.81	5.84	3.29	2.11	22.69	57.19	16,854
Uganda 2004/05	2.84	8.89	2.71	14.59	12.20	9.88	4.58	7.95	3.13	3.25	30.73	50.90	29,097
Zimbabwe 2005/06	3.25	13.76	6.31	23.89	13.29	24.05	4.25	5.67	4.04	4.61	40.01	33.37	20,908

Note: The individual OVC categories in this table are neither mutually exclusive nor exhaustive. For example, a child could both be an orphan and live in a household with chronically ill adult. In addition, children of single parents and children living with both parents whose HIV status is unknown may not be included in any category.

n/a: Not available.

[1] Reference group.

[2] No information on recent adult deaths due to chronic illness in the household.

[3] No information on chronically ill adults in the household.

[4] Data only available for children age 0-14 years.

[5] Information on recent deaths due to chronic illness is collected for all persons under age 60.

Table 4b. Proportion of children age 0-17 in combined OVC categories

Country	Orphaned or living with a chronically ill parent	All OVC [1]	Number
Cameroon[2] 2004	16.49	38.95	12,750
Cote d'Ivoire 2005	11.57	34.20	11,491
Kenya[2, 3, 4] 2003	n/a	24.41	8,059
Lesotho[2, 3] 2004/05	n/a	58.22	7,733
Malawi[2] 2004/05	19.34	39.35	10,647
Tanzania[5] 2003/04	14.23	35.25	16,854
Uganda 2004/05	18.71	41.61	29,097
Zimbabwe 2005/06	27.03	56.20	20,908

n/a: Not available.

[1] All OVC include children who fall in any one of the following six individual OVC categories: 1) Orphans (maternal, paternal or double); 2) Children living in a household in which one or more person is infected with HIV; 3) Children age 0-17 living in a household in which at least an adult age 18-59 has been ill for 3 of the previous 12 months; 4) Children living in a household in which at least an adult age 18-59 has died during the past year and had been ill for 3 of the 12 months before dying; 5) Children living in a household with no adult age 18-59; 6) Children living in a household with one or more orphans.

[2] No information on recent adult deaths due to chronic illness in the household.

[3] No information on chronically ill adults in the household.

[4] Data only available for children age 0-14 years.

[5] Information on recent deaths due to chronic illness is collected for all persons under age 60.

Table 5. Differentials in the prevalence of orphanhood among children age 0-17, by age group, sex, urban/rural residence, and wealth

Characteristic	Cameroon 2004	Cote d'Ivoire 2005	Kenya 2003	Lesotho 2004/05	Malawi 2004/05	Tanzania 2003/04	Uganda 2004/05	Zimbabwe 2005/06
Age								
0-4	3.59	1.85	4.58	13.33	4.34	2.99	4.44	8.46
5-14	11.71	9.53	14.60	30.44	18.82	12.87	17.83	28.36
15-17	17.83	18.06	n/a	40.57	27.36	22.85	28.95	36.44
Sex								
Male	10.23	8.03	10.90	27.77	15.40	11.15	15.02	24.13
Female	9.43	8.25	11.18	27.44	13.67	10.45	14.14	23.63
Residence								
Urban	9.91	8.95	11.21	29.04	19.24	13.75	18.96	19.09
Rural	9.75	7.62	11.01	27.36	13.73	9.95	14.11	25.57
Wealth								
Lowest	7.21	6.94	10.58	29.56	16.97	8.56	15.61	24.47
Second	9.10	8.52	13.41	29.59	12.76	8.96	14.06	23.93
Middle	12.73	6.75	8.78	29.80	11.22	12.78	13.55	30.36
Fourth	11.85	8.72	12.06	26.10	13.25	10.95	13.47	21.44
Highest	8.14	10.00	9.97	22.48	19.43	13.10	16.65	17.11
Total	9.83	8.14	11.04	27.60	14.53	10.80	14.59	23.89
Number	12,750	11,491	8,059	7,733	10,647	16,854	29,097	20,908

n/a: Not available.

Table 6. Differentials in the proportion of children age 0-17 living in households with an HIV-infected adult[1], by age group, sex, urban/rural residence, and wealth

Characteristic	Cameroon 2004	Cote d'Ivoire 2005	Kenya 2003	Lesotho 2004/05	Malawi 2004/05	Tanzania 2003/04	Uganda 2004/05	Zimbabwe 2005/06
Age								
0-4	9.68	8.16	10.15	28.01	10.20	10.06	9.23	25.30
5-14	9.86	9.17	9.36	26.37	11.64	10.19	10.09	23.74
15-17	10.63	8.50	n/a	26.38	12.00	11.74	10.80	22.80
Sex								
Male	9.60	7.85	9.13	26.52	10.98	10.40	9.68	24.22
Female	10.18	9.67	10.15	27.06	11.37	10.24	10.08	23.89
Residence								
Urban	13.72	10.81	15.38	25.70	15.22	17.44	17.47	25.29
Rural	6.67	7.45	8.59	26.97	10.49	8.27	9.04	23.62
Wealth								
Lowest	3.26	4.23	5.68	23.20	6.07	5.79	6.98	20.15
Second	4.03	5.80	8.85	28.40	7.64	6.19	8.72	23.71
Middle	13.63	9.15	8.63	30.60	11.13	8.44	8.28	24.86
Fourth	14.15	11.92	12.28	26.11	13.13	15.37	9.72	30.02
Highest	15.99	13.49	14.76	25.49	19.09	17.00	15.98	22.59
Total	9.90	8.77	9.64	26.79	11.18	10.32	9.88	24.05
Number	12,750	11,491	8,059	7,733	10,647	16,854	29,097	20,908

n/a: Not available.
[1] For determining HIV status, we use the age cut-offs for adult HIV testing adopted in the survey.

Table 7. Differentials in the proportion of children age 0-17 living in households with a chronically ill adult or recent adult death following chronic illness, by age group, sex, urban/rural residence, and wealth

Characteristic	Cameroon[1] 2004	Cote d'Ivoire 2005	Malawi[1] 2004/05	Tanzania[2] 2003/04	Uganda 2004/05	Zimbabwe 2005/06
Age						
0-4	13.69	8.09	6.98	7.81	9.41	8.19
5-14	14.62	8.26	8.31	9.04	11.29	9.73
15-17	14.80	7.49	7.42	11.11	11.05	9.13
Sex						
Male	14.03	8.73	7.86	8.86	10.67	9.32
Female	14.67	7.49	7.69	8.88	10.65	9.10
Residence						
Urban	14.68	7.65	6.17	10.31	10.62	5.93
Rural	14.05	8.40	8.05	8.46	10.67	10.37
Wealth						
Lowest	11.84	6.99	9.17	8.87	13.35	12.29
Second	13.09	9.50	7.71	9.07	11.73	10.33
Middle	17.64	6.37	6.27	9.57	10.73	10.51
Fourth	19.04	9.81	7.53	8.43	8.48	6.57
Highest	9.65	7.97	8.37	8.30	9.13	4.59
Total	14.34	8.11	7.78	8.87	10.66	9.23
Number	12,750	11,491	10,647	16,854	29,097	20,908

[1] No information on recent adult deaths due to chronic illness.
[2] Information on recent deaths due to chronic illness is collected for all persons under age 60.

Table 8. Differentials in the proportion of children age 0-17 who are orphaned or living with a chronically ill parent, by age group, sex, urban/rural residence, and wealth

Characteristic	Cameroon 2004	Cote d'Ivoire 2005	Malawi 2004/05	Tanzania 2003/04	Uganda 2004/05	Zimbabwe 2005/06
Age						
0-4	10.58	5.73	9.59	6.11	8.42	11.39
5-14	18.44	12.91	23.50	16.37	22.08	31.63
15-17	23.37	20.59	31.19	26.86	32.78	39.46
Sex						
Male	16.83	11.73	20.08	14.73	19.13	27.31
Female	16.16	11.42	18.61	13.73	18.28	26.74
Residence						
Urban	15.45	12.08	21.67	16.37	21.26	21.07
Rural	17.37	11.25	18.94	13.62	18.43	29.12
Wealth						
Lowest	14.89	9.35	22.07	12.39	21.09	29.52
Second	16.06	12.03	17.66	12.83	19.25	27.62
Middle	20.18	10.99	16.07	16.49	18.55	32.91
Fourth	18.83	12.29	18.37	14.07	16.24	23.77
Highest	11.85	13.48	23.36	15.57	18.72	18.52
Total	16.49	11.57	19.34	14.23	18.71	27.03
Number	12,750	11,491	10,647	16,854	29,097	20,908

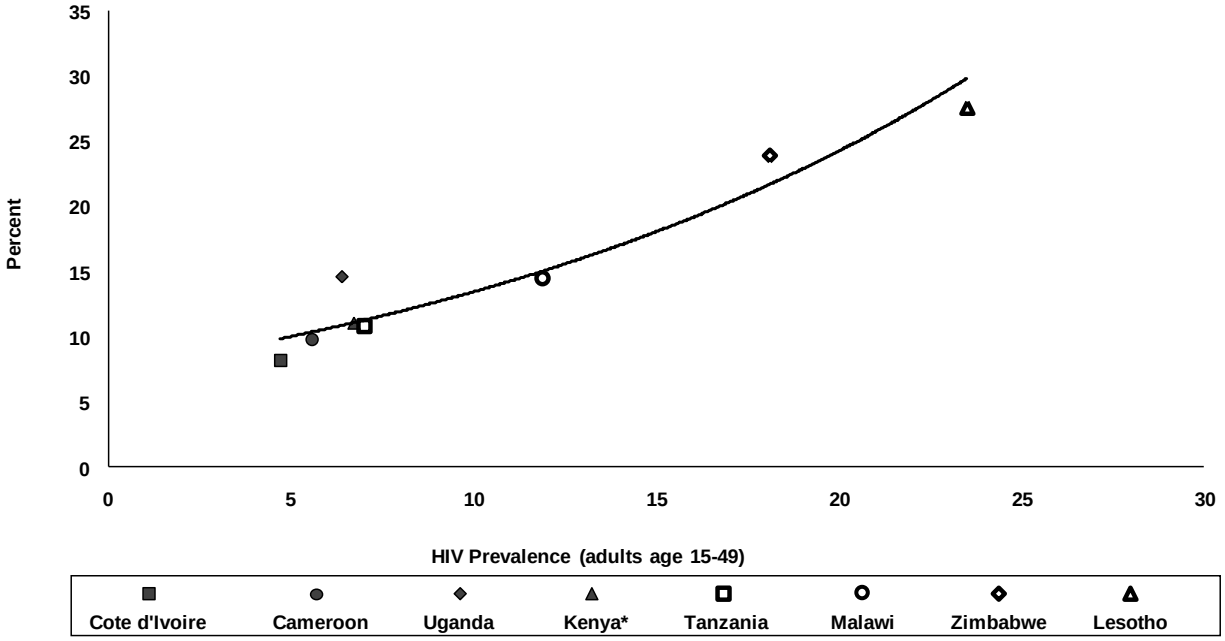
Table 9. Differentials in the proportion of all OVC age 0-17, by age group, sex, urban/rural residence, and wealth

Characteristic	Cameroon[1] 2004	Cote d'Ivoire 2005	Kenya[1, 2] 2003	Lesotho[1, 2] 2004/05	Malawi[1] 2004/05	Tanzania[3] 2003/04	Uganda 2004/05	Zimbabwe 2005/06
Age								
0-4	34.26	28.61	19.16	52.97	29.88	28.57	33.57	48.50
5-14	40.16	35.25	27.29	58.87	43.44	36.66	44.05	58.32
15-17	45.96	43.92	n/a	64.63	50.56	47.39	53.75	63.02
Sex								
Male	39.22	33.18	24.63	57.52	39.00	35.11	41.89	56.37
Female	38.69	35.22	24.18	58.95	39.69	35.39	41.32	56.02
Residence								
Urban	41.53	36.81	30.15	55.29	47.01	44.84	52.54	49.10
Rural	36.78	32.53	23.35	58.73	38.06	32.49	40.40	58.68
Wealth								
Lowest	28.18	24.15	23.25	59.86	42.82	29.38	42.27	54.05
Second	35.30	30.61	24.76	60.95	34.55	29.46	40.14	60.13
Middle	47.47	32.06	21.58	62.42	32.18	37.64	37.24	64.03
Fourth	45.59	39.64	25.61	57.14	40.35	38.35	39.26	54.44
Highest	38.99	46.25	27.83	50.09	48.64	42.59	50.17	45.47
Total	38.95	34.20	24.41	58.22	39.35	35.25	41.61	56.20
Number	12,750	11,491	8,059	7,733	10,647	16,854	29,097	20,908

n/a: Not available.
[1] No information on recent adult deaths due to chronic illness.
[2] No information on chronically ill adults in the household.
[3] Information on recent deaths due to chronic illness is collected for all persons under age 60.

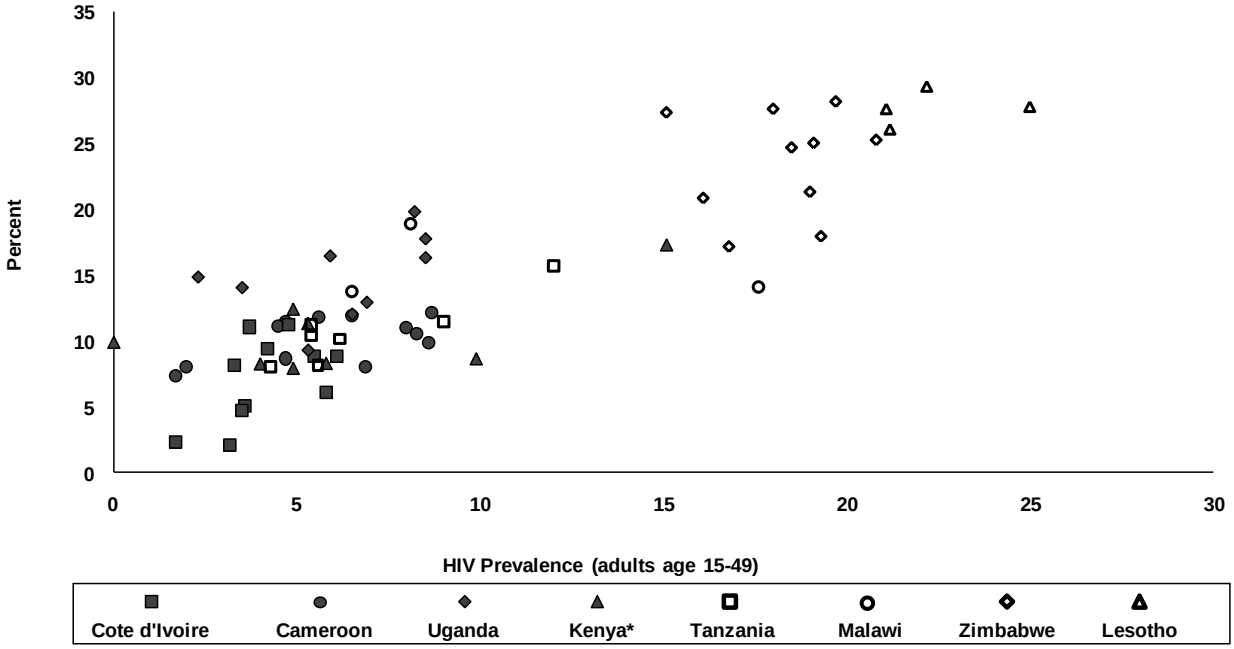
Figures 1a and 1b present the associations between HIV prevalence and proportions of orphans in selected countries. The figures clearly show that the proportions of orphaned children positively associated with HIV prevalence both at the national and sub-national levels. Figures 2a and 2b find similar positive associations between HIV prevalence and proportions of OVC at the national and sub-national levels.

Figure 1a. Percent of children orphaned (age 0-17) by HIV prevalence



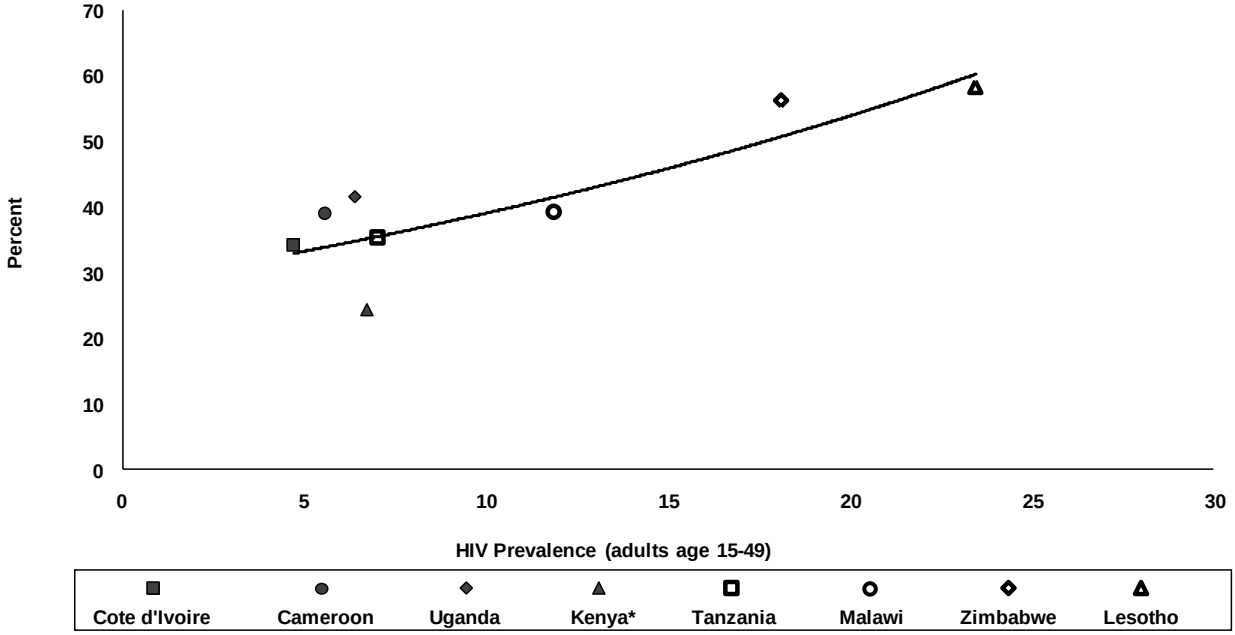
* Kenya data are for children age 0-14

Figure 1b. Percent of children orphaned (age 0-17) by HIV prevalence, by geographic regions



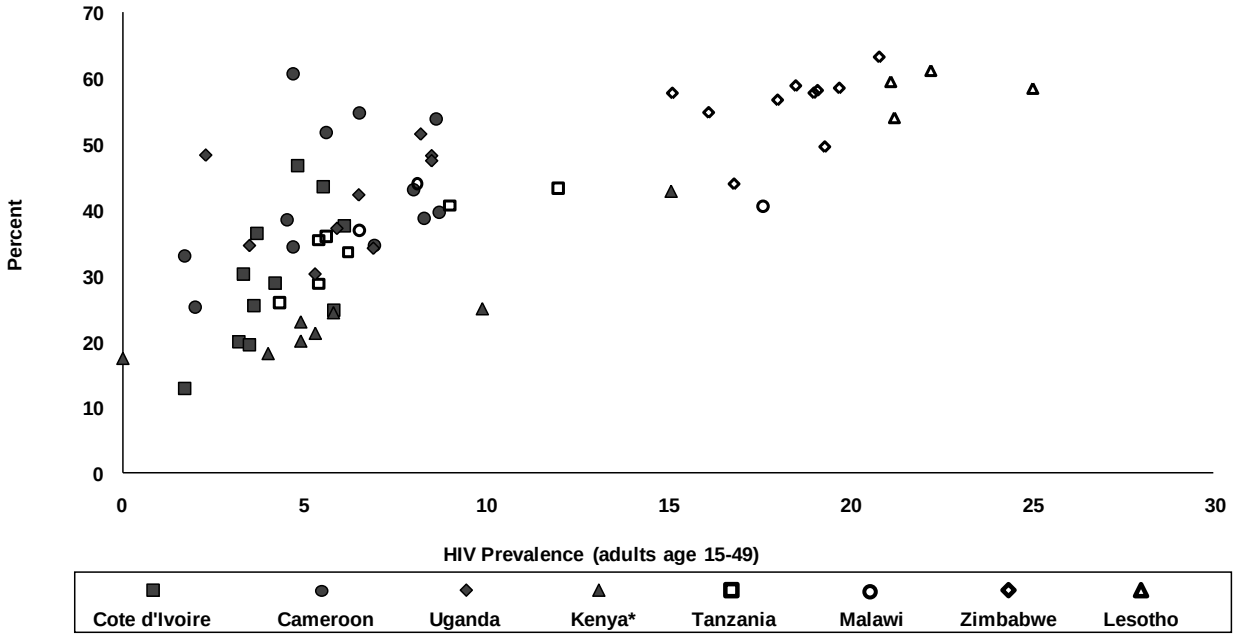
* Kenya data are for children age 0-14

Figure 2a. Percent of all OVC (age 0-17) by HIV prevalence



* Kenya data are for children age 0-14

Figure 2b. Percent of all OVC (age 0-17) by HIV prevalence, by geographic regions



* Kenya data are for children age 0-14

5

Estimates of OVC by Selected Characteristics

This chapter presents estimates of orphans and vulnerable children in all eight countries studied, by age, sex, place of residence and, household wealth status (estimates by region are presented in Appendix B). These estimates were obtained by applying the distribution of children in the DHS/AIS surveys presented in the previous chapter to estimates of the population age 0-17 routinely computed by the US Census Bureau (US Census Bureau 2007).

The results (Tables 13 and 14) show that the estimated number of OVC is highest in Tanzania (6.4 million) and Uganda (6.6 million). Kenya, Cameroon, and Zimbabwe follow with slightly more than 3 million OVC, and Cote d'Ivoire and Malawi with slightly less than 3 million. Lesotho has the lowest estimated number of OVC among the countries considered (534,458). Taking into account the age of the child, the largest number of OVC is found among children age 5-14, followed by age 0-4. In addition, while urban areas are proportionally the hardest hit, in all countries the total number of OVC is largest in rural areas. Across countries, the estimated number of OVC does not show a clear pattern by the child's sex or household wealth status.

The estimates for all OVC are almost evenly distributed among the three main individual OVC categories, that is: 1) orphans; 2) children living with an HIV-infected adult; and 3) children living in a household affected by chronic illness. For example, the number of all orphans (Table 10) is highest in Uganda (2.3 million), Tanzania (2 million), and Kenya (1.5 million), followed by Zimbabwe (1.3 million), Malawi (980,000), Cameroon (810,000), Cote d'Ivoire (670,000), and Lesotho (250,000). The ranking of the countries considered in terms of the number of children living with an HIV-infected adult (Table 11) and of the children living in a household affected by chronic illness (Table 12) is similar.

Within each OVC category, the distribution of children by background characteristics is generally similar to that for all OVC. The main exception is the distribution of children living with an HIV-infected adult by the wealth status of their household, which, consistent with higher HIV prevalence in wealthier households, shows that children in wealthier households are more likely to live with an HIV-infected adult.

Table 10. Estimated numbers of orphans age 0-17, by age group, sex, urban/rural residence, and wealth

Characteristic	Cameroon 2004	Cote d'Ivoire 2005	Kenya 2003	Lesotho 2004/05	Malawi 2004/05	Tanzania 2003/04	Uganda 2004/05	Zimbabwe 2005/06
Age								
0-4	97,297	48,363	257,099	33,202	95,746	172,966	243,345	134,327
5-14	510,931	417,827	1,272,188	157,970	657,186	1,241,225	1,485,498	839,984
15-17	201,178	203,587	n/a	62,195	225,709	543,971	570,163	351,649
Sex								
Male	425,413	323,401	767,641	130,785	515,612	1,013,548	1,203,248	674,031
Female	383,993	346,377	761,647	122,583	463,029	944,613	1,095,759	651,930
Residence								
Urban	383,299	292,899	253,208	39,574	190,118	574,868	309,904	286,572
Rural	426,107	376,878	1,276,080	213,793	788,522	1,383,293	1,989,103	1,039,389
Wealth								
Lowest	129,781	118,232	339,448	54,903	228,924	320,706	435,422	302,128
Second	153,691	142,142	397,049	55,828	170,941	324,833	494,660	289,328
Middle	216,265	111,892	254,223	55,349	150,310	483,436	434,271	359,120
Fourth	188,051	140,038	321,018	48,405	178,653	404,505	435,100	210,842
Highest	121,617	157,474	217,549	38,883	249,812	424,681	499,553	164,543
Total (all orphans)	**809,406**	**669,778**	**1,529,288**	**253,367**	**978,641**	**1,958,161**	**2,299,007**	**1,325,961**
Maternal orphans	198,440	152,222	218,865	34,792	179,159	494,980	447,511	180,384
Paternal orphans	524,508	430,336	994,591	171,941	548,928	1,218,411	1,400,834	763,718
Double orphans	73,283	83,928	292,282	42,503	243,818	221,200	427,026	350,222

n/a: Not available.

Table 11. Estimated numbers of children age 0-17 living in households with an HIV-infected adult[1], by age group, sex, urban/rural residence, and wealth

Characteristic	Cameroon 2004	Cote d'Ivoire 2005	Kenya 2003	Lesotho 2004/05	Malawi 2004/05	Tanzania 2003/04	Uganda 2004/05	Zimbabwe 2005/06
Age								
0-4	263,212	216,451	549,204	69,449	231,964	590,452	505,098	404,732
5-14	431,625	407,940	786,152	136,225	418,997	997,112	839,357	708,433
15-17	120,333	97,224	n/a	40,257	102,048	283,567	212,378	221,676
Sex								
Male	399,912	315,919	643,417	124,973	367,751	945,438	775,580	676,136
Female	415,258	405,697	691,939	120,958	385,257	925,694	781,253	658,705
Residence								
Urban	526,148	353,464	345,422	35,046	150,428	726,137	284,983	378,248
Rural	289,021	368,152	989,934	210,885	602,580	1,144,994	1,271,849	956,594
Wealth								
Lowest	58,210	71,791	181,187	43,075	81,580	215,961	194,269	247,466
Second	67,518	96,396	260,525	53,564	101,970	223,411	306,111	285,143
Middle	229,700	151,101	248,440	56,814	148,551	317,843	264,784	292,498
Fourth	222,752	190,702	324,991	48,406	176,378	565,257	313,277	293,648
Highest	236,988	211,626	320,214	44,073	244,529	548,660	478,392	216,087
Total	815,170	721,616	1,335,356	245,931	753,008	1,871,132	1,556,833	1,334,841

n/a: Not available.

[1] For determining HIV status, we use the age cut-offs for adult HIV testing adopted in the survey.

Table 12. Estimated numbers of children age 0-17 living in households with a chronically ill adult or recent adult death following chronic illness, by age group, sex, urban/rural residence, and wealth

Characteristic	Cameroon[1] 2004	Cote d'Ivoire 2005	Malawi[1] 2004/05	Tanzania[2] 2003/04	Uganda 2004/05	Zimbabwe 2005/06
Age						
0-4	372,558	214,461	159,663	457,513	517,511	131,570
5-14	640,526	367,230	300,876	882,883	943,855	291,579
15-17	167,677	85,619	n/a	267,835	218,375	89,142
Sex						
Male	583,414	352,252	263,348	805,460	854,600	260,792
Female	597,346	315,058	260,659	802,770	825,141	251,498
Residence						
Urban	567,282	250,918	61,052	431,325	173,792	89,323
Rural	613,478	416,391	462,955	1,176,906	1,505,949	422,968
Wealth						
Lowest	213,221	119,279	124,625	333,273	373,034	152,512
Second	221,182	158,751	104,058	329,762	413,408	125,528
Middle	299,819	105,766	84,623	363,046	344,494	124,949
Fourth	302,293	157,800	102,286	312,305	274,396	64,937
Highest	144,245	125,712	108,416	269,844	274,408	44,364
Total	1,180,761	667,309	524,007	1,608,230	1,679,740	512,291

n/a: Not available.

[1] No information on recent adult deaths due to chronic illness.

[2] Information on recent deaths due to chronic illness is collected for all persons under age 60.

Table 13. Estimated numbers of children age 0-17 who are orphaned or living with a chronically ill parent, by age group, sex, urban/rural residence, and wealth

Characteristic	Cameroon 2004	Cote d'Ivoire 2005	Malawi 2004/05	Tanzania 2003/04	Uganda 2004/05	Zimbabwe 2005/06
Age						
0-4	287,333	150,442	213,722	354,606	461,722	181,062
5-14	806,231	568,457	828,963	1,583,931	1,840,556	937,938
15-17	264,229	233,108	n/a	641,521	645,935	381,240
Sex						
Male	699,810	472,475	672,277	1,338,964	1,532,048	762,680
Female	657,982	479,531	630,332	1,241,094	1,416,164	737,559
Residence						
Urban	598,056	395,440	214,252	684,975	347,807	316,348
Rural	759,737	556,566	1,088,357	1,895,084	2,600,406	1,183,892
Wealth						
Lowest	267,989	159,323	298,867	464,638	588,665	364,645
Second	271,206	200,742	237,495	465,573	677,697	334,093
Middle	342,789	182,214	216,112	624,365	594,907	389,459
Fourth	298,783	197,410	248,640	520,252	524,917	233,861
Highest	177,026	212,318	301,496	505,231	562,026	178,183
Total	1,357,793	952,006	1,302,609	2,580,058	2,948,212	1,500,240

n/a: Not available.

Table 14. Estimated numbers of all OVC age 0-17, by age group, sex, urban/rural residence, and wealth

Characteristic	Cameroon[1] 2004	Cote d'Ivoire 2005	Kenya[1, 2] 2003	Lesotho[1, 2] 2004/05	Malawi[1] 2004/05	Tanzania[3] 2003/04	Uganda 2004/05	Zimbabwe 2005/06
Age								
0-4	930,788	754,785	1,053,077	131,429	673,719	1,672,269	1,836,573	773,469
5-14	1,756,534	1,559,632	2,328,256	304,332	1,550,335	3,577,432	3,663,400	1,734,961
15-17	519,835	499,637	n/a	98,697	426,291	1,141,519	1,056,688	610,825
Sex								
Male	1,631,328	1,335,841	1,734,312	271,004	1,305,867	3,191,866	3,355,199	1,574,154
Female	1,575,829	1,478,213	1,647,021	263,454	1,344,477	3,199,354	3,201,462	1,545,101
Residence								
Urban	1,603,025	1,204,864	679,812	75,374	464,527	1,874,586	859,122	736,342
Rural	1,604,132	1,609,190	2,701,520	459,084	2,185,818	4,516,634	5,697,538	2,382,914
Wealth								
Lowest	505,865	410,785	743,417	111,126	579,679	1,100,954	1,178,791	666,253
Second	594,565	509,879	730,614	114,940	464,490	1,068,237	1,411,874	725,813
Middle	804,257	530,615	622,722	115,878	432,627	1,424,101	1,193,242	756,148
Fourth	721,515	635,598	679,381	105,919	545,972	1,416,962	1,267,852	534,486
Highest	580,954	727,177	605,199	86,596	627,577	1,380,966	1,504,901	436,555
Total	3,207,157	2,814,054	3,381,333	534,458	2,650,345	6,391,220	6,556,660	3,119,255

n/a: Not available.

[1] No information on recent adult deaths due to chronic illness in the household.

[2] No information on chronically ill adults in the household.

[3] Information on recent deaths due to chronic illness is collected for all persons under age 60.

6

Basic Material Needs

We now evaluate OVC's possible sources of vulnerabilities, focusing on their basic material needs (Chapter 6), school attendance (Chapter 7), health and nutritional status (Chapter 8), as well as their work, mosquito net use, birth registration, and succession planning (Chapter 9).

According to UNICEF's guidelines (UNICEF 2005), a child's basic material needs have been met if he/she has at least a pair of shoes, two sets of clothes, and a blanket. For the two countries with available data (Cote d'Ivoire and Zimbabwe) Table 15 shows that basic material needs are met for a large proportion of all OVC age 5-17 years, at 83 percent in Cote d'Ivoire and 61 percent in Zimbabwe. There is no clear age differential among OVC in whether their basic needs are met. In Cote d'Ivoire children age 15-17 are slightly more disadvantaged in this regard than children age 5-14, whereas in Zimbabwe the opposite is true. Among the basic items, OVC age 5-17 in Cote d'Ivoire and Zimbabwe are most likely to have two sets of clothes. In Cote d'Ivoire they are least likely to have a blanket, whereas in Zimbabwe they are least likely to have a pair of shoes. A similar pattern can be found when separately considering OVC age 0-14 and age 15-17 in either country.

Overall, the results in Table 15 thus do not indicate a clear disadvantage of OVC in terms of basic material needs. Yet in households with orphans and non-orphans, the results presented in Table 16 clearly show that in both Cote d'Ivoire and Zimbabwe orphans are disadvantaged when compared to non-orphans regardless of sex, place of residence, or household wealth level (the only exception is orphans age 15-17 in Cote d'Ivoire, who seem slightly less disadvantaged than non-orphans). Considering their background characteristics, orphans age 5-14 are always more disadvantaged than orphans age 15-17 in both Cote d'Ivoire and Zimbabwe. In Cote d'Ivoire female orphans are slightly less likely than male orphans to have their basic material needs met, whereas in Zimbabwe the reverse is true.

Wealth clearly determines whether or not the basic needs of orphans are met; the percentage with all three basic needs met increases almost linearly with household wealth level: in Cote d'Ivoire from 88 percent among those in the lowest quintile to 98 percent in the highest quintile, and in Zimbabwe from 33 percent in the lowest quintile to 85 percent in the highest quintile.[14]

[14] Corresponding figures by individual regions within each country are presented in Appendix C.

Table 15. Proportion of children age 5-17 with a pair of shoes, with a blanket or sheet to cover when sleeping, with at least two sets of clothes, and with all three basic material needs met, by OVC categories and age group

	Cote d'Ivoire 2005					Zimbabwe 2005/06				
OVC category	**Shoes**	**Blanket**	**Clothes**	**All three**	**Number**	**Shoes**	**Blanket**	**Clothes**	**All three**	**Number**
				5-14						
Orphans	93.44	92.11	94.82	90.45	611	52.74	76.94	80.61	49.33	3,507
Children in hhs with an HIV-infected adult	88.24	87.87	89.68	86.73	588	65.12	84.72	87.36	62.42	2,936
Children in hhs with a chronically ill adult or recent adult death following chronic illness	86.67	87.96	89.84	85.08	529	47.77	78.82	81.89	43.82	1,204
Children orphaned or living with a chronically ill parent	92.18	90.56	94.37	88.83	827	51.79	76.88	80.23	48.37	3,912
All OVCs	91.58	90.52	92.61	89.22	2,259	58.29	80.59	83.69	55.26	7,211
Children living with both parents who are not HIV-infected	86.44	84.01	87.29	82.46	3,196	66.12	86.25	86.71	63.84	3,777
All children	87.57	85.41	88.37	84.03	6,409	62.26	83.14	85.48	59.43	12,365
				15-17						
Orphans	98.00	97.14	98.19	96.58	257	66.22	82.10	84.92	62.88	996
Children in hhs with an HIV-infected adult	82.79	81.57	82.79	81.57	121	71.52	84.17	85.62	69.23	623
Children in hhs with a chronically ill adult or recent adult death following chronic illness	78.44	75.45	77.99	74.77	106	59.00	79.47	82.66	55.16	250
Children orphaned or living with a chronically ill parent	95.59	94.46	95.75	93.97	293	65.13	81.44	84.41	61.70	1,079
All OVCs	87.28	85.45	87.43	84.98	625	67.79	82.30	84.32	64.83	1,723
Children living with both parents who are not HIV-infected	86.07	82.76	85.86	80.97	461	71.91	86.77	89.12	69.41	688
All children	83.82	81.46	83.82	80.67	1,422	69.49	83.12	84.94	66.71	2,734

(Cont'd)

Table 15 – *Continued*

OVC category	Cote d'Ivoire 2005					Zimbabwe 2005/06				
	Shoes	Blanket	Clothes	All three	Number	Shoes	Blanket	Clothes	All three	Number
All children 5-17										
Orphans	94.79	93.6	95.81	92.26	868	55.72	78.08	81.56	52.33	4,503
Children in hhs with an HIV-infected adult	87.31	86.79	88.5	85.85	708	66.24	84.63	87.05	63.62	3,559
Children in hhs with a chronically ill adult or recent adult death following chronic illness	85.29	85.86	87.86	83.35	636	49.7	78.93	82.02	45.77	1,453
Children orphaned or living with a chronically ill parent	93.07	91.58	94.73	90.17	1,120	54.67	77.86	81.14	51.25	4,991
All OVCs	90.65	89.42	91.49	88.31	2,883	60.12	80.92	83.81	57.11	8,934
Children living with both parents who are not HIV-infected	86.39	83.85	87.11	82.27	3,657	67.01	86.33	87.08	64.7	4,465
All children	86.89	84.69	87.54	83.42	7,831	63.57	83.14	85.38	60.75	15,099

Table 16. In households[1] with both orphans and non-orphans, proportion of children age 5-17 with all three basic material needs met (i.e., a pair of shoes, a blanket or sheet, and two sets of clothes), by age group, sex, urban/rural residence and wealth

Country	Orphans	Non-orphans
Cote d'Ivoire 2005		
Age		
5-14	89.62	94.72
15-17	96.95	92.97
Sex		
Male	92.66	94.19
Female	91.20	94.62
Residence		
Urban	91.89	94.58
Rural	91.88	94.28
Wealth		
Lowest	88.43	90.99
Second	89.82	90.82
Middle	89.58	93.87
Fourth	91.00	92.74
Highest	97.55	99.21
Total	91.88	94.42
Number	725	1,175
Zimbabwe 2005/06		
Age		
5-14	49.89	59.99
15-17	64.32	69.57
Sex		
Male	51.55	59.77
Female	54.74	63.47
Residence		
Urban	82.03	88.96
Rural	46.32	54.02
Wealth		
Lowest	33.49	32.37
Second	39.76	49.70
Middle	55.51	67.30
Fourth	77.93	84.58
Highest	85.03	90.36
Total	53.07	61.62
Number	2,310	2,058

[1] Households selected for HIV testing.

7

School Attendance

Orphaned and vulnerable children may be at greater risk of dropping out of school. This can happen for many reasons, such as the inability to pay school fees, the need to help with household labor, or to stay at home to care for sick parents or younger siblings. Tables 17a and 17b present, respectively, school attendance rates and school attendance ratios[15] for children age 5-17 by OVC category and broad age groups. In all countries, OVC overall are less likely to attend school than non-OVC when they reach adolescence, but they are as or more likely than non-OVC to attend school earlier on, between age 5 and 14 (see Figure 3a). Figure 3a also shows that in countries with relatively lower levels of HIV prevalence, OVC tend to be more likely to attend school than children living with both parents who are not HIV infected, but in higher HIV prevalence countries there is little or no difference between OVC and non-OVC children. Figure 3b, however, shows that adolescent orphans and OVC are considerably less likely to attend school in all countries. In Table 17a across seven countries with available data, the gap in school attendance between OVC and non-OVC age 15-17 is smallest in Cote d'Ivoire (less than 1 percentage point) and greatest in Tanzania (almost 12 percentage points). Within countries, in all cases but Cote d'Ivoire the most disadvantaged group of OVC is orphans, followed by children in households affected by chronic illness.

[15] The school attendance ratios in Table 17b are calculated by dividing OVC and non-OVC school attendance rates from Table 17a.

Table 17a. Proportion of children age 5-17 attending school at the time of the survey, by OVC categories and age group

Country	Orphans	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children orphaned or living with a chronically ill parent	All OVC	Children living with both parents who are not HIV-infected	All children	Number
5-14								
Cameroon[1] 2004	84.48	90.15	83.86	83.57	84.54	75.25	78.96	7,027
Cote d'Ivoire 2005	53.32	52.93	54.70	54.56	53.49	45.97	45.85	6,409
Kenya[1, 2] 2003	87.39	93.47	n/a	n/a	88.59	87.93	88.07	5,200
Lesotho[1, 2] 2004/05	80.60	79.55	n/a	n/a	79.49	79.87	78.91	4,634
Malawi[1] 2004/05	79.51	79.77	80.94	79.93	78.77	76.84	76.77	6,087
Tanzania[3] 2003/04	72.76	70.53	67.54	71.66	68.80	67.27	67.56	9,561
Uganda 2004/05	82.03	80.54	79.93	81.66	81.09	76.40	78.47	16,849
Zimbabwe 2005/06	83.64	83.73	80.64	83.30	83.23	83.05	83.42	12,365
15-17								
Cameroon[1] 2004	60.11	65.05	67.98	63.99	67.01	74.73	67.33	1,577
Cote d'Ivoire 2005	41.63	42.34	36.42	42.62	45.35	45.92	40.13	1,422
Kenya[1, 2] 2003	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lesotho[1, 2] 2004/05	63.37	64.96	n/a	n/a	65.60	75.55	67.78	1,142
Malawi[1] 2004/05	61.73	71.67	62.77	61.82	63.54	70.79	65.03	883
Tanzania[3] 2003/04	41.18	45.44	48.39	43.23	43.72	55.51	47.26	1,871
Uganda 2004/05	66.63	72.99	72.11	67.63	69.56	79.84	72.12	2,848
Zimbabwe 2005/06	62.54	62.97	62.54	62.89	61.78	70.61	63.77	2,734

(Cont'd)

Table 17a – *Continued*

Country	Orphans	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children orphaned or living with a chronically ill parent	All OVC	Children living with both parents who are not HIV-infected	All children	Number
All children 5-17								
Cameroon[1] 2004	78.28	85.26	80.92	79.23	80.96	75.18	76.83	8,603
Cote d'Ivoire 2005	49.86	51.12	51.64	51.44	51.72	45.96	44.81	7,831
Kenya[1, 2] 2003	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lesotho[1, 2] 2004/05	76.34	76.66	n/a	n/a	76.53	79.12	76.71	5,775
Malawi[1] 2004/05	76.42	78.72	78.85	77.00	76.57	76.19	75.28	6,971
Tanzania[3] 2003/04	64.62	65.91	63.83	64.75	63.74	65.82	64.24	11,432
Uganda 2004/05	78.71	79.39	78.82	78.85	79.11	76.79	77.55	19,697
Zimbabwe 2005/06	78.97	80.09	77.54	78.89	79.1	81.13	79.87	15,099

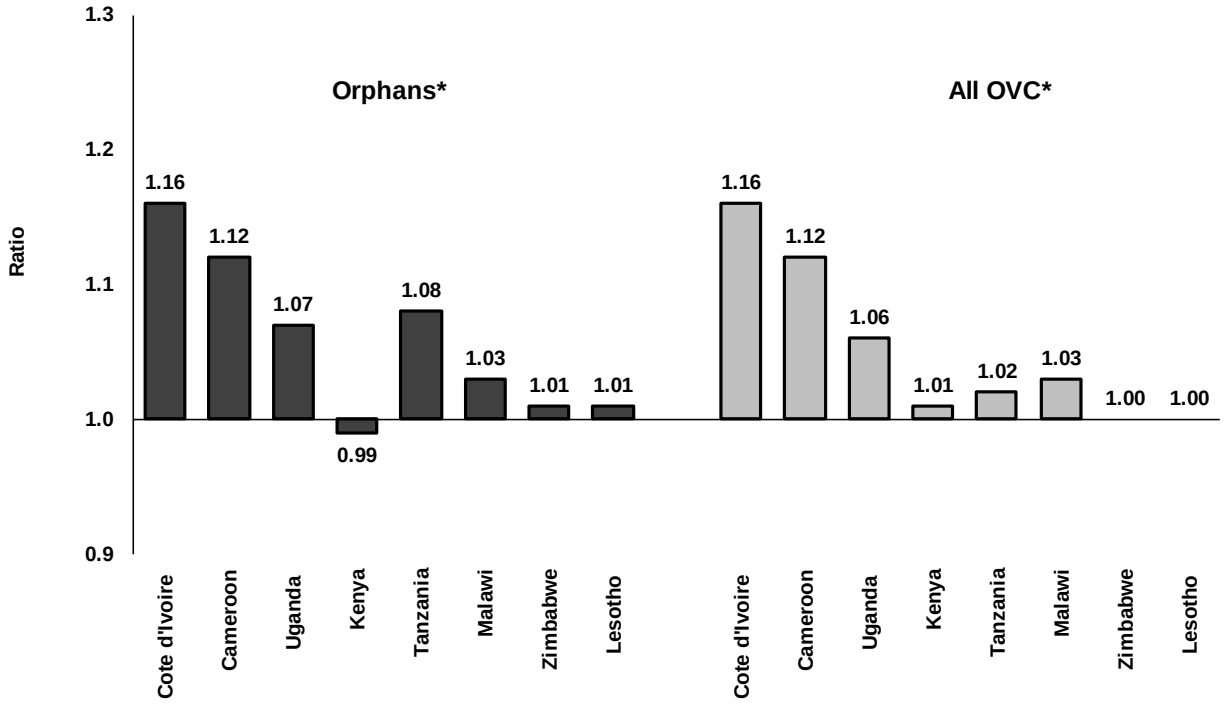
n/a: Not available.
[1] No information on recent adult deaths due to chronic illness in the household.
[2] No information on chronically ill adults in the household.
[3] Information on recent deaths due to chronic illness is collected for all persons under age 60.

Table 17b. School attendance ratios for children age 5-17, by OVC categories and age group

Country	Orphans	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children orphaned or living with a chronically ill parent	All OVC
5-14					
Cameroon[1] 2004	1.12	1.20	1.11	1.11	1.12
Cote d'Ivoire 2005	1.16	1.15	1.19	1.19	1.16
Kenya[1, 2] 2003	0.99	1.06	n/a	n/a	1.01
Lesotho[1, 2] 2004/05	1.01	1.00	n/a	n/a	1.00
Malawi[1] 2004/05	1.03	1.04	1.05	1.04	1.03
Tanzania[3] 2003/04	1.08	1.05	1.00	1.07	1.02
Uganda 2004/05	1.07	1.05	1.05	1.07	1.06
Zimbabwe 2005/06	1.01	1.01	0.97	1.00	1.00
15-17					
Cameroon[1] 2004	0.80	0.87	0.91	0.86	0.90
Cote d'Ivoire 2005	0.91	0.92	0.79	0.93	0.99
Kenya[1, 2] 2003	n/a	n/a	n/a	n/a	n/a
Lesotho[1, 2] 2004/05	0.84	0.86	n/a	n/a	0.87
Malawi[1] 2004/05	0.87	1.01	0.89	0.87	0.90
Tanzania[3] 2003/04	0.74	0.82	0.87	0.78	0.79
Uganda 2004/05	0.83	0.91	0.90	0.85	0.87
Zimbabwe 2005/06	0.89	0.89	0.89	0.89	0.87
All children 5-17					
Cameroon[1] 2004	1.04	1.13	1.08	1.05	1.08
Cote d'Ivoire 2005	1.08	1.11	1.12	1.12	1.13
Kenya[1, 2] 2003	n/a	n/a	n/a	n/a	n/a
Lesotho[1, 2] 2004/05	0.96	0.97	n/a	n/a	0.97
Malawi[1] 2004/05	1.00	1.03	1.03	1.01	1.00
Tanzania[3] 2003/04	0.98	1.00	0.97	0.98	0.97
Uganda 2004/05	1.03	1.03	1.03	1.03	1.03
Zimbabwe 2005/06	0.97	0.99	0.96	0.97	0.97

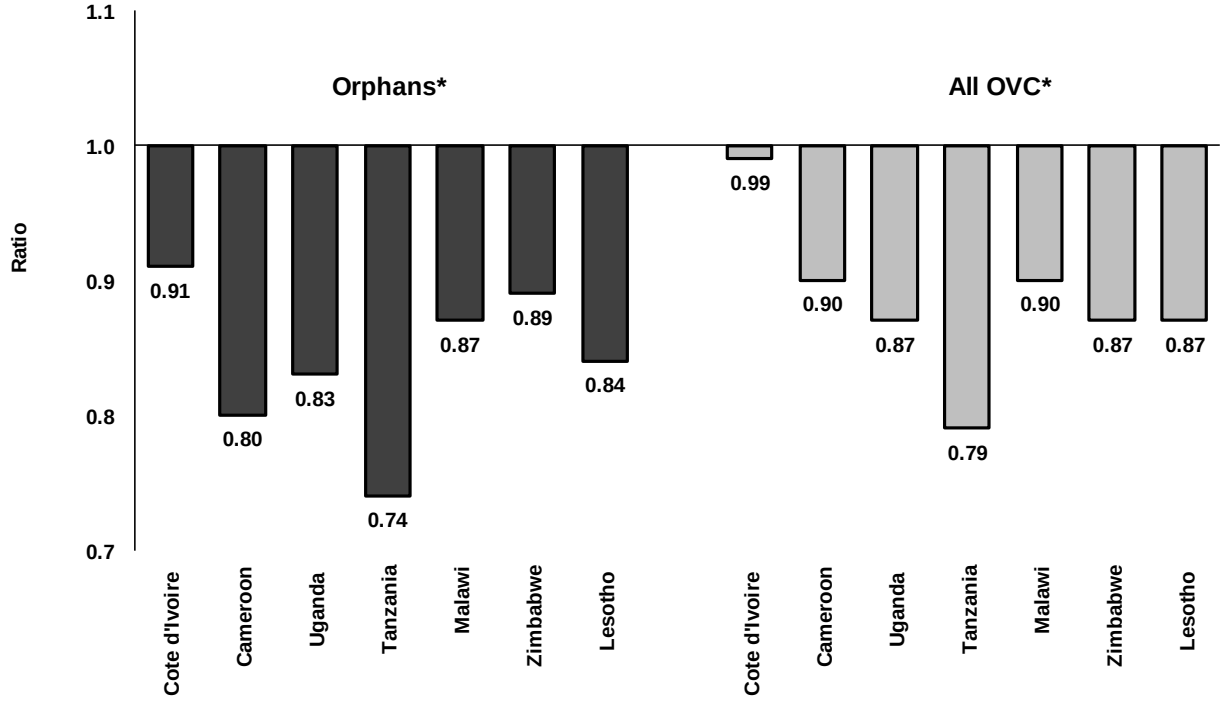
n/a: Not available.
[1] No information on recent adult deaths due to chronic illness in the household.
[2] No information on chronically ill adults in the household.
[3] Information on recent deaths due to chronic illness is collected for all persons under age 60.

Figure 3a. School attendance ratios for children (age 5-14)



* Relative to children living with both parents who are not HIV-infected

Figure 3b. School attendance ratios for adolescents (age 15-17)



* Relative to children living with both parents who are not HIV-infected

Matching orphans and non-orphans within households (Tables 18a and 18b) confirms that orphans age 15-17 are always less likely than non-orphans to attend school. In Cote d'Ivoire, Kenya, and Malawi, orphans age 5-14 also are less likely to attend school than are non-orphans. When individual background characteristics are taken into account, female orphans do not show a clear advantage or disadvantage compared to male orphans, and there is also no clear pattern of association between school attendance and household wealth. On the contrary, in all countries but Cote d'Ivoire orphans age 5-17 who live in rural areas are consistently less likely to attend school than are urban orphans of the same age, and this difference is true also when considering separately orphans age 5-14 and age 15-17.

Table 18a. In households[1] with both orphans and non-orphans, proportion of children age 5-17 attending school at the time of the survey, by age group, sex, urban/rural residence and wealth

Characteristic	Cameroon 2004		Cote d'Ivoire 2005		Kenya 2003		Lesotho 2004/05		Malawi 2004/05		Tanzania 2003/04		Uganda 2004/05		Zimbabwe 2005/06	
	Orph-ans	Non-orph-ans	Orph-ans	Non-orph-ans	Orph-ans	Non-orph-ans	Orph-ans	Non-orph-ans	Orph-ans	Non-orph-ans	Orph-ans	Non-orph-ans	Orph-ans	Non-orph-ans	Orph-ans	Non-orph-ans
5-14																
Sex																
Male	86.41	88.05	56.24	53.85	85.29	86.35	74.57	72.67	74.13	78.62	70.33	67.81	83.75	82.97	83.45	78.91
Female	85.55	81.41	47.76	54.83	87.03	88.35	85.92	77.79	83.64	82.04	75.95	66.30	82.41	81.92	83.80	84.40
Residence																
Urban	90.57	91.26	50.52	56.25	89.28	87.84	87.12	77.52	83.34	87.46	80.50	76.39	88.64	87.57	88.06	90.35
Rural	82.06	77.89	52.60	52.84	85.54	87.13	79.65	75.12	76.90	78.36	70.30	62.81	82.34	81.74	82.48	79.23
Wealth																
Lowest	69.12	61.09	54.02	51.03	63.90	76.07	78.28	64.73	69.94	78.41	51.76	47.55	78.05	76.68	77.45	71.47
Second	84.45	77.48	47.42	38.67	89.78	91.49	69.96	71.47	68.91	69.58	74.30	57.66	74.71	79.23	82.71	78.43
Middle	86.56	88.04	32.74	46.54	94.67	88.01	83.70	76.29	79.18	81.32	75.29	59.50	84.12	81.66	85.64	85.22
Fourth	94.49	88.95	52.47	52.88	89.69	90.43	88.53	81.23	74.38	81.80	75.27	74.90	87.44	86.85	83.81	83.98
Highest	91.89	97.66	68.63	70.05	93.92	98.61	84.90	84.72	93.92	87.97	84.32	83.66	90.01	85.40	93.17	93.66
Total	85.97	84.86	51.72	54.35	86.17	87.24	80.20	75.37	78.32	80.46	73.03	67.03	83.10	82.47	83.49	81.57
Number	533	802	501	973	282	272	549	491	601	606	745	1,056	1,857	2,533	1,800	1,709
15-17																
Sex																
Male	68.52	78.09	56.05	63.71	n/a	n/a	60.91	75.43	59.06	89.18	44.85	55.26	73.10	81.32	61.67	66.54
Female	50.65	66.64	30.20	48.20	n/a	n/a	64.39	73.53	59.34	61.06	36.22	40.22	59.37	72.79	58.64	57.35
Residence																
Urban	63.23	77.24	53.15	52.40	n/a	n/a	45.74	78.11	54.58	84.22	36.83	54.33	65.78	79.64	63.37	71.64
Rural	55.50	62.87	33.85	57.32	n/a	n/a	65.06	74.27	60.65	72.24	42.79	43.13	67.24	76.22	59.26	57.95

(Cont'd)

Table 18a – *Continued*

Characteristic	Cameroon 2004		Cote d'Ivoire 2005		Kenya 2003		Lesotho 2004/05		Malawi 2004/05		Tanzania 2003/04		Uganda 2004/05		Zimbabwe 2005/06	
	Orph-ans	Non-orph-ans	Orph-ans	Non-orph-ans	Orph-ans	Non-orph-ans	Orph-ans	Non-orph-ans	Orph-ans	Non-orph-ans	Orph-ans	Non-orph-ans	Orph-ans	Non-orph-ans	Orph-ans	Non-orph-ans
Wealth																
Lowest	44.13	62.36	40.63	29.18	n/a	n/a	45.56	65.52	57.50	91.59	37.96	30.43	65.68	71.49	32.70	49.38
Second	51.00	63.91	11.64	66.23	n/a	n/a	67.62	56.95	45.83	64.14	44.11	37.50	68.79	66.82	63.08	48.02
Middle	57.66	68.24	50.38	43.03	n/a	n/a	62.39	88.41	60.44	81.88	39.59	40.68	65.48	79.44	71.50	70.84
Fourth	58.68	71.63	56.43	39.14	n/a	n/a	63.89	88.46	52.71	73.75	38.05	58.01	65.70	84.85	64.34	77.40
Highest	77.74	82.35	47.24	76.22	n/a	n/a	69.31	76.13	66.75	75.86	42.17	52.11	68.00	79.29	62.73	65.23
Total	59.79	72.38	42.31	54.94	n/a	n/a	62.61	74.49	59.21	75.57	40.46	47.39	66.93	76.75	60.16	61.36
Number	191	168	224	203	n/a	n/a	198	106	134	94	291	208	539	410	510	349
All children 5-17																
Sex																
Male	81.54	86.38	56.18	55.41	n/a	n/a	70.89	73.19	71.82	80.19	63.46	65.76	81.22	82.77	78.63	77.09
Female	76.61	78.77	42.34	53.60	n/a	n/a	80.28	77.07	78.39	79.46	64.33	61.98	77.53	80.52	78.24	79.21
Residence																
Urban	82.31	88.31	51.35	55.54	n/a	n/a	71.36	77.58	77.82	86.95	64.66	72.10	80.85	86.25	81.77	86.72
Rural	75.99	75.95	46.91	53.56	n/a	n/a	75.94	74.96	73.98	77.58	63.55	59.85	79.23	80.99	77.54	75.76
Wealth																
Lowest	64.99	61.21	51.06	48.95	n/a	n/a	72.68	64.87	68.43	79.25	48.60	45.27	75.79	76.05	68.95	68.02
Second	76.74	75.57	37.50	43.88	n/a	n/a	69.29	68.81	66.07	68.94	67.80	54.76	73.76	77.49	79.30	73.49
Middle	78.04	85.18	37.65	45.95	n/a	n/a	77.47	78.56	75.38	81.40	66.28	57.07	80.28	81.43	82.13	83.10
Fourth	85.21	85.35	53.40	50.10	n/a	n/a	81.93	82.69	70.83	80.64	65.39	72.28	82.46	86.61	78.83	82.73
Highest	86.94	93.97	58.75	71.14	n/a	n/a	79.50	83.51	86.97	85.88	66.91	76.30	83.18	84.28	84.70	87.34
Total	79.06	82.70	48.81	54.46	n/a	n/a	75.53	75.21	74.84	79.80	63.89	63.80	79.46	81.68	78.34	78.14
Number	724	970	725	1,175	n/a	n/a	747	597	735	700	1,036	1,264	2,396	2,943	2,310	2,058

n/a: Not available.
[1] Households selected for HIV testing.

Table 18b. In households[1] with both orphans and non-orphans, school attendance ratios for children 5-17, by age group, sex, urban/rural residence and wealth

Characteristic	Cameroon 2004	Cote d'Ivoire 2005	Kenya 2003	Lesotho 2004/05	Malawi 2004/05	Tanzania 2003/04	Uganda 2004/05	Zimbabwe 2005/06
5-14								
Sex								
Male	0.98	1.04	0.99	1.03	0.94	1.04	1.01	1.06
Female	1.05	0.87	0.99	1.10	1.02	1.15	1.01	0.99
Residence								
Urban	0.99	0.90	1.02	1.12	0.95	1.05	1.01	0.97
Rural	1.05	1.00	0.98	1.06	0.98	1.12	1.01	1.04
Wealth								
Lowest	1.13	1.06	0.84	1.21	0.89	1.09	1.02	1.08
Second	1.09	1.23	0.98	0.98	0.99	1.29	0.94	1.05
Middle	0.98	0.70	1.08	1.10	0.97	1.27	1.03	1.00
Fourth	1.06	0.99	0.99	1.09	0.91	1.00	1.01	1.00
Highest	0.94	0.98	0.95	1.00	1.07	1.01	1.05	0.99
Total	1.01	0.95	0.99	1.06	0.97	1.09	1.01	1.02
Number	533	501	282	549	601	745	1,857	1,800
15-17								
Sex								
Male	0.88	0.88	n/a	0.81	0.66	0.81	0.90	0.93
Female	0.76	0.63	n/a	0.88	0.97	0.90	0.82	1.02
Residence								
Urban	0.82	1.01	n/a	0.59	0.65	0.68	0.83	0.88
Rural	0.88	0.59	n/a	0.88	0.84	0.99	0.88	1.02
Wealth								
Lowest	0.71	1.39	n/a	0.70	0.63	1.25	0.92	0.66
Second	0.80	0.18	n/a	1.19	0.71	1.18	1.03	1.31
Middle	0.84	1.17	n/a	0.71	0.74	0.97	0.82	1.01
Fourth	0.82	1.44	n/a	0.72	0.71	0.66	0.77	0.83
Highest	0.94	0.62	n/a	0.91	0.88	0.81	0.86	0.96
Total	0.83	0.77	n/a	0.84	0.78	0.85	0.87	0.98
Number	191	224	n/a	198	134	291	539	510
All children 5-17								
Sex								
Male	0.94	1.01	n/a	0.97	0.90	0.97	0.98	1.02
Female	0.97	0.79	n/a	1.04	0.99	1.04	0.96	0.99
Residence								
Urban	0.93	0.92	n/a	0.92	0.89	0.90	0.94	0.94
Rural	1.00	0.88	n/a	1.01	0.95	1.06	0.98	1.02
Wealth								
Lowest	1.06	1.04	n/a	1.12	0.86	1.07	1.00	1.01
Second	1.02	0.85	n/a	1.01	0.96	1.24	0.95	1.08
Middle	0.92	0.82	n/a	0.99	0.93	1.16	0.99	0.99
Fourth	1.00	1.07	n/a	0.99	0.88	0.90	0.95	0.95
Highest	0.93	0.83	n/a	0.95	1.01	0.88	0.99	0.97
Total	0.96	0.90	n/a	1.00	0.94	1.00	0.97	1.00
Number	724	725	n/a	747	735	1,036	2,396	2,310

n/a: Not available.

[1] Households selected for HIV testing.

8

Child Health and Nutritional Status

8.1 Nutritional Status

Based on the anthropometric data on height and weight collected by the DHS surveys for children age 0-59 months[16], we evaluate whether OVC'S nutritional status puts them at increased risk of faltered growth, disease, impaired mental development, and early death. We find that, contrary to expectations, in Cameroon and Lesotho OVC overall are slightly *less* likely to be undernourished than non-OVC, whereas in Kenya, Malawi, and Zimbabwe the reverse is true (Tables 19a and 19b). Disaggregating OVC in individual categories, it is difficult to find a clear pattern of association between OVC status and undernourishment. For example, only in Malawi and Zimbabwe are orphans more likely than non-OVC to be undernourished. In Zimbabwe children living with an HIV-infected adult are less likely than non-OVC to be undernourished.

8.2 Anemia

Anemia is a condition that is marked by low levels of hemoglobin in the blood. Iron is a main component of hemoglobin, and iron deficiency is the primary cause of anemia globally (WHO 2008). Other causes of anemia include malaria, hookworm, other nutritional deficiencies, chronic infections, and genetic conditions. Anemia is a serious concern for children because it can impair cognitive development, stunt growth, and increase morbidity from infectious diseases.

DHS surveys include direct measurement of hemoglobin levels for children age 0-59 months. Table 19a (bottom panel) presents differentials in the prevalence of moderate or severe anemia by the different OVC categories considered in this report, and Table 19b (bottom panel) presents the corresponding anemia ratios. First, in all countries OVC overall are as likely or less likely than non-OVC to be moderately/severely anemic. Second, similarly to the findings for nutritional status, no clear pattern of association between individual OVC categories and anemia risk emerges from the data.

[16] AIS surveys generally include neither anthropometric measurements and anemia testing nor information about child health care (i.e. immunizations, micronutrient supplementation, etc.). Cote d'Ivoire, Tanzania and Uganda are thus excluded from the analyses presented in this chapter (see Table 3).

Table 19a. Proportion of children[1] age 0-59 months who were undernourished (underweight) or moderately-to-severely anemic at the time of the survey, by OVC categories

Country	Orphans	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children orphaned or living with a chronically ill parent	All OVC	Children living with both parents who are not HIV-infected	All Children	Number
Undernourished								
Cameroon[2] 2004	15.85	12.77	16.64	15.86	15.93	19.73	18.34	3,567
Kenya[2,3] 2003	21.76	18.24	n/a	n/a	21.85	21.03	20.96	2,519
Lesotho[2,3] 2004/05	17.87	20.16	n/a	n/a	19.92	20.44	20.15	1,589
Malawi[2] 2004/05	24.95	22.50	22.13	20.66	22.18	21.17	22.20	2,794
Zimbabwe 2005/06	24.77	18.73	19.20	24.00	18.19	14.59	16.71	4,815
Moderately/severely anemic								
Cameroon[2] 2004	48.21	40.38	47.20	45.38	44.57	44.98	43.55	3,769
Lesotho[2,3] 2004/05	24.54	29.08	n/a	n/a	27.5	27.08	26.81	1,558
Malawi[2] 2004/05	36.60	44.48	49.48	43.44	43.35	47.48	46.91	2,403
Zimbabwe 2005/06	25.89	29.90	31.19	28.12	29.66	31.77	30.61	4,318

n/a: Not available.
[1] Children of interviewed mothers.
[2] No information on recent adult deaths due to chronic illness in the household.
[3] No information on chronically ill adults in the household.

Table 19b. Undernourishment and anemia ratios for children[1] age 0-59 months, by OVC categories

Country	Orphans	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children orphaned or living with a chronically ill parent	All OVC
Undernourished					
Cameroon[2] 2004	0.80	0.65	0.84	0.80	0.81
Kenya[2,3] 2003	1.03	0.87	n/a	n/a	1.04
Lesotho[2,3] 2004/05	0.87	0.99	n/a	n/a	0.97
Malawi[2] 2004/05	1.18	1.06	1.05	0.98	1.05
Zimbabwe 2005/06	1.70	1.28	1.32	1.64	1.25
Moderately/severely anemic					
Cameroon[2] 2004	1.07	0.90	1.05	1.01	0.99
Lesotho[2,3] 2004/05	0.91	1.07	n/a	n/a	1.02
Malawi[2] 2004/05	0.77	0.94	1.04	0.91	0.91
Zimbabwe 2005/06	0.81	0.94	0.98	0.89	0.93

n/a: Not available.
[1] Children of interviewed mothers.
[2] No information on recent adult deaths due to chronic illness in the household.
[3] No information on chronically ill adults in the household.

8.3 Immunization

The induction of an immune response through vaccination is a widely accepted public health strategy for the prevention of vaccine-preventable infectious diseases. Table 20 (top panel) provides information on the percentage of OVC age 12-23 months at the time of the survey who had been fully immunized[17]. Two main patterns are evident. First, children living in households with a chronically ill adult or with a recent adult death due to chronic illness are always more disadvantaged than children living in households with an HIV-infected adult. Second, whereas children age 12-23 months living in households with a chronically ill adult or with a recent adult death due to chronic illness are less likely to be fully immunized than non-OVC, children living with an HIV-infected adult are equally or more likely to be fully immunized than non-OVC.

8.4 Vitamin A Supplementation

Micronutrient deficiency is a serious contributor to childhood morbidity and mortality, and micronutrients are often provided through direct supplementation, especially recommended where diets may be inadequate. Table 20 (bottom panel) provides information on the differential coverage of vitamin A supplementation by OVC status. The findings are similar to those for childhood immunizations presented above. First, OVC overall are not necessarily more disadvantaged than non-OVC in terms of vitamin A supplementation. Indeed in all countries children living with an HIV-infected adult are about equally or more likely to receive vitamin A than non-OVC. In Malawi and Zimbabwe, but not in Cameroon, children living in households with a chronically ill adult or with a recent adult death due to chronic illness are less likely to receive vitamin A than non-OVC. Second, in two of the three countries with available data, children living in households with a chronically ill adult or with a recent adult death due to chronic illness are slightly more disadvantaged in receiving vitamin A supplementation than are children living in households with an HIV-infected adult.

[17] To be fully vaccinated a child should have received one dose of BCG vaccine, three doses each of DPT and polio vaccines, and one dose of measles vaccine. BCG protects against tuberculosis, and DPT protects against diphtheria, pertussis, and tetanus.

Table 20. Proportion of children[1] age 12-23 months who were fully immunized, and proportion of children[1] age 12-35 months who received a dose of Vitamin A in the previous six months, by selected OVC categories

Country	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children living with both parents who are not HIV-infected	All children	Number
Fully immunized					
Cameroon[2] 2004	50.34	46.61	46.92	47.65	817
Kenya[2,3] 2003	62.00	n/a	53.94	55.21	539
Lesotho[2,3] 2004/05	71.43	n/a	72.87	69.05	309
Malawi[2] 2004/05	74.97	43.79	65.17	64.90	765
Zimbabwe 2005/06	55.36	48.78	55.40	52.56	1,019
Vitamin A					
Cameroon[2] 2004	43.86	43.10	40.90	41.42	1,516
Kenya[2,3] 2003	30.46	n/a	31.21	33.43	1,025
Lesotho[2,3] 2004/05	56.53	n/a	60.95	55.45	624
Malawi[2] 2004/05	78.55	69.79	74.35	73.70	1,380
Zimbabwe 2005/06	48.55	50.06	52.67	50.63	1,956

n/a: Not available.
[1] Children of interviewed mothers.
[2] No information on recent adult deaths due to chronic illness in the household.
[3] No information on chronically ill adults in the household.

8.5 Treatment for Acute Respiratory Infection and Diarrhea

Acute respiratory infections (ARI), primarily pneumonia, and dehydration caused by severe diarrhea, are a common cause of illness and death in infancy and childhood, and early diagnosis and treatment are essential to prevent many deaths. Yet Table 21 shows that seeking treatment for ARI or diarrhea is uncommon in all countries considered, and there is no clear pattern as to whether OVC are disadvantaged in this respect. In Cameroon and Malawi children age 0-59 months living in households with a chronically ill adult or with a recent adult death due to chronic illness are less likely to receive medical advice or treatment when sick with ARI compared with children living with both parents who are not HIV-infected. But the opposite is true of children suffering from diarrhea. With the exception of Kenya, children living in households with an HIV-infected adult generally are more likely to receive advice or treatment when sick with ARI or diarrhea than those living with both parents who are not HIV-infected. The relatively small number of children with symptoms of ARI and diarrhea limits interpretation of the differentials in the treatment patterns for the two conditions.

Table 21. Among children[1] age 0-4 who were sick with ARI or diarrhea in the two weeks preceding the survey, proportion who received advice or treatment from a health professional, by selected OVC categories

Country	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children living with both parents who are not HIV-infected	All children	Number
ARI					
Cameroon[2] 2004	54.25	35.60	41.46	40.86	371
Kenya[2,3] 2003	51.56	n/a	54.16	52.71	477
Lesotho[2,3] 2004/05	61.90	n/a	52.31	56.24	309
Malawi[2] 2004/05	47.81	29.93	35.32	36.64	591
Zimbabwe 2005/06	33.20	28.30	25.38	26.31	553
Diarrhea					
Cameroon[2] 2004	19.91	22.72	20.79	21.51	581
Kenya[2,3] 2003	16.58	n/a	30.74	27.25	418
Lesotho[2,3] 2004/05	32.85	n/a	24.32	27.15	232
Malawi[2] 2004/05	41.66	38.60	27.81	30.68	706
Zimbabwe 2005/06	42.95	35.77	27.63	32.02	606

n/a: Not available.
[1] Children of interviewed mothers.
[2] No information on recent adult deaths due to chronic illness in the household.
[3] No information on chronically ill adults in the household.

9

Other Vulnerabilities

9.1 Children's Work

In Malawi, the only country with available data (Table 22), OVC age 5-14 are slightly more likely than non-OVC to have worked during the week preceding the survey. Children living in households with a chronically ill adult or with a recent adult death due to chronic illness are particularly more likely to have worked when compared to children living with both parents who are not HIV-infected.

Table 22. Proportion of children age 5-14 who worked during the week preceding the survey, by OVC categories

	Malawi[1] 2004/05	Number
Orphans	7.76	1,146
Children in hhs with an HIV-infected adult	6.78	709
Children in hhs with a chronically ill adult or recent adult death following chronic illness	9.53	506
Children orphaned or living with a chronically ill parent	8.55	1,431
All OVC	7.86	2,644
Children living with both parents who are not HIV-infected	7.52	2,735

[1] No information on recent adult deaths due to chronic illness in the household.

9.2 Use of Mosquito Nets

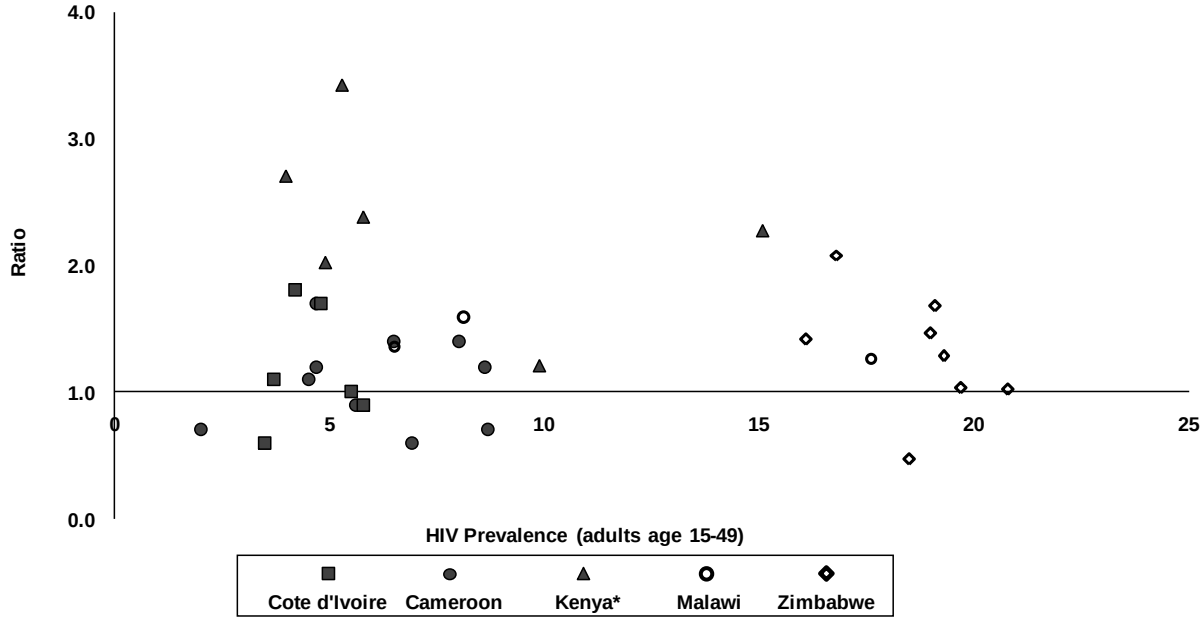
Particularly interesting are the results (Table 23) pointing to differential treatment of orphans in use of mosquito nets to prevent malaria. In households with a mosquito net, orphans are disproportionately less likely than non-orphans to be placed under the net. The difference between the proportion of orphans and non-orphans placed under a mosquito net is large in Malawi (10 percentage points) and especially in Kenya (30 percentage points). The difference is small (1-3 percentage points), however, in Cote d'Ivoire, Cameroon, and Zimbabwe. By sub-national regions, orphans are less likely to be placed under a mosquito net than orphans in most regions (Figure 4).

Table 23. In households[1] with a mosquito net and with both orphans and non-orphans, proportion of children age 0-17 who slept under a mosquito net the previous night, by age group, sex, urban/rural residence, and wealth

	Cameroon 2004		Cote d'Ivoire 2005		Kenya 2003		Malawi 2004/05		Zimbabwe 2005/06	
Characteristic	**Orphans**	**Non-orphans**	**Orphans**	**Non-orphans**	**Orphans**	**Non-orphans**	**Orphans**	**Non-orphans**	**Orphans**	**Non-orphans**
Age										
0-4	53.29	43.43	30.25	21.69	25.59	61.07	41.63	42.20	13.62	21.29
5-14	23.95	24.62	12.15	12.17	18.47	39.34	26.59	33.15	5.22	7.81
15-17	34.22	24.93	16.67	14.41	n/a	n/a	21.09	28.48	17.46	2.81
Sex										
Male	31.46	34.08	8.85	13.16	14.54	45.02	22.62	37.28	5.21	10.77
Female	30.42	31.44	19.87	18.01	22.93	52.42	31.37	35.59	13.04	12.68
Residence										
Urban	35.51	39.67	21.36	25.63	19.89	54.01	32.45	56.93	15.66	20.39
Rural	22.89	24.66	10.11	9.62	19.00	45.44	24.57	26.28	5.16	5.50
Wealth										
Lowest	11.40	27.69	5.40	10.88	8.26	12.72	45.77	26.75	2.59	2.81
Second	15.59	27.88	17.02	16.63	12.92	45.09	18.74	10.86	4.11	3.24
Middle	18.36	20.63	7.47	5.21	17.04	52.94	20.78	28.68	12.57	5.32
Fourth	47.29	44.72	14.94	17.63	23.70	59.36	19.66	29.59	7.38	15.83
Highest	17.96	34.23	30.00	39.78	21.63	57.20	30.63	50.57	15.04	19.82
Total	30.96	32.75	14.80	15.71	19.33	48.15	26.81	36.33	9.13	11.73
Number	196	357	148	434	81	139	419	568	385	589

n/a: Not available.
[1] Households selected for HIV testing.

Figure 4. Mosquito net use for children (age 0-17): Ratio of non-orphans to orphans, by geographic regions*



* In households with a mosquito net and with both orphans and non-orphans
** Kenya data are for children age 0-14

The disadvantage of orphans in mosquito-net use does not show a clear association with age. Children age 5-14 are the only group of orphans who are systematically less likely than non-orphans to be placed under a mosquito net. In Cameroon and Cote d'Ivoire the youngest orphans (age 0-4) are even more likely than non-orphans to be placed under a mosquito net, and the same is true for orphans age 15-17 in Cameroon, Cote d'Ivoire, and Zimbabwe.

Male orphans, orphans living in urban areas, and orphans in wealthier households are more likely to be disadvantaged in the use of mosquito nets. Male orphans are more disadvantaged than male non-orphans in all five countries, whereas in Zimbabwe and Cote d'Ivoire female orphans are more likely than non-orphans to be placed under a mosquito net. In addition, in all countries female orphans are as or more likely than male orphans to be placed under a mosquito net.

Orphans are more vulnerable than non-orphans in mosquito-net use, regardless of place of residence, although orphans in urban areas are more likely than those living in rural areas to be placed under a mosquito net.

There is a clear association between mosquito net use and socioeconomic status: in all countries except Malawi, orphans living in the poorest households are always less likely than orphans living in the wealthiest households to be placed under a mosquito net. Nonetheless, at all levels of household wealth orphans tend to be more disadvantaged than non-orphans in use of mosquito nets. Orphans in the wealthiest households are more disadvantaged compared to non-orphans than is the case among orphans in the poorest households.

9.3 Birth Registration

Children without proof of birth lack the essential protection that stems from this legal form of identity, and thus may be especially vulnerable to exploitation and abuse. In some countries, children without a birth certificate cannot receive vaccinations or enroll in school; as adults, they cannot get married, open a bank account, have a passport, or vote. For orphans, proof of lineage is also critical in order to inherit the property of deceased parents (UNICEF 2005).

Given the importance of birth registration, some of the most recent DHS/AIS surveys collected information on it in the household interview, where respondents were asked, for every child under age five residing in the household, if he/she had a birth certificate. If the child did not have a birth certificate, an additional question was posed to ascertain if the child's birth had ever been registered with the municipal or local authorities. Table 24 shows that, in the two countries with available data included in the present analysis, Cote d'Ivoire and Zimbabwe, the total proportion of orphaned children whose births were not registered is 42 and 19 percent, respectively. In the same households, the corresponding proportion of non-orphans whose births were not registered is 36 and 22 percent, respectively. Controlling for unobserved household characteristics, it thus seems that in Cote d'Ivoire orphans are slightly more likely than non-orphans to have their birth not registered, but that in Zimbabwe the reverse is true.

In either country, male orphans are more likely than female orphans to have their birth registered. In Cote d'Ivoire orphans living in urban areas are much more likely to have their birth registered compared to orphans living in rural areas, but in Zimbabwe it is the opposite. In both Cote d'Ivoire and Zimbabwe the proportion of orphans' births that are not registered declines with rising household wealth levels.

Table 24. In households[1] with both orphans and non-orphans, proportion of children age 0-4 whose birth was not registered with the civil authorities[2], by sex, urban/rural residence, and wealth

Country/characteristic	Orphans	Non-orphans
Cote d'Ivoire 2005		
Sex		
Male	47.75	36.18
Female	38.79	35.77
Residence		
Urban	22.75	14.85
Rural	60.53	49.99
Wealth		
Lowest	76.91	61.21
Second	56.87	58.72
Middle	34.02	39.93
Fourth	40.34	31.29
Highest	0.00	3.94
Total	42.34	35.97
Number	42	613
Zimbabwe 2005/06		
Sex		
Male	22.59	23.46
Female	15.36	20.28
Residence		
Urban	24.53	12.53
Rural	18.28	24.31
Wealth		
Lowest	25.77	29.64
Second	22.52	28.80
Middle	8.29	17.65
Fourth	18.09	16.15
Highest	14.74	9.51
Total	19.17	21.84
Number	263	1,200

[1] Households selected for HIV testing.

[2] Children who did not have a birth certificate at the time of the survey and whose birth had not been registered with the civil authorities.

9.4 Succession Planning

Succession planning helps ensure that children will receive appropriate care and support in the event of the death of a parent or primary caregiver. For the two countries with available data, Cote d'Ivoire and Zimbabwe, Table 25 looks at the extent to which women and men who were primary caregivers of at least one child under age 18 had identified a guardian in the event they were unable to provide care due to illness or death Overall, in Cote d'Ivoire 22 percent, of respondents age 15-49, and in Zimbabwe 42 percent, said that they were a primary caregiver for at least one child under the age of 18. Among these primary caregivers, approximately 20 percent in either country had made succession arrangements for care of a child. There is little difference by age and sex in the proportions of caregivers who had made succession arrangements. In Zimbabwe urban or wealthier caregivers are more likely than those in rural areas to have a succession plan. In Cote d'Ivoire there is little difference by place of residence, and there is a U-shaped association with household wealth.

Table 25. Among women and men age 15-49 who were primary caregivers of children under age 18, percentage who have made arrangements for someone else to care for the children in the event of their own inability to do so due to illness or death, by age group, sex, urban/rural residence, and wealth

Country/ characteristic	Percentage of women and men who are primary caregivers of children <18	Number of women and men 15-49	Percentage of caregivers of children <18 who have made succession arrangements	Number of primary caregivers of children <18
Cote d'Ivoire 2005				
Age				
15-19	2.9	2,130	23.2	61
20-29	16.2	3,785	20.7	612
30-39	37.5	235	19.3	875
40-49	43.6	1,437	19.8	626
Sex				
Male	32.3	4,503	19.0	1,455
Female	13.9	5,183	22.0	719
Residence				
Urban	21.3	4,569	19.0	973
Rural	23.5	5,117	20.8	1,201
Wealth				
Lowest	24.9	1,640	21.5	409
Second	23.7	1,795	18.4	426
Middle	22.8	1,867	14.7	425
Fourth	22.8	2,043	19.9	466
Highest	19.1	2,342	25.0	448
Total	22.4	9,686	20.0	2,174
Zimbabwe 2005/06				
Age				
15-19	6.7	4,051	22.3	272
20-29	42.2	5,959	21.8	2,516
30-39	66.6	3,595	21.4	2,393
40-49	68.3	2,166	21.0	1,479
Sex				
Male	37.3	6,863	21.5	2,561
Female	46.0	8,907	21.5	4,100
Residence				
Urban	44.0	6,270	27.0	2,762
Rural	41.0	9,500	17.7	3,899
Wealth				
Lowest	44.1	2,594	14.9	1,145
Second	43.9	2,636	15.8	1,158
Middle	36.0	2,740	20.6	987
Fourth	44.5	3,897	22.7	1,734
Highest	42.0	3,903	29.6	1,637
Total	42.2	15,770	21.5	6,661

9.5 Stigma and Discrimination

OVC may be subject to stigma and discrimination due to their association with a person living with HIV or someone who has died of AIDS (UNICEF and UNAIDS 2006). In turn, stigma and discrimination related to HIV/AIDS can negatively affect a child's social environment and relationships and damage self-esteem (UNICEF, UNAIDS and USAID 2004).

To evaluate whether OVC are at a greater risk than non-OVC of being stigmatized or discriminated against in their own households, in Table 26 we calculate the proportion of children age 0-17 living in households with accepting attitudes toward people with HIV (PLHIV)[18]. We find that, in five of the eight countries considered, OVC are more likely than non-OVC to live in households with accepting attitudes toward PLHIV. Yet this finding is highly likely to be the result of self-selection of OVC into accepting households, and should thus be taken with caution. This would especially be the case if, as the literature suggests, AIDS orphans are living with relatives after the death of their parents.

[18] Respondents with accepting attitudes toward people living with HIV are those who: 1) are willing to care for a family member with HIV in their home; and 2) would buy fresh vegetables from a shopkeeper who has HIV; and 3) say that a female teacher with HIV and is not sick should be allowed to continue teaching; and 4) would not want to keep secret that a family member got infected with HIV.

Table 26. Proportion of children age 0-17 living in households with accepting attitudes toward people with HIV[1], by OVC categories

Country	Orphans	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children orphaned or living with a chronically ill parent	All OVC	Children living with both parents who are not HIV-infected	All children	Number
Cameroon[2] 2004	10.90	13.32	13.99	11.70	12.51	10.89	11.12	11,451
Cote d'Ivoire 2005	15.05	17.55	13.98	15.79	15.44	12.60	13.58	10,134
Kenya[2, 3, 4] 2003	22.87	37.18	n/a	n/a	30.27	34.67	32.19	7,286
Lesotho[2, 3] 2004/05	21.45	19.18	n/a	n/a	19.35	18.81	19.71	5,950
Malawi[2] 2004/05	29.72	35.75	25.82	27.97	29.75	31.14	31.77	9,038
Tanzania[5] 2003/04	31.83	36.88	23.69	29.00	31.41	31.57	32.00	15,688
Uganda 2004/05	26.15	33.28	28.37	26.68	28.13	27.71	27.03	27,156
Zimbabwe 2005/06	15.60	14.54	15.00	15.60	14.44	9.96	13.33	17,640

n/a: Not available.

Note: The analysis is limited to households where at least one adult was interviewed; if more than one adult was interviewed, the first adult listed in the household roster was chosen to represent the household. Accepting attitudes toward people living with HIV are defined only for respondents who have ever heard of HIV or AIDS.

[1] Respondents with accepting attitudes toward people living with HIV are those who: 1) are willing to care for a family member with HIV in their home; *and* 2) would buy fresh vegetables from a shopkeeper who has HIV; and 3) say that a female teacher with HIV and is not sick should be allowed to continue teaching; *and* 4) would not want to keep secret that a family member got infected with HIV.

[2] No information on recent adult deaths due to chronic illness in the household.

[3] No information on chronically ill adults in the household.

[4] Data only available for children age 0-14 years.

[5] Information on recent deaths due to chronic illness is collected for all persons under age 60.

10

Vulnerabilities of Adolescent OVC

In this chapter we compare OVC and non-OVC age 15-17 by using selected indicators of schooling, work status, sexual behavior, and sexual exploitation. These findings help deepen understanding of the vulnerabilities of adolescent OVC, about which little is known.

10.1 Schooling and Employment

For households with both orphans and non-orphans, Table 27 shows a few interesting patterns concerning schooling and employment of orphaned adolescents.

In all countries considered, orphaned and OVC adolescents, both male and female, are less likely to be in school than non-OVC (Figure 3b). The difference between the proportion of orphans and non-orphans age 15-17 in school varies from 5 percentage points in Zimbabwe to 15-16 percentage points in Cote d'Ivoire and Lesotho.

Also, in all countries considered, orphaned male and female adolescents who are not in school are much more likely not to be working than non-orphans who are not in school. In all countries, male adolescent orphans are particularly more likely than non-orphans to be not in school and not working, except in Cameroon where the orphan/non-orphan ratio is greater for female adolescents (Figure 5). The difference between the proportion of orphans and non-orphans age 15-17 not in school and not working varies between 3 percentage points in Zimbabwe and 22 percentage points in Cote d'Ivoire (Table 27).

However, orphans are not systematically more likely than non-orphans to be working when they are not in school. In the countries where the proportion of orphans not in school who are working is higher than the proportion of non-orphan (i.e. all countries considered but Cote d'Ivoire and Malawi), the magnitude of the difference tends to be quite small: less than 1 percentage point in Cameroon and Tanzania, and between 2 and 3 percentage points in Lesotho, Uganda, and Zimbabwe. In fact, in Cote d'Ivoire and Malawi (where orphans not in school are less likely to work than non orphans), the magnitude of the difference is larger, at 2 percentage points in Malawi and 6 percentage points in Cote d'Ivoire.

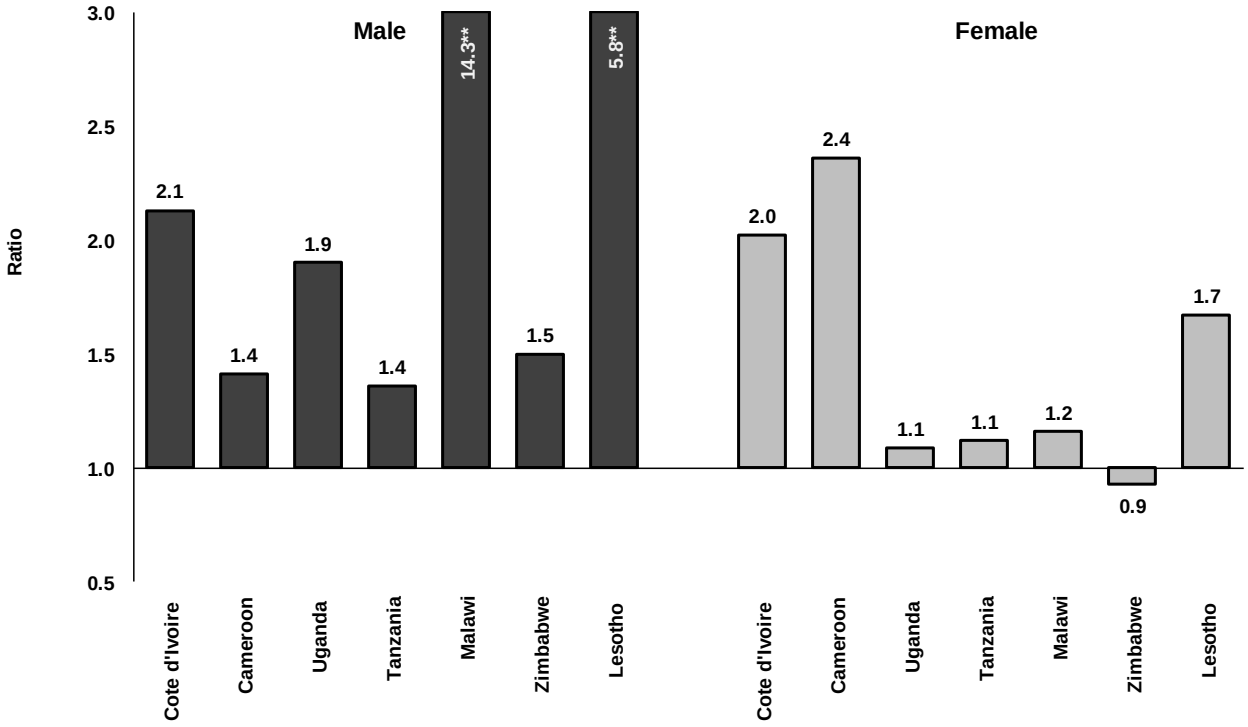
To conclude, considering households with both orphans and non-orphans, to account for unobserved household characteristics other than orphan status, we do not find any evidence than orphans tend to be more exploited for their work, but we do find consistent evidence that orphans are much more likely than non-orphans to be disadvantaged in schooling.

Table 27. In households[1] with both orphans and non-orphans, proportion of children age 15-17 attending school or working during the previous 12 months, by sex

	Cameroon 2004		Cote d'Ivoire 2005		Lesotho 2004/05		Malawi 2004/05		Tanzania 2003/04		Uganda 2004/05		Zimbabwe 2005/06	
Characteristic	**Orph-ans**	**Non-orph-ans**	**Orph-ans**	**Non-orph-ans**	**Orph-ans**	**Non-orph-ans**	**Orph-ans**	**Non-orph-ans**	**Orph-ans**	**Non-orph-ans**	**Orph-ans**	**Non-orph-ans**	**Orph-ans**	**Non-orph-ans**
Boys														
In school	70.05	77.12	55.43	75.30	63.06	77.72	69.69	91.62	50.70	59.08	76.79	86.90	59.33	65.56
Not in school														
Working	7.68	7.13	5.65	6.40	14.35	18.39	6.52	6.72	2.66	6.53	2.42	2.18	18.12	19.37
Not working	22.28	15.75	38.91	18.31	22.59	3.89	23.79	1.66	46.64	34.39	20.79	10.93	22.55	15.08
Number	81	70	69	62	86	47	47	39	115	82	236	149	212	127
Girls														
In school	50.96	66.83	41.20	54.03	62.69	77.11	60.97	59.47	33.87	42.30	62.90	72.67	55.05	59.31
Not in school														
Working	24.13	22.63	14.55	24.08	22.87	14.23	16.56	21.21	24.74	20.83	18.85	10.63	31.88	26.68
Not working	24.91	10.54	44.25	21.89	14.44	8.66	22.47	19.32	41.39	36.88	18.25	16.70	13.07	14.01
Number	84	78	121	88	91	49	71	44	131	96	221	209	227	170
All children 15-17														
In school	60.36	71.72	46.36	62.79	62.87	77.41	64.46	74.64	41.73	50.03	70.07	78.60	57.12	61.99
Not in school														
Working	16.03	15.26	11.32	16.80	18.74	16.27	12.55	14.37	14.43	14.24	10.36	7.11	25.24	23.54
Not working	23.62	13.02	42.32	20.42	18.39	6.32	23.00	10.99	43.84	35.73	19.56	14.29	17.65	14.47
Number	165	148	190	150	177	95	118	84	246	179	457	359	439	297

[1] Households selected for HIV testing.

Figure 5. Adolescents (age 15-17) not in school and not working: Ratio of orphans to non-orphans*



* In households with both orphans and non-orphans
** Not to scale

10.2 Sexual Debut and Primary Abstinence

Adolescent OVC may be at elevated risk of early sexual activity because they are more likely than other adolescents to lack adult guidance. The evidence on whether this is the case is mixed. Results on primary abstinence (Table 28 and Figures 6a and 6b) show that in all countries considered adolescent orphans and OVC (both male and female) are systematically more likely to have already had sex than non-OVC. In countries with relatively lower levels of HIV prevalence, orphans and OVC in general are particularly less likely to practice abstinence than non-OVC, with the exception of Lesotho (Figures 6a and 6b). However, Table 29 shows that only in Cameroon and Cote d'Ivoire are OVC age 15-17 more likely than non-OVC to have initiated sexual activity before age 15, whereas in the other countries the opposite is true.

These aggregate results mask important differences by gender: girls are more vulnerable than boys not only in Cameroon and Cote d'Ivoire but also in Malawi and Uganda. Gender differences are also evident in relation to the vulnerability of specific groups of OVC. Adolescent boys, for instance, seem to be most vulnerable to an early sexual debut if living in households with an HIV-infected adult, or in households affected by chronic illness. On the contrary, adolescent girls are most vulnerable when they are orphans.

Table 28. Among adolescents age 15-17, proportion who never had sex (among those who never married), by OVC categories and sex

Country	Orphans	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children orphaned or living with a chronically ill parent	All OVC	Children living with both parents who are not HIV-infected	All children	Number
Boys								
Cameroon[1] 2004	72.53	73.52	63.69	71.18	68.44	80.82	72.72	726
Cote d'Ivoire 2005	64.87	70.65	72.14	67.98	63.33	74.34	63.05	525
Lesotho[1, 2] 2004/05	62.49	70.06	n/a	n/a	66.42	68.93	66.14	469
Malawi[1] 2004/05	60.56	61.75	60.90	59.15	60.81	62.51	60.36	364
Tanzania[3] 2003/04	70.54	69.19	78.84	72.79	69.72	74.25	72.90	805
Uganda 2004/05	65.87	61.12	66.91	67.15	66.89	70.95	68.59	1,286
Zimbabwe 2005/06	83.64	84.73	83.75	83.64	82.98	84.16	83.04	1,164
Girls								
Cameroon[1] 2004	69.66	67.84	66.21	74.18	67.10	79.47	74.41	629
Cote d'Ivoire 2005	55.67	44.89	43.53	56.50	57.39	67.90	57.40	591
Lesotho[1, 2] 2004/05	74.94	74.25	n/a	n/a	74.47	80.75	76.99	485
Malawi[1] 2004/05	81.57	82.71	90.28	84.57	82.35	83.72	81.39	323
Tanzania[3] 2003/04	76.98	75.14	74.22	75.98	74.95	79.12	76.61	775
Uganda 2004/05	75.66	70.11	74.61	75.03	73.90	86.38	77.25	1,244
Zimbabwe 2005/06	91.71	91.50	94.37	91.71	92.45	96.75	93.11	1,077
All children 15-17								
Cameroon[1] 2004	71.23	70.47	64.95	72.59	67.81	80.15	73.51	1,355
Cote d'Ivoire 2005	59.50	55.07	55.86	61.77	59.96	71.24	60.06	1,116
Lesotho[1, 2] 2004/05	68.39	72.24	n/a	n/a	70.37	75.02	71.66	954
Malawi[1] 2004/05	71.20	72.95	78.47	72.57	71.96	72.51	70.25	686
Tanzania[3] 2003/04	73.68	71.96	76.54	74.36	72.25	76.50	74.72	1,580
Uganda 2004/05	70.26	65.90	70.57	70.68	70.29	78.25	72.85	2,531
Zimbabwe 2005/06	87.44	88.02	87.99	87.44	87.45	89.80	87.88	2,241

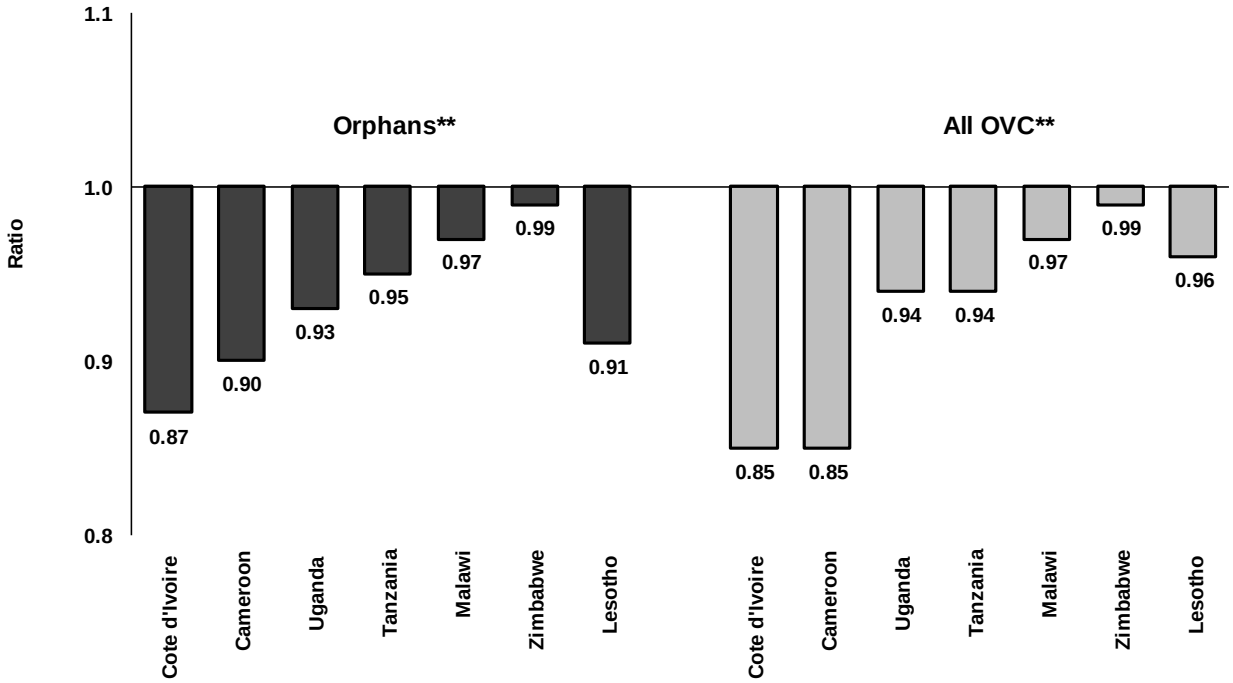
n/a: Not available.
[1] No information on recent adult deaths due to chronic illness.
[2] No information on chronically ill adults in the household.
[3] Information on recent deaths due to chronic illness is collected for all persons under age 60.

Table 29. Among adolescents age 15-17, proportion who had their first sex before age 15 (among those who ever had sex), by OVC categories and sex

Country	Orphans	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children orphaned or living with a chronically ill parent	All OVC	Children living with both parents who are not HIV-infected	All children	Number
Boys								
Cameroon[1] 2004	40.92	38.40	48.87	41.57	45.37	36.73	41.80	231
Cote d'Ivoire 2005	54.65	56.94	33.80	54.51	48.46	39.10	42.42	202
Lesotho[1, 2] 2004/05	48.28	51.59	n/a	n/a	46.72	60.31	52.24	159
Malawi[1] 2004/05	48.38	49.95	28.32	45.15	43.20	48.68	45.10	147
Tanzania[3] 2003/04	30.38	29.10	55.75	33.36	35.50	51.98	40.84	221
Uganda 2004/05	52.75	59.33	42.27	53.60	53.95	57.19	54.52	418
Zimbabwe 2005/06	44.46	25.11	50.02	44.46	37.25	41.44	36.42	199
Girls								
Cameroon[1] 2004	53.19	38.62	55.62	51.02	45.09	34.82	44.46	320
Cote d'Ivoire 2005	46.30	43.26	34.23	46.56	42.94	33.82	42.42	334
Lesotho[1, 2] 2004/05	35.04	30.11	n/a	n/a	31.56	35.59	32.50	146
Malawi[1] 2004/05	29.42	71.38	49.05	31.72	39.89	37.86	37.90	136
Tanzania[3] 2003/04	34.25	31.90	19.24	33.78	30.69	38.45	33.88	303
Uganda 2004/05	48.45	40.23	31.21	43.38	36.33	26.81	34.20	403
Zimbabwe 2005/06	32.49	19.90	25.71	32.49	26.52	43.91	24.06	228
All children 15-17								
Cameroon[1] 2004	47.99	38.55	52.86	46.87	45.21	35.61	43.34	552
Cote d'Ivoire 2005	49.03	46.15	34.14	49.28	44.96	36.08	42.42	536
Lesotho[1, 2] 2004/05	42.48	39.94	n/a	n/a	39.39	49.94	42.79	304
Malawi[1] 2004/05	39.36	60.55	40.38	38.91	41.51	44.72	41.64	284
Tanzania[3] 2003/04	32.47	30.51	31.19	33.59	32.83	46.08	36.81	523
Uganda 2004/05	50.87	48.84	36.88	49.05	45.24	47.19	44.53	821
Zimbabwe 2005/06	38.02	22.13	39.09	38.02	31.49	42.05	29.81	427

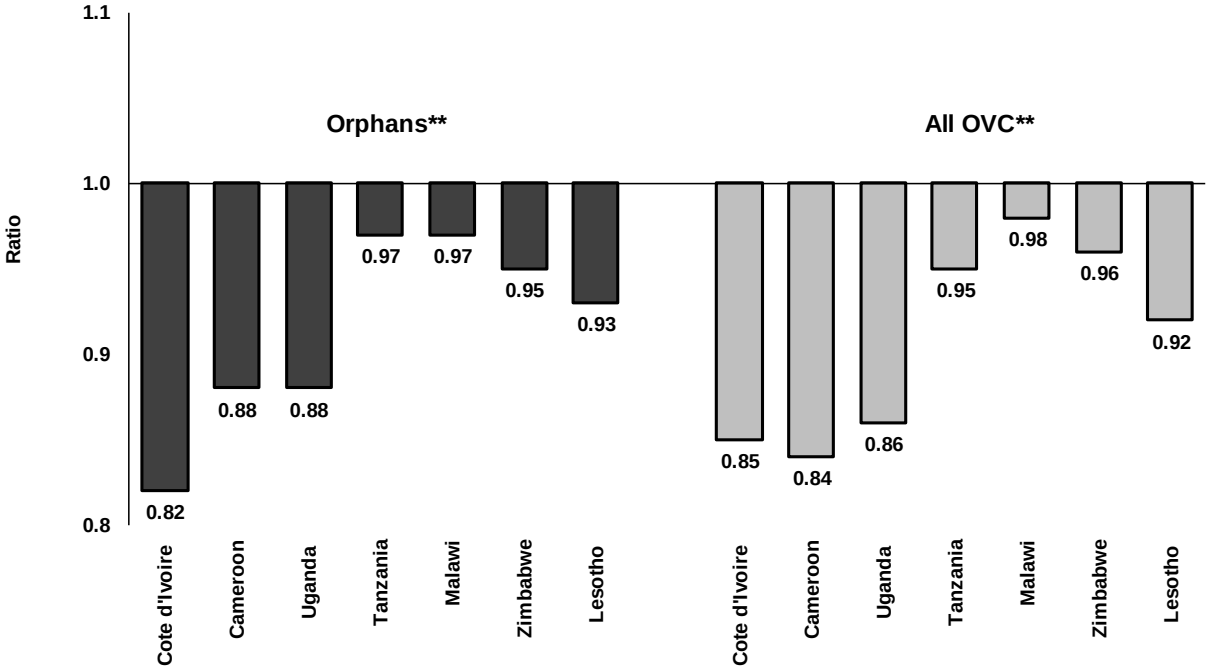
n/a: Not available.
[1] No information on recent adult deaths due to chronic illness.
[2] No information on chronically ill adults in the household.
[3] Information on recent deaths due to chronic illness is collected for all persons under age 60.

Figure 6a. Primary abstinence* ratios for adolescents (age 15-17): Males



* Never married youth who have never had sex
** Relative to children living with both parents who are not HIV-infected

Figure 6b. Primary abstinence* ratios for adolescents (age 15-17): Females



* Never married youth who have never had sex
** Relative to children living with both parents who are not HIV-infected

10.3 Condom Use

Adolescent OVC may also be prone to engage in risky sexual behaviors, lacking proper adult guidance. Yet our findings do not fully support this expectation (Table 30). Only in Cameroon and Malawi are adolescent male OVC substantially less likely to have used a condom at last sex than non-OVC (while the same is true for adolescent female OVC in Cameroon, Lesotho, Uganda, and Zimbabwe). In all other countries studied, adolescent OVC, whether male or female, are as or more likely to have used a condom compared with non-OVC. Adolescents living in households with an HIV-infected adult, or in households affected by chronic illness, seem the most vulnerable to high-risk sex.

Table 30. Among adolescents age 15-17, proportion who used a condom at last sex (among those who had sex in the past 12 months), by OVC categories and sex

Country	Orphans	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children orphaned or living with a chronically ill parent	All OVC	Children living with both parents who are not HIV-infected	All children	Number
Boys								
Cameroon[1] 2004	50.99	47.15	49.00	52.90	51.36	65.73	55.75	193
Cote d'Ivoire 2005	62.72	30.89	28.36	62.14	54.52	36.05	53.48	157
Lesotho[1, 2] 2004/05	46.55	45.98	n/a	n/a	44.72	45.84	41.70	122
Malawi[1] 2004/05	13.37	13.39	70.64	19.01	22.30	32.57	27.72	96
Tanzania[3] 2003/04	42.85	38.75	46.62	39.66	38.28	34.34	33.69	158
Uganda 2004/05	43.64	54.75	37.92	41.54	44.55	39.99	41.47	214
Zimbabwe 2005/06	51.99	42.08	44.27	51.99	42.46	26.63	41.15	129
Girls								
Cameroon[1] 2004	29.80	41.56	30.47	28.34	35.95	41.36	33.08	283
Cote d'Ivoire 2005	46.38	56.15	23.88	44.46	46.45	43.16	33.25	310
Lesotho[1, 2] 2004/05	19.12	33.35	n/a	n/a	24.94	38.93	28.87	109
Malawi[1] 2004/05	38.60	24.81	0.00	35.58	28.42	14.03	19.39	117
Tanzania[3] 2003/04	33.91	38.37	31.31	34.60	32.00	28.71	24.69	275
Uganda 2004/05	40.66	30.42	44.40	43.02	38.94	44.33	39.12	316
Zimbabwe 2005/06	21.03	19.27	25.92	21.03	17.72	34.95	14.84	198
All children 15-17								
Cameroon[1] 2004	38.54	43.36	37.88	38.55	42.65	51.38	42.28	476
Cote d'Ivoire 2005	51.09	50.48	24.78	49.67	49.10	40.41	40.07	467
Lesotho[1, 2] 2004/05	34.70	39.20	n/a	n/a	35.28	43.08	35.64	232
Malawi[1] 2004/05	28.59	19.85	24.25	28.78	25.96	25.64	23.14	213
Tanzania[3] 2003/04	37.33	38.55	35.01	36.48	34.46	31.67	27.98	433
Uganda 2004/05	41.92	39.23	41.42	42.41	41.22	41.71	40.07	530
Zimbabwe 2005/06	32.45	26.99	33.97	32.45	27.16	28.58	25.19	327

n/a: Not available.
[1] No information on recent adult deaths due to chronic illness.
[2] No information on chronically ill adults in the household.
[3] Information on recent deaths due to chronic illness is collected for all persons under age 60.

10.4 Age Mixing and Forced Sex

Results on age mixing and forced sex do not indicate a clear pattern (Table 31). Only in Cote d'Ivoire and Uganda are female adolescent OVC age 15-17 more likely than non-OVC to have had sex in the previous 12 months with a partner 10 years or older. Similarly, only in two of the four countries with available data (Cote d'Ivoire and Malawi) are female adolescent OVC more likely than non-OVC to have had forced sex.

Table 31. Among female adolescents age 15-17, proportion who had sex with a partner 10 or more years older (among never married who had sex in last 12 months), and proportion who had forced sex (either forced at first sex or in the last 12 months, among those who ever had sex), by orphanhood and other OVC categories

Country	Orphans	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children orphaned or living with a chronically ill parent	All OVC	Children living with both parents who are not HIV-infected	All children	Number
Age-mixing								
Cameroon[1] 2004	11.17	18.14	7.74	8.47	11.83	11.63	12.07	186
Cote d'Ivoire 2005	15.72	16.13	15.67	15.16	14.09	1.45	12.20	239
Lesotho[1, 2] 2004/05	4.07	0.00	n/a	n/a	2.50	6.40	7.23	78
Tanzania[3] 2003/04	3.63	8.06	11.61	4.73	6.65	10.23	8.90	174
Uganda 2004/05	9.28	8.82	5.29	7.95	10.96	7.04	9.75	210
Zimbabwe 2005/06	3.74	3.53	0.00	3.74	3.73	25.93	3.71	54
Forced sex								
Cote d'Ivoire 2005	12.49	8.71	12.47	15.38	14.69	11.10	12.46	334
Malawi* 2004/05	44.00	26.24	30.78	40.79	38.48	18.30	30.33	136
Uganda 2004/05	11.71	11.96	18.47	13.72	15.10	31.00	17.82	403
Zimbabwe 2005/06	21.62	12.51	26.26	21.62	17.19	28.68	24.35	228

n/a: Not available.
Note: The sample size in Malawi is too small to compute age-mixing indicators.
[1] No information on recent adult deaths due to chronic illness.
[2] No information on chronically ill adults in the household.
[3] Information on recent deaths due to chronic illness is collected for all persons under age 60.

11

External Care and Support for OVC

In countries where the OVC population has been increasing principally due to the AIDS epidemic, one of the important public policy challenges is to assist families to care for these children. To monitor how this challenge is being met, recent DHS/AIS surveys have begun to collect information on the extent to which free external care and support services are reaching OVC. Particularly, DHS/AIS surveys collect information on emotional, psychological, social and other material support received by households with OVC during the 3 months preceding the survey, as well as medical and school-related support received by the same households during the 12 months preceding the survey. On the basis of these data, we analyze how families and communities are recognizing and addressing the need to care for OVC in Cote d'Ivoire, Tanzania, Uganda, and Zimbabwe.

In order to collect information about care and support services for OVC, the DHS/AIS surveys first asked a series of questions in the household interview to identify households where OVC reside. To do so, each survey adopted a specific definition of OVC, which differs from the one we adopted in this report. The results we discuss in this chapter thus refer to these country-specific definitions of OVC.[19]

[19] For the purposes of the household interview, in the countries considered OVC are defined as follows. In *Cote d'Ivoire* and *Zimbabwe*, OVC are children age 0-17 who are either orphans, or living in a household where an adult age 18-59 is very sick, or living in a household where an adult age 18-59 died in the previous 12 months. In *Tanzania*, OVC are children age 0-17 who are either orphans or whose parents are chronically ill. In *Uganda*, OVC are children age 0-17 who are either orphans or living in a household where an adult age 18-59 died in the previous 12 months.

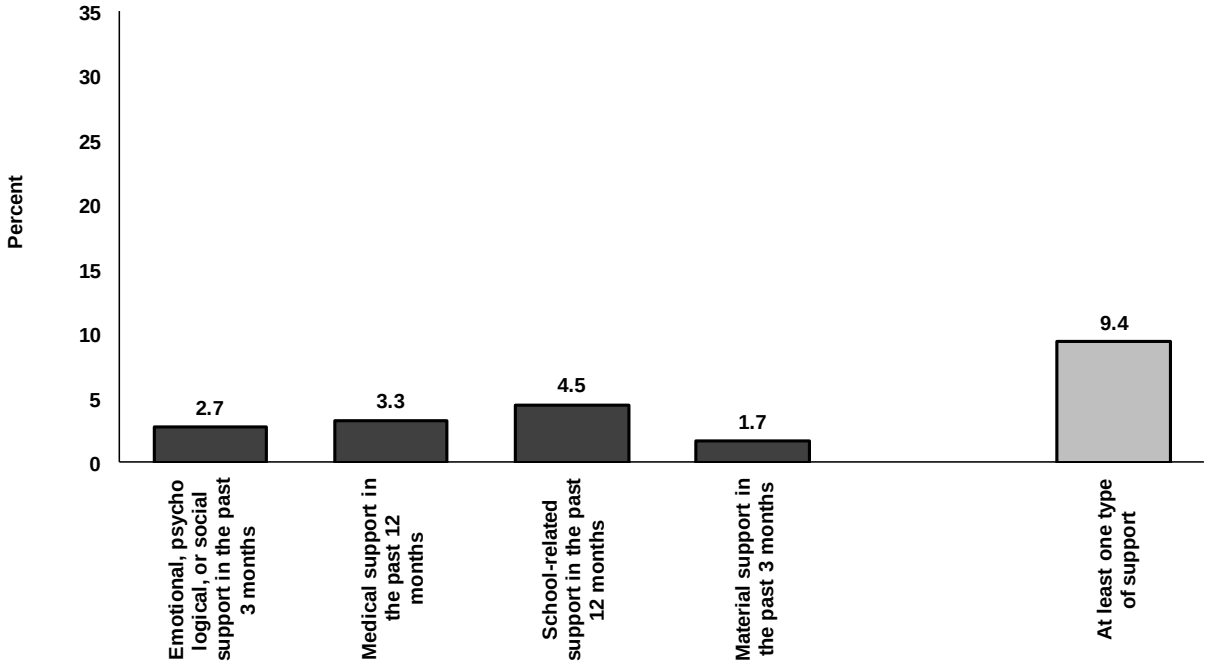
Table 32 shows that in all of the countries except Tanzania school-related support is the type of support households with OVC are most likely to receive, at 5 percent of OVC age 0-17 in Cote d'Ivoire, 14 percent in Uganda, and 16 percent in Zimbabwe. In Tanzania emotional, psychological or social support is the most important source of support, received by 7 percent of households with OVC. Yet in all countries, less than 1 percent of households with OVC got all four types of support, while between 69 percent (in Zimbabwe) and 91 percent (in Cote d'Ivoire) did not receive any type of support (Figures 7a-7d).

Table 32. Proportion of OVC whose households received care and support for the OVC[1], by type of support received

	Cote d'Ivoire 2005	Tanzania 2003/04	Uganda 2004/05	Zimbabwe 2005/06
Emotional/psychological support in the past 3 months	1.72	6.56 [2]	4.91	5.89
Social support in the past 3 months	1.02	n/a	0.87	1.89
Medical support in the past 12 months	3.28	4.63	10.86	6.50
School-related support in the past 12 months	4.51	5.71	14.14	16.11
Material support in the past 3 months	1.68	5.08	3.26	12.00
At least one type of support	9.35	14.73	22.61	30.80
All types of support	0.11	0.91	0.14	0.01
Number	3,564	2,399	4,954	6,488

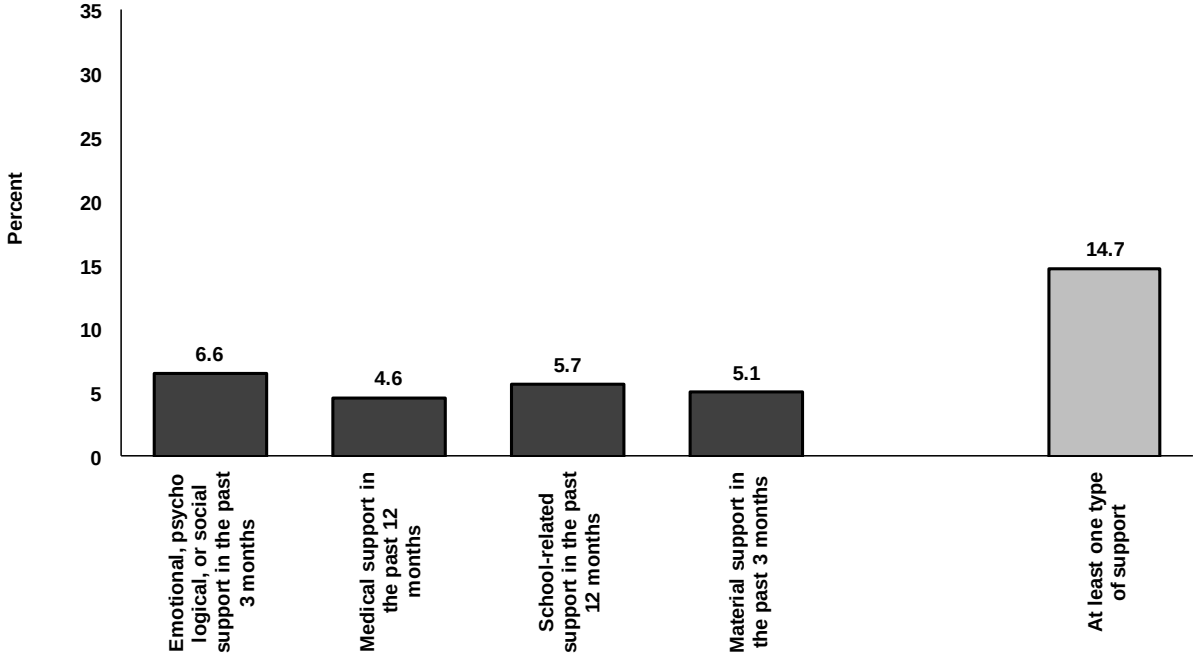
n/a: Not available.
[1] OVC are defined as in the "Care and support for OVC" module in each DHS/AIS survey, as follows. *Cote d'Ivoire, Zimbabwe*: children age 0-17 who are either orphans, or living in a household where an adult age 18-59 was chronically ill in the past 12 months, or living in a household where an adult age 18-59 died in the past 12 months. *Tanzania*: children age 0-17 who are either orphans or whose one or both parents were chronically ill in the past year. *Uganda*: children age 0-17 who are either orphans or living in a household where an adult age 18-59 died in the previous 12 months.
[2] Including social support in the past 3 months.

Figure 7a. Percent of households with OVC* (age 0-17) receiving care and support: Cote d'Ivoire 2005



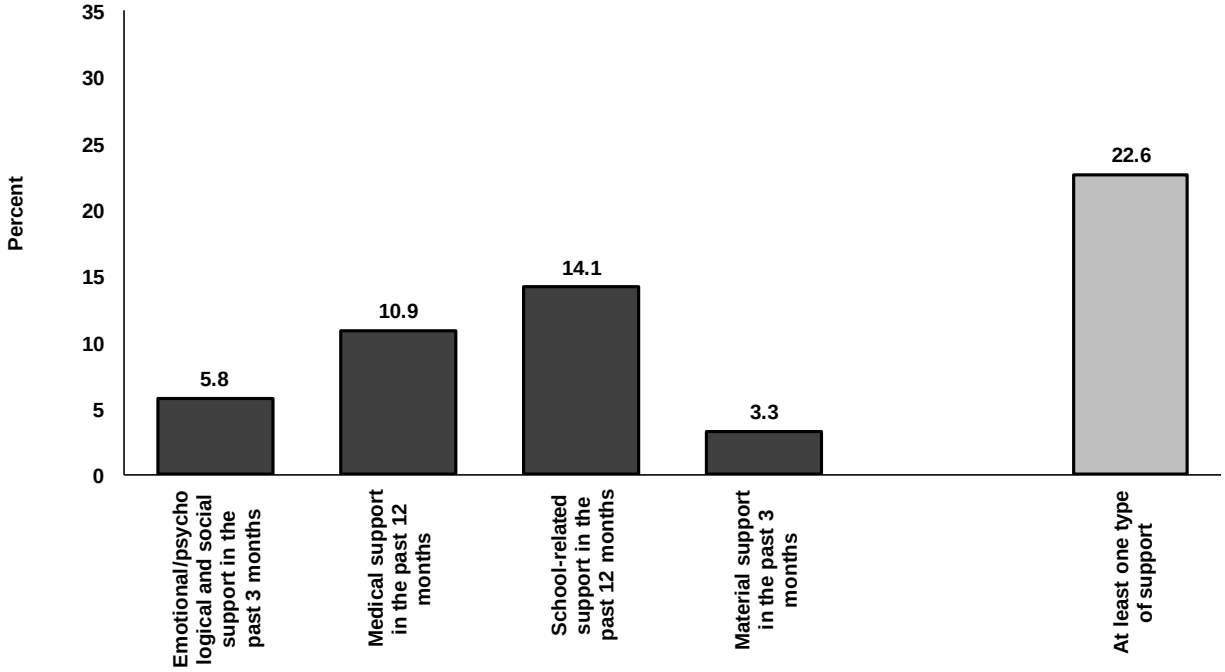
* OVC defined as children age 0-17 who are either orphans, or living in a household where an adult age 18-59 was chronically ill in the past 12 months, or living in a household where an adult age 18-59 died in the past 12 months

Figure 7b. Percent of households with OVC* (age 0-17) receiving care and support: Tanzania 2003/04



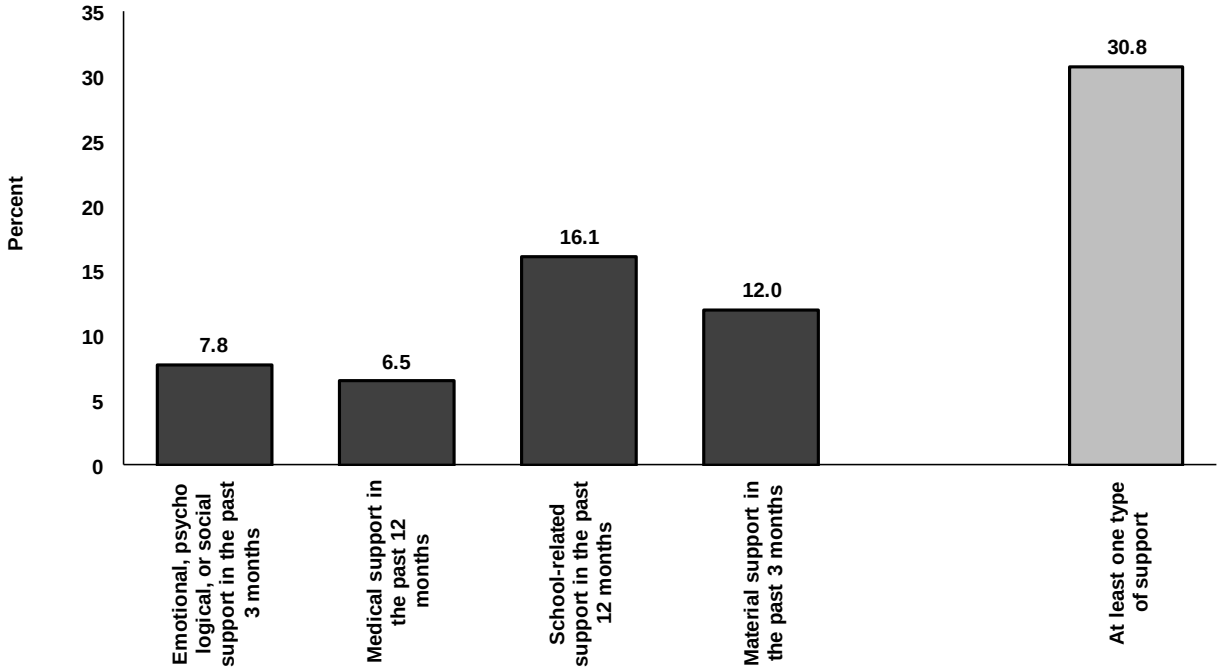
* OVC defined as children age 0-17 who are either orphans or whose one or both parents were chronically ill in the past 12 months

Figure 7c. Percent of households with OVC* (age 0-17) receiving care and support: Uganda 2004/05



* OVC defined as children age 0-17 who are either orphans or living in a household where an adult age 18-59 died in the past12 months

Figure 7d. Percent of households with OVC* (age 0-17) receiving care and support: Zimbabwe 2005/06



* OVC defined as children age 0-17 who are either orphans, or living in a household where an adult age 18-59 was chronically ill in the past 12 months, or living in a household where an adult age 18-59 died in the past 12 months

In all four countries, among OVC whose household received at least one type of support, the percentage receiving some form of assistance increases with the age of child (although it is slightly higher for children age 5-14 than for children age 15-17, which likely reflects in part the fact that school-related assistance was the most common form of care and support) (Table 33). In all countries but Tanzania, rural OVC are more likely than urban OVC to live in a household that received at least one form of support. There is no clear difference among OVC support by the household's level of wealth.

Table 33. Proportion of OVC[1] whose households received at least one type of support, by age, sex, urban/rural residence, and wealth

Characteristic	Cote d'Ivoire 2005	Tanzania 2003/04	Uganda 2004/05	Zimbabwe 2005/06
Age				
0-4	6.61	16.20	12.44	17.83
5-14	10.92	14.45	24.61	33.80
15-17	8.31	14.65	22.68	30.07
Sex				
Male	9.48	15.08	23.33	30.20
Female	9.22	14.36	21.96	31.36
Residence				
Urban	9.30	22.16	13.90	23.21
Rural	9.39	12.17	23.90	32.72
Wealth				
Lowest	15.35	11.47	27.38	29.04
Second	10.88	9.78	19.70	34.64
Middle	7.67	15.76	26.30	34.12
Fourth	8.80	17.03	23.25	28.90
Highest	6.13	18.89	17.19	21.65
Total	9.35	14.73	22.61	30.80
Number	3,564	2,399	4,954	6,488

[1] OVC are defined as in the "Care and support for OVC" module in each DHS/AIS survey, as follows. Cote d'Ivoire, Zimbabwe: children age 0-17 who are either orphans, or living in a household where an adult age 18-59 was chronically ill in the past 12 months, or living in a household where an adult age 18-59 died in the past 12 months. Tanzania: children age 0-17 who are either orphans or whose one or both parents were chronically ill in the past year. Uganda: children age 0-17 who are either orphans or living in a household where an adult age 18-59 died in the previous 12 months.

12

Summary and Conclusions

This study provides estimates of the size and distribution of the OVC population in eight sub-Saharan African countries with high HIV prevalence, and assesses their situation over several dimensions including schooling and health care.

Our first main finding is that substantial proportions of children in these countries are OVC, and that the prevalence of OVC varies widely across countries and across different population sub-groups. Notably, countries and sub-regions with a higher prevalence of HIV have a higher prevalence of OVC as well.

Concerning the dimensions of OVC's well-being examined in this report, we find, consistently with other studies (e.g. Case et al. 2004; Monasch and Boerma 2004; Mishra et al. 2007), that OVC are disadvantaged in schooling compared to non-OVC. We also find that orphans are disadvantaged in the use of mosquito nets and thus more vulnerable than non-orphans to morbidity and mortality associated with malaria. However, we find little evidence that OVC are disadvantaged in health, nutritional status, and health care compared to non-OVC. We also do not find a clear disadvantage of OVC in having their material needs met, although controlling for unobserved household characteristics by focusing on households with both orphans and non-orphans, the study finds that orphans seem disadvantaged compared to non-orphans in this respect.

A major contribution of this study is to analyze in detail the specific vulnerabilities of adolescent OVC. In this respect, we find that the main vulnerability of orphaned adolescents concerns their schooling: orphaned adolescents are less likely to be in school than non-orphaned adolescents, although they do not seem to be more exploited for their work than non-orphans. In all countries considered and regardless of sex, orphaned adolescents who are not in school are much less likely to be working than non-orphaned adolescents who are not in school. Adolescent OVC are also less likely to practice sexual abstinence than non-OVC, but they are not necessarily more prone than non-OVC to other risky sexual behaviors or vulnerable to sexual exploitation.

Finally, this study systematically evaluates the care and support available to OVC and their families from sources outside the household. In the countries considered, we find that not only few primary caregivers of children make arrangements for succession planning, but also that most OVC and their families are not receiving the necessary care and support.

Several measurement constraints must be kept in mind when considering the findings of the present study. First, our results may be biased insofar as our data are limited to surviving children. Yet, it is well-established that orphans tend to be at an increased risk of contracting HIV compared to non-orphans and therefore are more likely to die from AIDS. Fostered children, children of single-mothers, and children of HIV-infected mothers also tend to have higher mortality rates than children of non-HIV-infected parents.

Another issue that may bias our analyses is that, for orphaned and fostered children who have changed household, we have information only on the household where they were residing at the time of the survey. While school enrollment, treatment-seeking for recent illness, and wasting are more likely to be associated with the characteristics of the current household, more chronic conditions such as stunting and

immunization coverage (which mostly occurs in the first year of life when the child's biological mother and father are more likely to have been alive and living with the child) are more likely to be associated with the characteristics of the previous household. Similarly, the cross-sectional nature of the data used in our study does not allow an examination of transitional effects. For example, a parent's getting sick with HIV or some other serious illness may lead to job loss and considerable expenses for treatment and care, which in turn may affect children's schooling, health care, and nutrition even before they become orphans. The non-orphaned groups in our analysis include such children in transition, a fact that may have diluted further some of our estimated effects.

Our analysis excludes street children and children living in institutions. Our estimated effects of orphanhood and parental HIV status may thus be underestimated to the extent that these children are more likely to be orphans or have HIV-infected parents, and thus more likely to be disadvantaged in schooling, nutrition, and health care. However, the proportion of these children tends to be small. Recent pilot surveys of children in Blantyre, Malawi and Kingston, Jamaica that included household children, street children, and children in institutions, found that only 0.2 percent of children in Malawi and 0.5 percent of children in Jamaica were street children, or lived in institutions. As a consequence, although street children and children in institutions were much more disadvantaged than all other children on a range of health and economic indicators, their inclusion made virtually no difference when calculating indicators derived from children in households alone (UNICEF 2006). Therefore, the exclusion of street children and children in institutions in our analysis is unlikely to alter the findings of this study.

More in general, our results may also be biased due to survey non-response. On average, 20 percent of women and 25 percent of men eligible for HIV-testing in the eight countries considered refused to be tested, or were absent and could thus not be tested. There is evidence that non-respondents are somewhat more likely to be HIV-infected than respondents who were tested (Mishra et al. 2008). As a result, although the effect of non-response on the overall HIV prevalence in the population tends to be small, children of HIV-positive parents are likely to be underrepresented in our samples. In addition, persons who tested positive for HIV in the survey may not know that they are infected with HIV (either because they were not previously tested or because they were tested but did not obtain the results). It is likely that the relationship between HIV-positive parents and children's education and health status would have been stronger if only those children whose parents knew that they were HIV positive could be identified and compared with children whose parents were not HIV positive.

Finally, concerning the indicators used for the purposes of the present analysis, two main limitations should be kept in mind. First, there are differences across countries in how certain indicators are defined. Notably, as it was illustrated earlier, there are variations in how OVC were identified by the care and support module of DHS/AIS surveys. The results in Chapter 11 (External Care and support for OVC) thus refer to these country-specific definitions of OVC, which are different from the ones used in the rest of the report. Second, for certain indicators such as those concerning vaccinations and health care seeking, the number of children considered may be too small to obtain fully reliable estimates and to allow meaning comparisons across countries.

Despite these limitations and the lack of clear relationships on at least a few of the indicators considered for OVC vis-à-vis non-OVC, our findings highlight the heavy burden and the multi-dimensional nature of the OVC problem in sub-Saharan Africa. While considerable attention is already being given to the needs of orphaned children, the findings of this study reinforce the need to strengthen child welfare programs in sub-Saharan Africa. Notably in urgent need are children made vulnerable by parental HIV infection or chronic household illness. Our finding regarding the disadvantage of orphans in mosquito-net use has implications for malaria control programs in the region. Our findings regarding vulnerabilities of adolescent OVC suggest the need to strengthen programs to promote continued schooling and sexual abstinence among youth. Finally, the levels of external care and support for OVC remain unacceptably low, needing vigorous efforts to reach a large and growing population of OVC and their families in the region.

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Appendix

Appendix A. Proportion of children age 0-17 in different OVC categories, and proportion of HIV-infected adults (age 15-49), by country and geographic region

Country	Orphans	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children orphaned or living with a chronically ill parent	All OVC	HIV prevalence in adults 15-49[5]
Cameroon[1] 2004						
Adamaoua	8.10	12.61	6.46	11.61	34.49	6.9
Centre	11.44	11.85	29.89	26.47	60.51	4.7
Douala	11.07	11.20	8.91	15.65	38.30	4.5
Est	9.84	16.17	20.80	22.62	53.74	8.6
Extreme-Nord	8.05	3.65	7.64	11.12	25.07	2.0
Littoral	11.81	10.90	23.96	24.99	51.66	5.6
Nord	7.38	5.76	14.53	15.13	32.79	1.7
Nord-Ouest	12.11	13.04	11.58	18.17	39.50	8.7
Ouest	8.67	7.78	10.68	12.64	34.22	4.7
Sud	11.90	14.06	28.73	22.25	54.61	6.5
Sud-Ouest	10.97	11.07	13.41	16.01	42.82	8.0
Yaounde	10.57	16.88	17.14	15.59	38.66	8.3
Total	9.83	9.90	14.34	16.49	38.95	5.5
Cote d'Ivoire 2005						
Centre	11.20	10.06	7.72	12.69	46.55	4.8
Centre-Est	6.14	5.70	2.54	9.25	24.62	5.8
Centre-Nord	5.13	8.01	11.14	8.58	25.28	3.6
Centre-Ouest	11.03	5.21	7.95	14.21	36.26	3.7
Nord	2.13	12.19	2.33	3.13	19.91	3.2
Nord-Est	8.18	5.61	5.73	9.60	30.15	3.3
Nord-Ouest	2.31	3.85	4.69	4.96	12.82	1.7
Ouest	4.74	5.61	6.94	6.78	19.53	3.5
Sud	8.87	10.80	9.71	14.34	43.28	5.5
Sud-Ouest	9.41	6.26	8.70	13.24	28.87	4.2
Ville d'Abidjan	8.84	12.12	9.97	13.23	37.39	6.1
Total	8.14	8.77	8.11	11.57	34.20	4.7
Kenya[1, 2, 3] 2003						
Nairobi	8.67	11.98	n/a	n/a	24.90	9.9
Central	12.43	7.52	n/a	n/a	22.90	4.9
Coast	8.32	7.93	n/a	n/a	24.30	5.8
Eastern	8.28	7.53	n/a	n/a	18.09	4.0
Nyanza	17.29	23.98	n/a	n/a	42.76	15.1
Rift Valley	11.34	6.43	n/a	n/a	21.17	5.3
Western	7.95	6.22	n/a	n/a	19.99	4.9
North Eastern	9.92	nc	n/a	n/a	17.36	0.0
Total	11.04	9.64	n/a	n/a	24.41	6.7

(Cont'd)

Appendix A – *Continued*

Country	Orphans	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children orphaned or living with a chronically ill parent	All OVC	HIV prevalence in adults 15-49[5]
Lesotho[1, 2] 2004/05						
Lowlands	27.77	27.00	n/a	n/a	58.35	25.0
Foothills	26.02	25.52	n/a	n/a	53.91	21.2
Mountains	27.60	25.85	n/a	n/a	59.38	21.1
Senqu River Valley	29.34	31.26	n/a	n/a	61.06	22.2
Total	27.60	26.79	n/a	n/a	58.22	23.5
Malawi[1] 2004/05						
Northern	18.88	12.81	8.79	23.39	43.95	8.1
Central	13.71	5.71	8.15	19.02	36.83	6.5
Southern	14.08	15.90	7.14	18.50	40.44	17.6
Total	14.53	11.18	7.78	19.34	39.35	11.8
Tanzania[4] 2003/04						
Western	8.16	9.52	9.96	12.20	35.99	5.6
Northern	10.41	7.28	6.59	12.78	28.66	5.4
Central	8.07	5.91	6.93	10.78	25.76	4.3
Southern highlands	15.66	17.21	9.42	19.17	43.36	12.0
Lake	11.25	8.29	9.85	16.18	35.37	5.4
Eastern	11.45	14.97	8.62	13.47	40.64	9.0
Southern	10.17	7.95	10.11	13.92	33.56	6.2
Total	10.80	10.32	8.87	14.23	35.25	7.0
Uganda 2004/05						
Central	16.27	13.19	9.64	20.03	48.20	8.5
Kampala	17.71	15.39	7.00	18.64	47.44	8.5
East Central	11.98	10.49	11.01	16.13	42.27	6.5
Eastern	9.24	6.49	6.72	12.49	30.29	5.3
Northeastern	14.00	6.21	8.18	18.45	34.60	3.5
North Central	19.77	12.20	22.62	28.37	51.48	8.2
West Nile	14.80	5.49	12.85	19.70	48.29	2.3
Western	12.88	10.25	7.14	14.79	34.19	6.9
Southwest	16.40	8.99	8.63	19.91	37.20	5.9
Total	14.59	9.88	10.66	18.71	41.61	6.4
Zimbabwe 2005/06						
Bulawayo	17.14	21.58	5.54	18.95	43.98	16.8
Harare	17.92	26.44	8.34	21.30	49.59	19.3
Manicaland	28.17	21.92	10.67	31.90	58.46	19.7
Mashonaland Central	24.67	25.29	8.68	27.88	58.81	18.5
Mashonaland East	27.61	23.25	6.51	28.80	56.66	18.0
Mashonaland West	25.02	22.52	11.10	29.02	58.11	19.1
Masvingo	27.34	22.82	10.83	30.90	57.70	15.1
Matabeleland North	21.30	25.52	10.66	23.87	57.72	19.0
Matabeleland South	25.25	25.16	10.33	29.34	63.15	20.8
Midlands	20.83	25.61	8.10	23.94	54.77	16.1
Total	23.89	24.05	9.23	27.03	56.20	18.1

n/a: Not available.
nc: No HIV cases in the sample.
[1] No information on recent adult deaths due to chronic illness in the household.
[2] No information on chronically ill adults in the household.
[3] Data only available for children age 0-14 years.
[4] Information on recent deaths due to chronic illness is collected for all persons under age 60.
[5] Percentage HIV positive among interviewed women and men age 15-49 who were tested (weighted).

Appendix B. Estimated numbers of children age 0-17 in different OVC categories, by country and geographic region

Country	Orphans	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children orphaned or living with a chronically ill parent	All OVC	Total
Cameroon[1] 2004						
Adamaoua	29,449	46,035	23,482	42,256	125,439	362,261
Centre	80,727	83,965	210,883	186,991	427,141	703,116
Douala	70,981	72,111	57,121	100,458	245,667	638,897
Est	42,849	70,704	90,559	98,608	234,096	433,890
Extreme-Nord	133,100	60,599	126,299	184,060	414,656	1,647,466
Littoral	38,253	35,452	77,594	81,033	167,389	322,742
Nord	63,481	49,750	124,961	130,286	282,149	857,077
Nord-Ouest	115,674	125,071	110,592	173,748	377,434	951,759
Ouest	79,233	71,393	97,585	115,641	312,839	910,593
Sud	39,823	47,246	96,128	74,541	182,816	333,445
Sud-Ouest	55,746	56,487	68,134	81,447	217,675	506,343
Yaounde	60,089	96,357	97,422	88,724	219,855	566,445
Total	809,406	815,170	1,180,761	1,357,793	3,207,157	8,234,036
Cote d'Ivoire 2005						
Centre	95,297	85,543	65,662	107,992	396,221	851,622
Centre-Est	12,771	11,848	5,281	19,242	51,225	208,174
Centre-Nord	24,207	37,774	52,548	40,494	119,334	472,300
Centre-Ouest	113,980	53,805	82,122	146,865	374,835	1,034,288
Nord	10,051	57,486	10,991	14,772	93,985	472,300
Nord-Est	38,465	26,364	26,934	45,150	141,827	470,655
Nord-Ouest	5,507	9,173	11,177	11,827	30,575	238,619
Ouest	34,447	40,744	50,416	49,280	141,981	727,375
Sud	161,298	196,271	176,506	260,809	787,317	1,820,084
Sud-Ouest	50,283	33,430	46,472	70,760	154,325	534,835
Ville d'Abidjan	123,471	169,178	139,202	184,817	522,427	1,397,976
Total	669,778	721,616	667,309	952,006	2,814,054	8,228,228
Kenya[1, 2, 3] 2003						
Nairobi	60,465	82,698	n/a	n/a	173,108	698,223
Central	206,916	123,906	n/a	n/a	380,003	1,666,591
Coast	92,333	87,108	n/a	n/a	268,823	1,111,061
Eastern	194,204	174,813	n/a	n/a	422,955	2,348,190
Nyanza	388,064	532,733	n/a	n/a	956,698	2,247,059
Rift Valley	398,256	223,518	n/a	n/a	741,137	3,516,051
Western	142,791	110,580	n/a	n/a	357,910	1,798,201
North Eastern	46,259	nc	n/a	n/a	80,699	466,867
Total	1,529,288	1,335,356	n/a	n/a	3,381,333	13,852,243
Lesotho[1, 2] 2004/05						
Lowlands	137,040	133,266	n/a	n/a	287,935	493,515
Foothills	31,098	30,506	n/a	n/a	64,428	119,523
Mountains	67,239	62,988	n/a	n/a	144,656	243,636
Senqu River Valley	17,991	19,172	n/a	n/a	37,439	61,322
Total	253,367	245,931	n/a	n/a	534,458	917,997

(Cont'd)

Appendix B – *Continued*

Country	Orphans	Children in hhs with an HIV-infected adult	Children in hhs with a chronically ill adult or recent adult death following chronic illness	Children orphaned or living with a chronically ill parent	All OVC	Total
Malawi[1] 2004/05						
Northern	167,178	113,971	77,881	207,182	389,697	886,952
Central	393,324	164,595	233,957	545,843	1,058,050	2,873,670
Southern	418,139	474,442	212,169	549,584	1,202,598	2,974,689
Total	978,641	753,008	524,007	1,302,609	2,650,345	6,735,310
Tanzania[4] 2003/04						
Western	282,435	329,121	344,743	422,378	1,245,304	3,461,577
Northern	307,652	214,898	194,761	377,793	846,742	2,955,668
Central	129,052	94,399	110,823	172,434	411,815	1,599,325
Southern highlands	404,602	444,128	243,386	495,418	1,119,932	2,583,943
Lake	373,884	275,188	327,362	537,869	1,175,128	3,323,767
Eastern	292,924	382,526	220,528	344,691	1,039,365	2,558,557
Southern	167,613	130,871	166,627	229,477	552,934	1,648,284
Total	1,958,161	1,871,132	1,608,230	2,580,058	6,391,220	18,131,121
Uganda 2004/05						
Central	439,037	356,009	260,388	540,733	1,300,778	2,700,551
Kampala	102,884	89,427	40,706	108,334	275,623	581,390
East Central	309,128	270,744	284,380	416,394	1,090,828	2,582,382
Eastern	146,198	102,711	106,431	197,706	479,303	1,583,462
Northeastern	178,973	79,406	104,675	235,963	442,361	1,279,374
North Central	340,819	210,368	390,337	489,288	887,560	1,725,264
West Nile	217,160	80,574	188,735	289,183	708,628	1,468,444
Western	233,802	186,105	129,736	268,589	620,688	1,816,648
Southwest	331,005	181,490	174,354	402,023	750,890	2,019,899
Total	2,299,007	1,556,833	1,679,740	2,948,212	6,556,660	15,757,415
Zimbabwe 2005/06						
Bulawayo	50,800	63,960	16,420	56,165	130,350	296,385
Harare	108,114	159,517	50,316	128,506	299,184	603,315
Manicaland	203,882	158,647	77,225	230,878	423,108	723,756
Mashonaland Central	148,564	152,298	52,271	167,895	354,157	602,205
Mashonaland East	141,443	119,108	33,350	147,540	290,264	512,291
Mashonaland West	139,562	125,617	61,916	161,874	324,139	557,803
Masvingo	189,529	158,195	75,077	214,208	399,993	693,230
Matabeleland North	93,040	111,473	46,564	104,266	252,125	436,807
Matabeleland South	81,284	80,994	33,254	94,450	203,290	321,916
Midlands	167,175	205,538	65,008	192,135	439,568	802,570
Total	1,323,394	1,335,346	511,401	1,497,917	3,116,177	5,550,276

n/a: Not available.
nc: No HIV cases in the sample.
[1] No information on recent adult deaths due to chronic illness in the household.
[2] No information on chronically ill adults in the household.
[3] Data only available for children age 0-14 years.
[4] Information on recent deaths due to chronic illness is collected for all persons under age 60.

Appendix C. In households with orphans and non-orphans, proportion of children with all three basic needs met, attending school, and slept under a mosquito net, by orphanhood status and by geographic region

Country	Children age 5-17 with all three basic material needs met		Children attending school				Children 0-17 who slept under a mosquito net last night	
			5-14		15-17			
	Orphans	Non-orphans	Orphans	Non-orphans	Orphans	Non-orphans	Orphans	Non-orphans
Cameroon[1] 2004								
Adamaoua	n/a	n/a	73.49	65.29	62.86	45.91	17.46	10.76
Centre	n/a	n/a	94.81	95.29	74.30	87.43	31.42	54.30
Douala	n/a	n/a	94.59	94.34	64.71	75.00	52.17	56.76
Est	n/a	n/a	89.78	89.98	43.33	83.09	20.03	23.34
Extreme-Nord	n/a	n/a	69.37	64.05	64.48	40.93	21.50	14.33
Littoral	n/a	n/a	94.67	92.17	66.31	79.98	56.57	53.72
Nord	n/a	n/a	48.67	62.37	10.08	54.26	0.00	6.47
Nord-Ouest	n/a	n/a	93.00	85.94	64.07	76.87	32.44	23.31
Ouest	n/a	n/a	92.44	90.94	75.98	65.22	45.16	54.26
Sud	n/a	n/a	94.90	96.44	45.90	69.00	13.01	18.03
Sud-Ouest	n/a	n/a	91.89	96.30	50.00	91.31	29.28	41.33
Yaounde	n/a	n/a	92.86	94.59	63.64	78.57	0.00	14.29
Total	n/a	n/a	85.97	84.86	59.79	72.38	30.96	32.75
Cote d'Ivoire 2005								
Centre	95.48	97.36	51.29	60.14	50.82	57.29	13.96	23.71
Centre-Est	94.74	92.73	49.87	67.93	43.02	58.64	30.51	27.65
Centre-Nord	49.85	52.20	26.40	57.82	0.00	86.72	0.00	0.00
Centre-Ouest	93.67	97.66	58.80	55.06	49.78	53.75	22.18	24.35
Nord	18.66	53.11	12.62	19.09	0.00	0.00	0.00	7.58
Nord-Est	97.35	97.04	52.39	61.24	11.79	49.99	0.00	2.30
Nord-Ouest	96.26	80.75	45.76	25.27	0.00	75.82	nc	nc
Ouest	82.28	79.33	27.91	30.36	0.00	56.27	35.68	21.37
Sud	94.01	98.60	61.34	50.22	34.08	61.49	6.15	5.85
Sud-Ouest	96.36	90.24	41.18	47.37	19.27	64.12	11.12	19.73
Ville d'Abidjan	92.61	92.83	50.74	59.18	60.84	34.82	0.00	0.00
Total	91.88	94.42	51.72	54.35	42.31	54.94	14.80	15.71
Kenya[1, 2, 3] 2003								
Nairobi	n/a	n/a	93.37	96.62	n/a	n/a	37.56	45.56
Central	n/a	n/a	89.58	100.00	n/a	n/a	nc	100.00
Coast	n/a	n/a	74.69	80.43	n/a	n/a	31.71	75.38
Eastern	n/a	n/a	96.27	87.92	n/a	n/a	18.55	50.26
Nyanza	n/a	n/a	96.95	100.00	n/a	n/a	11.72	26.60
Rift Valley	n/a	n/a	71.98	67.31	n/a	n/a	19.48	66.73
Western	n/a	n/a	88.49	93.21	n/a	n/a	30.67	61.83
North Eastern	n/a	n/a	41.27	34.94	n/a	n/a	28.30	67.16
Total	n/a	n/a	86.17	87.24	n/a	n/a	19.33	48.15
Lesotho[1, 2] 2004/05								
Lowlands	n/a	n/a	85.23	78.45	62.73	77.41	n/a	n/a
Foothills	n/a	n/a	75.53	76.22	69.78	71.83	n/a	n/a
Mountains	n/a	n/a	72.96	70.49	58.11	71.81	n/a	n/a
Senqu River Valley	n/a	n/a	86.07	73.89	65.18	72.50	n/a	n/a
Total	n/a	n/a	80.20	75.37	62.61	74.49	n/a	n/a

(Cont'd)

Appendix C – *Continued*

Country	Children age 5-17 with all three basic material needs met		Children attending school				Children 0-17 who slept under a mosquito net last night	
			5-14		15-17			
	Orphans	Non-orphans	Orphans	Non-orphans	Orphans	Non-orphans	Orphans	Non-orphans
Malawi[1] 2004/05								
Northern	n/a	n/a	83.67	95.65	73.43	92.04	29.84	47.62
Central	n/a	n/a	73.33	80.48	41.84	78.86	18.87	25.70
Southern	n/a	n/a	80.89	74.63	66.37	63.34	30.49	38.64
Total	n/a	n/a	78.32	80.46	59.21	75.57	26.81	36.33
Tanzania[4] 2003/04								
Western	n/a	n/a	63.14	48.81	34.82	35.21	n/a	n/a
Northern	n/a	n/a	83.21	78.18	50.08	37.99	n/a	n/a
Central	n/a	n/a	50.29	65.10	42.86	46.55	n/a	n/a
Southern highlands	n/a	n/a	73.33	74.50	30.55	68.64	n/a	n/a
Lake	n/a	n/a	77.03	68.89	46.58	53.93	n/a	n/a
Eastern	n/a	n/a	78.16	76.99	37.78	54.62	n/a	n/a
Southern	n/a	n/a	77.30	60.26	44.21	33.92	n/a	n/a
Total	n/a	n/a	73.03	67.03	40.46	47.39	n/a	n/a
Uganda 2004/05								
Central	n/a	n/a	87.49	87.44	54.48	69.29	n/a	n/a
Kampala	n/a	n/a	88.68	88.64	63.51	89.74	n/a	n/a
East Central	n/a	n/a	90.28	86.41	74.97	70.99	n/a	n/a
Eastern	n/a	n/a	91.07	85.74	87.20	87.09	n/a	n/a
Northeastern	n/a	n/a	59.12	69.85	68.70	59.42	n/a	n/a
North Central	n/a	n/a	82.18	76.35	70.99	74.97	n/a	n/a
West Nile	n/a	n/a	81.33	78.35	83.74	83.75	n/a	n/a
Western	n/a	n/a	82.74	77.76	57.56	78.70	n/a	n/a
Southwest	n/a	n/a	72.62	81.06	66.91	86.96	n/a	n/a
Total	n/a	n/a	83.10	82.47	66.93	76.75	n/a	n/a
Zimbabwe 2005/06								
Bulawayo	89.33	92.69	91.02	85.59	88.92	86.12	9.00	18.71
Harare	76.15	87.82	90.72	90.07	55.87	74.50	10.16	13.03
Manicaland	60.29	63.93	85.97	86.20	74.65	69.02	3.41	3.51
Mashonaland Central	53.55	66.66	75.03	77.69	47.14	53.85	12.93	6.10
Mashonaland East	46.68	47.87	88.30	84.58	66.32	57.70	0.00	10.87
Mashonaland West	42.23	48.42	78.62	77.44	42.22	60.05	12.26	20.58
Masvingo	35.37	48.70	85.36	83.46	64.58	59.97	0.00	9.94
Matabeleland North	42.05	51.07	84.46	73.58	46.05	46.90	9.50	13.88
Matabeleland South	36.43	41.76	79.95	82.47	58.95	65.98	7.14	7.30
Midlands	67.38	74.11	82.80	78.88	63.94	52.05	11.09	15.65
Total	53.07	61.62	83.49	81.57	60.16	61.36	9.13	11.73

n/a: Not available.
nc: No HIV cases in the sample.
[1] No information on recent adult deaths due to chronic illness
[2] No information on chronically ill adults in the household
[3] Data only available for children age 0-14
[4] Information on recent deaths due to chronic illness is collected for all persons under age 60

Appendix D. In households with orphans and non-orphans, proportion of children age 0-4 whose birth was not registered, by orphanhood status and by geographic region

	Birth not registered	
Country	**Orphans**	**Non-orphans**
Cote d'Ivoire 2005		
Centre	33.97	22.97
Centre-Est	73.11	29.10
Centre-Nord	0.00	36.80
Centre-Ouest	51.48	48.40
Nord	100.00	60.25
Nord-Est	57.57	48.29
Nord-Ouest	50.00	83.56
Ouest	22.68	67.47
Sud	49.24	41.32
Sud-Ouest	100.00	61.13
Ville d'Abidjan	0.00	4.73
Total	42.34	35.97
Number	42	613
Zimbabwe 2005/06		
Bulawayo	10.75	8.69
Harare	19.45	9.76
Manicaland	8.54	12.73
Mashonaland Central	31.79	34.68
Mashonaland East	29.29	45.05
Mashonaland West	39.27	43.54
Masvingo	5.02	5.83
Matabeleland North	3.61	30.63
Matabeleland South	24.01	30.53
Midlands	12.80	9.03
Total	19.17	21.84
Number	263	1,200

Note small number of orphans in Cote d'Ivoire

Appendix E. Proportion of OVC age 0-17 whose households received at least one type of support, by geographic region

Country	Received at least one type of support
Cote d'Ivoire 2005	
Centre	10.92
Centre-Est	8.82
Centre-Nord	1.44
Centre-Ouest	17.55
Nord	6.74
Nord-Est	9.86
Nord-Ouest	8.07
Ouest	10.49
Sud	4.51
Sud-Ouest	21.87
Ville d'Abidjan	6.90
Total	9.35
Tanzania 2003/04	
Western	13.68
Northern	18.90
Central	14.52
Southern highlands	15.69
Lake	10.28
Eastern	19.11
Southern	11.98
Total	14.73
Uganda 2004/05	
Central	13.33
Kampala	12.71
East Central	13.99
Eastern	47.31
Northeastern	8.29
North Central	18.50
West Nile	45.18
Western	26.36
Southwest	29.04
Total	22.61
Zimbabwe 2005/06	
Bulawayo	22.37
Harare	17.60
Manicaland	36.06
Mashonaland Central	34.85
Mashonaland East	27.06
Mashonaland West	20.65
Masvingo	48.77
Matabeleland North	23.77
Matabeleland South	21.81
Midlands	33.01
Total	30.80

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