

**HOUSEHOLD IMPACTS OF AIDS:
Using a life course analysis to identify effective,
poverty reducing interventions for prevention,
treatment and care**

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Executive summary

This paper, produced in July 2007 by TARSC and HEARD, and commissioned by DFID, uses a life course approach to assess household level impacts and inform interventions around HIV and AIDS. It was circulated in draft to DFID and others, and their comments have all been taken into account. Life course analysis explores for each stage of a person's life the dynamics and stresses experienced and suggests inputs for a successful transition. Using evidence from documented literature, close attention has been given to the interventions that appear to have greatest positive impact in current and future trajectories and their implications for DFID's areas of focus on AIDS. The paper synthesizes and presents evidence on household impacts across seven major age related stages of life.

Drawing from this, the areas of greatest potential stress at the various stages are identified as:

- i. At birth, securing survival outcomes, particularly those relating to maternal health, the health service and social factors that influence these outcomes.
- ii. In infancy, securing the social and nutritional nurturing for early childhood development, from parental- especially maternal- care and primary health care services.
- iii. During childhood, securing developmental outcomes, particularly through education and nutrition.
- iv. At adolescence, securing reproductive health outcomes; particularly through dealing with social, income and employment factors, especially for female adolescents.
- v. In early adulthood, securing health, survival, and economic outcomes through access to treatment, care and support, social safety nets and buffers to catastrophic spending on ill health and for income and food security, especially for women.
- vi. For mature adults, securing long-term family needs through access to savings and supportive community networks and safety nets.
- vii. In old age, the challenge relates to the resource balance between own and family needs, for social protection and support, nutrition, care-giving and health care.

The paper presents documented, relevant and effective interventions for dealing with these stresses.

We suggest giving greater emphasis to interventions that address factors that have latent impacts later in life, that interrupt accumulating risk and that change pathways to reduce the risk of later stress. In line with this the suggested priorities for interventions are:

- i. To secure survival outcomes and entitlements at birth, PMTCT and universal birth registration in the context of improved maternal and child health services.
- ii. In infancy, to ensure early childhood development through household and social mechanisms, and through strengthened links to primary health care services.
- iii. During childhood, to support universal school enrollment and quality of education, especially for orphans.
- iv. At adolescence, in addition to reproductive health services, to include measures to address sexual violence and to improve employment opportunities, especially for female adolescents.
- v. In early adulthood, to support access to treatment through services, free at point of care.
- vi. For mature adults, to introduce measures that improve supply of credit, formal welfare transfers and benefits, counseling and support.

- vii. In old age, to expand measures for social inclusion, nutrition, support for care-giving directly to elderly people and access to health care.

In more focused epidemics in Central Asia, Eastern Europe, North and West Africa and Latin America the impacts of AIDS are focused in specific groups experiencing higher risk, such as injecting drug users, sex workers, men who have sex with men, and prisoners. There is negligible evidence on household-level impacts in these communities, and projections of impact extrapolate evidence from sub-Saharan Africa. This signals a lack of preparedness to plan for and deal with these impacts at a time when the epidemic is spreading.

Noting the limitations of the data used, we suggest that DFID can strengthen its interventions to deal with household impacts of AIDS as identified from the life course analysis by

- **Continuing or intensifying existing DFID investments**, particularly in relation to PMTCT and links to strengthened maternal and child health service provision and to treatment and care services for AIDS; to investments in education; and to continuing the DFID focus on strengthening health systems.
- **Adding further inputs to selected existing areas of investment.** This applies in relation to strengthening measures for orphan access to education; to strengthening legal, institutional and social responses to violence, especially in relation to child and adolescent sexual abuse. It also implies adding to DFID's current investments in health systems a strengthened focus on primary health care, in order to widen access to treatment, with additional support for the food, transport and other resources people need to adhere to treatment.
- **Adding selected new areas of focus.** This includes support to services for and uptake of birth registration; support to early childhood nurturing through training and support to family carers, early childhood development and care centres; investment in longer term public works programmes earmarked for youth (such as through the general budget support and support to poverty reduction strategies) and support to policy and strategic dialogue, evidence gathering on and evaluation of investments to widen access to land and housing and to establish income grant, cash transfer and other basic social security schemes.
- **Integrating a focus on elderly people across ALL areas of programme support**, particularly in terms of increasing access to health care, and support for food inputs, counseling and welfare needs. A greater focus on elderly people can also be included in programmes dealing with stigma, and in advocacy activities of people living with HIV and AIDS (PLWHIV).

Most recommended interventions do not add totally new areas, but enhance existing DFID interventions. The proposals are backed by evidence of public health and social impact. We suggest that DFID use the proposals as a framework for country offices to map and assess the situation and actions of other agencies, to identify whether these areas *are* being addressed, and if not to promote the assessment, dialogue and investment needed to address them. This is due to the range of factors influencing choices such as ethical, human rights, cost effectiveness or cost benefit, impact on poorest households, synergies with other goals of bilateral investment, and with institutional and systems strengthening and areas of DFID comparative advantage. Further research is needed to address evidence gaps on household impacts of AIDS in the more concentrated but growing epidemics in Eastern Europe or Central Asia, and on the role of, and barriers in, access to interventions outside the health sector, such as birth registration, early childhood development, cash transfers and public works programmes.

1. Introduction

This paper uses a life course analysis approach to advance understanding of the impact of HIV and AIDS at household level and within households. It aims to inform choices on, and direct resources towards specific policies and investments that reduce poverty and enhance health and health equity. It was prepared by Training and Research Support Centre (TARSC) and Health Economics & HIV/AIDS Research Division (HEARD) for DFID. DFID is in 2007 consulting on its HIV and AIDS strategy, noting the:

- continued spread of HIV, particularly in Eastern Europe, Asia, and sub-Saharan Africa (SSA);
- increased risk for females, men who have sex with men, injecting drug users, sex workers and prisoners; and
- gaps in coverage in, and need for strengthened public sectors to deliver prevention, treatment and care. (DFID 2007a)

While a life course approach has been used to explore other interventions, such as chronic poverty in youth (Moore 2005), it is as yet little applied to HIV and AIDS. Applied in this way it enables an understanding of the many pathways through which the epidemic affects households, and of critical points at which intervention can lead to improved outcomes.

Social policy is effective when it insures against *risks* people face over the course of their lives, when it protects against the insecurities from future risks that may not be adequately planned for, and therefore helps people exercise greater control over their lives when unexpectedly faced with crisis. Households face greater problems where there are gaps in these resources, when the buffers for transitions are inadequate, or when social policy does not adequately address or provide for these points of stress. This paper sets out an analysis of the impacts of AIDS at **household** level, to inform interventions that protect against current and future risk, and that enable households to positively manage the shocks arising from AIDS.

2. Putting household impacts in context

The household impacts of AIDS are located in the context of an epidemic that has different stages, forms and extent, globally, with different national responses. This information is thoroughly documented in UNAIDS Global reports, and we do not repeat it (UNAIDS 2006; WHO et al., 2007).

These various reports highlight:

- generalised and plateauing epidemics in east and southern Africa, with a large share of households affected;
- less generalised, rising epidemics in the Caribbean, Latin America and in most of Central Asia and the Caucasus, with large numbers affected in Asia, given large populations; and
- more focused epidemics in specific groups, such as migrant men and their families, or intravenous drug users (IDUs) (in North and West Africa and the Middle East); in IDUs and men who have sex with men in Latin America, Central Asia and the Caucasus; and in IDUs in Eastern Europe and Central Asia.

There are differences within and between countries in terms of the size, timing and location of the epidemics. There are areas and social groups where the epidemic is more concentrated, even in areas of low or reducing prevalence, and groups more at risk, even in generalised epidemics. These groups are often on the margins of society or face legal or social stigmatisation. In more focused epidemics, intervention may be best oriented towards specific vulnerable groups, including adolescent females, sex workers, people who use intravenous drugs - including youth - and men who have sex with men. In more generalised epidemics, response to the impacts of AIDS has implications for the wider economic and social policies and services, together with measures to promote access and uptake in marginalised groups.

It is thus not feasible to generalise household impacts and responses globally. We draw evidence for this paper mainly from the most affected regions, particularly east and southern Africa (ESA), Asia, and to a more limited extent Central America. Of these ESA shows least progress towards Millennium Development Goals (MDGs) and thus merits greatest attention (UNDP 2006).

In most settings, while HIV prevalence may have peaked, the number of AIDS cases will continue to rise, with long-term, sometimes underestimated developmental impacts. This calls for immediate *and* long-term responses (Barnett and Prins 2006; Loewenson and Whiteside 1997; UNESCO/UNAIDS 2000; Loewenson 2007a).

At the household level, increased spending on caring and lost labour occur before adult mortality, while increased dependency and longer term poverty impacts occur after early adult death due to AIDS. Impacts occur as sharp shocks (e.g. job loss from illness) and slow changes: at the level of the individual, the household, the community, the production unit, sector and country. Individuals are affected in their role as consumers, producers and as family and community members (Barnett and Whiteside 2006). While the global resources being mobilised to address AIDS are now significant, evidence from Latin America, Asia and Africa shows that responses to the impact of AIDS continue to be primarily grounded within the actions of individuals, households and extended families, in some cases supported by wider social networks. For the poorest households this represents a significant social and economic burden (Loewenson 2007b; Donahue 1998; Foster 2007).

3. Methods: using the life course approach to understanding household experience of HIV and AIDS

A life course analysis is used in this paper to assess impacts and interventions because it:

- provides a means of linking antecedent events, multiple factors and relational issues in the analysis of specific points of HIV risk or vulnerability to AIDS;
- avoids the exclusive health and AIDS lens and reflects the multi-sectoral realities of household, communities and national plans;
- overcomes problems with measuring and targeting impact that arise from other methodologies; and
- is focused on periods in people's lives and thus has relevance for households, even where countries are at different levels of infections or stages in the epidemic.

There is a significant body of cross-sectional research mapping impacts at household level. There is some evidence that impacts are greater or more obvious in middle income or less poor

households, where savings and assets may be diverted to consumption or secure employment lost as a result of the epidemic. These effects may be less obvious in communities where savings are already minimal and employment already insecure (Bachmann and Booysen 2004). Much of this evidence comes from cross-sectional surveys that do not adequately connect experiences across areas, time or across the specific groups studied, and that do not make explicit the relationships over time between different factors at different periods of the life course (Spencer 2001). Households exist in a network of relationships and access support through relations that reach across regions, sometimes countries, and across social groups (Priya and Sathyamala 2007; Foster 2007). Events at one time influence outcomes at later stages and sometimes across generations. Households draw on networks of support, make decisions on sacrificing future benefit for current costs, or balance trade offs between long-term growth and current crisis (Loewenson 2007a,b; UNAIDS 2006; Barnett and Whiteside 2006; Decosas 2002). Understanding the impacts of AIDS calls for approaches that integrate the antecedents of health inequalities in later life (Graham 2000), and the health disadvantage that builds up cumulatively over the life-course at both individual and community level (Curtis et al 2004).

3.1 The Life course concept

A life-course analysis is based on the understanding that people pass through various transitions and stages in life, and integrates evidence on these stages within a dynamic analysis. This allows for examination of the effects of events at one stage of life on subsequent states, of what happens in the transitions across stages and what resources buffer stages and support successful transitions (Spencer 2001; Policy Research Institute 2004; Moore 2005). While the analysis is often applied in age related stages (see Figure 1) life stages do not only relate to age (Moore 2005). In this analysis we follow age related stages of birth, infancy, early childhood (under 5 years) childhood (6-14 yrs), adolescence (15-19 yrs), early and late adulthood, and old age. We understand that the age boundaries for different states vary across contexts so these are indicative.

Figure 1: Life Stages



Source: World Bank, Children & Youth - Life-cycle Approach

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTCY/0,,contentMDK:20243956~menuPK:565264~pagePK:148956~piPK:216618~theSitePK:396445,00.html> accessed June 2007

In this paper we explore the **household** level, linking individuals within the same household, given their influence on each others events, behaviors, and outcomes (Wu 2003). Household level impacts in many countries are also affected by relatives outside the household, who may in providing economic and social support to survivors from AIDS-affected homes (Foster 2002). Domains such as work, marriage, childbearing, typically analysed in isolation for the health consequences, cannot be adequately understood without considering their relative interaction (Wu 2003).

Early life course exposures should thus be related to later outcomes, to identify pathways and intermediaries, and points of intervention (Ben Shlomo and Kuh 2002). Antecedent stages affect transitions and later stages in a range of ways. The effects may be **latent**, and experiences in an earlier critical period can affect outcomes later periods without sustained presence of that experience. Experiences in one stage may lead to **pathways** for outcomes, or there may be an **accumulating risk** across stages associated with outcomes. A life course model offers opportunities for assessing these relationships, including chains of risk across generations. While the associations are generally probabilistic rather than deterministic, they identify points where chains of risk may be broken and alternative trajectories established (Ben Shlomo and Kuh 2002).

Whilst there are a significant range of factors for which trajectories can be plotted, those with highest relevance to individual and household well-being and included in this analysis are:

- health;
- social and economic participation, i.e. contribution and access to goods and services, labour markets, community institutions, government services; and
- social cohesion - levels of equality, diversity, networking, inclusion.

There is limited field evidence tracing household impacts over time, particularly for the poorest households, with evidence drawn largely from cross-sectional studies. Different outcome measures and definitions of impact are used across different studies. Longitudinal cohort studies, particularly using birth cohorts, are the most effective way of tracing outcomes over time, but are expensive, time consuming and infrequently implemented. Historical cohorts and record linkage studies depend on good statistical records and deliberate collection of different factors across all periods of the life course and are also infrequently implemented. They have been used to examine the social and economic factors that affect infants and determine their health as adults (Wadsworth 1997; Sampson and Laub 1990; Kuh and Ben-Shlomo 1997; Ben Shlomo and Kuh 2002). There are some examples of panel data - longitudinal datasets that track the *same* households over time and provide more than two waves of data collection to enable mapping of changes over time. E.g.: **Young Lives**, initiated in 2001, is investigating changes in child **poverty** over 15 years in Ethiopia, India, Peru and Vietnam. (see www.younglives.org.uk) and **Birth-To-Twenty**, initiated in 1990, explores the social, economic, political, demographic and nutrition transitions underway in urban South Africa, and the impact on a cohort of children, adolescents and their families. (see <http://www.wits.ac.za/birthto20/>). We have not either accessed or analysed such data sets in this review of available secondary evidence.

Recognising these difficulties we have drawn on available published evidence to:

- locate current evidence on the household impacts of AIDS within the life course stages, noting their relationship to the development challenges at that stage and their linkages to later life course events. We have presented those for which there is some consistency in evidence across studies and countries;

- identify the major areas of stress that need to be overcome to make successful transitions from one stage of the life course to the next;
- explore the interventions identified from current evidence to be effective for managing these areas of stress and assessing their relevance to household vulnerability; and
- explore the implications for the match with DFID's current areas of focus on AIDS.

4. Household impacts of AIDS

Table 1 outlines the key determinants of wider health and wellbeing and the areas of documented household impact of AIDS at different stages of the life course, where impacts are documented across multiple studies and multiple countries. It draws largely from studies from Asia, Africa and Central and South America, with a focus on more recent work, and on multi-country studies or reviews of evidence.

Table 1: Determinants of health and wellbeing and household impacts of AIDS

LIFE COURSE	KEY DETERMINANTS OF HEALTH, WELL BEING	CURRENT KNOWLEDGE ON AIDS IMPACTS	Sources
Birth	Maternal health and survival Antenatal care Attended and safe delivery Breast feeding	Falling food consumption weakens maternal health Risk of mother to child transmission Increased neonatal mortality Increased maternal mortality Strain on health services	Barnett and Whiteside 2006; Loewenson and Whiteside 1997; Baylies 2002; World Bank, 1998; Bonnel, 2000: Wekesa, 2000
Infancy	Food security for mothers Immunisation Maternity leave Family nurturing, esp. mothers; Early childhood development (ECD) Food security and nutrition	Maternal and paternal survival; orphanhood Breast feeding maybe unsafe Reduced savings, income and production weakening access to food and health inputs Loss of elderly family carers	Barnett and Whiteside 2006; Baylies 2002; World Bank, 1998; Bonnel, 2000: Wekesa, 2000; Donahue 1998; van Niekerk et al 2001
Childhood	Water and sanitation Access to education Family and social nurturing	Orphanhood, relocation Loss of parental interaction Social stigma or exclusion; failing communities Loss of income School dropout Shifts to poor quality diet	Barnett and Whiteside 2006; UNESCO 2003; Loewenson and Whiteside 1997; Baylies 2002; Donahue 1998; Mahal and Rao 2005; Ainsworth and Filmer 2002;; van Niekerk et al 2001
Adolescence	Sexual autonomy Freedom from violence Peer support Employment opportunities Age of sexual debut	Loss of parental interaction Social exclusion; sexual violence Loss of family income; pressures for work/ caring; caring posing risks of sexual abuse School dropout Shifts to poor quality diet Reduced employment opportunities, poor access to savings and assets; Mobility for employment	Gordon and Creehan 1998; Barnett and Whiteside 2006; UNESCO 2003; Bachmann and Booyesen 2004; Mahal and Rao 2005;
Early adulthood	Access to further education Access to employment Access to credit, Opportunities for savings Empowerment and self worth Family planning	Early mortality Sexual violence Survivor demands for caregiving, work, family nutrition and income Demand for household labour Demand on health care services Potential for spending to deplete assets and reduce savings; Exclusion due to stigma	Mahal and Rao 2005; Gordon and Creehan 1998; UNAIDS, 2001a; Loewenson and Whiteside 1997; UNESCO/UNAIDS 2000; Munthali 2002; Kurschner 2002; Donahue 1998; van Niekerk et al 2001

Mature adulthood	Access to shelter Opportunities for ownership of assets Child education and social needs Community networks for longer term support	Increased mortality Survivor demands for care-giving, work, family nutrition and income Demand on health care services Falling savings Reduced contribution to community Potential for social isolation	Mahal and Rao 2005; UNAIDS, 2001a; Loewenson and Whiteside 1997; UNESCO/UNAIDS 2000; Munthali 2002; Kurschner 2002; Basu et al 1997;
Old age	Access to social security Access to medical care Mobility, health Social inclusion	Orphan caring Caregiving of ill adult children Loss of remittances, use of savings for caring Stress to health; poor uptake of health care services; Poor nutrition Stigma and social isolation	Helpage 2001; Mahal and Rao 2005; Knodel and Im-em 2002;

There are geographical, wealth and gender differences in these impacts (UNAIDS 2006). A review across Asia, Africa and Central America of child school enrolment in households affected by AIDS found that wealth differences between households were stronger determinants of differences in enrolment than geographical differences between countries (Ainsworth and Filmer 2002). Female infection rates exceed those of males, especially at younger age groups, and impacts have been found to be more intense in women (UNAIDS 2006; Chacham et al 2007; Priya and Sathyamala 2007).

4.1 Implications of impacts for household poverty

There is some debate about the relationship *between* poverty and AIDS, mainly due to the higher incidence of infection in Africa in higher income groups and countries (van Niekerk et al 2001). The substantial literature on that debate does not fall within the mandate of this paper.

There is less debate on the impact of AIDS *on* poverty, with a range of studies showing higher levels of poverty in households affected by AIDS, measured in terms of household assets, income, social security, and food consumption (van Niekerk et al 2001; Salinas and Haacker 2006). Such impacts are also found when using a wider definition of poverty covering deprivation of basic needs and social exclusion (Ganyaza-Twalo and Seager 2005). Studies have found households experiencing adult illness and death due to AIDS to have a greater incidence, depth and severity of poverty (Booyesen 2002). An IMF review paper based on household survey data from four sub-Saharan African countries with different epidemic patterns (Ghana, Kenya, Swaziland and Zambia) and measuring poverty in terms of those below the \$1 per day poverty line, found that the epidemic increases the share in poverty, beyond levels expected by its impact on average income, with its strongest effects on those just above the poverty line (Salinas and Haacker 2006). Differentials in access to insurance for medical costs and lost income were found in several studies to be associated with differentials in levels of poverty, with some threat of increased poverty when households are heavily reliant on household and community level safety nets without transfers from outside communities (Booyesen 2002; Salinas and Haacker 2006). Poverty impacts have also been found to be greater in conditions of greater informal employment, weak social support networks in communities, and where barriers exist in accessing social service delivery due to underfunding, user charges or costs of transport (Rosen and Simon, 2002; Desmond 2001; Whiteside 2002; Nyamathi *et al.* 1996; Booyesen et al 2003).

The pathways for and timing of these impacts on poverty are not well mapped, particularly through cross-sectional surveys, and depend on context. For instance job loss due to stigma or illness leads to lost earnings, particularly when job loss is prolonged. Stigma leading to job loss

may thus have deeper income effects than illness-related job loss, when it increases the period of unemployment (Mahal and Rao 2005; Barnett and Whiteside 2006). Similarly the impact of additional costs on households, particularly health care and funeral costs and costs after death varies across countries, depending on where the cost demands are highest (Bachmann and Booyesen 2004; Barnett and Whiteside 2006). The impacts on household poverty may arise immediately, but have also been found to accrue at later stages of the life course, such as in threats to longer term sustainability of household agriculture (Baylies 2002), to the future health and health costs of other family members (Baylies 2002; World Bank, 1998; Bonnel, 2000: 5-6; Wekesa, 2000), or in the impact of children withdrawn from school on future earning power (Baylies 2002).

A 2005 review of micro-level data in Africa suggests that the distribution of poverty is not uniform *within* households, with young women most affected (IUSSP 2005). In summary however, beyond obvious measures to prevent illness and mortality, reducing the impoverishing effects of AIDS on households would appear to call for vertical transfers to support safety nets and measures to sustain or rapidly replace earnings from employment.

This summary of the interactions between the general determinants of health and wellbeing at each stage, and the documented micro-impacts of AIDS at that stage suggest where the potential for stress is greatest, and the intervention most needed to facilitate successful transition from this stage to the next.

The areas of greatest potential stress in the life cycle due to HIV and AIDS thus appear to be:

- 1) **At birth, securing survival outcomes;** particularly securing maternal health, safe delivery, newborn health and the health service and social factors for these outcomes.
- 2) **In infancy, securing the social and nutritional nurturing for early childhood development;** particularly that associated with parental- especially maternal- care, with primary health care services and with nutrition.
- 3) **During childhood, securing developmental outcomes,** particularly through education and nutrition.
- 4) **At adolescence, securing reproductive health outcomes;** particularly through dealing with social factors, sexual violence and income and employment opportunities, especially for female adolescents.
- 5) **In early adulthood, securing health, survival, and economic outcomes;** through measures that provide access to treatment, care and support, social safety nets and buffers to catastrophic spending on ill health and to sustain income. This is particularly important for women who face greater disadvantage.
- 6) **For mature adults, the ability to secure long-term family needs** is the challenge; associated with access to savings and supportive community networks and safety nets.
- 7) **In old age, the challenge relates to the resource balance between own and family needs,** for social protection and support, nutrition, care-giving and health care.

5. INTERVENTIONS FOR THE MICRO-IMPACTS OF AIDS

Each determinant of vulnerability to AIDS is also a potential ‘window of opportunity’ to intervene, especially where this can influence pathways of accumulating vulnerability. Table 2 summarises interventions to manage the stress and facilitate successful transition. The interventions have impacts that are not limited in their focus to the specific set of circumstances that trigger them, nor are these impacts always immediately visible. Households use resources from multiple sources to manage stress (Seeley 1993). The richness of this network of support, and the extent to which communities are connected to it, are thus important contributors to risk and vulnerability (Decosas 2002). Health shocks, like AIDS, affect the number and quality of “buffers” available and thus coping ability. When resources dwindle to the level where they no longer act as effective buffers, social exclusion and destitution sets in (Donahue 1998; Baylies 2002; Policy Research Institute 2004). Generally stress is first managed through more easily reversible mechanisms, and households only resort to mechanisms which threaten long-term recovery and sustainability (such as the sale of productive assets) as a last resort (Donahue 1998; Loewenson 2007a).

Table 2: Areas of stress in and interventions household impacts of AIDS

LIFE STAGE	FOCUS FOR SUCCESSFUL TRANSITION	AREAS FOR INTERVENTION
Birth	Securing survival outcomes, particularly securing maternal health, safe delivery, newborn health	Prevention of maternal to child transmission Meeting maternal health needs including access to antenatal care, safe delivery, postnatal care and related health services Birth registration
Infancy	Securing the social and nutritional nurturing for early childhood development	Access to health services for integrated management of childhood illness, Primary health care, Food security; Advice on breastfeeding; Maternity leave; Social grants Early child development centres, resources
Childhood	Securing developmental outcomes, especially through education and nutrition	Access to free education services Social support through grants; Identification of children most at risk Feeding programmes
Adolescence	Securing healthy reproductive outcomes, dealing with sexual violence and employment opportunities, especially for female adolescents	Knowledge, life skills, social protection for reproductive health and choice outcomes Protection against violence Further education Transition to employment opportunities for earning incomes
Early adulthood	Securing adult survival, access to treatment and protection against impoverishing spending, especially for women	Access to testing, antiretroviral therapy, management of opportunistic infection, nutrition; Access to health care Buffers against catastrophic spending; safety nets Employment and savings opportunities
Mature adulthood	Securing longer term family needs and social savings, especially for women	Opportunities for meeting longer term family needs: access to assets (land, capital), savings Strengthened, supportive community networks; Social safety nets
Old age	Balancing own and family needs for social protection, nutrition, caregiving and health care	Social protection mechanisms, social support for care-giving and for own needs Health care and nutrition

The interventions in Table 2 include specific responses to AIDS and those needed to ensure their delivery and access or to strengthen the resilience of those most affected and their likelihood of making successful transitions, given the impact of AIDS. As noted earlier this is context-dependent. We discuss first the interventions for more generalized epidemics. At the end of the section we explore options for interventions in more focused epidemics, such as for IDU.

5.1 Improving survival outcomes at birth and in infancy

The MDGs prioritise this, with goals of a two-thirds reduction in child mortality and three-quarters reduction in maternal mortality ratios. The UN calls current progress on maternal health in Sub-Saharan Africa a “regional and global scandal” (UN 2007) (See Table 3 overleaf).

The nutrition and care interventions during pregnancy, childbirth and the postnatal period are well known (DFID 2006; Schroeder et al. 1995). Despite this, access to maternal health interventions has been slow, particularly in Africa, where with deliveries accessing skilled health personnel rose from 42% in 1990 to only 45% on 2005 (UN 2007). Table 3 shows, the wide variability in coverage of ANC visits seeing a skilled professional, in immunisation rates, in responses to Acute Respiratory Infection (ARI) and to diarrhoeal disease. Many countries also fall short on the desirable target of 4 months of full breastfeeding.

These shortfalls point to the importance of investments in maternal and child health services, with improvements in access through removing fees for these services. These should be backed by additional resources to ensure quality of services, adequacy of qualified personnel at primary care levels, transport to, and quality of, secondary hospital referral services and outreach to communities, including through community health workers and health literacy (Solarsh and Goga 2004; Makwiza et al 2006; McIntyre 2007).

The analysis of AIDS impacts suggests two further additional and important areas. The first is services for prevention of mother to child transmission (PMTCT). The second is investment in recording, registering and following up all births as a means of access to the basic entitlements for infant, child health and for future rights as citizens.

- In 2006, despite relatively high ANC coverage, only 11% of HIV infected pregnant women were offered PMTCT services globally (WHO/UNAIDS/UNICEF 2007). Investments are needed to widen access to PMTCT, including for testing and counselling services, health and treatment literacy and community health outreach.
- Birth registration, an explicit entitlement in Article 7 of the UN Convention on the Rights of the Child (United Nations 1989) is vital to provide the legal and administrative basis for access to services and resources, in infancy and throughout the life course, including for citizenship rights, access to land, savings and food relief entitlements, for entry into longer term social protection schemes and to claim inheritance and social security benefits. Yet 40 million are not registered, most in South and South-east Asia (Plan Africa International 2007). Cost, administrative, information and social barriers to registration can all be acted on.

The cumulative effect of investment in these three areas (access to basic maternal and child health services, access to PMTCT and birth registration) is high, with potential synergies.

Table 3: Maternal and child health indicators, Demographic and health surveys, post-2002

	Infant mortality rate	% ANC visits seeing a Doctor	% ANC visits seeing any health professional	% children fully immunised	Percentage of children 0-4 years with ARI taken to a health facility	% children 0-4 with diarrhoea given oral rehydration solution or therapy	Median period of full breast-feeding in months
Sub-Saharan Africa							
Burkina Faso 2003	81.4	2.5	70.3	43.9	35.9	26.5	7.2
Cameroon 2004	74.1	16.2	67.1	48.2	40.6	24.2	3.4
Chad 2004	101.7	2.6	40.0	11.3	6.5	17.7	-
Congo (Brazzaville) 2005	75.5	8.0	78.8	52.1	47.5	27.0	-
Ghana 2003	64.3	20.9	71.0	69.4	44.0	46.4	5.0
Guinea 2005	91.4	13.2	69.0	37.2	42.0	36.6	6.6
Kenya 2003	77.2	17.9	70.2	51.8	49.1	29.2	0.9
Lesotho 2004	91.0	7.2	83.2	67.8	58.8	75.2	2.3
Madagascar 2003/2004	57.8	12.8	67.1	52.9	47.9	42.7	4.3
Malawi 2004	76.1	9.8	83.3	64.4	36.5	61.1	4.2
Mozambique 2003	100.7	2.3	82.2	63.3	55.4	54.1	4.1
Nigeria 2003	100.0	21.3	38.8	12.9	32.8	29.4	3.7
Rwanda 2005	86.1	6.8	87.5	75.2	27.9	18.6	5.8
Senegal 2005	61.1	4.6	82.8	58.7	47.2	26.7	5.5
Tanzania 2004	68.0	2.1	92.2	71.1	59.4	62.2	3.1
North Africa/West Asia/Europe							
Armenia 2005	25.6	89.8	3.4	16.5	31.9	41.9	-
Egypt 2005	33.2	71.2	0.1	81.1	63.4	35.7	-
Jordan 2002	22.1	93.4	5.2	27.9	76.4	22.0	1.9
Moldova Republic of 2005	12.8	83.7	14.3	37.0	59.7	34.9	-
Morocco 2003-2004 ⁽²⁾	40.4	40.2	27.6	89.1	37.8	28.0	2.0
South & Southeast Asia							
Bangladesh 2004 ⁽³⁾	65.2	31.2	17.5	73.1	19.9	74.6	-
Indonesia 2002/2003	34.7	1.4	90.1	51.4	61.3	48.4	2.0
Philippines 2003	28.7	38.1	49.5	69.8	54.8	57.6	2.6
Vietnam 2002	18.2	-	-	66.7	-	-	2.2
Latin America, Caribbean							
Bolivia 2003	53.6	70.2	8.9	50.4	51.5	38.2	3.8
Colombia 2005	18.7	86.7	6.8	58.1	-	55.4	2.7
Dominican Republic 2002	31.3	31.0	67.3	34.9	63.5	32.3	0.5
Honduras 2005	23.4	70.7	21.0	-	-	55.7	0.7

Source: (ORC Macro 2007) ORC Macro, 2007. MEASURE DHS STATcompiler.
<http://www.measuredhs.com>, June 15 2007

5.2 Nurturing early child development

The UN reports slow progress in reduction of under-five mortality between 1990 and 2005 in regions of generalized epidemics, yet there is evidence of the positive impact of extensive vaccination campaigns for diseases, such as measles (UN 2007). The Partnership for Maternal, Newborn & Child Health, which includes DFID, is investing in the integrated management of mother and child health to manage the priority conditions causing infant mortality, through primary health care oriented services, together with support for non government, community and outreach initiatives to ensure uptake of these investments.

Less well recognized is the quality of stimulation, support, and nurturance in the child's interactions with significant others and the environment. New evidence from wider review of empirical studies globally, suggests that these relationships are more important for children's growth and development than has traditionally been recognized (Maggi et al., 2005). They influence outcomes later in life through three main mechanisms – latency, ie through effects of early experiences independent of intervening factors, through cumulative exposures and through pathways where early entry points have later consequences (Engle et al., 2007; Siddiqi 2007). Studies show that programmes targeting children's early development yield cost:benefit ratios well above 1 in developing and developed countries (Engle et al. 2007).

The poorly recognised role of nurturing environments and relationships in early childhood development mean that the full consequences of loss of parenting associated with early adult illness and mortality may not be fully recognised. There is some indication of the longer term consequences: communication with mothers has for example been found to be a significant factor in the greater exercise of sexual autonomy in adolescents (Chacham et al 2007). The evidence suggests that countries with high levels of AIDS mortality need significantly greater investment in relational communities: through training and support of family carers, to child heads of households in orphan households and to community early childhood development and care centres. These investments to have a positive downstream impact on education performance, and on factors affecting adolescent susceptibility, ie social inclusion, self-worth and self-esteem.

5.3 Ensuring developmental outcomes in children

Attendance at school, even for very young children, is a valuable investment in their economic future. The direct benefits are receiving education, supervision and possibly health care and good nutrition in a school setting. School attendance has long-term benefits for the individual and possibly the household as well. Estimates of the long-term economic returns from preschool participation suggest this increases income from labour by 5-10% over the lifetime of an individual. (Psacharopoulos and Parrinos 1994). Additionally, schools can provide children with education about HIV prevention. Education is thus proposed as a key determinant of successful transition at this stage.

The contribution of schools to HIV prevention is severely constrained by the wider crisis in education, by cost recovery and reduced real funding to education, as well as by social and cultural barriers to what can be taught in schools (Boler et al 2003; Matshalaga et al 2002; Rivers and Aggleton 2003). A survey of schools in Africa indicated that HIV/AIDS interventions in schools faced obstacles of oversized classes, overstretched curricula, a dearth of training opportunities and learning materials and large numbers of children out of school (Boler et al

2003). While investments are needed to overcome these obstacles, access to education also needs to be protected for children orphaned by AIDS. Surveys suggest that overall about 15% of orphans are 0-4 years old, 35% are 5-9 years and 50% are 10-14 years old (SAHIMS, 2007), ie the majority are of school-going age. This is particularly important for child-headed households, and for orphans who have lost family ties due to labour migration, urbanisation and social disruption (Avert.org 2007; McKerrow and Verbeek 1995; Bhargava 2003; UNICEF 1998). The absence of formal transfers and cost recovery for education and health care has reduced the willingness of relatives to care for orphans (UNICEF 1998). A survey of 79 countries conducted by the World Bank in 2001 found that only two countries do not charge any fees. (UNESCO 2003) Older children may be expected to take up paid employment and care for younger siblings, and children withdrawn from school if there are inadequate household resources or public support (Lyons 1998; Im-em and Suwannarat 2002).

Ensuring the successful transition through enrolment into education and support for children in schools thus calls for:

- improved basic functioning of the school system and overcoming barriers to enrolment;
- ensuring enrolment and support of education for orphans, within the wider context of orphan support and care. It also calls for programmes that keep siblings together, that keep children within extended families and communities, and that develop district and community level capacity and resources to respond to the needs of orphans and vulnerable children within the context of national action plans for orphans and vulnerable children (OVC) (Matshalaga 2002; Lee et al., 2000; MPSLSW GoZ 1993);
- grants to carers who keep children in school, or incentives to the children to attend school, such as school feeding; and
- reducing the orphan population through prevention of new infection and treatment of infected parents, as discussed later.

5.4 Promoting healthy reproductive outcomes in adolescents

Recent Demographic and Health Surveys show that the age of sexual debut at between 15.7 and 20.3 years in sub-Saharan Africa (SSA) is younger than other regions, as is the age at first marriage (See Table 4 overleaf). In SSA sexual debut can precede first marriage by several years, while in other regions the time gap is shorter. While teenagers in both Africa and Latin America have higher rates of pregnancy than in other regions, teenagers in Latin America generally have a higher rate of use of contraceptives and appear to exercise greater sexual autonomy. This difference is also reported in field research (Chacham et al 2007).

Adolescence continues to be a high risk period, especially for females (UNAIDS 2006). Studies have found that youth are more susceptible to HIV when they:

- lose or fail to access secure employment, or to access production resources;
- experience significant inequalities in wealth, encouraging practices such as commercial sex and the taking of multiple wives;
- fail to access educational opportunities, from primary to tertiary levels;
- experience a loss of parental care or adult authority; and
- experience violence, both within their own family and in new environments that they are exposed to due to migration for work, security, to access basic resources and in situations of conflict (Im-em and Suwannarat 2002; UNESCO/UNAIDS 2000; Gordon and Creehan 1998).

Table 4: Reproductive health indicators, Demographic and Health Surveys, post 2002

	% teenagers who had children or are currently pregnant	% women using any contraceptive method	Age women 25-49 of	
			First marriage	First sexual intercourse
Sub-Saharan Africa				
Burkina Faso 2003	23.2	13.8	17.7	17.5
Cameroon 2004	28.4	26.0	17.6	16.4
Chad 2004	36.6	2.8	15.9	15.7
Congo (Brazzaville) 2005	27.3	44.3	20.4	15.8
Ethiopia 2005	16.6	14.7	16.1	16.1
Ghana 2003	13.8	25.2	19.4	18.2
Guinea 2005	31.8	9.1	16.2	16.0
Kenya 2003	23.0	39.3	19.7	17.6
Lesotho 2004	20.2	37.3	19.1	18.6
Madagascar 2003/2004	34.0	27.1	19.1	17.5
Malawi 2004	34.1	32.5	17.9	17.3
Mozambique 2003	41.0	25.5	17.5	16.1
Nigeria 2003	25.2	12.6	16.6	16.2
Rwanda 2005	4.1	17.4	20.7	20.3
Senegal 2005	18.9	11.8	18.3	18.4
Tanzania 2004	26.0	26.4	18.6	17.0
North Africa/West Asia/Europe				
Armenia 2005	4.7	53.1	20.7	20.7
Egypt 2005	9.4	59.2	20.4	-
Jordan 2002	4.3	55.8	21.8	-
Moldova Republic of 2005	6.1	67.8	20.4	20.0
Morocco 2003-2004 ⁽²⁾	6.5	63.0	21.4	-
South & Southeast Asia				
Bangladesh 2004 ⁽³⁾	32.7	58.5	14.5	-
Indonesia 2002/2003	10.4	60.3	19.2	20.6
Philippines 2003	8.0	48.9	22.0	21.9
Vietnam 2002	3.4	78.5	21.1	-
Latin America & Caribbean				
Bolivia 2003	15.7	58.4	20.6	18.6
Colombia 2005	20.5	78.2	21.7	18.4
Dominican Republic 2002	23.3	69.8	19.0	18.4
Honduras 2005	21.5	65.2	18.9	19.0

Source: ORC Macro, 2007. MEASURE DHS STATcompiler. <http://www.measuredhs.com>, June 15 2007.

Rivers and Aggleton (2003) suggest that globally as many as 100 million young people under the age of 18 live or work on the streets of urban areas. Many report having exchanged sex for money, goods or protection, injecting drugs and having been raped. Recent and rapid urbanisation and migration have dispersed and weakened family and community networks and

traditional sources of information support, increasing sexual violence (Rivers and Aggleton 2003; Loewenson 2007a; Shah et al 2002; Loewenson 2007b). Social stereotypes about sexual behaviours, including the acceptability of older men 'marrying' much younger women, perpetuate the epidemic in the next generation. Fear of violence and stigma discourages youth, and particularly female youth, from seeking an HIV test, or sharing the result with partners (Horizons 2001).

In such situations explicit intervention is needed to counterbalance the disempowering effects of community environments on susceptible groups like women and young females. Social networks, peer support and youth friendly attitudes at services, including schools, reinforced by parents, are important in strengthening sexual autonomy (Msimang 2001; Boler et al 2003). Public sector services contribute to reducing risk and vulnerability through:

- provision of free, universal education;
- support of teachers to deliver effective programs of HIV-related education, build youth awareness and challenging youth and gender stereotypes;
- universal access to youth friendly health services for prevention, treatment and care;
- law reforms and enforcement on gender violence, inheritance and sexual cleansing;
- legal and counselling services to victims of domestic violence;
- social interventions to promote more open forms of communication within and between families, communities and young people;
- public and political leadership speaking out against harmful practices;
- small business loans and production inputs from state and NGOs to households to sustain production; and
- public works, cash transfers and income support to households caring for orphans (Loewenson 2007a, 2007b).

Supply is only one part of the picture. Demand and uptake issues need to be addressed. This implies making services acceptable and accessible to male and female youth, through entry points that young people will use before they are at risk, and preventing social stigma or victimisation for use of services (Chacham et al., 2007; Amuyunzu-Nyamongo et al., 2007). Investments in parental communication, education, counselling all need to be made earlier in the life course to have impact on adolescent autonomy.

Adolescents can face difficulties in exercising sexual autonomy or control where there are high levels of sexual violence and limited economic opportunities. Measures for preventing and managing sexual violence and for enhancing opportunities for employment are critical at this stage. In most Asian countries, significant investment by state and parents into education at all levels and the transition towards smaller families has led to lower levels of youth unemployment than in Africa. While difficult, improving employment opportunities is important not only for this stage, but for the future assets, incomes and social security at later stages. Access to training, job opportunities, credit for enterprises and decent work are shown to strengthen autonomy, especially when they break gender stereotypes and build on local institutions (Bongou Bazika, 2007; Chacham et al., 2007, Priya and Sathyamala, 2007, Amuyunzu Nyamongo et al., 2007).

5.5 Improving survival in early adulthood and protection against impoverishing effects of spending on health

The significant impoverishing impacts of AIDS were discussed in Section 4, together with the importance of state and social insurance spending to buffer household costs.

Safety nets based on extended families or on friendship have been by far the most widespread form of income support to households (Foster 2002; McKerrow and Verbeek 1995). These safety nets have been weakened by poverty and economic insecurity, by poor living and social environments and by migration, and have had to ration benefits in the face of increased demand (Foster 2007; Kurschner 2002). In contrast, increased spending on public services, safety nets and public assistance were important to maintain high levels of school and health care enrolment in Thailand during the economic crisis (Ainsworth 1999). The use of cash transfers for social protection is obtaining greater attention in Africa and Asia. Social pensions, disability grants, veterans allowances and other regular cash payments to designated vulnerable groups are common in most countries of southern Africa. The World Bank has proposed cash transfers as a central component of national Social Protection Programmes in Africa, while DFID and the ILO have argued the case for affordability of cash transfers even in very low-income countries (Devereux 2006). Of concern is attention to gender equity in such schemes.

High levels of early mortality and the costs of illness point to the importance of access to treatment at this stage. There is substantial work on the measures for and barriers to access to treatment, and the entry points for improving access to treatment (such as through access to voluntary counselling and testing, provider initiated testing and counselling, PMTCT, TB services and so on) (WHO, UNAIDS, UNICEF 2007). Less well defined are the interventions to overcome barriers to uptake of these services, such as transport costs, access to food, and social support (Makwiza et al., 2006).

Improving access to treatment in this age group has clear benefits for earlier and later stages of the life course, whether in terms of nurturing in early childhood, avoidance of school dropout, or relieving care burdens on the elderly. Investment in PMTCT, referred to earlier, both prevents child mortality and can be a link to long-term treatment programmes for both parents. Bringing treatment to district health systems, and especially primary care level, is a key area of investment. This should involve integrated management of adult illness, health systems strengthening and income support for transport, food and other needs to ensure uptake and adherence. This needs to be done through systems that do not demand increased out of pocket financing and that protect against catastrophic spending.

5.6 Strengthening capabilities to secure long-term family needs

The ability of households to secure longer term family needs and future savings is generally a preoccupation of this stage of the life course. Households would expect to have accumulated savings to support the emergent economic roles of the next generation, to plan for future old age and to invest in long-term security, such as housing. Both poverty and the failure to provide for such long-term savings within many countries and communities affected by AIDS challenge the possibility of achieving this.

This has been exacerbated by the fall in more secure forms of employment, the growth of flexible labour, and the efforts by firms to protect against costs of benefits schemes, by making these both difficult to access, restructured to exclude areas of high demand, such as AIDS related illness. Widows and children may themselves be poorly informed to tap such schemes, to invest them wisely or to protect their existing assets from being taken over by extended family members or creditors (Cross 2001). If this period is to enhance security for both adults and children in the household, there is a need for support for long-term planning, supported by the organisation of:

- child support foster grants;
- school fee support;
- private pension and death benefit support; and
- benefits advice (Cross 2001)

Donahue (1998) describes the two fold strategies of building the economic resources of households through micro-credit services and savings mobilisation and through external support to community safety nets. While there has been inadequate assistance for the recovery of household production (Baylies 2002), examples of small business loans or production support to households affected by AIDS do exist in Uganda and Zambia (Kaiser Foundation 2003).

5.7 Balancing resources between own and family needs in elderly people

Older people in most African societies are a vulnerable group as a result of a lifetime of hardship, malnutrition, poverty and, in older age, high susceptibility to chronic diseases. AIDS poses an additional burden on them, further increasing their vulnerability (World Health Organization 2002). In their old age, when they themselves face reduced immunity and health care needs, many elderly people have to take on the role of caring for others, in most cases without the basic necessary resources, with weak social and psychological support and poor access to information, health services and food relief programmes (World Health Organization 2002; Bond et al., 1999; Baylies 2002). Older people may also experience stigma, abuse, abandonment and neglect (World Health Organization 2000; 2002).

Five main areas of intervention are suggested to assist the elderly in their care-giving role:

- Health care support, bringing issues of elderly people into primary health care, community health and spiritual and traditional health services;
- Welfare, economic and social support, through adequate pension, and social welfare grants and income generating projects;
- Providing older people with education/information on HIV/AIDS and related care issues and including them in support groups;
- Providing psychological support and counselling for all care providers (health-care workers and home-based care-givers); and
- Confronting the double stigma of AIDS-related prejudice and ageism, including that amongst health care workers. (WHO 2000; WHO 2002).

5.8 Interventions in focused epidemics

As noted in Section 3, more focused epidemics in Central Asia, Eastern Europe, North and West Africa and Latin America mean that impacts of AIDS are focused in specific groups. Much of the literature for these groups focuses on risk reduction measures and there is little information on household impacts. For IDU, for example, there is now a good body of evidence on risk prevention through harm reduction and counseling strategies (Holtgrave et al 1998; Des Jarlais 2000; Vickerman & Watts 2002; Zaric & Brandeau 2001). There is however no review evidence of the social or economic impact of AIDS on households with IDU. A similar situation exists for men who have sex with men in these countries (Johnson et al 2002; Koblin et al 2004). Indeed Barnett et al (2002) note from a survey of 27 countries in eastern Europe and Central Asia the absence of knowledge and evidence on the social and economic impact of the epidemic. A study by the Policy Project in Viet Nam (Policy Project 2003) provides one in depth examination of a concentrated epidemic spreading in IDU and men who have sex with men, and not yet established in the wider population. This study provided a comprehensive mapping of the spread of the epidemic, but noted that it was difficult to observe household impacts due to the stage of the epidemic (mainly HIV) and the absence of evidence. The study thus extrapolated evidence of household impact from sub-Saharan Africa to project possible impacts. It drew similar recommendations to those presented in the sections above about protecting income and avoiding impoverishing costs for vulnerable households (Policy Project 2003). The absence of evidence on household impacts in these more focused epidemics not only obstructs the possibility for our inclusion of these groups within a life course analysis, but signals a wider lack of preparedness to plan for and deal with these impacts at a time when the epidemic is spreading.

6. Making a difference: Investments that affect the life course

6.1 Areas for intervention

Table 5 shows the areas of current DFID investment as obtained from publicly available documents against the prioritised interventions from the life course analysis discussed in Section 5, and suggests what this implies for future intervention.

Table 5: Identified areas for intervention relative to current areas of DFID focus

LIFE STAGE	FOCUS FOR SUCCESSFUL TRANSITION	AREAS FOR INTERVENTION	CURRENT AREAS OF DFID INVESTMENT	SUGGESTED ACTION
Birth	Securing survival outcomes	PHC oriented investment to improve to ANC, safe delivery, PNC and infant health PMTCT Birth registration	DFID is tackling stigma and discrimination that prevents women accessing PMTCT by funding education and mass-media campaigns in Angola, Ethiopia, Malawi, and Nigeria. DFID is supporting funding for PMTCT services	Suggest significantly higher investments in PHC oriented maternal and child health, PMTCT and birth registration, focusing on improved public policy, and measures for improved public services and strengthened community literacy and uptake

Infancy	Securing the social and nutritional nurturing for early childhood development	Access to health services for IMCI(*), PHC; Food security Breastfeeding advice Maternity leave; Social grants Early Child development centres, resources	DFID is a member of The Partnership for Maternal, Newborn & Child Health & is making investments in IMCI & access to micronutrients through diet, fortified foods and supplements, and through promotion of breast feeding.	Suggest greater complementary investment in ECD and particularly relational nurturing through training and support of family carers, including in orphan households and through community early childhood development and care centres.
Childhood	Securing developmental outcomes, especially through education	Access to free education services Social support through grants; Identify most at risk children Feeding programmes	DFID is investing in access to paediatric formulations for ART; DFID is investing in education systems in Africa	Suggest a continued focus on the basic functioning of the school system; but with complementary investment to identify and overcome social and economic barriers to enrolment, including those faced by orphans.
Adolescence	Securing healthy reproductive outcomes, especially for female adolescents	Knowledge, life skills, social protection for reproductive health & choice outcomes, Protection against violence Further education Employment and Income opportunities	DFID is supporting harm reduction for IDUs, and prevention in commercial sex workers and men who have sex with men. DFID supports PLHWA groups to access media and claim rights. DFID is investing in microbicides and condoms	Suggest investment in legal and institutional reforms, media and social outreach programmes to profile, prevent and manage sexual violence, especially in children and adolescents. Suggest investment in public works programmes for youth
Early adulthood	Securing adult survival and protection against impoverishing spending, especially for women	Access to testing, ART, management of opportunistic infection and nutrition Access health care Buffers against catastrophic spending; safety nets Employment and savings opportunities	DFID is supporting prevention for IDUs, commercial sex workers and men who have sex with men. DFID is supporting legal frameworks to use TRIPS flexibilities, and with others costing of national plans for universal access; DFID is investing in health workers & health systems	Suggest a continued focus on systems strengthening and access to treatment, particularly to primary care level, with investment to strengthen links between PMTCT to treatment, and work on social safety nets to reduce household costs for transport, food and income support.
Mature adulthood	Securing longer term family needs and social savings, especially for women	Opportunities for meeting longer term family needs: access to assets (land, capital), savings Strengthened & supportive community networks Social safety nets	DFID invests in poverty reduction strategies.	Suggest that DFID macroeconomic and budget support include investments in widening access to land and housing and for establishment of social security schemes
Old age	Balancing own and family needs	Social protection mechanisms, social support for caregiving and for own needs Health care and nutrition	DFID supports around 100 programmes that tackle AIDS-related stigma	Suggest all DFID areas of support examine and integrate focus on the elderly, in relation to health care, information, counselling, welfare grants, confronting stigma.

(*) IMCI = Integrated management of childhood illness PHC= Primary Health Care ANC = Antenatal Care PMTCT = Prevention of Mother to Child transmission PNC= Postnatal care PLHWA = People living with HIV/AIDS ART = Antiretroviral therapy ECD = Early childhood development
Source: DFID 2007a, 2007b

Noting limitations of the data used, discussed in detail earlier and in other sources (Barnett and Whiteside 2006; Casale and Whiteside 2006), qualitative weighting is used to identify these areas of priority, based on:

- **areas of stress that have latent impacts later in life that call for intervention at earlier stages.** These include interventions to prevent infection of unborn children, investment in early child nurturing and maternal contact and communication to yield returns in childhood school performance and adolescent sexual autonomy; investment in sustained attendance in quality schooling for its impact in adolescent and adult employment and incomes, particularly where stronger links are made between education and employment opportunities.
- **areas of stress that have cumulative impact, growing across the life course.** These include interventions that promote health and nutrition at each stage of the life course given their developmental consequences, and investments in employment opportunities and income given their cumulative impact on savings and safety nets at individual and community level.
- **areas that are pathways to increased risk of later stress.** For example, the role of sexual and economic autonomy in adolescents in long-term reproductive health, economic and social outcomes; and support to the care provided by elderly people, as it impacts on children and thus across generations.

The areas identified in the table suggest that DFID can strengthen its interventions to deal with household impacts of AIDS as identified from the life course analysis by:

- **Continuing or intensifying existing DFID investments.** This applies in relation to PMCT, making the links between investments in AIDS and those in health to strengthen maternal and child health service provision and uptake, ensuring linkages with PMCT, and strengthening links between PMCT and treatment and care services for AIDS. Existing investments in education should be maintained, with additional focus on identifying and overcoming social and economic barriers to enrollment, including for orphans. The DFID focus on strengthening health systems is also reinforced by this analysis, although with increased attention to district health systems and primary care level support for universal access to treatment, and to community inputs to support adherence to treatment, such as provision of supplementary food and transport.
- **Adding further inputs to selected existing areas of investment.** This applies to strengthening measures for orphan access to education, as noted above; but also to giving a stronger focus on legal, institutional and social responses to violence, especially in relation to child and adolescent sexual abuse. As noted above it also implies strengthening the focus on primary health care systems for treatment access and support for the food, transport and inputs for adherence within DFID support for health systems.
- **Adding selected new areas of focus.** Here we recommend adding areas to existing investments in selected areas that have been identified as important for managing impacts of AIDS across the life course, as well as for enhancing uptake or delivery of interventions at different stages. This includes support to services for and uptake of birth registration; support to early childhood nurturing through training and support to

family carers and early childhood development and care centres; investment in longer term public works programmes earmarked for youth (such as through the general budget support and support to poverty reduction strategies) and DFID support to policy and strategic dialogue, evidence gathering on and evaluation of investments to widen access to land and housing and to establish income grant, cash transfer and other basic social security schemes.

- **Integrating a focus on elderly people across ALL areas of programme support**, particularly in terms of strengthening access to health care, to adequate food, to counseling and welfare needs and to integrating elderly people in programmes dealing with stigma and in advocacy by PLWHIV.

Notably the recommendations on interventions are NOT in the main about adding totally new areas, but about enhancing existing interventions. For some, such as increased strategic focus on primary health care in prevention, treatment and care; making stronger links between PMTCT and MCH services and investments; or paying attention to access in orphans, elderly people, the issue may be less one of adding substantially *new* resources than of adding a 'lens' to existing work. This is important if DFID is to maximize the strategic and public health value of these investments for poor households.

Some proposals do call for qualitatively new investments and thus resources. These include areas such as birth registration, early childhood development or public works, cash transfer or income grant schemes.

This paper does not make prescriptive choices for DFID. Making such choices depends on a range of factors, including ethical and human rights issues, the contributions of others, the relative public health impact and cost effectiveness or cost benefit of the intervention, its impact on the poorest households, the extent to which interventions have synergies with other goals of bilateral investment, with the strengthening of institutions and systems and with capacities and areas where DFID may perceive it has comparative advantage (Evans et al 2005b; UN 2007).

This desk review does not include the processes of primary mapping and stakeholder consultation needed for some dimensions of these choices. In relation to human rights and ethical arguments, the interventions outlined fall broadly within the scope of the most basic entitlements provided for in UN conventions, as discussed earlier. Cost benefit data is not available. There is some documentation of cost effectiveness data, using models that often target single interventions, focusing on health sector interventions, where the assumption is that specified new interventions are added to existing practice or replace existing interventions (Evans et al 2005a). These studies do not cover the range of interventions outside the health sector, are generally focused on measures for reducing risk rather than impact and do not measure spillover effects, secondary cases averted, or impacts on accumulating risk or pathways of risk. They do not, therefore, fully capture the health and social outcomes identified in the life course analysis for given costs. They often focus on single, vertical interventions in isolation from related activities, or do not consider the interactions between concurrent interventions, understating the synergies to be obtained in multi-component interventions. Outcome measures vary, and even common measures like disability adjusted life years (DALY) may be differently measured and do not adequately measure the spectrum of health and

societal outcomes for households (Evans et al 2005b; Walker 2003). With these caveats in mind the findings on recent cost effectiveness studies are shown in Table 6 below. While these studies show the greater cost effectiveness of prevention interventions, and of PMTCT, as a number of studies argue, all of the interventions listed in Table 6 would be regarded as highly cost effective based on standard benchmarks, particularly when delivered through a comprehensive prevention and treatment response (Hogan et al. 2007; Evans et al 2005a; Mukherjee et al 2003). This brings overcoming financial, infrastructure, human resource and other such constraints to delivering these interventions into focus.

Table 6: Cost effectiveness of selected interventions for HIV and AIDS in high adult and child mortality epidemics (Sub-Saharan Africa, Central America and south-east Asia)

Intervention	Source and measure			
	Creese et al., (2002) US\$/ DALY (i)	Masaki et al (2003) US\$/ life year saved	Hogan et al. 2005; US\$ international / DALY averted	Walker 2003 US\$ cost per DALY saved
Mass media			\$3	
School based education			\$376-\$540	
PMTCT	\$1-\$731		\$34	\$5.25-\$285 (iii)
Condom distribution	\$1-\$99			
Peer education for sex workers	\$4-\$7		\$4	
STI Treatment	\$12	\$3.95 (ii)	\$19	\$2.43-\$12.31
VCT	\$18-\$22		\$82	\$10.32-\$17.78
Cotrimoxazole prophylaxis	\$2-\$68			
TB preventive therapy	\$169-\$288			
ART (iii)	\$1100-\$1800	\$1317.20	\$556-\$2010	
Home based care	\$77-\$1230			
Blood safety	\$1-\$43	\$3.35		\$0.20-\$321
Harm reduction strategies amongst IDUs				\$71 per HIV infection averted

(i) effectiveness judged using Disability Adjusted Life Years (DALYs)

(ii) amongst sex workers

(iii) lower ranges apply first line regimens, higher ranges second line regimens

We re-emphasise that cost effectiveness is only one factor influencing decisions on prioritisation. The evidence in Table 6 understates the overall health, health system and societal benefits of individual interventions (Hogan et al., 2007), does not adequately capture interventions that mitigate impact, and does not assess the cost benefit of interventions have a more upstream role in both prevention and access to care, such as birth registration or early childhood development. Such cost benefit analysis remains to be done, even while noting that decisions on interventions are matters of human rights and development policy and go beyond cost benefit analysis. The setting up of appropriate counterfactuals may also assist in decision making (ie the costs to households of *not* making an intervention).

We would suggest therefore that DFID use the lens provided by this paper to examine opportunities for enhancing its existing investments, and in relation to these and to areas of new strategic focus. We suggest that DFID use the proposals in Table 5 as a checklist for

country offices to map and assess the situation and role of other agencies, to identify whether these areas *are* being addressed, and if not to promote the assessment, dialogue and investment needed for this.

6.2 Knowledge gaps and research

While the life course approach provides a more holistic approach to the assessment of risks and impacts of AIDS, it calls for evidence generated through cohort, panel data or life history approaches (Moore 2005). This paper points to the gap in such evidence. As noted by IUSSP (2005) panel studies on micro-impacts are able to track longer term impacts and the interaction between different factors in outcomes. Designing and implementing such studies calls for specific and clear research objectives and clear strategies for defining, assessing and measuring impact.

Within this wider issue of weak uptake of study designs able to generate evidence on pathways of risk and impacts across sectors, there are more specific gaps:

- There is very weak field evidence on household impacts of AIDS in the more concentrated but growing epidemics in Eastern Europe or Central Asia. It is suggested that country situation assessments be done and improved assessment of surveillance of impacts on households be established in these countries.
- Dealing with impacts of AIDS calls for improved assessment of the role of, and barriers in, access to interventions outside the health sector, such as birth registration, early childhood development, cash transfers, public works programmes. This implies raising the profile of these issues in the research and policy agenda on AIDS, integrating a focus on HIV and AIDS into work taking place in countries with generalized epidemics and providing public health evidence on critical events to support such assessment (eg the age of sexual debut for both males and females; the age at which children become orphans and at which grandparents become primary caregivers).
- The analysis suggests gaps in cost effectiveness analysis to be addressed, as well as in the systematic assessment of formal and informal social security systems in low income countries, to assess opportunities and gaps for strengthening key buffers across the life course.

Finally, as with all other areas of health, empowerment is central. The households and individuals affected are not simply recipients of intervention, but change agents whose capacity to claim entitlements and influence the institutions that influence their lives is central to the development response. Creating dialogue on the life course, using participatory research and other methods, would draw vital community level experience into this type of analysis, and facilitate social mapping with communities of the critical points for intervention. Poverty has always been the challenge raised in discussing the longer term planning needed for AIDS in poor communities – “I can’t worry about dying in 8 years time when I can’t eat tomorrow”. This puts poor people in an extremely disempowered position, claiming only the entitlements for their immediate survival. Literacy around the life course and planning for these longer term issues should not be a privilege of the wealthy, but a vital approach for people in poor communities to organizing their claims to entitlements.

References

- Ainsworth F (1999). AIDS, Development and the East Africa Crisis, Kuala Lumpur, Malaysia October 25 1999. 5th International Conference on AIDS in Asia and the Pacific. Kuala Lumpur.
- Ainsworth M, Filmer D (2002). Poverty, AIDS and children's schooling: a targeting dilemma, World Bank Policy Research Working Paper 2885 Washington (D. C.)
- Avert.org (2007). AIDS Orphans. www.avert.org
- Bachmann MO and Booyesen FLR (2004). "Relationships between HIV/AIDS, income and expenditure over time in deprived South African households." AIDS Care 16(7): 817-826.
- Barnett T, Jung SH, Harland AB (2002). Social and economic dimension of the impact of HIV/AIDS on human development in eastern Europe and Central Asia. *Int Conf AIDS*. 2002 Jul 7-12; 14: abstract no. TuPeE5181.
- Barnett T and Prins G (2006). HIV/AIDS and Security: Fact, Fiction and Evidence. London, LSEAIDS for UNAIDS.
- Barnett T and Whiteside A (2006). AIDS in the 21st Century: disease and globalisation. London, Palgrave Macmillan.
- Basu, Alaka, Gupta and Krishna (1997). "The household impact of adult morbidity and mortality: Some implications of the potential epidemic of AIDS in India," in Bloom, David E. and Peter Godwin, eds, 1997, *The Economics of HIV/AIDS, The Case of South and South-east Asia*, Delhi, Oxford University Press
- Baylies C (2002). "The Impact of AIDS on rural households in Africa: shock like any other?" Development and Change 33(4): 611-632.
- Ben Shlomo Y, Kuh D (2002). A life course approach to chronic disease epidemiology : conceptual models, empirical challenges and interdisciplinary perspectives *Int Jo Epidemiology* 2002; 31:285-293
- Bhargava A, Bigombe B. (2003). Public policies and the orphans of AIDS in Africa. *BMJ* 326: 1387-1389.
- Boler T, Adoss R, Ibrahim A, Shaw M (2003). The sound of silence: difficulties in communicating on HIV/AIDS in schools. ActionAid, London
- Booyesen, F le R (2002). HIV/AIDS and Poverty: Evidence from a Household Impact Study conducted in Free state province, South Africa, paper presented at DPRU Conference, Johannesburg, 22-24 October 2002 at www.commerce.uct.ac.za/Research_Units/DPRU/Conf2002pdf/HIV-AIDS_and_Poverty-DrFrikkieBooyesen.pdf accessed July 27 2007
- Casale M and Whiteside A, (2006). "The Impact of HIV/AIDS on Poverty, Inequality and Economic Growth" IDRC Working Papers on Globalization, Growth and Poverty Working Paper Number 3 <http://www.idrc.ca/uploads/user-S/11438239471GGPWP3-AIDS.pdf>
- Creese A, Floyd K, Alban A and Guinness L (2002). Cost-effectiveness of HIV/AIDS interventions in Africa: a systematic review of the evidence. *The Lancet* 359:1635-1642.
- Cross C (2001). "Sinking deeper down: HIV/AIDS as an economic shock to rural households." Society in Transition 31(1): 133-147.
- Curtis S, Southall H, Congdona P, Dodgeon B (2004). Area effects on health variation over the life-course: analysis of the longitudinal study sample in England using new data on area of residence in childhood *Social Science & Medicine* 58 (2004) 57-74 59

- Decosas, J. (2002). *The social ecology of AIDS in Africa* Paper prepared for the UNRISD project on HIV and Development, UNRISD, Geneva, Mimeo, March 2002
- Des Jarlais DC (2000). Structural interventions to reduce HIV transmission among injecting drug users. *AIDS*. 14 suppl 1: S41-S46
- Devereux S (2006). Cash Transfers and Social Protection Paper prepared for the regional workshop on "Cash transfer activities in southern Africa", co-hosted by the Southern African Regional Poverty Network (SARPN), Regional Hunger and Vulnerability Programme (RHVP) and Oxfam GB 9-10 October 2006, Johannesburg, South Africa at
- DFID (2006). Fact Sheet on Child Mortality. [MDG Fact Sheets](#). DFID.
- DFID (2007a). Updating Taking Action - The UK's strategy for tackling AIDS in the developing world. DFID. London, DFID.
- DFID (2007b). Working together for better health - DFID Health strategy DFID. London accessed at <http://www.dfid.gov.uk/pubs/files/health-strategy07.pdf> June 2007
- Donahue J (1998). Community-based economic support for households affected by HIV/AIDS. [HIV/AIDS Care and Support: Health Technical Services](#). Arlington, UNAIDS.
- Engle PL, Black MM, et al. (2007). "Strategies to avoid the loss of developmental potential in more than 200 million children in the developing world." *The Lancet* 369(9557): 229-242.
- Evans, DB, Lim, SS, Adam, T., Edejer, TT (2005a) Evaluation of current strategies and future priorities for improving health in developing countries. *BMJ* 331: 1457-1461
- Evans DB, Lim, SS, Adam, T., Edejer, T. (2005b). Methods to assess the costs and health effects of interventions for improving health in developing countries. *BMJ* 331: 1137-1140
- Evans, DB, Adam, T., Edejer, TT., Lim, SS, Cassels, A., Evans, TG, (2005c) Time to reassess strategies for improving health in developing countries. *BMJ* 331: 1133-1136
- Foster G (2002). Understanding community responses to the situation of children affected by AIDS: lessons for external agencies. [HIV AIDS and Development project](#), UNRISD
- Foster G (2007). Under the radar - Community safety nets for AIDS affected households in sub-Saharan Africa *AIDS Care*, Vol 19 Supp 1 pp S54-S63
- Ganyaza-Twalo T, Seager J (2005). Literature Review on Poverty and HIV/AIDS: Measuring the Social and Economic Impacts on Households accessed at www.sahara.org.za/index.php?option=com_docman&task=doc_download&gid=84&Itemid=85 - Supplemental Result 27 July 2007
- Graham H (2000). [Understanding Health Inequalities](#), Open University Press.
- Holtgrave DR, Pinkerton SD, Jones TS, Lurie P, Vlahov D (1998). Cost and cost-effectiveness of increasing access to sterile syringes as an HIV prevention in the United States. *Journal of Acquired Immune Deficiency Syndromes* 18 suppl 1: S133-S138.
- Im-em W, Suwannarat G (2002). Response to AIDS at Individual, Household and Community Levels in Thailand Paper prepared for the UNRISD project on HIV and Development, UNRISD, Geneva, Mimeo, January 2002
- IUSSP Panel on Population and Poverty (2005). Report on the IUSSP Seminar on "Poverty and HIV/AIDS" held at the University of Cape Town, 12-14 December 2005, IUSSP, Cape Town .
- Johnson WD, Hedges LV, Ramirez G, Seemaan S, Norman L, Sogolow E, Sweat M, Diaz R (2002). HIV Prevention Research for men who have sex with men : a systematic review and meta-analysis. *Journal of Acquired Immune Deficiency Syndromes* 30 suppl. 1: S118-S129.

Kaiser Foundation (2003). Daily HIV/AIDS Report: Two AIDS Conferences in Mozambique Address HIV/AIDS, Food Security, Public-Private Partnerships, Nov 06, 2003 www.kaisernetwork.org/index.cfm

Knodel J and Im-em W(2002). "The Economic Consequences for Parents of Losing an Adult Child to AIDS: Evidence from Thailand." *Social Science & Medicine* 59(5): 987-1001, September 2004. Also issued as PSC Research Report 02-504, Revised Oct. 2003

Koblin B and the EXPLORE Study Team (2004). Effects of a behavioral intervention to reduce acquisition of HIV infection among men who have sex with men: the EXPLORE randomised controlled study. *The Lancet* 364(9428): 41-50

Kuh D and Ben-Shlomo Y, Eds. (1997). A lifecourse approach to chronic disease epidemiology. Oxford, Oxford University Press.

Kurschner E (2002). The poverty-HIV/AIDS-interface lessons and needs in the context of the Poverty Reduction Strategy Paper (PRSP) Process with a focus on the African continent Eschborn: German Technical Cooperation.

Lee T, Foster G, Makufa C, Hinton S (2000). Caring for our children: promoting community-based responses to children affected by AIDS: the FACT Families Orphans and Children Under Stress programme: a UNAIDS case study. UNAIDS, Geneva

Loewenson R (2007a). "Exploring equity and inclusion in the response to AIDS." AIDS Care 19 (Supplement).

Loewenson R (2007b). "Learning from diverse contexts: Equity and inclusion in the responses to AIDS." AIDS Care 19 (Supplement 1): S83-S90.

Loewenson R, Whiteside A (1997). Social and economic issues of HIV/AIDS in Southern Africa. Southern Africa AIDS Information Dissemination Service. Harare.

Lyons M (1998). The Impact of HIV and AIDS on Children, Families and Communities: Risks and Realities of Childhood during the HIV Epidemic UNDP Issues Paper No. 30, UNDP, New York

Maggi S, Irwin LG, et al (2005). Early Child Development. Analytic and Strategic Review Paper: International Perspectives on Early Child Development. Commission on the Social Determinants of Health, World Health Organization.

Mahal A, Rao B (2005). HIV/AIDS epidemic in India: An economic perspective. *Indian Journal of Medical Research*, 121, 582-600.

Makwiza I, Nyirenda L, Goma F, Hassan F, Chingombe I, Bongololo G, Theobald S (2006). 'Discussion Paper 38: Equity and health systems in ART rollout: An analysis from literature review of experiences from east and southern Africa, Malawi,' *EQUINET Discussion Paper Series*. EQUINET: Harare.

Masaki E, Green R, Greig F, Walsh J, Potts M (2003). Cost-effectiveness of HIV interventions for resource scarce countries: setting priorities for HIV/AIDS. Bay Area International Group, UC Berkeley. http://repositories.cdlib.org/hiv_prev

Matshalaga N, Powell G (2002). Mass orphanhood in the era of HIV/AIDS. *BMJ* 324:185-186

McKerrow NH and Verbeek AE (1995). Models of care for children in distress: The current status of children in the KwaZulu-Natal Midlands and the nature of the community response Mimeo. Pietermaritzburg, Edendale Hospital.

Moore K (2005). Thinking about youth poverty through the lenses of chronic poverty, life-course poverty and intergenerational poverty. Working paper 57. Manchester: IDPM/Chronic Poverty Research Centre (CPRC).

- Msimang S (2001). Youth Statement to the African Development Forum. *Reproductive Health Matters* 9;17: 203-205.
- Mukherjee JS, Farmer PE, Niyizonkiza D, McCorkle L, Vanderwarker C, Teixeira P, Kim JY(2003). *BMJ* 327: 1104-1106.
- Munthali A (2002). Adaptive Strategies and Coping Mechanisms of Families and Communities Affected by HIV/AIDS in Malawi Paper prepared for the UNRISD project on HIV and Development, UNRISD, Geneva, Mimeo, March 2002
- ORC Macro (2007). "MEASURE DHS STATcompiler." Retrieved 15 June 2007, 2007, from <http://www.measuredhs.com>.
- Plan Africa International (2007). A third of World's children are denied an identity. Volume, DOI:
- POLICY Project (2003). The Socioeconomic Impact of HIV/AIDS in the Socialist Republic of Viet Nam, POLICY Project, also at http://www.policyproject.com/pubs/countryreports/VIET_SEI.pdf
- Policy Research Institute (2004). Views on Life Course Flexibility and Canada's Aging Population. Population aging and life course flexibility, Policy Research Institute and EKOS.
- Priya R and Sathyamala C (2007). "Contextualising AIDS and human development: Long-term illness and death among adults in labouring low-caste groups in India." *AIDS Care* 19(Supplement): S35-S43.
- Psacharopoulos G and Parrinos HA (1994). Indigenous people and poverty in Latin America. Washington DC, World Bank.
- Rivers K, Aggleton P (2003). Adolescent Sexuality, Gender and the HIV epidemic Paper produced for the UNDP programme on Gender and the HIV epidemic, UNDP, New York
- Southern African Humanitarian Information Network (2003). " Africa's orphaned generations" http://www.sahims.net/archive/Briefcases/reg/2003/reg_review_26_11_03new.htm
- Salinas G, Haacker M (2006). HIV/AIDS: The Impact on Poverty and Inequality IMF Working Paper No. 06/126 at www.imf.org/external/pubs/ft/wp/2006/wp06126.pdf accessed July 27 2007
- Sampson RJ, Laub HL (1990). "Crime and Deviance over the Life Course: the salience of adult social bonds." *American Sociological Review* 55: 609-627.
- Schroeder D, Martorell R, et al. (1995). "Age differences in the impact of nutritional supplementation on growth." *Journal of Nutrition* 4 (supplement): S1051-S1059.
- Shah V, Brar B, Rana SY (2002). Layers of Silence: Links between women's vulnerability, trafficking and HIV/AIDS in Bangladesh, India and Nepal Paper prepared for the UNRISD project on HIV and Development, UNRISD, Geneva, Mimeo, March 2002
- Siddiqi A (2007). Life Course Perspective.
- Spencer N (2001). The life course, childhood housing conditions and adult health *J Epidemiology and Community Health* 2001: 55:6
- UNAIDS (2006). UNAIDS Epidemic update, December 2006. UNAIDS. Geneva, UNAIDS.
- UNESCO/UNAIDS (2000). A cultural approach to HIV/AIDS prevention and care Summary of country assessments and Project design handbook, Mimeo UNESCO, France May 2000
- UNESCO (2003). Education: the price of school fees. http://portal.unesco.org/education/en/ev.php-URL_ID=32571&URL_DO=DO_PRINTPAGE&URL_SECTION=201.html
- UNICEF (1998). Community based orphan assistance in Zimbabwe: Developing and expanding national models by building partnerships with NGOs, CBOs and the private sector, Report of an assessment of UNICEF programming in Zimbabwe for Families and Children affected by HIV/AIDS, September 1998, UNICEF, Harare

- UNICEF (2005). Childhood under threat: the state of the world's children. Volume, DOI:
- United Nations (1989). "Convention on the rights of the child."
- United Nations (2007). Africa and the Millennium Development Goals 2007 Update at (<http://www.un.org/millenniumgoals/docs/MDGafrica07.pdf> accessed June 2007
- Van Niekerk R, Samsouin S, Green C (2001). AIDS, Poverty and Malnutrition: A Review of the Household Survey Literature 30 June 2001, Oxford University Economic Policy Research Unit, UK accessed at www.sarpn.org.za/documents/d0001481/index.php July 27 2007
- Vickerman P, Watts C (2002). The impact of an HIV prevention for injecting drug users in Svetlogorsk, Belarus: model predictions. *The International Journal of Drug Policy* 13(3): 149-164.
- Wadsworth ME (1997). "Health inequalities in the life course perspective." *Social Science & Medicine* 44(6): 859-869.
- Walker, D., Gutierrez, J. P., Torres, P., Bertozzi, S. M (2003). HIV prevention in Mexican schools: prospective randomised evaluation of intervention. *BMJ* 332: 1189-1194
- World Health Organization (2000). Community home-based care: family caregiving. Caring for family members with HIV/AIDS and other chronic illnesses: the impact on older women and girls. Geneva.
- World Health Organization (2002). "Impact of AIDS on Older People in Africa: Zimbabwe Case Study."
- WHO, UNAIDS, UNICEF (2007). Towards Universal Access, WHO Geneva
- Wu LL, Ed. (2003). Event History models for life course analysis. Handbook of the Life Course. New York, Plenum Publishers
- Zaric GS, Brandeau ML (2001). Optimal investment in a portfolio of HIV prevention programs. *Medical Decision Making*, 21:391-408.