23/3/98

SSN 0377-4910

ICMR BULLETIN

Vol. 27, No. 12 December, 1997

CHILDREN WITH HIV/AIDS : CHALLENGES AND OPPORTUNITIES

Though a syndrome of immunodeficiency with opportunistic infections in children was described in 1982, and the first publication on children with HIV-1/AIDS appeared in 1983, children seemed to be considered at the periphery of the AIDS epidemic. But the situation is rapidly changing. The ratio of infected men to women is fast approaching 1:1. Most of the HIV-1 infected women are of child bearing age, and it is from them that the majority of children will get the infection.

It is not only the HIV infected children but even those uninfected who are at risk because of their parents inability to care for them. It is estimated that there would be millions of children on their own by the end of this decade in the countries affected by HIV/AIDS. Orphaned, abandoned or runaways, vulnerable in their turn to HIV infection as they take to life on the streets. It will be the children and young adolescents affected by HIV who will shape the future course of the epidemic.

AIDS IN CHILDREN

Current Situation

It is estimated[1] that in 1996 of the 1.5 million people who died of AIDS globally, 3,50,000 (23%) were children (below 15 yr of age) and about 4,00,000 children became infected with HIV. Of the 23 million people world-wide living with HIV, 8,30,000 (3.6%) are children. UNAIDS expects this number to rise to 1 million by end of 1997. Over 90 per cent of these children live in developing countries.

Since the beginning of the epidemic, according to UNAIDS and WHO estimates, well over 2 million HIV positive children under the age of 15 years have been born to HIV positive mothers, and thousands have acquired HIV infection from blood transfusions or through sex[1]. Unfortunately for India there are no firm figures for the infection rate among children and adolescents.

Future Projections and Impact

Cumulatively by the year 2000 as many as 5 million under fives will be HIV infected through their mothers, the majority of them in Sub-Saharan Africa[2].

Projections of the number of AIDS cases in infants and children are based on perinatal transmission rates of about 30 per cent and specific fertility rates. However, because the infected mothers are likely to die of AIDS within 5-10 years of their giving birth, the uninfected infants will constitute a growing population of orphans. According to WHO estimates close to 5 million children (under 10 yr of age) will be orphaned by the end of the 1990s as a result of HIV related deaths of their mothers.

How many infants will die of AIDS in the year 2010? According to the UN Population Division, the figure could be anywhere between 83,000 and 3,57,000 in just 19 of the high risk countries. But the United States Bureau of

Division of Publication & Information, ICMR, New Delhi - 110 029

This issue commemorates the World AIDS Day (December 1, 1997)

14-11-98
19/3/98

Census paints a gloomier picture. AIDS took 1,05,000 infant lives in 1995 in the 19 countries, and the toll will increase to more than 3 times that number in 2010[3].

One of the main reasons for difference between these two projections is their assumptions as to the timing of the peak of the epidemic in these countries. The Census Bureau believes that the peak will come in 2010, while the UN believes that it peaked in 1995. In the 19 countries, the Census Bureau attributes 26 per cent of infant mortality to AIDS in 2010, whereas the UN estimate is 8 per cent[3].

A recent survey of the impact of AIDS on child mortality in ten central and eastern African countries suggests that the death toll from AIDS in children under 5 years is likely to rise from 159 to 189 per 1000 by the year 2000[4].

By the year 2010, the US Bureau of Census estimates, if the spread of HIV is not contained, that AIDS may increase infant mortality by as much as 75 per cent and under five mortality by more than 100 per cent in the worst affected regions[1].

Even for those children who escape perinatal infection, survival rates will decrease because of loss of one or both parents to AIDS. For each women dying of AIDS in Africa an average of two children will be orphaned. By the year 2000, 5-10 million children under 10 years may be orphaned because of premature death of HIV infected parents. Overall infant and child mortality rates have exceeded previous projections by as much as 30 per cent as a direct consequence of perinatal HIV infection. Consequently, paediatric AIDS is now threatening much of the progress that has been made in child survival in developing countries during the past 20 years. Life expectancy, which had been increasing in most of these countries, is now declining in many of them. In 2010, the projected life expectancy will be about 10-30 years lower in countries than it would have been without AIDS[5].

Routes of Infection

The predominant route of infection in children is from an infected mother to her child. This route accounts for close to 90 per cent of all instances of paediatric infection. About 10 per cent of children become infected through other routes.

Transfusion of HIV positive blood and blood products is still an important route of infection in countries where screening of donated blood is not universal because of economic or technical constraints. Also of growing concern is the transmission of HIV-1 through sexual contact among older children including sexual abuse and sexual exploitation.

Mother-to-child transmission

Mother-to-child transmission can occur prenatally, at the time of delivery and postnatally through breast feeding. Evidence for early transmission was shown by detection of the HIV-1 virus in foetal specimens[6], and also by the presence of p24 antigen in foetal serum[7].

The role of the placenta is still not clear. *In vivo* infection of placental cells, trophoblast and villous Hofbauer cells has been shown as early as 8 weeks of gestation[8].

Differences in the ability of placental cells to sustain virus replication may influence the selection of virus variants during transmission. Intercurrent infections of the placenta may favour leakage of virus into the amniotic cavity. However, it is uncertain whether placental infection always results in infection of the foetus.

The child can get infected at the time of delivery through mixing of maternal and foetal blood during uterine contraction, contamination through mucous membranes, or by swallowing maternal blood or cervico-vaginal secretions during passage through the birth canal. In addition, recent reports have indicated that the mode of delivery may also affect the transmission rate. Caesarian section has been shown to decrease[9] and prolonged rupture of the membranes (more than 4h)to increase the risk of transmission[10].

Not all children born to HIV infected mothers will become infected. The rate varies from 13 per cent in Europe to about 45 per cent in Sub-Saharan Africa[11].

The risk of transmission is higher in women with clinical, immunological or virological markers of advanced HIV-1 infection. A high viral load has been associated as a key factor in mother-to-child transmission. Recent studies have also found a correlation between viral load and transmission[12]. In addition, the phenotype of the mother's virus is also believed to contribute to the risk of infection[13].

Rapid/high virus isolates have been associated with mothers who transmit the virus whereas slow/low virus isolates were associated with non-transmitting mothers. A low CD4 count also correlates with an increased risk. Immunological factors such as the presence of neutralizing antibodies may also play a role in minimizing transmission[14].

One meta-analysis has suggested that breast feeding may increase the risk of infection by an additional 14 per cent (95% confidence interval 7-21%)[15]. In the studies included for this meta-analysis the median duration of breast feeding was short (4-8 weeks), which points to a high risk of transmission in the first few weeks of breast feeding. Some children of HIV infected women born HIV antibody positive have seroconverted to become antibody negative, but later, while being breastfed have become positive[16-18]. Other studies have been able to detect HIV DNA upto 12 months postpartum in milk samples of about one-third to one-half of HIV infected women[19].

Transfusion of blood and blood products

Transfusion/infusion of blood or blood products containing HIV is considered the most efficient method of transmission of HIV infection. Children suffering from thalassaemia, sickle cell anaemia, haemophilia, *etc.*, require frequent transfusion/infusion of blood/blood products. In a study that examined the role of blood transfusion in transmission of HIV-1 among African children, 147 of 1046 (14%) paediatric patients in Kinshasa, Zaire had a history of previous blood transfusion. Forty of these 1046 children (3.8%) were HIV-1 seropositive, and there was a strong dose response association between blood transfusion and HIV-1 seropositivity. The odds ratio of being HIV-1 seropositive increased to 43 in children who had received 3 or more blood transfusions[20].

The potential association of blood transfusion in HIV-1 transmission is exemplified by the high rate of seroprevalence of HIV-1 among blood donors in many developing countries.

Transmission of HIV-1 through blood products accounted for 19 per cent of the new AIDS cases in children reported in 1985 to the Centres for Disease Control (CDC), USA. This figure had come down to 6 per cent by 1995. The decrease reflects more rigorous screening of donors and donated blood as well as improved manufacturing techniques for coagulation factor concentrates[21].

Sexual contact

In sexually active teenage girls, susceptibility to HIV and other sexually transmitted diseases may be increased because of the immature epithelium of the cervical canal. High risk behaviours, including unprotected sex, and use of illicit drugs potentiates this problem.

Is Immunization Safe in HIV Infected Infants?

Increasing prevalence and awareness of HIV infection in infancy has led to concern about the efficacy and safety of immunization of HIV infected infants and children. Experience with live and inactivated vaccines in HIV infected children suggest that these immunizations are free from major short-term side effects. Risks and known consequences of natural infection are likely to be graver than the risks associated with vaccination even with live attenuated vaccines.

Taking all these factors into consideration, WHO has recommended that all asymptomatic HIV infected children should receive all standard vaccines, both live and inactivated; Those with symptoms of AIDS should receive all other vaccines except BCG.

Source: AIDS prevention : What maternal and child health service providers need to know. Regional Health Paper, SEARO no.23, WHO, New Delhi. 1992.

Diagnosis

Diagnosis of HIV in a child older than one and a half years can confidently be done using enzyme-linked immunoassay and confirmatory tests. It is the diagnosis at an earlier age that poses challenges. It is known that anti-HIV antibodies from the mother can be detected in the child's blood for a median of 13.3 months (range 10.4 - 15.6 month)[22].

A child less than one and a half years of age is considered to be HIV infected if positive on two separate occasions (excluding on cord blood) by one or more of the following HIV detection tests: HIV culture, HIV PCR, or HIV antigen (p24)[23] or the child meets the criteria for an AIDS surveillance case definition [24].

The sensitivity of the various diagnostic tests by the age of the infant at the time of testing is summarized in Table I[25].

Virus culture and PCR are believed to be the most reliable techniques for determining infection during the first 2 months of age in non-breastfed children. Detection of p24 antigen in serum or plasma is less sensitive in younger children but recent reports indicate that it can achieve similar sensitivity by 6 months of age[26]. Even higher sensitivity can be achieved by disrupting the

Table I. Sensitivity (percentage) of early diagnostic tests for HIV-1 infection in infants[25]

Laboratory method	Age at testing				
	1 week	2-4 week	1-2 months	3-6 months	> 6 months
HIV IgA antibodies	< 10	10-30	20-50	50-80	70-90
HIV-1 p24 antigen	10-25	20-50	30-60	30-50	20-40
PCR	30-50	50	70-90	> 95	> 95
Viral culture	30-50	50	70-90	> 95	>95

Superscript no. refers to the sl. no. in the reference list.

immune complexes by acid treatment of sera. Using this technique, it is claimed, that HIV-1 infection can be diagnosed within the first few months of life[26].

Early diagnosis of infection has improved with the availability of more sensitive and specific tests. HIV culture remains the gold standard but is very costly and not widely available.

Staging of Paediatric Aids

The Centres for Disease Control and Prevention revised the classification of paediatric HIV infection in 1994[23]. There are 4 clinical stages *viz.* N, asymptomatic; A, mild; B, moderate; and C, severely symptomatic children.

(i) Category N; asymptomatic : Children who have no signs or symptoms considered to be the result of HIV infection or who have only one of the conditions listed in Category A.

(ii) Category A; mildly symptomatic : Children with two or more of the following conditions, but none of the conditions listed in categories B and C. The conditions include lymphadenopathy, hepatomegaly, splenomegaly, dermatitis, parotitis, recurrent or persistent upper respiratory infection, sinusitis or otitis media.

(iii) Category B; moderately symptomatic : Children who have symptomatic conditions other than those listed for categories A and C that are attributed to HIV infection. A single episode of severe bacterial infection, lymphocytic interstitial pneumonitis, anaemia, neutropaenia, thrombocytopaenia cardiomyopathy, nephropathy, hepatitis, diarrhoea, candidiasis, severe varicella/zoster or herpes simplex virus infections.

(iv) Category C: severely symptomatic : Children who have any condition listed in the 1987 surveillance case definition for AIDS with the exception of lymphoid interstitial pneumonia. These include two serious bacterial infections, encephalopathy (acquired microcephaly, cognitive delay, abnormal neurology), opportunistic infections (*Pneumocystis carinii* pneumonia, cytomegalovirus, toxoplasmosis, disseminated fungal infections); disseminated mycobacterial diseases, cancer (Kaposi's sarcoma, lymphomas).

The progressive loss of CD4+lymphocytes is a hallmark of the course of HIV disease in children. But their number and sub-groups undergo age related changes. An absolute CD4 count below 500 cells/mm^3 in untreated children is strongly correlated with rapid progression of the disease, and the presence of a very low CD4 count (<21% of the lower limit for age) is significantly associated with an increased risk of death within 2 years[21]. Accordingly, age dependent changes in the CD4 count and percentage have been incorporated into the definition of AIDS in children (Table II)[23] .

Table II. Immunologic categories based on age-specific CD4+T-lymphocyte counts and percentage of total lymphocytes[23]

Immunologic category	Age of child					
	< 12 months		1-5 Years		6-12 Years	
	cells/mm^3	%	cells/mm^3	%	cells/mm^3	%
1: No evidence of suppression	≥1500	≥25	≥1000	≥25	≥500	≥25
2: Evidence of moderate suppression	750-1499	15-24	500-999	15-24	200-499	15-24
3: Severe suppression	<750	<15	<500	<15	<200	<15

Superscript no. refers to the sl. no. in the reference list.

Natural History Of Vertically Acquired HIV Infection

Most of the information on the natural history of vertically acquired HIV infection in children comes from paediatric HIV registers and prospective follow up of infants born to HIV infected mothers.

The Women and Infant Transmission Study (WITS) in USA is a multicentric longitudinal study of the natural history of HIV-1 infection in pregnant women and their infants initiated in 1989. Plasma HIV-1 RNA levels, measured in 106 infants, were found to increase rapidly after

birth, peak at one to two months of age (median value: 318000 and 256000 copies/ml respectively) and then slowly decline to a median of 34000 copies/ml at 24 months. Newborns with a first positive HIV-1 culture within 48 h after birth had significantly higher HIV-1 RNA levels. Infants with a rapid progression of the disease had higher peak HIV-1 RNA levels in the first two months of life than those without rapid progression (median value 724000 vs 219000 copies/ml)[27].

The low levels of HIV-1 RNA at birth suggest that most of the children were infected very close to the time of birth. The steep rise in viral load within the next two months reflects a rapid multiplication of the virus. The subsequent slow decline contrasts with the rapid decline in adults. This suggests that the still immature neonatal immune system has difficulty in containing the infection. The similarity in the general pattern of plasma and serum HIV-1 RNA loads in children, as measured in smaller prospective studies and cross-sectional studies is striking. Although the number of studies of HIV-1 RNA in children is much less than those in adults, the collective data clearly indicate a unique pattern of viral replication and containment[28-30].

After birth and in the immediate perinatal period a trimodal rate of disease progression has been observed. Approximately one-third of these children become symptomatic within the first few months of life and are considered 'rapid progressors'. They have a rapid down-hill course. Nearly 70 per cent are 'less rapid progressors' becoming symptomatic within the first seven years of life. A small percentage do not develop evidence of disease progression until after 8-10 years of age, behaving more like 'adult equivalents'.

The age at onset of any sign of HIV-1 infection predicts the duration of survival. The mortality rate for children who develop features of AIDS early in life is substantially higher than for those who become symptomatic later during childhood[31,32].

The European Collaborative Study[33] was set up in 1986 to estimate the rate and natural history of vertical transmission of HIV infection. At ten European centres 124 children born to HIV positive women and known to be infected at or before the time of delivery were enrolled for natural history analysis. In this cohort, less than 10 per cent of children had been treated with zidovudine or intravenous gamma globulin before 6 months of age. About a quarter developed AIDS in the first year of life, and nearly 40 per cent by 4 years. Ten per cent died before age one and 28 per cent before the age of 5 years. Two years after AIDS diagnosis an estimated 48 per cent of children were still alive. Similar mortality rates were reported in the Italian Multicentre Register[34].

A total of 182 perinatally HIV infected children who survived longer than 5 years (long-term survivors - LTS) and 120 children who died of HIV-1 related disease before 5 years (short-term survivors - STS) enrolled in the Italian Register for HIV infection in children were studied. Information was generated on the factors that contribute to long-term survival. Results indicated that a substantial number of children do survive after early childhood. Severe disease or low CD4 cell counts early in life can be predictive of outcome. However, the association of CD4 count with the progression of the disease was not observed in the European study.

Since 1986, the French Prospective Study and the European Collaborative Study have collected clinical and immunological data on children born to HIV infected mothers[35]. Nearly 400 infected children from about 3500 mothers were enrolled in the two studies. Most children had developed minor (A) or moderately severe (B) illness in the first 4 years of life. Progression to group C disease or HIV-related death was seen in an estimated 20 per cent during the first year of life, and close to 5 per cent per year thereafter, giving a cumulative incidence of 36 per cent by 6 years. The mortality rate at 6 years was 26 per cent, two-thirds of children were alive at 6 years and had only minor symptoms, and one-third had a CD4 cell distribution of more than 25 per cent despite previous clinical manifestations and a transient period of moderate immune deficiency.

There are marked differences between the French and the European cohorts in the timing and type of treatment given. Zidovudine monotherapy was initiated at an earlier age and more frequently in the French Study than the European Study, but the morbidity and mortality in the two cohorts were similar. Wider use of trimethoprim-sulphamethoxazole prophylaxis for *Pneumocystis carinii* pneumonia in the French Study probably resulted in lower frequency of bacterial infections. These findings have implications for health care planning. The causes of rapid progression in some children is not clear. It has been suggested that it could be associated with host factors, viral phenotype and timing of transmission.

The survival scenario is likely to change in future, as effective retroviral drugs become available for use in children and with better management and prevention of opportunistic infections.

Antiretroviral Therapy

Three agents are approved for use in HIV infected children *viz.* zidovudine, didanosine and a combination of lamivudine and zidovudine. But as results of the ongoing and newer clinical trials become available, this list is expected to grow. Zidovudine was the first drug to be approved for use in children with symptomatic HIV infection. This was followed by approval of didanosine and lamivudine in combination with zidovudine.

Till recently zidovudine has been the drug of choice for the initial treatment of symptomatic children. The results of Delta and ACTG adult treatment trials both showed that for nucleoside naive patients combinations of AZT and didanosine or AZT and zalcitabine were significantly more effective than AZT alone in delaying disease progression. Clinical trial has been conducted in children to assess the efficacy and safety of treatment with zidovudine alone as compared with either didanosine alone or in combination with zidovudine (ACTG-152)[36].

An interim analysis of the trial has showed that in symptomatic HIV infected children, treatment with either didanosine alone or zidovudine plus didanosine was more effective than treatment with zidovudine alone. The efficacy of didanosine alone was similar to that of combination therapy and was associated with less haematologic toxicity[36].

Paediatricians in Europe, Canada and South America are collaborating in a series of studies coordinated by the Paediatric European Network for Treatment of AIDS. A Phase II study of adding lamivudine (3TC) to current treatment in symptomatic children is underway. Another Phase II trial evaluating a new nucleoside analogue with a protease inhibitor in antiretroviral naive children is also in the pipe-line[37].

Combination therapy for treatment of HIV infected children is being pursued to develop regimen that are more potent, more tolerable, or more capable of delaying or preventing the emergence of resistant HIV-1 isolates. As new agents are developed that act on different parts of the life cycle of the virus, new combination regimens will become possible.

Despite growing optimism, serious hurdles need to be overcome before such therapy can be routinely applied to children. These include lack of data to ensure safe and effective dosing and the unavailability of these drugs in palatable suspension.

Gene Therapy

A large number of babies continue to be born who are infected but with limited access to antiretroviral agents.

Even though conventional approaches using a combination of antiviral drugs have been successful in decreasing viraemia to a varying degree, there is always a possibility of multi-drug resistant viral mutants appearing late after infection. A multidimensional approach that considers the recovery of the immune system is still needed. Gene therapy is one of the alternatives to treat HIV infection. It is envisaged that gene therapy if applied before the architectural damage appears on the lymphoid organs in advance disease, would enable normal lymphocyte development of genetically modified cells. The idea is to generate cells capable of inhibiting HIV replication and pathogenesis. If the cells that are the target of HIV infection acquire anti HIV protection, cells differentiating from them will also be stably protected. The ideal therapeutic anti HIV gene is expected to be effective, nontoxic and active against different viruses.

Presently, the most appropriate gene vector to transduce haemopoietic cells is a murine retrovirus. The proposed treatment plan consists of the identification of HIV infected mothers, collection of cord blood cells at birth as a source of haemopoietic stem cells, diagnosis of HIV infection, transduction of stem cells with the anti HIV gene, and reinfusion of the modified cells to the patient. The goal is to regenerate the immune lymphocytes which will have a check on virus replication.

The results obtained so far on survival advantage of peripheral T cells from HIV infected patients transfected with a Rev transdominant negative gene, called Rev M10[38] are encouraging. The successful gene therapy strategies for HIV infected children would also help to elucidate whether the progressive deterioration of the immune system is caused by the viral pathogenic effects that are not directly related to viral replication. Technology of successful gene therapy is also a consideration in reducing the current cost of prolonged treatment for cure of AIDS patients and allow a wider affordable application.

Prevention of Mother-to-Child Transmission

In most instances of paediatric AIDS, vertical transmission is the predominant route of infection. Hence strategies aimed at preventing infection among women will also help reduce the infection among children. Over the years, it has been realized that behavioural change is perhaps the best but most difficult means to prevent HIV. Development of programmes with an integrated approach to induce behavioural change, promoting condom use, and controlling STDs is likely to reduce the infectivity of the transmitters as also the susceptibility of HIV exposed persons. Needle sharing is another risk behaviour among injecting drug users (IDUs). Needle exchange programmes have helped stabilize and in some instances even reduce HIV incidence among IDUs. Raising awareness through information, education and communication (IEC) activities has helped to lift the veil of ignorance surrounding sexual attitudes and behaviour.

A variety of factors may increase the risk of transmission of HIV from mother to infant. Some potential means of reducing this risk have been suggested.

(i) The use of zidovudine by asymptomatic infected woman with CD4 cell count of more than 200/ mm^3 has been shown to reduce transmission by two-thirds. These women were treated with zidovudine orally during pregnancy, and intravenously during labour. Infants received oral zidovudine for six weeks after birth[39]. This approach may be feasible in countries where zidovudine is available and affordable. For countries where the cost of this regimen is prohibitive, trials of modified timing doses of antiretroviral drugs are needed to find most cost-effective methods for reducing perinatal transmission.

(ii) The observation that the risk of transmission from mother-to-child increases when foetal membranes rupture more than 4 hours before delivery may lead to simple precautions so as not to intentionally rupture membranes. Though every effort should be made to shorten the time between rupture of membranes and delivery, this should not be taken to mean using interventions that could increase morbidity for the mother or her infant.

(iii) Vitamin A stores are depleted during birth and pregnancy. It is known that vitamin A deficiency leads to weakening of the already weakened immune system. Vitamin A deficiency has been shown to be associated with a three to four fold increased risk of vertical transmission. This temporal relation may suggest that supplementing vitamin A intake during pregnancy may lower the vertical transmission of HIV.

(iv) A critical and much debated issue has been whether to advise mothers in developing countries against breast feeding because of the risk of HIV transmission through breast milk. This potential risk can be eliminated in a population with access to breast milk alternatives. Breast feeding by HIV infected mothers is not recommended in the US and other industrialized countries.

This strategy is, however, not feasible for most developing countries where an affordable and safe alternative may not be available. Because the risk associated with the use of contaminated water for the preparation of powdered infant formulae outweighs the risk for HIV infection from breast milk, the WHO recommends that mothers in developing countries where water supplies are unsafe continue to breastfeed their infants. In regions of the world where infectious diseases and malnutrition are primary causes of death, mothers should continue to breastfeed regardless of their HIV status.

(v) The role of other potential interventions like vaginal microbicides is still under evaluation.

Children in Families Affected by HIV : Social Issues

No other children are more at risk of loss of permanent family than children whose mothers have HIV disease. Both infected and non-infected children of these mothers are at risk.

Children, especially in the developing world, have become vulnerable to HIV infection due to various social, economic and cultural factors. Some are infected themselves by HIV, and others are affected as they are closely related to people living with HIV/AIDS. The number of street children in metropolitan cities is constantly increasing. These children are vulnerable to risk-ridden life situations. The risk of HIV comes from being lured into intravenous drug use, sharing of needles, from sexual exploitation, and from poor nutritional and health status due to the life style. Misconceptions like sex with a virgin cures STD also lead people into deplorable acts and a girl child on the street is an easy target. There is an unending stream of children being pushed into the flesh trade. These children are constantly at threat of getting not only HIV but also other STDs. With the spread of HIV/

AIDS more of the uninfected children are experiencing the social and economic impact of having a relative living with HIV/AIDS.

Special strategies need to be developed to help children living on the street to have greater control over their lives, and to seek alternatives to the street. A broad range of measures need to be provided to help increase their safety, health, and well being[40].

Components of Strategic Programme for Children

- Assess needs, monitor the situation and its impact.
- Create national awareness and engagement.
- Develop a national policy framework.
- Create consensus on the most effective and sustainable responses.
- Develop mechanisms to ensure that resources are used effectively and equitably.
- Strengthen national capacity to implement the programme.

Source : Reid, E. Children in families affected by the HIV epidemic: A strategic approach. Issue Paper no. 13, HIV and Development Programme, UNDP, New York, 1993.

Until now, many of the policies and programmes addressing the needs of HIV affected children and adolescents have assumed that these needs start with the death of their mothers or parents and consist of predominantly material needs. It is important to broaden this focus. It is being realized that the needs of these young people start with the knowledge that someone in the family is HIV infected. Their needs are psychological, emotional, ethical, legal, spiritual, financial, material, educational, health and social development.

The needs of these children cannot be met by policies and programmes addressed to children and youth. There are at least three other types of interventions required; assistance to their parents, to their communities and to their governments. The breadth and diversity of the interventions required to respond adequately to the needs of children in families affected by the HIV epidemic present particular challenges to programme development and implementation.

Few of the NGOs in India have made significant progress in their efforts while addressing some of the social problems[1]. The Association Francois-Xavier Bagnoud (AFXB) has set up houses for HIV infected children in Goa, the purpose of the AFXB Asha Sadan (house of hope) is to keep the children of prostitutes off the street while their mothers are at work. They are given shelter and basic education materials, preparing them for the public school system later.

The CINI Asha in Calcutta, India, runs drop-in centres and night shelters for vulnerable children in Calcutta's red light district and around the city railway station. Educational and vocational training are provided by peer educators as part of the sexual health programme, targeting children between 10-16 years. The peer educators are provided with information, education and communication materials for dissemination and are referred to children who are particularly vulnerable. Free condoms are available at the CINI Asha office in small quantities. Girls because they are especially vulnerable are given separate training, intensive counselling and are encouraged to attend the night shelters. Assessment within the first year shows that peer educators reached 90 boys and 60 girls out of the target group of 200 children.

The Naz Foundation in New Delhi, India, is working with NGOs to increase awareness of sexual health and offer counselling to street children. Naz organises HIV awareness workshops and peer education training, focusing on risk reduction and children's sexual behaviour. Although no formal monitoring and evaluation has been conducted to date, reports indicate that condom use has increased among street boys visiting sex workers, but has not resulted in increased sexual activity.

Conclusions

Infection with HIV has continued its relentless march across the world. The infection is becoming increasingly acquired as a sexually transmitted disease in a heterosexual population. This exacts an equal toll from men and women and creates an ever increasing proportion of infected and affected children.

A clearer picture of the natural history and better understanding of risk factors associated with vertical transmission have provided windows of opportunities for developing appropriate and effective interventions. The evidence of viral replication even at an early age has important implications for clinical management. With rapid advances in drug treatment, significantly improved

Rights of the Child in the Context of HIV/AIDS

The United Nations Convention on Rights of the Child in the context of HIV/AIDS has spelled out principles for reducing children's vulnerability to infection and for protecting children from discrimination because of their real or perceived HIV/AIDS status ;

- Children should have access to HIV/AIDS prevention education, information, and to the means of prevention. Measures should be taken to remove social, cultural, political or religious barriers that block children's access to these.
- Children's right to confidentiality and privacy in regard to their HIV status should be recognized. This includes the recognition that HIV testing should be voluntary and done with the informed consent of the person involved which should be obtained in the context of pretest counselling. If children's legal guardians are involved, they should pay due regard to the child's view, if the child is of an age or maturity to have such views.
- All children should receive adequate treatment and care for HIV/AIDS, including those children for whom this may require additional costs because of their circumstances, such as orphans. States should include HIV/AIDS as a disability, if disability laws exist to strengthen the protection of people living with HIV/AIDS against discrimination.
- Children should have access to HIV/AIDS prevention education and information both in school and out of school, irrespective of their HIV/AIDS status.
- No discrimination should be suffered by children in leisure, recreational, sport, and cultural activities because of their HIV/AIDS status.
- Special measures should be taken by governments to prevent and minimize the impact of HIV/AIDS caused by trafficking, forced prostitution, sexual exploitation, inability to negotiate safe sex, sexual abuse, use of injecting drugs, and harmful traditional practices.

Source: The role of the Committee on the Rights of the Child and its impact on HIV/AIDS: Problems and prospects. Presentation by the WHO Global Programme on AIDS at Bangkok, Thailand on AIDS and child rights: The impact on the Asia-Pacific region, 21-26 November, 1995.

survival with HIV is now a reality. The challenge is to find regimens that are effective, short, simple, and affordable to communities who need it most. Advances in technology has now made it possible to detect HIV infection in early childhood, but the challenge is to improve diagnostic capabilities so that infection can be defined immediately following birth. Providing social support to children living in a world with AIDS is an opportunity to create an environment that is sensitive to their needs and concerns. In this era of AIDS, there is a need to express care and compassion rather than fear, hostility or alienation.

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AIDS/HIV UPDATE

Estimated Global Burden of HIV/AIDS: June, 1997

According to reports published in the Weekly Epidemiological Record (WHO 72:197-204, 1997) as of 30th June, 1997, a cumulative total of 1,644,183 AIDS cases in adults and children has been reported to WHO since the onset of the pandemic. This represents an 18 per cent increase from the 1,393,649 cases reported up to 30th June 1996. Allowing for under diagnosis, incomplete reporting and reporting delay, and based on HIV infection data from around the world, the UNAIDS/WHO Working Group on Global HIV/AIDS and Sexually Transmitted Diseases Surveillance has estimated that by the end of 1996, approximately 8.4 million men, women and children had contracted AIDS world-wide, since the beginning of the pandemic. Continental totals are as follows:

Africa	5,76,972
Americas	7,97,227
Asia	70,949
Europe	1,91,005
Oceania	8,030
Total	16,44,183

Situation of AIDS in India

According to the reports provided by the National AIDS Control Organisation (NACO) a total of 67,311 persons have been reported to be HIV positive to NACO (cumulative till October 1997) out of 3.2 millions screened, giving a seropositivity rate of 2.1 per cent. The corresponding figure for the period ending October 1996 was 1.7 per cent. The number of AIDS cases reported is 5002. This figure has increased by 2006 during the last one year. Though there has been improvement in detection and reporting of AIDS cases, these figures may still underestimate the true cumulative prevalence.

- Heterosexual contact is by far the most prevalent mode of infection.
- Maharashtra has a seropositivity rate of 10.2 per cent, Punjab 4.3 per cent, Tamil Nadu 1.4 per cent, and Pondicherry 3.2 per cent.
- Increasing seropositivity rate has been found among states where injectable drug usage is prevalent, particularly Manipur (17.2%) and Nagaland (5.5%).
- Close to 1 per cent of total HIV seropositives are antenatal mothers.
- The age distribution of AIDS cases reported to NACO (till Dec. 1996) shows that 4 per cent were between 0-14 years, 44 per cent : 15-19 years, 45 per cent : 30-45 years, and 7 per cent were more than 45 years of age.
- The highest number of AIDS cases have been reported from Maharashtra (2451), followed by Tamil Nadu (1092), Manipur (286), Gujarat (133), and Delhi (125).
- Arunachal Pradesh is the only state to report zero positivity among the 495 blood samples screened.
- No case of AIDS has been reported from Arunachal Pradesh, Andaman & Nicobar Islands, Dadra & Nagar Haveli, Lakshadweep and Tripura.

AIDS cases in India (till October 31, 1997)

Number of AIDS cases	Male 3941 (78.7)	Female 1061 (21.3)	Total 5002
Probable source of infection			
Heterosexual promiscuous			3715 (74.2)
Blood transfusion and Blood products infusion			350 (7.0)
Homosexual contact			30 (0.6)
Intravenous drug addicts			356 (7.2)
Other			551 (11.0)
Total			5002 (100.0)

Figures in parentheses are the percentages.

Surveillance data for HIV infection in India
(till October 31, 1997)

Details of seropositive individuals	Seropositive (%)
Group	
Heterosexually promiscuous	30734 (45.8)
Homosexuals	229 (0.3)
Blood donors	4432 (6.5)
Dialysis patients	267 (0.3)
Antenatal mothers	568 (0.9)
Recipients of blood/blood products	884 (1.3)
Suspected ARC/AIDS cases	11277 (16.9)
Intravenous drug users	2657 (3.9)
Others	16263 (24.1)
No. of persons screened	3200357
Total seropositive	67311

Seropositivity rate 2.1 per cent (cumulative)

COUNCIL'S TRAINING PROGRAMMES

Reproductive Biology

At the Institute for Research in Reproduction, Mumbai:

- Workshop on Basic Molecular Biology for Clinicians (December 2-11, 1997).

Nutrition

At the National Institute of Nutrition, Hyderabad:

- Postgraduate Certificate Course in Nutrition (December 1, 1997-February 28, 1998).

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Printed and Published by Shri J.N. Mathur for the Indian Council of Medical Research, New Delhi
at the ICMR Offset Press, New Delhi-110 029
R.N. 21813/71