Chapter 26

Clinical Assessment of Children

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At a Glance

Overview

HIV/AIDS in Africa is a multigenerational disease of families in which everyone, whether HIV positive or not, is affected by the disease. Support for the children infected with and affected by HIV must be delivered as a comprehensive package from a platform that can provide continuity of care to the whole family. Palliative care, provided from diagnosis of HIV infection through advanced AIDS, is the approach that best delivers the holistic care needed by children living with HIV/AIDS.

This chapter describes the context for palliative care of children and adolescents in the African setting, natural history and diagnosis, and overall clinical presentation of HIV disease in children. It also covers the diagnosis of HIV infection and the framework for monitoring and ongoing palliative management. Chapter 27 addresses clinical management of the conditions and symptoms of HIV disease, while Chapter 28 covers the integration of palliative care with of antiretroviral therapy (ART). Chapters 29 through 32 focus on the various aspects of psychosocial and spiritual care.

Adapted from Chapter 12: The Care of Children and Adolescents, by Nancy Hutton, MD, in: O'Neill JF, Selwyn PA, Schietinger H, eds. *A Clinical Guide to Supportive and Palliative Care for HIV/AIDS, 2003 Edition*.

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Epidemiology of HIV in African Children

Sub-Saharan Africa holds only 10% of the world's population but 60% of all people living with HIV. Of these, 57% are women and girls: 75% of all women with HIV worldwide live in the region. Amongst young women aged 15–24 years, an estimated 6.9% were living with HIV at the end of 2004 (UNAIDS, 2005). The risk of transmission of HIV to a child born to a mother with HIV absent interventions to prevent transmission is about 30–40%. Children who do not acquire HIV from their mothers perinatally still have a 2- to 5-fold risk of mortality as a direct consequence of the mother's HIV disease, when compared to children whose mothers are HIV-negative (ANECCA, 2004).

HIV/AIDS has become a major cause of infant and childhood mortality and morbidity in Africa, accounting for a rise of over 19% in infant mortality and 36% in under-five mortality (ANECCA, 2004). Worldwide, 610,000 children died of AIDS in 2002 and to date over four million children under the age of 15 have been infected with HIV since the epidemic began (UNICEF, 2005; WHO, 2004a).

Ninety-five per cent of children with HIV were infected by vertical transmission from mother to child (MTCT). The other infections are accounted for by sexual abuse, transfusion of blood and related products, and other forms of horizontal transmission (sharing of expressed breast milk, nosocomial spread in nurseries).

In many parts of the continent, people with AIDS are severely stigmatised. Often the mother of a child with HIV will not disclose the diagnosis to her family. Non-disclosure deprives the mother of emotional support from her family and prevents the family from planning for the care of affected family members (see Chapter 29: Psychosocial and Spiritual Care).

Clearly, the prevention of mother-to-child transmission is the most cost-effective means of reducing HIV-related suffering amongst children. However, the infrastructure to make effective interventions available to all does not exist in sub-Saharan Africa. Rapid testing for HIV and perinatal single-dose nevirapine alone can reduce vertical transmission by half. Programmes that also provide ART to mothers with HIV after delivery — referred to as 'MTCT plus' — result in maximal reduction in MTCT and reduce the number of children who are orphaned. As expensive as such programmes may seem, they would reduce both the social cost of the epidemic and the medical cost of treating sick children.

Two Resources on Paediatric HIV Care in Africa

African Network for the Care of Children Affected by AIDS (ANECCA). Tindyebwa D, Kayita J, Mosoke P, et al, eds. 2004. *Handbook on Paediatric AIDS in Africa*. Uganda: African Network for the Care of Children Affected by AIDS. Available at: http://www.fhi.org/en/HIVAIDS/pub/index.htm. Accessed 6/05.

WHO. 2000. *Integrated Management of Childhood Illness: Management of the Child with a Serious Infection or Severe Malnutrition: Guidelines for Care at the First-Referral Level of Care in Developing Countries*. Chapter 8: Children with HIV/AIDS. Available at: http://www.who.int/. Accessed 6/05 (search for IMCI).

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Palliative Care in Resource-limited Settings

Limitations in Paediatric Palliative Management

In Africa HIV/AIDS is a disease often associated with extreme poverty and a lack of access to adequate health care. HCWs are faced with ethical dilemmas in respect of rationing and suboptimal care. The holistic element of palliative care requires that we do the best we can with what we have (see Chapter 33: Effects of Economics on Service Development). On the other hand we should be proactive in our efforts to advance the material cause of our patients and we should be open to opportunities that increase health care resources by non-governmental means (see Chapter 34: Models of Community-based Care and Chapter 37: Partnerships and Collaboration). Faith-based contributions and non-governmental organizations can lay the foundations for meaningful additions to health care resources. Advocacy and activism must follow to achieve the political will necessary to sustain such advances (see Chapter 35: Role of Government).

There are major limitations to palliative care management of children with HIV/AIDS in resource-limited settings.

- *Making a diagnosis of HIV infection is more challenging with limited laboratory resources, especially in very young children.* Healthcare settings with limited laboratory resources must rely on clinical signs and symptoms to diagnose HIV infection (see section in this chapter on clinical presentation and diagnosis). Because most of the clinical conditions are also seen in children who are not HIV-infected, making the diagnosis in this way is more challenging. In addition, even if available, HIV antibody tests in children below the age of 18 months only indicate whether the mother is HIV-positive. This is because even if children younger than 18 months are HIV-negative, they can still have their mother's HIV antibodies. Virological HIV tests, which do indicate the presence of HIV virus in infants, remain expensive. (See section on laboratory diagnosis.) For these reasons, a significant number of children, especially in developing countries, become symptomatic and die during infancy without receiving a definitive diagnosis of HIV/AIDS.
- *Disease manifestation varies with age.* Children are not a uniform population. Younger children with HIV have different opportunistic diseases than older children do. Younger children tend to get the common childhood diseases though they may be severe and more difficult to treat. As they grow older they progressively develop disease conditions caused by reactivation of previous infections, as is often seen in adults.
- *Treatment protocols vary by country.* Each area of sub-Saharan Africa has specific guidelines for first- and second-line treatment of diseases, depending on the antimicrobial resistance patterns and available antimicrobial agents. Because treatment recommendations are not possible, health care workers (HCWs) should consult their national guidelines for treatment of diseases.
- *Living conditions are often not amenable to good hygiene.* For example, unclean water, whether from a tap or natural source, is a common cause of enteric infection. Families that do not have tap water in their homes tend to store water in open containers from which water is dispensed by dipping into it with a pitcher or a cup, perhaps further contaminating the water with organisms from the person's hand. Also, using precious fuel to boil water is a hardship for many families with limited resources.

Palliative Care at the Primary Care Level

Most children with HIV/AIDS will be managed or assessed for referral at the primary health care level. However, this is where health care resources are their lowest. Usually a nurse without advanced training is in charge for a wide range of health activities and for a large number of clients. See Part 6 for more discussion of these issues.

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Most sub-Saharan African countries are implementing the Integrated Management of Childhood Illness (IMCI) (see Box 26.1). HIV/AIDS care has recently been added to this integrated approach but experience is limited on how this is working out. This will certainly raise challenges of diagnosis using clinical criteria and increased demands on the already overloaded and poorly facilitated primary HCWs. Despite these challenges, the basic principles of palliative care still apply even at the community level, including:

- Management of pain and other common symptoms
- The fact that something can always be done
- Communicating with caregivers
- Finding other resources in the community, such as spiritual leaders, who could participate in care
- Appropriate referrals

Box 26.1:

Integrated Management of Childhood Illness

The guidelines for Integrated Management of Childhood Illness (IMCI) focus HCW training and attention on not one but all the leading killers, which can be managed with simple and affordable treatments, and address disease prevention and education of the mother (WHO, 2000). HIV/AIDS is being incorporated into the guidelines for Integrated Management of Childhood Illness in many African countries. HCWs should contact their ministry of health to learn how to obtain information and training on this initiative by the Child and Adolescent Health and Development of the World Health Organisation.

Natural History of HIV in Children with Perinatal Infection

The natural history of HIV disease in children differs from that of adults. Children tend to die more quickly. In the absence of ART, survival is dependent on access to comprehensive and intensive health care. The early death rate is markedly higher in Africa than elsewhere (Spira, 1999). In developed countries, prior to ART fewer than 10% of vertically-infected children were likely to die before they were a year old and median survival from the time of diagnosis was 38 months. In developing countries, 25% of HIV-infected children die before they are a year old and 90% are dead by the time they are three years old. This difference in mortality between 'North' and 'South' points to disparities in resources and access to care.

Early death is due to the common causes of morbidity and mortality among all children in developing countries. In children first diagnosed <6 months of age, a combination of diarrhoea, pneumonia, failure to thrive, and neurological abnormalities should alert one to the possibility of rapidly progressive disease and death. Yet, as is suggested by the far lower annual death rates observed in developed countries, many early deaths are preventable. A small group, perhaps 5–10%, are long-term survivors who may remain asymptomatic and without significant symptoms or signs for many years (Nielsen, 1997; Spira, 1999).

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Clinical Presentation and Diagnosis

Diagnosis Using Clinical Signs and Symptoms

In the absence of laboratory facilities, HCWs must depend upon clinical signs and symptoms in conjunction with a good history to diagnosis children with HIV/AIDS. In general, the clinical features of HIV disease in children are not specific, either in respect of making the diagnosis of HIV infection or in determining prognosis. While the the diseases in the first category in Table 26.1 are diseases that point very strongly to a child having HIV/AIDS, they too usually depend upon laboratory or radiologic tests for diagnosis. The conditions in the second category, common in HIV-infected children and uncommon in uninfected children, are not as specific. When HCWs identify a child with any of these conditions, they should suspect HIV and obtain additional history (such as maternal health) and, if available, laboratory tests.

In the complete absence of laboratory facilities, a simpler list of clinical signs and symptoms can be used to determine whether a child is likely to have HIV/AIDS (see Box 26.2). The WHO Integrated Management of Childhood Illness, adapted by many countries in Africa, uses this approach (WHO, 2000).

Table 26.1: Clinical Signs or Conditions in Children that May Suggest HIV Infection

Specificity for HIV Infection	Signs/Conditions
Signs/ conditions very specific to HIV infection	Pneumocystis pneumonia Oesophageal candidiasis Extrapulmonary cryptococcosis Invasive salmonella infection Lymphoid interstitial pneumonia Herpes zoster (shingles) with multi-dermatomal involvement Kaposi's sarcoma Lymphoma Progressive multifocal leukoencephalopathy
Signs/ conditions common in HIV-infected children and uncommon in uninfected children	Severe bacterial infections, particularly if recurrent Persistent or recurrent oral thrush Bilateral painless parotid enlargement Generalised persistent non-inguinal lymphadenopathy Hepatosplenomegaly (in non-malaria endemic areas) Persistent and/or recurrent fever Neurologic dysfunction Herpes zoster (shingles), single dermatome Persistent generalized dermatitis unresponsive to treatment
Signs/ conditions common in HIV-infected children but also common in ill uninfected chldren	Chronic, recurrent otitis with ear discharge Persistent or recurrent diarrhoea Severe pneumonia Tuberculosis Bronchiectasis Failure to thrive Marasmus

Source: ANECCA, 2004.

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Box 26.2:

Diagnosis of HIV/AIDS in the Absence of Laboratory Facilities

In the absence of laboratory facilities, classify children as having symptomatic HIV/AIDS if any three or four (depending on the country) of the following conditions are present:

- Recurrent pneumonia
- Oral thrush
- Present or past ear discharge
- Persistent diarrhoea
- Very low weight
- Enlarged lymph nodes
- Parotid enlargement

Source: ANECCA, 2004.

The most common presenting signs of HIV infection in infants include failure to thrive, hepatosplenomegaly, and diffuse adenopathy. In any child, these findings should raise the possibility of HIV infection. Children with HIV/AIDS may also have frequent or chronic diarrhea, frequent minor bacterial infections such as otitis media and sinusitis, and refractory thrush. Extensive warts or molluscum contagiosum, or severe refractory noninfectious skin manifestations such as atopic dermatitis should raise the suspicion of HIV infection. See Chapter 27: Management of Clinical Conditions for more on clinical presentation and management of various symptoms and diseases.

HIV Counselling

Any time a HCW is considering a diagnosis of HIV/AIDS in a child, whether with or without HIV testing, HIV counselling of parents or guardians as well as older children is an important part of the process. HCWs need to determine what they understand about HIV/AIDS, provide them with accurate information, and assist them in coping with the diagnosis. If testing is involved, pre- and post-test counselling should be offered.

Laboratory Diagnosis of HIV Infection

Where tests are available, HIV/AIDS may be confirmed in a child >18 months of age with the following tests:

- Antibody test: an antibody test confirmed with a second (different) antibody test (usually a Western Blot)
- PCR test: an HIV PCR test (also called a viral load test), which is less available and more expensive

In a child <18 months of age, testing for HIV infection is not as simple:

- Antibody test: At this age, an antibody test reflects the mother's HIV status, not the child's (the child still has the mother's antibodies in the blood). However:
  - A negative antibody test is useful in ruling out HIV.
  - A positive antibody test provides the important information that the mother is most likely HIV-positive and may have transmitted the infection to the child. In this case, either immediate PCR testing or antibody testing at 18 months of age can determine whether the child is HIV-infected.
- PCR test: The HIV PCR tests do indicate the child is HIV-infected.

Breast-feeding: If the mother is HIV-positive and continues to breast-feed, she can transmit HIV to her uninfected infant. HIV-exposed children who continue to breast-feed should be retested 3–6 months after complete cessation of breat-feeding before HIV infection can be excluded.

Clinical Classification of Disease Stage

Although there are two international classification systems for staging HIV disease in children, the Revised WHO Clinical Staging of HIV/AIDS for Infants and Children is used more widely in Africa (see Table 26.2). In addition to providing a useful standard for evaluating children, the classification system has been shown to be useful for establishing prognosis and modeling the course of disease. The other international classification is the Centers for Disease Control and Prevention clinical categories for children with HIV (CDC, 1994), available at: http://www.cdc.gov/hiv/pubs/mmwry.htm.

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Table 26.2: Revised WHO Clinical Staging of HIV/AIDS for Infants and Children

Clinical Stage One
Asymptomatic
Persistent generalized lymphadenopathy (PGL)
Clinical Stage Two
Hepatosplenomegaly
Papular pruritic eruptions
Seborrheic dermatitis
Extensive human papilloma virus (HPV) infection
Extensive molluscum contagiosum infection
Fungal nail infections
Recurrent oral ulcerations
Linear gingival erythema (LGE)
Angular cheilitis
Parotid enlargement
Herpes zoster
Recurrent or chronic respiratory tract infections (RTIs) (otitis media, otorrhea, sinusitis)
Clinical Stage Three
Conditions where a presumptive diagnosis can be made on the basis of clinical signs or simple investigations:
Moderate unexplained malnutrition not adequately responding to standard therapy
Unexplained persistent diarrhoea (≥14 days)
Unexplained persistent fever (intermittent or constant, >1 mo)
Oral candidiasis (outside neonatal period)
Oral hairy leukoplakia
Acute necrotizing ulcerative gingivitis/periodontitis
Pulmonary tuberculosis
Severe recurrent presumed bacterial pneumonia
Conditions where confirmatory diagnostic testing is necessary:
Chronic HIV-associated lung disease including bronchiectasis
Lymphoid interstitial pneumonitis (LIP)
Unexplained anaemia (<8 gm/dL), neutropenia (<1000/mm^3), or thrombocytopenia (<50,000/mm^3) for >1 mo
Clinical Stage 4
Conditions where a presumptive diagnosis can be made on the basis of clinical signs or simple investigations:
Unexplained severe wasting or severe malnutrition not adequately responding to standard therapy
Pneumocystis pneumonia
Recurrent severe presumed bacterial infections (e.g., empyema, pyomosyitis bone or joint infection, meningitis, but excluding pneumonia)
Chronic herpes simplex infection (orolabial or cutaneous >1 mo)
Extrapulmonary TB
Kaposi's sarcoma
Oesophageal candidiasis
CNS toxoplasmosis (outside the neonatal period)
HIV encephalopathy
Conditions where confirmatory diagnostic testing is necessary:
CMV infection (CMV retinitis or infection of organs other than liver, spleen, or lymph nodes; onset ≥1 mo of age)
Extrapulmonary cryptococcosis including meningitis
Any disseminated endemic mycosis (e.g., extrapulmonary histoplasmosis, coccidiomycosis, penicilliosis)
Cryptosporidiosis
Isosporiasis
Disseminated non-tuberculous mycobacteria infection
Candida of trachea, bronchi, or lungs
Visceral herpes simplex infection
Acquired HIV-associated rectal fistula
Cerebral or B-cell non-Hodgkin's lymphoma
Progressive multifocal leukoencephalopathy (PML)
HIV-associated cardiomyopathy or HIV-associated nephropathy

Note: Interim African Region version for persons <15 years of age with confirmed laboratory evidence of HIV infection (HIV antibody if ≥ 18 mos of age and virological or P24 antigen testing if <18 mos of age)

Source: WHO, 2005. Reprinted with permission.

Ongoing Clinical Management

Palliative Clinical Management

The best clinical management is delivered from a platform of palliative care. See the next section (Palliative Care Approach) for the multidimensional services this entails. The purely medical aspects of management are presented here. Regular monitoring and prompt attention to symptoms are vital in paediatric HIV/AIDS.

Symptoms are often best controlled by managing the infectious cause of a symptom complex (see Chapter 27: Management of Clinical Conditions). At any particular point in the child's disease course, the HCW will find herself combining elements of symptomatic care with curative interventions. As HIV/AIDS progresses, symptomatic relief will become more prominent, and response to curative intervention less certain.

The burden of the infected child's symptoms increases as the child progresses to 'full-blown AIDS'. The palliative care approach has the overall goal of reducing this burden to a minimum. At best, this goal is achieved by treating the child with ART, thereby reducing the likelihood of intercurrent infections and reversing symptoms arising from the more direct effects of HIV infection on the brain, heart, and lungs and capitalizing on the secondary benefits of improved appetite and levels of energy.

Laboratory Monitoring of HIV/AIDS Progression

Where basic laboratory facilities are available, a total lymphocyte count (TLC — this is part of the full blood count, or FBC) can be used to measure the immune status of a child with HIV/AIDS, especially when HIV-related symptoms are present (ANNECA, 2004). The following TLC values indicate immunosuppression in children:

- <18 months: TLC <3,500/mm^3
- 18 months to 6 yrs: TLC <2,300/mm^3
- >6 yrs: TLC <1,200/mm^3

If available, the CD4 lymphocyte count is used to measure a child's immune status. See Table 26.3 for interpretation of CD4 values according to the staging system developed by the Centers for Disease Control and Prevention in the U.S.

Table 26.3: Immunological Classification Based on Total and % CD4 Count

Immunologic Category	Age of child		
	<12 months	1–5 yrs	6–12 yrs
	CD4/μL (%)	CD4/μL (%)	CD4/μL (%)
1: No evidence of suppression	≥1,500 (≥25)	≥1,000 (≥25)	≥500 (≥25)
2: Evidence of moderate suppression	750–1,499 (15–24)	500–999 (15–24)	200–499 (15–24)
3: Severe suppression	<750 (<15)	<500 (<15)	<200 (<15)

Source: ANECCA, 2004.

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Prophylaxis for Opportunistic Infections

PCP Prophylaxis With Cotrimoxazole

Current WHO guidelines propose PCP prophylaxis for young children with HIV (see Table 26.4) according to the following criteria:

- All children born of HIV-positive mothers, starting no later than 4–6 weeks after birth until 12 months old
- HIV-positive children >1 year of age and <6 years of age *and* CD4 count <500
- HIV-positive children >5 years of age and CD4 count <200

Table 26.4: Cotrimoxazole for PCP Prophylaxis

Weight	If suspension not available	Paediatric suspension***
< 5 kg	1 paediatric tablet* or ¼ adult tablet** bd	2.5 mL bd
5–10 kg	2 paediatric tablets or ½ adult tablet bd	5 mL bd
> 10 kg	1 adult tablet bd	10 mL bd

* *Adult tablets (equivalent to 4 paediatric tablets): 80 mg trimethoprim* ***and*** *400 mg sulphamethoxazole*

** *Paediatric tablets (equivalent to ¼ adult tablet): 20 mg trimethoprim* ***and*** *100 mg sulphamethoxazole*

Paediatric suspension strength: 20 mg trimethaprim* ***and *100 mg sulphamethoxazole per 5 mL*

Adult suspension strength: 80 mg trimethaprim ***and*** *400 mg sulphamethoxazole per 5 mL*

If available, use dapsone for children who are allergic to cotrimoxazole. Give dapsone 2 mg/kg/day. In a study comparing daily (1 or 2 mg/kg) to weekly doses (4 mg/kg) of dapsone in 94 children intolerant to cotrimoxazole, weekly doses caused fewer liver side effects but were associated with more cases of PCP than the 2 kg/mg dose. The 1 mg/kg daily dose were deemed inadequate (McIntosh, 1999).

Primary Prophylaxis for TB

Infants and children whose mothers have TB are at high risk for TB infection and disease. They should receive isoniazid (INH) + pyrazinamide (PZA) and rifampicin (Rif) as prophylaxis for a minimum of three months. It is recommended that all children with HIV living in areas where pulmonary TB is highly prevalent should receive INH prophylaxis at a dose of 5 mg/kg/day, once daily. Pyridoxine should be given with isoniazid.

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The Palliative Care Approach

The Role of Palliative Care Throughout the Course of HIV Disease

Palliative care may be defined as active and total care of patients with an incurable disease. For as long as HIV/AIDS remains incurable, all treatment of infected persons is in essence palliative. In fact, ART is the most effective palliative treatment for HIV disease. Moreover, the palliation of symptoms is appropriate at all stages of HIV disease.

Health care workers in palliative care need a deep and complete knowledge of how HIV infection affects children and the whole family. They need to have insight into how many generations face a variety of difficulties as a result of the disease. The HCW's primary task is to relieve those physical symptoms that limit the child's capacity to achieve emotional, social, and spiritual goals, but successful, high-quality care requires treatment plans for individual patients that address all forms of suffering.

The HIV-infected child's prognosis is uncertain, particularly in the developing world and specifically if the child does not have access to ART. Recovery from a particular infection is dependent on nutritional status, rate of progression of HIV/AIDS, and HIV-related damage to vital organs.

The Importance of Family and Community Support

Social circumstances affect success of management directly. Home care of infants and young children suffers when mothers fall ill. Adherence to medication is at risk where the care of a child is shared by multiple caregivers. Adolescents may find themselves as heads of households, or without parental supervision. (See Chapters 29: Psychosocial and Spiritual Care and 31: Family and Community Support.)

Crowded venues, heavy clinical workloads, and large patient numbers constrain opportunity for proper communication with HIV-affected children and their families. Lack of resources further limits state-funded social support systems in developing countries. The development of low-cost counseling resources such as patient advocates, recruited from affected communities and financed by the non-governmental sector, may be an affordable alternative.

Inasmuch as palliative care is about reducing suffering and morbidity, it is about providing any intervention that can delay progression to AIDS. For an HIV-infected child, access to continuous comprehensive care will slow the rate of progression to AIDS and provide significant relief of suffering. This is why broadly political issues such as access to health care, continuity of care, comprehensive primary health services nutrition, hygiene, and overcrowding are germane to the goals of palliative care.

It is increasingly common to find children living in child-headed households, or in the care of adults who are not their legal guardians. In certain legal jurisdictions (e.g., in Gauteng province in South Africa) consent for HIV testing may be taken from de facto caregivers where there is no legal guardian. Depending on the child's age and level of understanding, the child may give consent (see Chapter 29: Psychosocial and Spiritual Care). Similar situations may be encountered when a parent or grandparent is evidently too ill or demented to act in the child's best interests. Where a parent's illness is advancing, future planning is essential.

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Developmental Aspects of HIV/AIDS

Child development progresses in several channels, all of which are likely to be affected by HIV/AIDS. Growth, motor skills, cognitive ability, and socialization are all potentially affected by HIV infection. In interpreting the child's experience of illness it should be remembered that the impact of disease will depend on the developmental stage at which symptoms present.

Developmental delay, manifesting most commonly as a failure to attain gross motor milestones and develop speech at appropriate ages, is not uniformly present in all children with HIV/AIDS, but is common in those children who are symptomatic in the first two years of life.

Symptomatic HIV infection adversely affects growth and this effect is aggravated by inadequate nutrition and recurrent infections, particularly of the mouth and gastrointestinal tract. Growth effects of HIV infection are reversed by ART. As growth trajectories recover, antiretroviral dosages need constant readjustment (see Chapter 28: Integration of Palliative Care with ART in Children).

As cognitive development progresses, children and adolescents bring changing interpretations to the nature of their disease and its management. It is advisable to interact with children as individuals, not merely according to Table 26.5, which is offered as a broad guideline for age-appropriate interaction (see also Chapter 29: Psychosocial and Spiritual Care and Chapter 30: Loss, Grief, and Bereavement).

Parents tend to want to 'protect' children from the knowledge of a potentially lethal disease, despite extensive evidence that children who are informed are better prepared and less anxious. There is evidence that children allowed pertinent information and knowledge are better able to 'own' their disease, to adhere to medication, and to deal with the discomfort associated with needle sticks and other interventions.

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Table 26.5: Interacting With Sick Children at Different Stages of Social Development

Age	Social Development and Needs
Infants (0–12 months)	Non-verbal signals from infants Adults use tone, touch language Need for physical, emotional nurture Very simple explanations Object permanence develops
Toddlers (1–2 years)	Early learning of words Tantrums Adults offer simple explanations Adults must be clear, consistent Adults must prepare child for procedures Adults must be efficient, comforting
Preschoolers (3–6 years)	Sustain simple conversation, ask questions Can play interactively Concerns about bodily integrity Magical thinking Adults must provide concrete information
Children (6–11 years)	Curious about own body, health Questions offer opportunities to inform Children are learning to read Begin to understand causality Can exercise choice, which improves their sense of control
Early adolescents (12–14 years)	Rapid growth, emotional and social change Desire treatment as adults, but are still children Vulnerability/invulnerability issues Need direct, positive adult support Peer relationships are very important
Late adolescents (15–18 years)	Abstract, existential thought Can accept active responsibility for own health care Can make active health care decisions Still need adult structure and support May be shouldering adult responsibilities

Source: Adapted from Hutton, 2003.

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References

African Network for the Care of Children Affected by AIDS (ANECCA). 2004. Tindyebwa D, Kayita J, Musoke P, et al, eds. *Handbook on Paediatric AIDS in Africa.* Uganda: African Network for the Care of Children Affected by AIDS. Available at: http://www.fhi.org/en/HIVAIDS/pub/index.htm.

CDC, 1994. Centers for Disease Control and Prevention. Revised classification for human immunodeficiency virus infection in children less than 13 years of age. *MMWR* 43:1-12.

Hutton N, Oleske JM. 2003. The care of children and adolescents. In O'Neill JF, Selwyn PA, Schietinger H, eds. *A Clinical Guide to Supportive & Palliative Care for HIV/AIDS.* Rockville: Health Resources and Services Administration.

McIntosh K, Cooper E, Xu J,. 1999. Toxicity and efficacy of daily vs. weekly dapsone for prevention of *Pneumocyctis carinii* pneumonia in children infected with HIV. *Paediatric Infectious Diseases Journal* 18:432–439.

Nielsen K, McSherry G, Petru A, et al. 1997. A descriptive survey of paediatric human immunodeficiency virus-infected long-term survivors. *Paediatrics* 99:E4.

Spira R, Lepage P, Msellati P, et al. 1999. Natural history of human immunodeficiency virus type 1 infection in children: a five-year prospective study in Rwanda. Mother-to-Child HIV-1 Transmission Study Group. *Paediatrics* 104:e56.

UNAIDS. 2005. Africa Fact Sheet. Geneva: UNAIDS. Available at: www.unaids.org. Accessed 6/05.

UNICEF. 2005. Facts and Figures. www.unicef.org. Accessed 6/05.

WHO. 2000. *Integrated Management of Childhood Illness: Management of the Child with a Serious Infection or Severe Malnutrition: Guidelines for Care at the First-Referral Level in Developing Countries.* Chapter 8: Children with HIV/AIDS. Available at: http://www.who.int/child-adolescent-health/CHILD_HEALTH/WHO_FCH_CAH_00.1.htm

WHO. 2004a. HIV/AIDS. Fact sheet on Child and Adolescent Health and Development Website. Available at: http://www.who.int/child-adolescent-health/. Accessed 6/05.

WHO. 2004b. *Integrated Management of Adolescent and Adult Illness.* Geneva: WHO. Available at: http://www.who.int/en/ (accessed 4/05).

WHO. 2005. Interim WHO Clinical Staging of HIV/AIDS and HIV/AIDS Case Definitions for Surveillance, African Region. Geneva: WHO. WHO/HIV/2005.2. Available at: http://www.who.int/hiv/pub/guidelines/clinicalstaging.pdf. Accessed 7/05.

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