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Joint Learning Initiative on Children and HIV/AIDS JLICA

Learning Group 1 – Strengthening Families

Co-Chairs: Linda Richter and Lorraine Sherr

DEMOGRAPHIC EVIDENCE OF FAMILY AND HOUSEHOLD CHANGES IN RESPONSE TO THE EFFECTS OF HIV/AIDS IN SOUTHERN AFRICA: IMPLICATIONS FOR EFFORTS TO STRENGTHEN FAMILIES

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Victoria Hosegood^{1,2}

¹*Centre for Population Studies, London School of Hygiene & Tropical Medicine,
UK*

²*Child, Youth, Family and Social Development, HSRC, South Africa*

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The Joint Learning Initiative on Children and HIV/AIDS (JLICA) is an independent, interdisciplinary network of policy-makers, practitioners, community leaders, activists, researchers, and people living with HIV, working to improve the well-being of HIV-affected children, their families and communities.

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Preface - Learning Group 1: Strengthening Families

The work conducted in Learning Group 1 was based on the fact that families, in all their many forms, are everywhere the primary providers of protection, support and socialization of children and youth, and families exert a very strong influence on children's survival, health, adjustment and educational achievement. This influence tends to be greater under conditions of severe strain, such as is caused by HIV and AIDS, particularly in the context of poverty.

In general, functional families love, rear and protect children and buffer them from negative effects. Functional families are those that have sufficient material and social resources to care for children, the motivation to ensure that children are nurtured and protected, and are part of a community of people who provide one another with mutual assistance. Family environments are especially important for young children. It is well established that multiple risks affect the cognitive, motor and social-emotional development of children and that the quality of parenting, assisted by intervention when needed, can ameliorate such impacts.

From the start of the epidemic, families have absorbed, in better or worse ways, children and other dependents left vulnerable by AIDS-induced deaths, illness, household and livelihood changes, and migration. Similarly, families have contributed, more or less successfully, to the protection of young people from HIV infection. Under the devastating effects of the epidemic, families need to be strengthened – economically, socially and with improved access to services – to enable them to continue, and to improve, their protection and support of children and youth. Families that neglect and abuse children need to be identified and social welfare services must be provided to them.

Families, extended kin, clan and near community are the mainstay of children's protection in the face of the AIDS epidemic - as they have been in poor countries under other severely debilitating social conditions, including war, famine and natural disaster. Only a very small proportion of AIDS-affected children are currently reached by any assistance additional to support they receive from kith and kin. The most scalable strategy for children is to strengthen the capacity of families to provide better care for more children.

The co-chairs, secretariat, lead authors and stakeholders of Learning Group 1 were guided in the work undertaken in the Learning Group by the following key questions. By and large, these are the critical research, policy and programme questions currently being debated in the field.

1. On which children and families should we focus?
2. What evidence is available on which children are vulnerable and what can be done to help them, and how good is the research?
3. What aspects of the HIV/AIDS epidemic impact on children, how and why?
4. How are families changing as a result of adult illness and death associated with HIV and AIDS?
5. In what ways are children's health, education and development affected by the HIV/AIDS epidemic?
6. What does knowledge and experience of other crises teach us about the AIDS response for children and families?
7. What can we learn from carefully evaluated family strengthening efforts in fields other than HIV and AIDS that can be usefully applied in hard hit countries in southern Africa?
8. What programmatic experience has been gained in strengthening families in the HIV/AIDS field?
9. What promising directions are there for the future and what do they suggest?
10. What mistakes have been made and what now needs to be done?

These questions form the structure of the integrated report. As indicated in the Preface, detailed data and references are to be found in the respective LG1 papers.

Twelve detailed review papers constitute the primary evidence base for the conclusions drawn and the recommendations made by Learning Group 1. The papers, their authors in alphabetical order, and their affiliations are listed below.

List of authors, affiliations and paper titles

Authors	Affiliation	Title
Adato, M Bassett, L	International Food Policy Research Institute (IFPRI) – United States of America	What is the potential of cash transfers to strengthen families affected by HIV and AIDS? A review of the evidence on impacts and key policy debates
Belsey, M	Consultant – United States of America	The family as the locus of action to protect and support children affected by or vulnerable to the effects of HIV/AIDS: A conundrum at many levels
Chandan, U Richter, L	Human Sciences Research Council (HSRC) – South Africa	Programmes to strengthen families: Reviewing the evidence from high income countries
Desmond, C	Human Sciences Research Council (HSRC) – South Africa	The costs of inaction
Drimie, S Casale, M	International Food Policy Research Institute (IFPRI), Regional Network on AIDS, Food Security and Livelihoods (RENEWAL), Health Economics and AIDS Research Division (HEARD – South Africa	Families' efforts to secure the future of their children in the context of multiple stresses, including HIV and AIDS

Haour-Knipe, M	Consultant – Switzerland	Dreams and disappointments: Migration and families in the context of HIV and AIDS
Hosegood, V	London School of Hygiene and Tropical Medicine (LSHTM), Human Sciences Research Council (HSRC) – South Africa	Demographic evidence of family and household changes in response to the effects of HIV/AIDS in southern Africa: Implications for efforts to strengthen families
Kimou, J Kouakou, C Assi, P	Ivorian Centre for Economic and Social Research (CIRES), Family Health International (FHI) - Côte d'Ivoire	A review of the socioeconomic impact of antiretroviral therapy on family wellbeing
Madhavan, S DeRose, L	University of Maryland – United States of America	Families and crisis in the developing world: Implications for responding to children affected by HIV/AIDS
Mathambo, V Gibbs, A	Human Sciences Research Council (HSRC) – South Africa	Qualitative accounts of family and household changes in response to the effects of HIV and AIDS: A review with pointers to action
Sherr, L	Royal Free and University College Medical School – United Kingdom	Strengthening families through HIV/AIDS prevention, treatment, care and support
Wakhweya, A Dirks, R Yeboah, K	Family Health International (FHI) – United States of America	Children thrive in families: Family-centred models of care and support for orphans and other vulnerable children affected by HIV and AIDS

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1. Introduction

HIV can no longer be considered as a new or emerging disease in sub-Saharan Africa. More than two decades on from the start of the epidemic, several countries in central and east Africa have maturing HIV epidemics with stable or declining incidence. During the HIV epidemic, families and households have continued to be formed and built, and have survived and dissolved, passing through various life-cycle stages while functioning as the primary units of reproduction and production. Children who survived the risk of contracting HIV through mother-to-child transmission in the 1980s have already gone on to start the next generation of families and households.

HIV and AIDS should not be considered as phenomena separate from demographic, social and economic trends, but rather as an integral part of their direction and force. The HIV epidemic is among a plethora of structural and behavioural processes and events that shape contemporary African families, and the effects of the epidemic on family and household demography are far from easily isolated from other demographic, social, economic and political determinants. Knowledge of prevailing or normative family and household social and residential arrangements in each population is critical to establishing whether, and if so how, HIV and AIDS have changed families and households with, or supporting, children.

In the area of family demography and HIV/AIDS, the most studied demographic impact has been adult AIDS mortality. Studies have examined the impact of young adult deaths on family and household demographic outcomes ranging from changes in household size to dissolution. However, the greatest attention in commentaries related to the impact of HIV and AIDS on families and households has been the consequences of parental death on the living arrangements of orphans. In contrast, far less has been published about the effects of HIV and AIDS on other major determinants of family and household demography, including marriage and partnership dynamics, and fertility. These demographic factors are key processes driving the life-cycle of families and households, childbearing and the parenting of children, and are themselves associated themselves with HIV and AIDS risk in adults and children.

1.1 Review objectives and structure

This review examines the evidence for changes in family and household demography as a consequence of HIV and AIDS. Given that this review has been commissioned by the Joint Learning Initiative on Children and HIV/AIDS, attention is specifically paid to demographic changes affecting the living and care arrangements of children. Rather than merely follow the well-worn paths in the published literature, this review is structured in order to examine evidence for HIV and AIDS-related family and demographic changes across the complete life-course of families and households. Particular attention is paid to the impact on family and household formation and building because it is during these phases of the life-cycle that children are born, grow up and enter adulthood. In chapter 2, we consider whether the epidemic has affected the circumstances under which young adults enter unions, bear and raise children. Chapter 3 focuses on changes in the stability of households, in particular the role of HIV and AIDS in determining family and household dissolution. In chapter 4, changes across the household life-cycle are linked to changes in the size, composition, and specifically to the living arrangements of children. In the last few years, the scale-up of HIV treatment in sub-Saharan Africa has changed the probability of individual survival for the 1.65 million people reported to have had access to ARV treatment in low- and middle-income countries (WHO/UNAIDS, 2006). Our knowledge of whether and how treatment will impact family and household demography is as yet scant. In chapter 5, we review early studies exploring the consequences of treatment in sub-Saharan Africa on reproductive behaviour and choices. The concluding chapter identifies lessons for policy and programme efforts to strengthen families and households by drawing together the evidence across the family and household life-cycle, and by examining population-based findings from several populations in which the majority of children affected by HIV and AIDS spend their childhoods.

1.2 Characterising the subjects of interest

The meaning of concepts of family and household have been long and extensively studied and debated. Most social scientists conceptualise family and household as separate but related entities¹. However, depending on the area of research, may prioritise one over the other for the purposes of their work (van de Walle, 2006). Furthermore, cross-cultural

definitions of families and households are made difficult by heterogeneity, their inherent complexity, and constraints and limitations of socio-demographic data (Russell, 2003).ⁱⁱ Acknowledging that universal definitions of 'family' and 'household' are unrealistic for sub-Saharan Africa, we use both terms in this review in order to synthesise the findings of socio-demographic and economic studies.

The working characterisations used in this review are:

Family

Families are characterised by their relationships through kinship or marriage. Marriage may also be extended to regular partnerships where non-marital unions are socially recognised. In contrast to households, residential arrangements are not a key part of the form or function of a family. The sense of membership is derived through family relationships with other members rather than necessarily shared residential or economic arrangements.

Household

Households are characterised by their shared economic basis and by all members recognising a single head of household. The household identifies one place as its primary residency base which will be the primary residence of some or all members. Household members may also live away from the primary residence, for example, labour migrants or school children. Non-household members may share and/or contribute to the household's resources, for example, tenants or domestic workers.

Studies of HIV/AIDS demographic impact generally consider the household rather than the family unit. This is in part because households are far simpler than families to identify and document in large surveys and censuses. Further, the household as an economic and productive unit holds more interest to researchers considering the socio-economic consequences (income, expenditure, labour, assets) of morbidity and mortality. Therefore, in this review the term 'household' will be used most often when referring to the findings of other studies. However, we consider both family and households in our conceptualisation and implications for policy and programmes.

1.3 Framing the review: The family and household life-cycle conceptual model

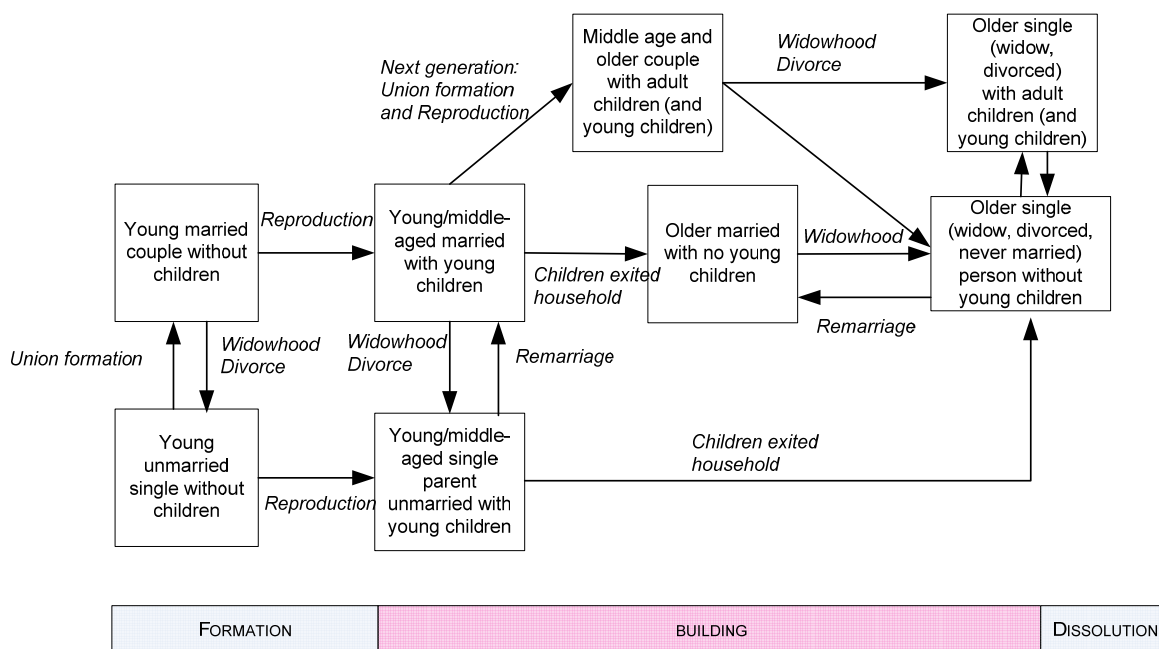
The concept of a family or household life-course is a flexible framework for representing complex relationships between demographic, social and economic processes and events (Tienda, 1980). The basic theory underlying the life-cycle framework presumes that certain events in the family or household significantly alter role relationships among members, often launching a new stage. Examples of such events are the birth of the first child, the dissolution of a marriage, and the death of a spouse. In high-income countries, researchers from disciplines including sociology, demography and marketing have formalised these family and household life-cycle models with constant revision and verification (Murphy & Staples, 1979; Wilkes, 1995). In Africa, examination of the family and household life-cycles have tended to generate specific accounts by population group and to stress the comparative rather than generalisable nature of families and households across the region.

Figure 1 presents a schematic diagram that while necessarily generic, nonetheless reflects key stages and processes in most family and household life-courses in sub-Saharan Africa, namely marriage, family formation, births, family building, death and household dissolution. The specific form and pathways that households will follow in each population will differ, influenced by social, cultural, demographic and economic processes. For example, the schematic diagram does not represent the course of multiple households linked to polygamous men, nor the other ways in which extended households may alter headship and continue to build after the death of their founding household head.

One of the greatest barriers to creating theoretical models in the study of household and family demography is the complexity of living and kinship arrangements and dynamics (Burch, 1995). Thus, this paper does not seek to profile the heterogeneity of family or household life-cycles in sub-Saharan Africa, but rather uses the concept as a framework with which to review the evidence of demographic impact of HIV and AIDS upon them. Using the lens of a life-course allows us to isolate specific stages or events where impact has been documented, as well as those for which data are inadequate or missing. In addition, characterising normative processes and events experienced by families and households allows us to identify changes in the timing, duration and frequency of

transitions between different life-cycle stages due to HIV and AIDS while placing a check on the misattribution of its impact.

Figure 1. Family and household life-cycle



1.4 Methods

This review draws strongly on demographic and HIV/AIDS impact literature. Literature was identified through searches using relevant terms of PubMed, Population Index and Google. Studies were selected primarily based on the type of data upon which their findings were based. This review aims to examine evidence of family and household demographic change demonstrated through the analysis of empirical data. By empirical data, we mean data collected through large, population-based data collection designs. Thus, we focused on papers reporting findings from large cohort or case-control studies, surveys, surveillance systems and censuses.

This review is one of several complementary reviews commissioned by the JLICA Learning Group on Strengthening Families. To avoid duplication, each review inevitably needed to circumscribe the extent of the evidence explored somewhat artificially. Four closely related

reviews considering different but relevant areas of family and household impact research are those by Vuyiswa Mathambo and Andy Gibbs, examining the evidence from qualitative studies – ‘Qualitative accounts of family and household changes in response to the effects of HIV and AIDS’; Lorraine Sherr and others – ‘Strengthening families through HIV/AIDS prevention, treatment, care and support’, a review that explores the consequences of family and household change due to HIV and AIDS on children’s health and wellbeing; and a review by Sangeetha Madhavan and Laurie DeRose - ‘Families and Crisis in the Developing World: Implications for Responding to Children Affected by HIV/AIDS’, that considers the impact on families and households, and their response to, other crises such as famine and wars.

2. Family and household formation and building

Union formation and dissolution are key demographic events in the family and household life-cycle (Meekers & Calves, 1997; van Imhoff, Kuijsten, Hooimeijer, & van Wissen, 1995). Couples forming and building their own family and household units are commonly linked to processes of marriage and childbearing. The timing and pattern of family formation and building in sub-Saharan Africa are largely determined by marriage and marital fertility. Marriage and partnership influence family and household arrangements.

Changes in the type, timing and prevalence of unions, as well as the pattern and timing of fertility, have profound effects on family and household demography. HIV and AIDS can directly affect household formation and building through its impact on:

- Union formation (age at marriage or first cohabiting union, type of union)
- Union instability (widowhood, divorce or separation)
- Fertility (fecundity, fertility decisions, widowhood)

The evidence for these impacts of HIV and AIDS is considered in this section. However, first some limitations of study designs, data and some conceptual issues are raised.

Limitations and cautionary notes

In reviewing the evidence for the impact of HIV and AIDS on union formation, union stability and fertility, several issues need to be considered:

1. Substantive changes in fertility and marriage were occurring prior to the start of the HIV epidemic in sub-Saharan Africa (Locoh, 1988). Since the late 1980s, fertility rates have fallen in the majority of sub-Saharan African countries (Cohen, 1993). In eastern and southern Africa, the mean age of marriage has risen to 20 years or older. A concomitant increase in premarital sexual activity and increasing non-marital cohabitation occurred in many countries, particularly in southern Africa (Van de Walle, 1993). Although one needs to be cautious in attributing changes in family formation and building solely to the consequences of HIV and AIDS, there are unfortunately few comparative studies reporting patterns and trends in marriage and partnership across the pre- and post-HIV epidemic periods. Much of the literature reviewed in this section has examined the effect of HIV on marriage and fertility in single populations using population-based data, survey or cohort data.

2. The causal relationship between HIV and AIDS and union formation, or with fertility, is bi-directional. Marriage and partnership are associated with HIV transmission risk in sub-Saharan Africa (Bongaarts, 2007; Stein, Nyamathi, Ullman, & Bentler, 2006). HIV and AIDS are also associated with widowhood and re-marriage (Boerma, Urassa, Nnko, Ng'weshemi, Isingo, Zaba et al., 2002; Floyd, Crampin, Glynn, Mwenebabu, Mnkondia, Ngwira et al., 2008). We examine the small number of published studies which have sought to examine the cause and effect between marriage/partnership, family and household dynamics, and the spread of the HIV epidemic. However, teasing out the dynamics of formation of unions and the risks of HIV transmission is complex and many unanswered questions remain.

3. The impact of HIV status on individual, family and household decision making may be difficult to identify when examining population-level data, for several reasons. In all age groups, HIV-positive individuals remain a minority in all but the very high HIV prevalence populations. In addition, a substantial proportion will be unaware of their HIV status and therefore, their status may not directly influence their decisions about forming and building families and households. Personal knowledge of HIV status is also not the only cause of behaviour change. Normative patterns of marriage, partnership and family

formation may change in part due to changes in attitudes and behaviour as a consequence of the experience of HIV and AIDS in a community. HIV and AIDS, however, are not influences isolated from other prevailing social, economic or medical forces (Setel, 1999a). An inherent limitation for researchers using population-based demographic data is that although able to observe changes in family and households, the data can provide little insight into the ‘concatenation’ of forces that determine such changes.

In the following sections we review the evidence that HIV and AIDS have led to a change in the main drivers of family and household life – union formation, union stability, and fertility.

2.1 Evidence for HIV and AIDS impact on marriage and partnership

In 1995, Mukiza-Gapere and Ntozi published the results of a study that explored the impact of AIDS on families in six districts in Uganda. Conducting structured interviews with 386 adults and focus group discussions with elders and young in six districts in Uganda, the authors reported that:

‘With a few experiences of their relatives and friends who married, contracted HIV and died, many single women prefer to stay unmarried for fear of death.’ (Mukiza-Gapere & Ntozi, 1995).

Although a small study in one country, the paper remains widely cited as evidence that marriage patterns have changed as a direct response to HIV. A qualitative study by Lugalla et al. (2004) conducted in the Kagera region, Tanzania, similarly reported that people had concerns about marriage related to uncertainty about the HIV status of prospective partners. However, we have identified no population-based studies correlating changes in marriage patterns with the progress of the HIV epidemic, in order to examine the suggestion of marriage behaviour modification due to concerns about HIV and AIDS.

Ntozi (1997) subsequently reported that prospective spouses were seeking or being asked to undergo voluntary testing and counselling (VTC) in Uganda (Ntozi, 1997). Considerable optimism followed the report of young adults responding to the HIV epidemic by ensuring they knew their own and their partners’ HIV status. Other researchers were less certain

that people would be motivated to test unless prompted to do so by illness or death of a partner, child or themselves (Setel, 1995). VCT of couples before marriage has broad support in many African countries particularly amongst faith-based organisations (Akani, Erhabor, & Babatunde, 2005). Mandatory premarital HIV screening has been mooted in several African countries at various times although never introduced (Uneke, Alo, & Ogbu, 2007). Lugalla et al. (2004) reported that most Catholic and Protestant churches in Kagera region, Tanzania, required couples to be tested prior to marriage. However, it is unclear how prevalent the practice of VTC linked to marriage is across the region. Certainly couple-based VCT services remain scarce and under-utilised. While large numbers of women have been tested through the prevention of mother-to-child programmes (PMTCT), the majority of couples entering marriage or regular partnerships do so without confirmed knowledge of their own and partner's HIV status.

2.1.1 Union instability: widowhood, divorce and separation

Although it is unclear whether HIV and AIDS have significantly influenced the probability and age at first marriage, studies have shown its effect on increasing union instability and dissolution in positively concordant and discordant couple. In the pre-treatment era, the most common reason for such marriages ending was the death of one or both partners. A retrospective cohort study in Karonga district, Malawi, identified marriage outcomes by 1998-2000 for the spouses of 197 HIV-positive and 396 HIV-negative individuals (referred to as 'index individuals'). Blood samples collected from these index individuals in the 1980s were screened for HIV (Floyd et al., 2008). Similar data on the HIV status of their spouses were not consistently available. Most marriages involving an HIV-positive index person had ended in widowhood, 21% vs. 62% for wives of index men, and 20% vs. 62% for husbands of index women.

Direct and indirect stresses associated with HIV and AIDS may lead to marital and non-marital partnerships dissolving through divorce or separation. Suspicions about fidelity and/or possible HIV infection can result in relationship instability and dissolution (Boerma et al., 2002; Hosegood, Preston-Whyte, Busza, Moitse, & Timæus, 2007b). A two-and-a-half-year ethnographic study of households affected by HIV and AIDS in rural South Africa, found that once severe illness or a death of a current or previous partner had

been widely interpreted as evidence of possibility HIV infection, in-laws, neighbours and home-based care workers were open in blaming one partner for past sexual or other kinds of behaviour (Hosegood et al., 2007b). In the Karonga, Malawi, study of marriages that did not end because of the death of one partner, the proportion ending through separation was higher for wives of HIV-positive index men (40%) than HIV-negative index men (17%); for husbands of index individuals the proportion of marriages ending in separation was 57% vs. 26% respectively (Floyd et al., 2008).

Furthermore, where the provision and access to effective PMTCT and treatment programmes are poor, an additional stress for sero-discordant and sero-concordant parents is the risk of vertical transmission and the death of a child. Regardless of cause, the death of a young child is a strong predictor of union dissolution (Wijngaards-de Meij, Stroebe, Schut, Stroebe, van den Bout, van der Heijden et al., 2007). Studies outside sub-Saharan Africa of couples where one or both are receiving treatment have reported high rates of relationship instability due to stresses associated with chronic illness, the treatment process, and sexual and reproductive concerns (van der Straten, Vernon, Knight, Gomez, & Padian, 1998). Similar long-term observational studies of couples in sub-Saharan Africa have not been conducted in the pre-treatment era. Recent prospective African couples studies conducted in the context of treatment programmes are reviewed in section 6.

2.1.2 Re-marriage and HIV

Following widowhood, divorce or separation, the consequences for the family and households of the surviving partner will be strongly influenced by subsequent marriage or partnering arrangements. In Mwanza, Tanzania, preliminary research using Kisesa-DSS data shows that subsequent re-marriage is more common among HIV-infected men than among HIV-infected women (Gregory, 2005). However, the author suggests that young women often do not count failed first marriages when reporting marital history. In the Karonga, Malawi, prospective study by Floyd et al. (2008), the re-marriage rate among separated or widowed wives of HIV-positive index men was half that of such wives of HIV-negative index men. In contrast, the rate of re-marriage was not significantly different between husbands of HIV-positive and HIV-negative index women.

Sex differentials in re-marriage after an HIV-related death, divorce or separation were anticipated in Africa, with researchers postulating that HIV-related stigma, combined with poverty, would discourage potential suitors and increase the risk that a widow would re-marry with a poor man or become junior wives in polygamous unions (Caldwell, 1997). A study by Timaeus and Reynar (1998) using data from five DHS African surveys suggested a propensity for women who re-married to become junior wives in polygamous unions rather than establishing new monogamous relationships (Timaeus & Reynar, 1998). The study, however, did not consider the HIV status of the deceased husband or the widow. In their 1995 study, Mukiza-Gapere reported that widowers as well as widows had found it difficult to re-marry because of HIV-related stigma associated with the death of their previous partner (Mukiza-Gapere & Ntozi, 1995).

Studies across the continent have reported that the levirate rule requiring or permitting a man to marry his brother's wife or wives has been largely abandoned or ritualised due to concerns about HIV (Beswick, 2002; Gausset, 2001; Lugalla, Emmelin, Mutembei, Sima, Kwesigabo, Killewo et al., 2004; Malungo, 2001; Ntozi, 1997; Oleke, Blystad, & Rekdal, 2005; Welch & Martin, 1981).

The partnering choices made by parents determine the family and household arrangements into which children are born and live. HIV and AIDS family and household impact studies have predominantly focused on the impact of HIV-related parental death on the immediate household living arrangements. However, new partnerships may be attended by many family and household changes for the surviving family members. Re-marriage may mean forming a new household or ensuring the survival and growth of the existing household. It may require migration of parent and child together, or lead to them living apart. Subsequent partners can provide emotional, care and financial resources, thereby protecting the health and wellbeing of parent and child. Alternatively, new partnerships may hold risks for parent and child. It is therefore surprising how little we know about the impact of re-marriage and partnering on families and households affected by HIV and AIDS.

2.2 Impact of HIV on fertility and reproductive decisions

Childbearing is a key event in family formation and building. There are many potential ways in which HIV and AIDS may influence fertility levels and patterns in HIV-infected and uninfected couples. A decade ago, researchers hypothesised that women and men at high risk of becoming infected with HIV would attempt to increase their pace of childbearing in order to meet fertility goals (see for example, (Gregson, 1994; Temmerman, Moses, Kiragu, Fusallah, Wamola, & Piot, 1994). However, subsequent evidence has not supported this suggestion. Instead, HIV has been shown to exert a downward pressure on fertility in HIV-infected people, as well as in the general population in high prevalence countries (Heuveline, 2004).

2.2.1 Fertility consequences in HIV-infected people

Reduced fertility in HIV-infected women and men arises through both direct biological effects on the fecundity of HIV-infected women, as well as indirect effects on reproductive behaviour. A summary of the potential pathways through which HIV and AIDS affects fertility, modified from Zaba and Gregson (1998), is reproduced in Table 1 (Zaba & Gregson, 1998).

Table 1. Impacts of HIV on fertility

	Population affected		Overall effect
	Most women	Mainly HIV-positive	
Individual biological			
Increased partner mortality		--	-
Reduced coital frequency due to illness		-	-
Increased foetal mortality		--	--
Increased menstrual disorders		--	-
Decreased production of spermatozoa		-	-
Increased infant mortality		+	+
Treatment for other STD	+		+
Individual, behavioural			
Delayed age at start of sexual activity	--		--
Increased divorce and separation		--	-
Reduced partnership re-entry rates	--		--
Fear of leaving orphans		-	-
Condom use by non-contraceptors	-		-
Switch to condom use by contraceptors			+
Reduction in breastfeeding		+	+
Reduction in post-partum abstinence	+		+
Insurance and replacement effects		+	+
Population, structural			
Change in age structure			+
Excess mortality			
Amongst infertile			+
Amongst contraceptors			+

Source: Zaba & Gregson (1998)

(+), upward pressure on fertility; (-), downward pressure on fertility; (--), strong downward pressure; (STD), sexually transmitted disease.

The biological effects of HIV on fecundity in HIV-infected women and men are well documented (van Leeuwen, Prins, Jurriaans, Boer, Reiss, Repping et al., 2007). HIV-infected women have significantly more negative pregnancy outcomes than uninfected women, including miscarriages, spontaneous abortions, and stillbirths (Ahdieh, 2001; Gray & McIntyre, 2006). Higher rates of other STIs in HIV-infected people such as gonorrhoea which are also associated with sub-fertility or infertility. HIV/AIDS is also now a leading cause of maternal mortality in many high HIV-prevalence countries (Ronsmans & Graham, 2006). HIV-positive people may also have reduced coital frequency due to preference based on knowledge of own and partner's status, or due to illness. In addition, there may be secondary effects of HIV and AIDS when reproductive concerns and problems affect the quality of relationships both between couples and with other relatives (Tangmunkongvorakul, Celentano, Burke, de Boer, Wongpan, & Suriyanon, 1999; VanDevanter, Thacker, Bass, & Arnold, 1999). HIV-related infertility can be a major

challenge to the couple's relationship. Studies have highlighted the challenges African couples face when they experience infertility. A recent qualitative study in Malawi has found that married women experiencing infertility chose to engage in unprotected sex with other men in order to conceive, thereby placing themselves at additional risk of acquiring or transmitting HIV (Hemmings, Crampin, Jahn, & Banda, 2005).

While many people in sub-Saharan Africa are unaware of their status, increasing numbers of people, particularly women, have undergone VCT. Increased use of condoms to prevent HIV transmission will reduce fertility with the exception of those who have switched from a more effective form of contraception such as hormonal contraceptives (Feldblum, Nasution, Hoke, Van Damme, Turner, Gmach et al., 2007). In many VCT contexts there will be little time to discuss the implications of infection on the broader aspects of the person's reproductive health. Indeed for those receiving positive test results, it is likely to be too early for recipients to consider the longer-term implications on their lives. In addition, for the large proportion of women whose diagnosis has been made as part of routine antenatal screening, the focus will be on the current pregnancy and outcome for the baby and mother rather than on subsequent fertility decisions.

Other commentators have previously highlighted that studies of sexual behaviour and HIV risk in Africa have frequently ignored issues of fertility and infertility (Setel, 1995; Setel, 1999b). The public health focus for HIV-infected women has largely been on PMTCT. With the advent of more widely available HIV treatment in Africa, the reproductive choices made by HIV-positive people and their partners have long-term consequences for the survival and wellbeing of their families and households.

2.2.2 HIV impact on fertility in the general population

Although fertility is lower in HIV-infected women and men, the contribution of the HIV epidemic to fertility declines over the last two decades in sub-Saharan Africa is less certain. This is partly because it has been difficult to isolate the impact on fertility declines amongst HIV-negative people in affected countries (Lewis, Ronsmans, Ezeh, & Gregson, 2004), but also because most populations in sub-Saharan Africa had begun a fertility decline before or around the time that the HIV epidemic started (Heuveline, 2004).

In 1998, Zaba and Gregson reviewed the empirical evidence from case-control studies and theoretical predictions to estimate the impact of HIV on fertility in Africa (Zaba & Gregson, 1998). Given that the prevalence of HIV in most African populations is <50%, changes due to HIV that affect negative as well as HIV-positive women will have the greatest effect on population fertility levels. Using modelled data based on proximate determinants of fertility and HIV incidence, they estimated that lower fertility amongst HIV-positive women causes a population-attributable decline in total fertility of the order of 0.4% for each percentage point of HIV prevalence in the general female population.

A review of empirical studies by Lewis et al. (2004) found that fertility was lower among HIV-infected women than HIV-uninfected women, with the exception of those aged 15–19 years, in whom the selective pressure of sexual debut on pregnancy and HIV infection led to higher fertility rates among the HIV-infected. This fertility differential resulted in a population-attributable decline in total fertility of 0.37% (95% confidence interval 0.30%, 0.44%) for each percentage point of HIV prevalence. Terceira et al. (2003) estimated that nearly a quarter of recent fertility declines in Zimbabwe were caused by the epidemic (Terceira, Gregson, Zaba, & Mason, 2003). In Uganda, Lewis et al. (2004) estimated that a reduction of 700 000 births had occurred as a result of the reduced fertility in HIV-infected women and premature mortality among reproductive age women (Lewis et al., 2004). The negative impact on fertility in HIV-positive women has also been demonstrated in population-specific studies (see, for example, (Gray, Mawer, Serwadda, Sewankambo, Li, Wabwire-Mangen et al., 1998; Gregson, Zhuwau, Anderson, & Chandiwana, 1997)).

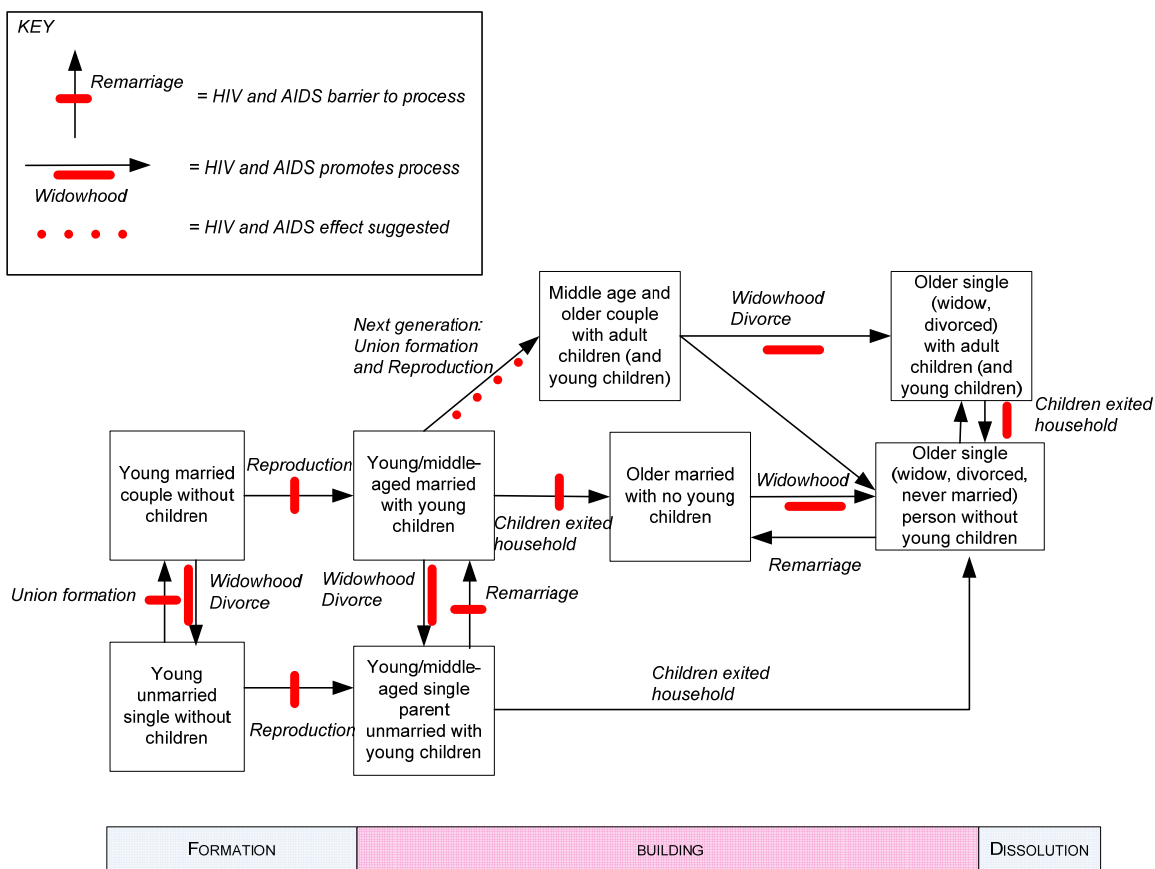
Overall, however, the evidence does not appear to support the suggestion that concerns about HIV have led couples to reduce childbearing. Two studies addressing this question were conducted in Malawi. Noël-Miller (2003) found some evidence that reported concerns about personal risk of HIV/AIDS infection reduced childbearing. However, the association was absent for younger women. The author suggests that this may be a consequence of strong childbearing norms among younger women. Working in the same area, Ezeh (2003) found no association between HIV prevalence and fertility intentions (Ezeh, 2003).

The extent to which the reductions in fertility estimated in the Lewis et al. (2004) and Terceira (2003) studies can be generalised to all countries in the region is also questioned by authors of a study examining fertility trends in the Africa Centre-DSS which was conducted in a very high prevalence rural South African population. Recent fertility to 2005 appears to have stalled rather than continue the declines of the 1990s (Moultrie, Hosegood, McGrath, Hill, Herbst, & Newell, 2008). The observations could be interpreted as offering some empirical support to the arguments put forward by Ezeh that showed no association between HIV prevalence and fertility intentions (Ezeh, 2003). Further, the authors suggest that at least in terms of aggregate measures of fertility, HIV prevalence is subsidiary to the main determinants of fertility (socioeconomic, social and demographic) in terms of its possible impact. In addition, a large proportion of pregnancies in sub-Saharan Africa will be unintended, something that needs to be borne in mind when considering fertility desires since intended fertility may therefore over- or underestimate fertility rates amongst HIV-positive people as well as in the general population.

2.2.3 Summarising the impact on the household life-cycle – formation and building stages

Childbearing is central to family and household life in sub-Saharan Africa. With no evidence to suggest that this is changing, the majority of couples, whether HIV-infected or uninfected, will continue to form and build families and households (Delvaux & Nostlinger, 2007). In Figure 2, the evidence for an effect of HIV and AIDS on family and household formation and building are summarised using the household life-cycle schematic form.

Figure 2. Impact of HIV and AIDS on household formation and building



3. Family and household dissolution and migration

On the other side of formation and building are the events and processes associated with the ending of households. Household dissolution means that the household as a recognisable social group has ceased to exist. In the HIV and AIDS impact literature, there has been a tendency to describe household dissolution as a cataclysmic, wholly negative event arising from the AIDS deaths of one or more household members. Unfortunately this perspective does not acknowledge that dissolution is an intrinsic process in the household life-cycle. There are many circumstances unrelated to HIV and AIDS in which members of a household may end their own and join other households, for example, when older people move in with younger relatives or couples divorce. These other determinants of dissolution continue to be present in people's lives even when facing the additional challenges due to HIV and AIDS.

In this section we consider household migration as well as dissolution. This is primarily because many longitudinal household studies fail to distinguish between household dissolution and household migration. However, both dissolution and migration are processes that can signal rearrangement in domestic arrangements, whether it be through surviving members going on to join other households, or by a physical relocation of the household primary residence.

HIV and AIDS have been postulated to increase the risk of household dissolution and migration through many pathways including:

- Adult death (death of the last adult member or death of a member around which the household was arranged, for example, household head, main income earner, primary caregiver)
- Economic vulnerability due to increased costs/reduced income (household members disperse either through migration and/or joining other households)
- Widowhood and survival (surviving partner chooses to join another household)
- Widowhood and re-marriage (surviving partner (and children) joins another household upon re-marriage)

In this section we discuss the few empirical studies examining household dissolution and HIV/AIDS. Before doing so, we discuss some data limitations and conceptual issues related to this area of research.

Limitations and cautionary notes

1. Identifying household dissolution in longitudinal population-based surveys is challenging. Many longitudinal data collection systems do not distinguish between household dissolution and household migration. For example, in the early rounds of the Kisesa-DSS in Tanzania, individuals but not households were tracked. Consequently, where households were not present from one round to the next, researchers were unable to ascertain whether the household has ended and its members migrated to join other households, or whether the household had continued after migrating within or out of the study area (Urassa, Boerma, Isingo, Ngalula, Ng'weshemi, Mwaluko et al., 2001). While distinguishing these household outcomes may appear somewhat subtle, the two outcomes

for a household are quite different from the perspective of family and household demographic impacts and have potentially dissimilar consequences for children affected by HIV and AIDS.

2. The data requirements needed to be able to examine the association between AIDS deaths and household dissolution are very demanding. Longitudinal, prospectively collected data are required. Cross-sectional survey data are unsuitable in the study of household dissolution because such households will not be present at the time of the survey (Booyesen & Arntz, 2003). Detailed micro-level household data are required including information about the cause of death, the date and age (used as a proxy for AIDS deaths) of household members, as well as household survival and migration. Lastly, the observational period should be sufficiently long in order to observe delayed changes in affected households. These demanding specifications have meant that few studies have considered household dissolution as the main outcome of interest.

3. In prejudging household dissolution and migration to be a negative consequence of HIV and AIDS has meant little attention has been given to examining the positive role dissolution and migration can play for families and households coping with adverse events such as death. Furthermore, household migration, for example, may be associated with positive changes in circumstances, such as employment and household migration in order access to better schooling or care.

3.1 Impact of adult mortality on household dissolution and household migration

In many populations, widowhood of the head or head's spouse is a key event signalling a transition into a new stage of the family and household life-cycle, or occasioning dissolution as the surviving partner joins another household. While many commentators postulated that HIV and AIDS would result in affected households being at greater risk of dissolution than other non-affected households, there are a number of reasons to suggest that this might not be the case. AIDS deaths primarily affect younger adults, and for young surviving partners, a number of factors may reduce the likelihood that the household dissolves compared to households of older widows. The deceased and surviving partner may be the parents with young children. Rather than opt to join another households, the surviving parent may try to keep the household together. Studies of orphan living

arrangements in sub-Saharan Africa show that in most populations single orphans live with the surviving spouse (Monasch & Boerma, 2004). In addition, in extended households, a younger adult bereaved following an AIDS death is unlikely to become the head of the household (Mather, Donovan, Jayne, Weber, Chapato, Mazhangara et al., 2004). The presence of other, older senior household members may buffer extended households that have experienced an adult AIDS death against dissolution.

There have been several longitudinal studies using population-based household data examining the impact of adult AIDS deaths on household dissolution and migration. Using demographic surveillance data from the Kisesa-DSS in Tanzania, Urassa et al. (2001) explored the survival of 4,956 households resident in the study area between 1994 and 1998. Unfortunately, given the approach used to data collection, what is referred to as household dissolution in this study in fact includes household dissolution, household internal migration (migration within the study area), and household out-migration (migration out of the study area). Eleven percent of households experienced an adult death. Households had only dissolved in cases where the deceased had been the household head. Following the death of a male household head, 43% of the households dissolved or migrated within 12 months. For households experiencing the death of the household head, the probability of dissolution was more common if the head was <60 years (44%) than if the head was 60 years and older (28%). Although the cause of death (AIDS or non-AIDS) was not associated with the probability of dissolution, households that experienced multiple adult deaths were more likely to dissolve. In the study households, multiple deaths of young adults were more commonly due to AIDS than other causes.

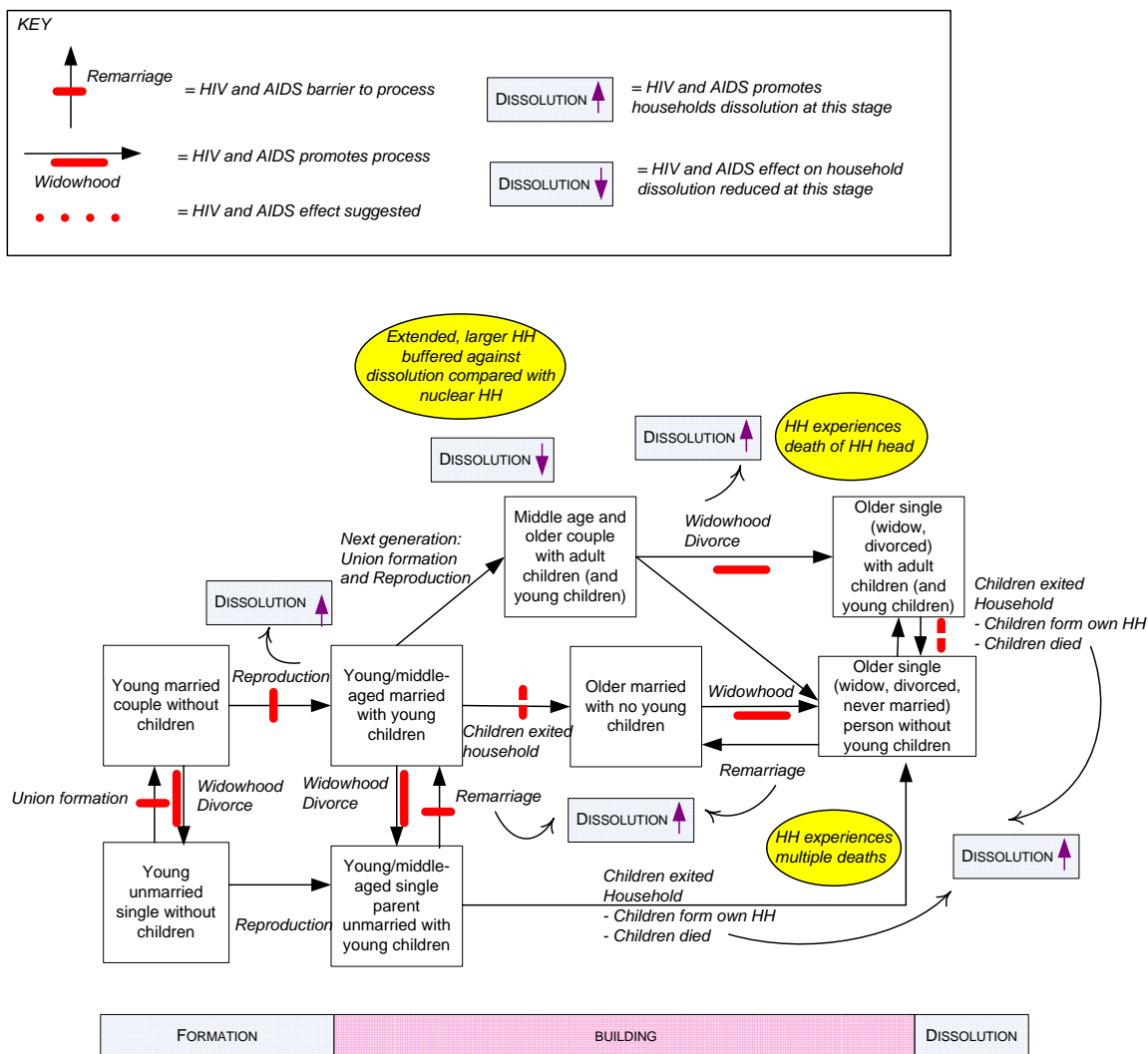
A second similar study was conducted using the Africa Centre-DSS in South Africa. The impact of cause-specific adult mortality was examined in 10,612 households during a two-and-a-half-year period in 2000-2002 (Hosegood, McGrath, Herbst, & Timæus, 2004). The design of the Africa Centre-DSS allows the risk of household dissolution to be modelled separately from the risk of household migration. Twenty-one percent of households experienced the death of an adult during follow-up. The dissolution findings were comparable to those from the Kisesa-DSS study. Households were four times more likely to dissolve if they experienced one or more adult deaths. However, there were no significant differences in the risk of dissolution between AIDS and non-AIDS deaths, or by the age or

sex of the deceased. The experience of violent or accidental deaths was associated with a higher risk of household dissolution. The authors suggest that sudden deaths, or deaths pre-figured by related violence or alcohol use, may make it more difficult for households to survive than deaths occurring after periods of chronic illness such as AIDS.

3.1.1 Summarising the impact on the household life-cycle – dissolution stage

Despite the widely-held perception that household dissolution is a common occurrence in households affected by HIV and AIDS, longitudinal, population-based household studies, albeit few in number, report a strong predisposition for household survival using strategies such as individual in- or out-migration. Households vulnerable to dissolution are those that experience multiple or sudden deaths, or events unrelated to HIV and AIDS such as the death of an older household head or divorce. In Figure 3, the pathways identified as consequences of HIV and AIDS on household dissolution are superimposed upon the schematic household life-cycle model.

Figure 3. Impact of HIV and AIDS on household dissolution



4. Household composition and living arrangements

In the previous two sections, the review focused on evidence for changes in the processes the formation and dissolution of households, effectively their dynamics processes. In this section, our attention turns to changes in the composition of households. It seeks to answer two main questions: Has the HIV epidemic changed the size and composition of households in affected populations? How do changes in household composition due to HIV and AIDS influence the living and care arrangements of children? In answering the second question, particular attention is given to the impact of changes in the level and pattern of

orphanhood, and the way in which parental death affects the living arrangements of children.

Households experience direct changes in their size and composition due to the direct effect of HIV and AIDS on child and adult mortality, fertility and migration. Less readily observed are the long-term effects on the formation and composition of households caused by HIV and AIDS-related changes in the sex and age structure of the general population. For example, a strong fluctuation in sex differential AIDS mortality, as has been observed in some affected populations, could have a knock-on effect on the probability of marriage and re-marriage (Heuveline, 2004). However, the impact of population-level changes on households due to HIV and AIDS specifically is very difficult to isolate from other factors in particular declining fertility.

Limitations and cautionary notes

A number of issues need to be considered when examining the evidence of the epidemic's impact on household structure.

1. The first relates to whether it is possible to isolate demographic changes due solely to the HIV epidemic from changes due to other factors. There have been transformations in household form and structure in Africa, accompanied by, perhaps in part caused by, other demographic, social and economic transitions. For example, in chapter 2, changes in marriage underway prior to the start of the epidemic were discussed (Locoh, 1988; Preston-Whyte, 1974; Van de Walle, 1993). Many of the anticipated effects of the HIV epidemic are similar to those of other transitions and thus may obscure the impact of HIV and AIDS on household structure. For example, declines in fertility, marriage, urbanisation, and increased female labour participation are all associated with decreasing household size.

2. The impact of HIV on these changes is also complicated by the heterogeneity of households across the region. To use Patrick Heuveline's (2004) phrase 'benchmark household structure' as a shorthand to describe the entire distribution of household structures in a given population, such benchmark household structures vary widely between and within countries. In the absence of a counterfactual, we cannot readily anticipate what each population's benchmark household structure would have been should

the HIV epidemic not have occurred. The approach of trying to identify households that have not been affected by HIV and AIDS is often attempted, but is arguably unrealistic in communities that have experienced severe and generalised HIV epidemics. In such contexts, households will have either been directly affected through the infection, illness or death of one or more household members or because of indirect impacts due to similar experiences in inter-connected households whose repercussions are experienced widely, for example, leading to the movement of people in or out of households.

3. Understanding changes in household composition and living arrangements requires longitudinal household-level data linked to HIV and AIDS impacts such as adult cause-specific mortality. Such data are scarce as well as often limited in its comparability. The way in which the concept of a household is operationalised during data collection and analyses can critically influence study findings and interpretation. Two much discussed aspects of household definition is the enumeration of non-resident household members (Hosegood, Benzler, & Solarsh, 2005; Hosegood & Timæus, 2005a) and the approach used to identify household headship (Budlender, 2003). The concept of a household affects the changes that are observed. For example, household size is defined as the number of household members it contains and consequently, the definition of households influences even this simple and most commonly compared indicator.

4. In-depth, longitudinal qualitative studies are better able to discriminate between household responses to HIV and AIDS from coincidental but unrelated events experienced by the household, for example, changes in household size or headship due to non-AIDS deaths. Some of these events, such as the death of an older person may result in substantive social and residential changes. Or, on the other hand, qualitative studies observe interdependencies between households and therefore are more sensitive than household panel studies in detecting the consequences of HIV and AIDS occurring in other households (Hosegood et al., 2007b).

4.1 Evidence of changes in household size

Changes in household size and composition associated with adult and child AIDS deaths are the most readily observable impact examined in HIV/AIDS impact studies. Adult mortality has a much larger impact on household size and age structure than infant and

child mortality since deaths of children will typically be accompanied by one or more deaths of adult parents.

At its most basic level, a change in household structure would most simply be a function of the deceased's age and sex - a reduction in the household size by one and a change in the sex and dependency ratio. However, a death is often accompanied by other changes in social and residential re-arrangements. New members may join the household to fulfil a role formerly held by the deceased; others may need or choose to leave following the death. Consequently, the net change in household size will also depend on the way in which the household itself, and those that support it, re-arrange themselves either before or after an adult or child death.

Is there evidence that HIV has caused changes in household size and age composition across the region? Generally the larger a country's household size, the higher the ratio of adults to children and the higher the proportion of non-nuclear members (Bongaarts, 2001). Household size is also positively associated with the level of fertility. Where the mean age of first union is rising, household size will also increase as young adults remain longer in the parental household. However, in a context of high union instability, household size will decline in response to household splits. European and North American societies have seen a decline in household size with increased industrialisation and urbanisation. The anticipated decline in household size predicted on the basis of convergence theoryⁱⁱⁱ has not occurred or has occurred at a far slower pace in southern Africa. Data from the 1970s and 1980s suggested that in sub-Saharan Africa, there had rather been a general increase in household size (Locoh, 1988). The processes driving these increases in household size have not been adequately explained (Bongaarts, 2001). In a comparative paper by Bongaarts (2001), household size and composition in 43 developing countries is analysed using data from Demographic and Health Surveys (DHS) conducted in the 1990s. The average household size^{iv} for sub-Saharan Africa is estimated to be 5.3 members, with the household population composed of roughly half adults (18 years and older) and half children, the number of children in the average household (2.8) being before the country-level total fertility. However, the paper covers a period too early for the effects of HIV to be evident, and also does not examine trends in southern African countries. No comparative analysis of trends in household size over time across southern

Africa has been published examining the changes in household size and composition in relation to the timing and prevalence of the HIV epidemics.

Longitudinal studies of household cohorts have examined the impact of prime-aged adult AIDS death on household size. While most studies suggest that overall household size declines, it is not a universal finding. In addition, studies examining the changes in the number of prime-age adults only suggest that in many countries affected households are able to replenish their adult membership numbers.

Ainsworth and Semali (1995) found that rural households in Kagera, Tanzania, were able to maintain their household sizes and dependency ratios despite the death of a prime-age adult (15-50 years) (Ainsworth & Semali, 1995). However, in Rakai, Uganda, household size declined by about one person following a prime-adult death as on average affected households attracted new members (Menon, Wawer, Konde-Lule, Sewanlambo, & Li, 1998).

Mather et al. (2004) conducted a cross-country analysis of household responses to adult mortality using data from four panel surveys in Kenya, Malawi, Mozambique, Rwanda and Zambia (Mather et al., 2004). A prime-age adult was defined as a person aged 15 years to between 49 and 59 years depending on the country. In follow-up periods of between four and five years, the changes in size and composition were compared between affected and unaffected households. They found that average household size declined in households affected by prime-age adult deaths. However, the effect was highly variable depending on the age, sex and position of the member(s) who died, highlighting the importance of accounting for gender and household position of the deceased when identifying the effects of prime-age mortality on household composition and livelihoods. Focusing on the size of the prime-age household population, they observed that in several countries affected households increased the number prime-age adults. The authors conclude that affected households respond to the prime-age death primarily through attracting new members rather than sending away members. Households with a female prime-age death were twice as likely as non-affected households to attract a new prime-age female. However, no difference in recruitment between households with only a male prime-age death and unaffected households was observed. Although from the available data the authors could

not assess whether the newcomers completely replaced the functions and roles previously undertaken by the deceased, their sense was that partial if not complete replacement had occurred in many affected households. No difference in the likelihood of young children (0-4 years) or older children (5-14 years) being sent away was found between affected and non-affected households. In Kenya, a higher probability of older girls being sent away was observed but only in households experiencing the death of a female head/spouse.

Mather et al. (2004) also consider whether part of the explanation for an increase in the size of the prime-age adult population in affected households might be the return from urban areas of ill adults. However, they present data from only the Mozambique panel study which suggests that only 5% of prime-aged members who reported being currently ill had joined or re-joined the households in the previous four years. However, the data used may be limited in its approximation of AIDS-related migration. Evidence from a similar study conducted using surveillance data from South Africa suggests that many previously non-resident household members who would consider themselves to have continuously been a member of the household and therefore, not report joining or re-joining the households when becoming resident with the household (Welega, 2006).

A paper reporting findings from the Kenyan panel study alone discusses in more detail the role of prior living and labour arrangements and the characteristics of the person who dies in determining the impact of prime-age death on households (Yamano & Jayne, 2004). Affected households experiencing the death of a prime-aged household head/spouse, particularly that of a female head, underwent a large decline in the size of their prime-aged population, in comparison with other affected households where on average the numbers of prime-age adult increased. Given that the majority of prime-age adults who died were not the head of household or their spouse, the authors conclude that the impact on household composition, survival and income may not have been as severe as anticipated in early predictions about the impact of the HIV epidemic. Differential impacts due to the age, sex and position of adults who die have also been considered in relation to household dissolution and migration (see section 3).

4.2 Evidence of changes in household composition

The changes in composition related to specific relationships between household members have been of more general interest. Each deceased person will have had roles within the household, whether as the head of the household, parent to a child, partner, sibling, foster child. These intra-household relationships give shape to the way in which households are composed, as well as to the way that they function.

Wittenberg and Collinson used population-based household composition data from the Agincourt demographic surveillance system (DSS) in rural Mpumalanga, South Africa, over the period 1996-2003 in order to examine the impact of increased mortality and social change due to HIV and AIDS (Wittenberg & Collinson, 2007). Their analysis suggests a persistence of extended family living (Wittenberg & Collinson, 2007). Smaller household types, such as nuclear families and single person households, were already common in rural South Africa prior to the HIV epidemic; 30% and 10% respectively in 1995. While the proportion of single person households doubled by 2003, there has been no increase in nuclear households at the expense of extended households. Rather, the authors observed an increase in the proportion of extended household types (both three and multi-generational) and complex, related households. The authors attributed this as evidence that household change had occurred as a response to adult HIV and AIDS related out-migration or mortality. The increase in single-person households was not observed in the surveillance data. The difference may be due to the changes in the national survey methods to increase the identification of workplace living arrangements such as hostels and shared accommodation, arrangements less common in rural areas.

Similarly, Madhavan and Schatz (2007) also used data from the Agincourt DSS in order to examine evidence for HIV and AIDS-related changes in household structural and composition (Madhavan & Schatz, 2007). Analysing longitudinal data for the period 1992-2003, a period before and during rising HIV prevalence in the population, they found that household size decreased and the proportion of female-headed households increased.

4.3 Children's living arrangements

In this section, we explore the evidence for changes in children's living arrangements due to the effects of HIV and AIDS. Understanding the living arrangements that arise for children who have been orphaned must be considered in the light of the normative household arrangements in the population. In doing so, to adapt Heuveline's (2004) phrase, one needs a sense of a counterfactual 'benchmark household living arrangement' for children to avoid misattribution of patterns to the impact of HIV and AIDS.

One of the undoubtedly important consequences of the epidemic is its impact on the living and care arrangements of children experiencing the death of one or both parents. Most children in Africa live with at least one parent and therefore the consequence of being orphaned will result in profound family and household changes. We therefore begin this by examining the evidence for increases in the level and changes in the pattern of orphanhood in sub-Saharan countries. We then consider the impact of the HIV epidemic on living arrangements and care arrangements of orphan and non-orphan children.

Although highlighting orphaning as a key demographic impact is undoubtedly warranted in this review, we offer a note of caution. Single-parent and double orphans are a minority of all children even in countries with high HIV prevalence. Yet orphans remain one of the most widely discussed topics in HIV-related scientific, policy and advocacy literature. Meintjes and Geise (2006) have argued that the discourse around HIV, AIDS and orphanhood has resulted in a distorted view of the family and household circumstances in which the majority of children affected by HIV and AIDS live (Meintjes & Geise, 2006). A further corollary of the intense interest in HIV, AIDS and orphans has been extensive commentary on child-headed households and skip-generation households. These household types were predicted to increase markedly in number in Africa as a consequence of parental AIDS deaths by many influential commentators (See, for example, (Sachs & Sachs, 2004)). While seeking to avoid the balance of this review being dictated by those topics that have received the most research attention, we conclude with an examination of the empirical evidence regarding increases in the proportion of these very specific household forms in HIV and AIDS affected populations.

Limitations and cautionary notes – related to orphanhood

There are a number of commonly held perceptions about the HIV epidemic and orphanhood that need to be dispelled when considering the demographic evidence.

1. There is a tendency for the majority of orphans to be thought of as young children. The proportion of children with surviving parents can only decline with age, therefore the majority of orphans, whether maternal, paternal or double are the older children.
2. Not all parents, even in high HIV prevalence countries, will have died from AIDS. In 1999, half of all maternal and paternal orphans in Tanzania were orphaned due to non-AIDS parental deaths (Grassly & Timæus, 2005).
3. Higher paternal than maternal orphanhood prevalence is not an HIV-specific phenomenon. Fathers are on average older than mothers, and young adult men have higher non-AIDS age-specific mortality rates than young adult women (Hosegood, Vanneste & Timæus, 2004). For single orphans, a large proportion of parental deaths may be due to non-AIDS mortality. However, HIV and AIDS is a very important cause of double orphans due to transmission of HIV between parents. In Tanzania, three-quarters of double-parent orphans were estimated to be due to parental AIDS deaths (Grassly & Timæus, 2005). Given the difficulty of obtaining causes of parental death in household surveys, model estimates based on adult cause-specific mortality data from other sources can be used to assess the contribution of AIDS deaths to the orphaning of children.

4.3.1 Evidence of trends in orphanhood prevalence and patterns

While many estimates of levels and trends in orphanhood prevalence continue to be derived from model-based estimates (Grassly, Lewis, Mahy, Walker, & Timæus, 2004), household surveys, censuses and demographic surveillance systems (DSSs) provide an additional source of data about orphans.

Household surveys and surveillance systems have the additional benefit of providing related information about the living arrangements of orphaned and non-orphaned children. Longitudinal data such as DSS have a further advantage of providing estimates of orphan incidence. Compounding the limited empirical data on orphanhood, a lack of standardisation in the definitions and methods used in calculating the orphanhood

estimates has constrained comparisons and analyses of orphanhood prevalence between populations and countries. Several authors critique the lack of systematic data collection and reporting of orphan data (Grassly & Timæus, 2005; Hosegood, McGrath, Floyd, Glynn, Crampin, Marston et al., 2007a; Meintjes & Geise, 2006; Sherr, Varrall, Mueller, & JLICA Workgroup 1, 2008). For example, some estimates combine single- and double-parent orphans, while others consider single orphans whose other parent's survival status is unknown as double orphans. Taking the definitions most commonly used in demography, maternal orphans have no living mother, a paternal orphan no living father, and a double orphan no living parents. Variations in the upper-age limit of estimates of orphanhood prevalence exist due to variations in the cut-off used to define children. Usually estimates consider children <15 years or <18 years, some authors arguing that in studies of orphan living arrangements, countries with early entry in to marriage need to consider the possibility of orphans living with spouse/partner and in-laws (Hosegood et al., 2007a).

Before 2005, three key comparative papers were published presenting data on the levels and trends in orphanhood in countries throughout the sub-Saharan region. No similar descriptive papers on such a large number of countries have been published more recently with updated empirical data.

Bicego, Rutstein and Johnson (2003) examined levels, trends and differentials in orphan prevalence in 17 sub-Saharan African countries using data from Demographic and Health Surveys (DHS) conducted between 1995 and 2000. A similar study by Monasch and Boerma (2004) described orphanhood prevalence in household surveys from 40 sub-Saharan Africa countries (Monasch & Boerma, 2004). The surveys were conducted by the UNICEF Multiple Indicator Cluster Surveys (MICS) and DHS programmes during 1992-2002. Both papers report a strong correlation between orphanhood prevalence and national adult HIV prevalence. Overall 9% of children under 15 years had lost at least one parent. In countries with low HIV prevalence (<1%) the proportion of paternal orphans was around 4-6%, maternal orphans 1-2% and double orphans less than 1%. Southern African countries with high HIV prevalence had the highest rates of maternal, paternal and double orphanhood. The highest rates of paternal orphanhood in this sub-region were in Lesotho (12% in 2000), maternal orphanhood in Mozambique (4% in 1997), and double orphanhood in Zambia (3% in 2001). The trends in orphanhood were rising in many

countries. In countries with more than one survey, increases were observed in eight of the ten countries studies with HIV prevalence >5%. The exceptions were Uganda and the Central African Republic. All countries where the proportion of orphans had declined between the two surveys had less than 1% HIV prevalence.

A recently published comparative paper has used data from three demographic surveillance systems (DSS) in Malawi, Tanzania and South Africa to describe the effect of high levels of HIV prevalence on the levels and trends in orphanhood (<15 years) in the period 1998-2004 (Hosegood et al., 2007a). The prevalence in all three populations rose over the period. By the end of the 1990s, the prevalence of maternal orphanhood was similar in all three populations (around 2-3%). South Africa has experienced the latest and most severe HIV epidemic of the three countries and maternal orphanhood rates. In the Africa Centre-DSS population in rural KwaZulu Natal, the HIV prevalence in the general population was 22%, and maternal orphanhood doubled from 3% to 7% between 2000 and 2004. The level of non-AIDS adult mortality in the pre-HIV epidemic period influences the extent to which orphanhood rates increased in each site. In the Karonga-DSS in Malawi the greatest increase, as the HIV prevalence rates increased, was seen in the prevalence of paternal orphanhood (from 6% to 9% between 1998 and 2003). In South Africa, where the level of paternal orphanhood was already very high in 2000 due to high rates of non-AIDS young adult male mortality, the increase in paternal orphanhood from 8% to 11% appears less dramatic.

4.3.2 Evidence for changes in children's living and care arrangements

The data presented by Monasch and Boerma on co-residence patterns of non-orphans and their parents, in their analysis of household surveys in 40 countries in sub-Saharan Africa, highlights the considerable heterogeneity that exists across the sub-Saharan Africa region. In Niger, 83% of non-orphans were living with both parents whereas only 26% of non-orphans were doing so in Botswana and Namibia. In general, the proportion of non-orphans who do not co-reside with their living parents was highest in the southern African sub-region. In southern Africa, the pattern of residential separation between children and their parents, irrespective of parental death, does not have its roots in the HIV epidemic,

but rather has emerged by the well-entrenched pattern of labour migration and some of the lowest rates of marriage on the continent (Murray, 1981; Spiegel, 1987).

The influence of normative children's living arrangements on the changes that occur following orphaning is seen clearly in the comparative study of children's living arrangements in three communities in Malawi, Tanzania and South Africa (Hosegood et al., 2007a). The living arrangements of children vary considerable between the populations, particularly in relation to fathers. Patterns of marriage, migration and adult mortality influence the living and care arrangements of orphans and non-orphans. In the Karonga-DSS (Malawi) and Kisesa-DSS (Tanzania) populations, most non-orphans lived in households headed by their father. In contrast, in the Africa-Centre-DSS (South Africa), only a minority of non-orphans do so (38%).

The Monasch and Boerma (2004) study found that on average one in six households with children were caring for at least one orphan. Orphans were more likely to live in households that are female-headed, have an older head, are larger, and have a less favourable dependency ratio, than non-orphans (Monasch & Boerma, 2004). In the three DSS comparative studies, the majority of paternal orphans live with the mother or grandparents. Similarly to the DHS and MICS findings, orphans, especially paternal orphans, are more likely to live in female-headed households than are non-orphans. Highlighting again the importance of relating social context to arrangements for orphaned children, the likelihood of maternal orphans living with the father was very different in the three DSS populations, the highest proportion (68%) in the Karonga-DSS (Malawi), the lowest in Africa Centre-DSS (South Africa).

A detailed longitudinal study of children's living arrangements in the Africa Centre DSS population between 2000-2005 (Hill, Hosegood, & Newell, 2008) found that by 2005 approximately one-third of 17-year-olds had lost at least one parent, double the proportion in 2000. Fifty-seven percent of single orphans had living mothers.

4.3.3. Sibling separation

Richter, Manegold and Pather (2004) suggested that increased sibling separation would be another discernible direct impact of HIV/AIDS on families and households (Richter, Manegold, & Pather, 2004). However, data on sibling separation are very scarce given that few population-based studies have intra- and inter-household relationships data necessary to measure the extent to which this occurs. In Zambia, in a sample of orphaned children <25 years old, nearly 60% were living in separate households from one or more of their siblings (Family Health International, 2002). However, these statistics are not readily interpretable given that by 25 years of age, even in the absence of parental death, siblings may have become married, moved for work or schooling.

In an unpublished study of sibling separation in orphans and non-orphans using population-based data from the Karonga DSS, Floyd et al. (2005) showed that among siblings aged <15 years, separation between two households was more common among orphans than non-orphans: non-orphans (4%), paternal orphans (15%), maternal orphans (21%) and double orphans (8%). No orphans were distributed between three or more households (Floyd, McGrath, Jahn, Crampin, Zaba, & Fine, 2005). The higher proportion of separation among single orphans than double orphans may reflect the complexity of care arrangements following the re-marriage of the surviving parent.

4.3.4 Child-headed households

Child-headed households are one of the most widely discussed social consequences of the HIV epidemic in southern Africa. At the same time, evidence for the extent of this phenomenon is controversial with prevalence estimates varying widely. Several studies of population-based based data from the DSS and national household surveys report that despite high levels of orphanhood and increases in adult mortality, child-headed households are not found or remain extremely rare.

The largest comparative analysis of 40 sub-Saharan Africa surveys data by Monasch and Boerma (2004) identified very few child-headed households (<1%) between 1999 and 2005 (Monasch & Boerma, 2004). This form of household composition has also been consistently found to be rare in DSS data in high HIV prevalence populations in Malawi,

Tanzania and two areas in South Africa. Despite large increases in orphanhood, few child-headed households have been identified between 2000 and 2005 (Hill et al., 2008; Hosegood et al., 2007a). In 2004, the Karonga DSS (Malawi) and the Kisesa DSS (Tanzania) identified no child-headed households in their populations of 5,800 and 4,700 households respectively (Floyd, Marston, Hosegood, Scholten, & Zaba, 2005; Hosegood et al., 2007a).

Several studies of the approximately 11,000 households in the Africa Centre DSS between 2000 and 2006 have identified only a few as child-headed households at any one time. Even from the perspective of orphaned children, Hill et al. (2008) found that 2% of maternal and paternal orphans live in 'child-only' households, compared to 1% of non-orphans (Hill et al., 2008). The authors found that many of the child-only households were data errors, but where confirmed, many were headed by older children, often arranged around school attendance. They suggest that while such households may emerge following the death of adult members of a household, they tend to be temporary with the adults moving in to care for the children, or the children moving to join other households (Ford & Hosegood, 2005; Hosegood, McGrath, Floyd, Glynn, Crampin, Marston et al., 2005).

Wittenberg and Collinson also found that most of the child-headed households recorded in the Agincourt DSS were data errors (Wittenberg & Collinson, 2007). The absence of what the authors call 'non-standard' households, i.e. child-headed and skip-generation households, and the increase in the proportion of extended and complex, related households, are interpreted by Wittenberg and Collinson as a clear sign of positive rather than negative social responses to HIV and AIDS:

"...there is as yet little evidence that the HIV/AIDS epidemic is leading to the collapse of traditional forms of household organization. We do not observe child-headed households or an increase in other non-standard types of households. There does seem to be evidence that households are absorbing additional relatives and grandchildren."

Madhavan and Schatz (2007), in their analyses of the same surveillance data, also note the absence of an increase in child-headed or skip-generation households in the Agincourt population. Household types the authors refer to as 'fragile families'.

An analysis of five national South African household surveys conducted between 1995 and 2005, found that less than 1% of household included only children (<18 years) (Desmond & Richter, 2007).

In stark contrast to the findings of these population-based, empirical studies, there are many examples of programme and research reports based on case studies or qualitative study designs that suggest that there are large numbers of child-headed households in sub-Saharan Africa. Although a review of such studies is beyond the scope review, two examples serve as illustration. In a paper describing support programmes targeting orphans in Zambia, Zimbabwe and Malawi, Kelso (1994) wrote: “Despite these initiatives, child abandonment, child-headed households, and involvement of orphans in prostitution are widespread phenomena.” (Kelso, 1994). In a report describing the situation of orphans and vulnerable children in Botswana, Arnab and Serumaga-Zake (2006), 38% of households in Botswana’s Central district were reported to be headed by children (Arnab & Serumaga-Zake, 2006). A recent book by Lloyd (2008), based on experiences supporting child-headed households in Tanzania, provides an unattributed statistic “Every 14 seconds a Child Headed Household is formed” (Lloyd, 2008). At this rate, around 2.2 million additional child-headed households would be created; a result of this magnitude should be detected in population-based surveys.

Why might qualitative studies suggest a far greater prevalence of child-headed households? In part, the answer must lie with design of the qualitative studies. Many of the studies were conducted with the specific objective of describing the experience of children living in these types of households. Thus, their approach was to identify, and purposefully enrol, such households from among the general population, often by working with NGOs and faith-based groups that target support to very vulnerable children. A second explanation may involve the definition of a household, in particular, that of headship when adults are working elsewhere. Many studies and surveys consider only resident household members. Thus, where a household head is not resident, another member will be recorded as the head during data collection – in some cases this may be a child (Budlender, 2003; Hosegood & Timæus, 2005a). Some might argue that a household where adults are not resident most nights of the week is effectively a child-headed household. However, this is a misnomer given that the household recognises an adult as its head. In highly mobile

African population, households will commonly experience temporary or longer-term periods of absence by adult heads (O'Laughlin, 1998). Furthermore, in populations where the age of first marriage is low, for example, in Malawi (median age first marriage is 18 years in women) (Floyd et al., 2008); a young head of household may be a married person living with their own children – not the kind of household usually conceptualised by term 'child-headed household'.

4.3.5 Skip-generation households

A second widely discussed consequence of the epidemic is that of older people caring for children orphaned through parental AIDS deaths. These households composed solely of older adults defined any age upwards of 50 years, and children are often referred to as 'skip-generation households' given the absence of prime-age adults. The image projected of such households is of a grandparent, typically a grandmother, living with her grandchildren whose parents have died due to AIDS. The prevalence of skip-generation households is higher in all countries than that of child-headed households. However, as with child-headed households, empirical population-based data shows that their prevalence remains low.

In their paper analysing DHS data in 17 sub-Saharan African countries, Bicego et al. (2003) wrote: "Children living with grandparents are vulnerable since the grandparents themselves have lost one of their key support mechanisms, namely their sons and daughters. There was no evidence that this pattern has been significantly changed or amplified during a period of increasing numbers of orphan children in severely AIDS-affected settings." (Bicego, Rutstein, & Johnson, 2003)

In addition, not all such households are the result of young parental death. Even in the absence of HIV or AIDS, children live with older people in the temporary or long-term absence of adults for a variety of reasons. In South Africa, for example, the labour migration system in which large numbers of men and women participate, the largely universal old-age state pension, and rural settlement patterns have combined to promote the importance of older people's role in the care children as a coping strategy.

In the Wittenberg and Collinson analyses of surveillance data from the Agincourt DSS, 1996-2003, the proportion of children of the head of the household declined, which the authors attribute to declining levels of fertility (Wittenberg & Collinson, 2007). However, they observed an increase in the proportion of grandchildren within households. While this might be a response to increasing parental mortality due to AIDS, the interpretation is complicated in South Africa by the presence of a State pension which may also lead to younger adults and children preferentially arranging themselves around a pensioner (Ardington, Hosegood, & Case, 2007; Case & Deaton, 1998).

In another South African DSS, Hosegood and Timæus (2005) examined the impact of adult mortality on the living arrangements of older people over a three-year period (women >59 years, men >64 years) (Hosegood & Timæus, 2005b)]. Twenty percent of older people living in 4,176 households had experienced the death of at least one younger adult member during the period. Very few (<3%) older people lived alone, with only older adults, or only with children <18 years in 2000. A similar percentage of older men and older women lived with children and no young adult. The majority of older people (87%) live in three-generation households. During the period of follow-up skip-generation households, 15 new skip-generation households were created following the death of young adults; however, they were short-lived and by the end of the study period had been joined by young adults, the children had joined other households, or the household had dissolved.

In a subsequent study in the same study population, Hill et al. (forthcoming) showed that in 2005, 694 children were living in 287 households with only child and older resident members. Of the 694 children living in households with only children and older resident members, 68% lived with just one resident adult woman aged 60 years or older. However, all these households had additional non-resident members who were adults aged 18–59 years. The study also explored who was responsible for day-to-day care and school fees of orphans and non-orphan children. Thus, even in these residentially 'skip-generation' households, while grandmothers were most commonly reported as being responsible for day-to-day care, nearly half the children they cared for had their school fees paid for by their mothers or fathers.

Analyses of South African census and DHS data also show similar results to the South African DSS data with less than 2% of older black South Africans living alone with a grandchild less than 15 years old and in the absence of one of their own adult children (Merli & Palloni, 2004; Noubissi & Zuberi, 2001). In Uganda, a country with a relatively mature epidemic, the prevalence of such households was less than 1% in 1992 and 1.6% in 1995 (Ntozi & Zirimenya, 1999).

5. Expanded HIV treatment in Africa: Evidence for changes in the impact of HIV/AIDS on families and households

The possibility, as well as the reality of, treatment is likely to have considerable impact on many of the family and household demographic processes we examined in this review: family formation, building, union formation and stability, and children's care and residential arrangements. Longer survival and earlier detection will increase the period and family and household life-cycle stages over which these responses will be made by HIV-infected people, their partners, and family members. Reproductive choices by HIV-positive individuals and couples have started to receive attention in sub-Saharan Africa. We briefly consider the early evidence and anticipated impact of wider access to effective HIV treatment will have on family and household demography.

5.1 Influence of HIV treatment on health and survival

The primary consequence of increased numbers of HIV-positive people being maintained on treatment will be the improvements in health and survival post-infection. Deaths due to AIDS are expected to decline but families and households will continue to undergo this experience given the challenges around testing, initiation, adherence, and treatment efficacy. They will also need to continue to find ways to respond to ill health, episodes of which may become less frequent or severe due to treatment, but nonetheless require frequent contact with the health services.

Studies in high- and middle-income countries where HIV treatment is well established have reported many relationship and family stressors associated specifically with treatment, for example, feelings of exclusion from programmes by uninfected partners, as

well as coping with issues about living with HIV. In higher-income countries there has been a large increase in demand for fertility advice and medical interventions for conception, delivery, and infertility (Delvaux & Nostlinger, 2007; van Leeuwen et al., 2007) Findings from ART programme support groups in the US found four major groups of issues: (1) dealing with the emotional and sexual impact on the relationship; (2) confronting reproductive decisions; (3) planning for the future of children and the surviving partner; and (4) disclosure of the HIV infection to friends and family (VanDevanter et al., 1999).

5.2 Influence of HIV treatment on fertility

A second main influence on the family and household life-cycle of HIV treatment is through its impact on fertility in HIV-positive people. In 2005, a cross-sectional study to examine fertility intentions was conducted with 311 public ART programme participants in Cape Town, South Africa (Myer, Morroni, & Rebe, 2007). Almost one-third wanted to have children in the future. The desire to have children was significantly associated with age, existing number of children, and relationship status. For women, a longer duration of ART was associated with increased desire for more children. In qualitative interviews with HIV-positive men and women in contact with or initiated on treatment programmes in the same area, the same researchers identified that fears of partner and infant infection and having a previously infected baby were important factors deterring some individuals from considering having children (Cooper, Harries, Myer, Orner, Bracken, & Zweigenthal, 2007). Women perceived community disapproval associated with HIV and reproduction. Strong desires to experience parenthood, mediated by prevailing social and cultural norms that encouraged childbearing in society more broadly, were reported by others. Most HIV-positive women had not discussed their reproductive desires and intentions with health-care providers in HIV care or general health services because of anticipated negative reactions. The few who had done so perceived the counselling environment to be mostly unsupportive of open discussion on these issues.

Other treatment-effects on family and household demography such as partnerships and sexual behaviour, effects of residential and labour mobility, impact on PMTC and the treatment of HIV-positive children, are only beginning to be anticipated and studied.

Furthermore, the effects of treatment availability are unlikely to be restricted to HIV-infected people and their families or households, but potentially change attitudes and behaviour in non-infected individuals.

6. Summary of findings

Two decades into the HIV epidemic in Africa, the evidence from quantitative studies continues to frustrate attempts to draw definitive conclusions about the demographic impact HIV and AIDS has had on families and households. Why? The most important reason is that it is near impossible to isolate many of the effects of the epidemic from other social, economic and demographic changes already underway or recently started in Africa. Furthermore, complex inter-relationships exist between many of the family and household processes and the HIV epidemic itself. Perhaps the most striking example of such a process is the influence of long-distance circular labour migration. Labour migration, predominantly but not exclusively of men, was a determinant in the emergence of the epidemic throughout the region. While at the same time, the well-entrenched pattern of circular migration influenced patterns of marriage, partnership and union stability, as well as family and household residential arrangements. A second reason is that there remains a considerable gap in our knowledge base which arises as much from the fixed and widely promulgated beliefs about the epidemic's impact on families and households, as from the challenges of collecting detailed, longitudinal population-based data in sub-Saharan Africa.

So what has this review concluded about the impact of HIV and AIDS on families and households in sub-Saharan Africa? The findings suggest that the epidemic has and will continue to take a considerable toll on families and households, but that this impact is not to create the kind of extreme demographic phenomena to which commentators have so often drawn our attention, for example, the emergence of child-headed households; but rather on the normative processes of family formation and building, such as marriage and childbearing. In this review, we based our examination of the evidence within the conceptual framework of the family/household life-cycle. This approach has highlighted demographic impacts that have received little research or programmatic attention. And it has identified anticipated impacts that are unsupported by available evidence or where insufficient or inadequate data exists.

6.1 Key findings

- While HIV has been shown to reduce fecundity, the epidemic has been only a secondary determinant of fertility decline in African countries.
- With the exception of widow inheritance traditions, there is little evidence to support a major influence of HIV and AIDS on trends in marriage and partnership. Increasing numbers of children, particularly in southern Africa, are born out of marriage and/or live with a single parent. However, HIV and AIDS is a subsidiary driver of contemporary changes in marriage and partnership in Africa.
- For children affected by HIV and AIDS, studies have not examined the effect of marital and partnership choices by surviving parents on the social and residential arrangements of single orphan children.
- Childbearing norms remain strong in all sub-Saharan African countries. Among HIV-positive people, ill health and premature mortality may result in desired family size being unfulfilled. However, among young adults who are well, knowledge of a positive HIV status does not inhibit childbearing. Early evidence suggests that the desire for children among young adults accessing HIV treatment is high.
- Households experiencing adult AIDS deaths are vulnerable to dissolution; the effect is strongest when multiple deaths occur in the same household. The effect of adult AIDS deaths on household migration is complicated by financial, land and property tenure, social networks, and motivational aspects tied up with households changing residence. Children affected by parental HIV and AIDS are themselves more mobile. However, the underlying reasons for this mobility may be positive, as well as, negative.
- The evidence does not support a universal influence of AIDS mortality on reducing household size. This is in part because of some of the responses that households make to HIV and AIDS ill health and mortality that maintain or increase household size. This includes adults joining affected households or the merger of several households.
- The HIV epidemic has substantially increased the prevalence of maternal, paternal and dual orphans in sub-Saharan Africa. Most paternal orphans will live with their mothers. The evidence with regards to the living arrangements of maternal orphans varies across the region, reflecting marital patterns. Where marriage rates are high, most maternal orphans will live with their father. Thus, the majority of orphans will live with a surviving parent, their siblings and extended parental kin.

- There is no evidence that rising orphanhood rates have led to a substantial increases in the proportion of children living without adults (child-headed households) or in households with only older adults (skipped-generation households). In population-based surveys, these vulnerable types of household remain relatively rare, even in populations with very high HIV prevalence.

In a review commissioned by a Learning Initiative on Children and HIV and AIDS, the relevance of identifying changes in marriage and partnership, widow inheritance, fertility and reproductive decisions among others, may not be immediately apparent. However, the vast majority of children, whether affected or infected by HIV and AIDS, live in families and households. And it these processes that shape the way their families and households form, are structured and function. The type, the duration, and the manner in which it ends, of the relationship between a child's parents, has an impact on their lives. The experience of most children in Africa, upon the death of a father, is to continue living with his or her mother. The mother's re-marriage or re-partnering is likely to have profound implications for the child. Yet, the contrast of how little evidence is available to us about partnering of widows or widowers, with that available about the small numbers of orphans who live without a surviving parent, is striking. We now conclude by considering the implications of both the findings and the gaps in the evidence base, for programmes designed to strengthen families in Africa.

7. Implications for strengthening families

In this concluding section the implications of the evidence for family and household change in the era of HIV and AIDS are considered.

1. Prioritise efforts to strengthen families by supporting parents

Young adults are the drivers of family and household life as they form relationships and families, bear and raise children. They are also the main role-holders in households for earning income, providing labour and care, and ensuring social networks are fostered and maintained. The majority of children affected by HIV and AIDS in sub-Saharan Africa continue to live with or be supported by one or both parents. Parents are the most

appropriate and sustainable sources of family and household stability and wellbeing for children. Even where care and support of children is provided by other members of the household, these arrangements are often made by parents. Thus, household composition and living arrangements where parents and orphaned and non-orphaned children are not co-resident with a parent should not be used in isolation as a screening indicator of vulnerability.

2. Recognise that the scaling-up of effective HIV treatment may have a profound effect on families and households affected by HIV and AIDS

Treatment has the potential to modify many of the family and household responses to HIV and AIDS that have been shown in the pre-treatment era. The experience of coping with HIV-positive members who have the potential to be treated, or are being maintained on treatment creates the potential for a radically different health, psychological and economic context for those affected. The benefits also come with challenges. These include the impact on family and partner relationships, disclosure, sexual behaviour and reproductive decisions, and short- and long-term planning. The experience of treatment participants and their families have been well-documented in high and middle-income countries with established programmes. This body of knowledge provides a starting point to move quickly to ensure that we monitor the consequences for family and household demography as effective HIV treatment is scaled up.

3. Actively explore ways to integrate family and support services in the rapidly expanding public HIV treatment programmes

There are several areas where affected families and households may be brought into the programme. These include the disclosure and testing of partners and children, couple and family counselling. Linked to these psychosocial services should be a recognition that the health service should provide young positive and negative adults with 'family planning' in its broadest sense. Programmes must begin to formulate and deliver reproductive advice, as well as simple and cost-effective interventions to women and men, including contraceptives and safer fertility technologies to reduce the risk of vertical transmission in infected men and women who intend to have children.

The experience of ART programmes outside sub-Saharan Africa has been that couples, whether positively concordant or discordant, experience a high risk of union dissolution. Parental divorce and separation are associated with adverse psychosocial, health and wellbeing in children even where HIV and AIDS not present. In southern Africa in particular, 'threats' to unions posed by HIV and AIDS will occur against a background of low marriage rates and high union instability. Investing in ongoing provider and peer-support to both partners, infected and non-infected partners, may help to reduce the probability of family dissolution. The benefits and operational issues in providing couples counselling and support are beginning to be explored in sub-Saharan Africa (Allen, Meinzen-Derr, Kautzman, Zulu, Trask, Fideli et al., 2003; Allen, Tice, Van de Perre, Serufulira, Hudes, Nsengumuremyi et al., 1992; Bunnell, Ekwaru, Solberg, Wamai, Bikaako-Kajura, Were et al., 2006).

Over the next few years as cost-effective and best-practice options are explored, it will be important to avoid the temptation to identify single points of intervention. Ways of garnering positive support from treatment supporters (Nachege, Knowlton, Deluca, Schoeman, Watkinson, Efron et al., 2006) and family members will need to be considered as part of a strategy to support affected families and households. In extended family situations with complex inter-dependencies, the attitudes and behaviour of other members of the family can be a strong influence on young adults. A study in Thailand reported that even where a discordant or positively concordant couple did not desire further children, family pressures and the risk of accidental disclosure, placed pressures on them to bear children (Tangmunkongvorakul et al., 1999)

Whilst promoting this research direction, interventions with couples and families should not be restricted solely to the realm of treatment programmes. In sub-Saharan countries, the minority of young adults are HIV-negative. Thus, family observational and intervention studies examining aspects of positive prevention in negative concordant couples are also required.

4. Use and respond to the empirical evidence in sub-Saharan Africa's many national and population-based censuses, surveys and surveillance system

In the early 1990s, researchers and policy makers decried the lack of empirical data with which to monitor the impact that HIV and AIDS on families and households in sub-Saharan Africa (Barnett & Whiteside, 2000). Many studies have examined various dimensions of HIV and AIDS impact in children, adults and households, using primary and secondary data from a whole host of sources including censuses, demographic and health surveys, household panel studies and demographic surveillance systems. It is extremely troubling that many policy makers appear to disregard or ignore the implications of these empirical studies for policy, implementation and monitoring. This review clearly illustrates this with the example of evidence about the effects of HIV and AIDS on household composition. Large, population-based studies across the region have consistently shown that despite rising prevalence of orphanhood in many African countries, extreme household forms such as child-headed and skip-generation remain extremely rare or non-existent. However, child and family programmes continue to spend disproportionate amounts of money and effort to target children living in these types of households. This emphasis should be strongly discouraged and policy makers and those involved in programmes asked to reconsider their priorities in the light of the evidence.

Where targeting is required, screening should be redirected to established and validated measures of psychosocial and health vulnerabilities in children (see, for example, child indicators proposed for use in South Africa (Dawes, Bray, & van der Merwe, 2007)). Policy makers and donors have the leverage to be able to successfully motivate for a wider range of indicators of child vulnerability in national and study data collection efforts. Many longitudinal population studies have made considerable advances in modifying their systems to collect relevant and socially meaningful socio-demographic data precisely in order to answer questions about social impact. Some examples from DSS in sub-Saharan Africa include resident and non-resident household members, linking children to their biological fathers and mothers, parental and partner migration and survival, and the collection of data about family functioning in addition to composition. With regards to efforts to collect and interrogate evidence about HIV and AIDS impacts on children and

their families, the charge often made that researchers are removed from social reality, may rather be laid at the door of donors and policy makers.

5. Improve our understanding the effect of HIV infection on the dynamics of marriage and partnership

Most children in Africa are born within unions, mostly marital unions. In seeking to strengthen families and households, more attention should be given to understanding and mitigating the impact of the HIV epidemic on the stability of marriages and partnerships. Impact studies in Africa have often been restricted to examining the impact of adult death rather than HIV infection. The increase in population-based data linked to HIV status should encourage researchers to consider the effect of HIV infection (knowledge of status and disclosure to partner) on union dissolution leading to household dissolution and migration.

Support to couples facing the challenges of coping with HIV and AIDS as partners and parents may take many forms ranging from seeking to involve partners in HIV/AIDS prevention and treatment programmes to couples-focused counselling covering wider issues of communication and coping strategies. Uptake of treatment may be conditional on supportive family circumstances since many ART programmes require participants to attend treatment with a support partner. Understanding how marital and family dynamics evolve in the era of HIV treatment will enable better planning of these treatment programmes.

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ⁱ In his comprehensive review of AIDS and the Family (2005), Belsey uses the concept of ‘family household’ (see p12) (Belsey, 2005). We do not consider ‘family households’ in this review because the conflation of the two concepts has not been widely used in household surveys in Africa – in part because non-‘family households’ are rare with the exception of single person households.

ⁱⁱ Margo Russell’s paper (2003) is a useful overview of the historical and theoretical roots of scholarship about families and households in southern Africa.

iii According to convergence theory, households become less extended, more nuclear, and smaller as societies industrialise and urbanise.

iv The definition of household used DHS surveys includes the condition that eligible members are co-resident. Consequently in populations with high circular labour migration, the estimate of household size in DHS will be smaller than those obtained when non-resident members are recorded.