CHILDREN AND HIV/AIDS

MSF FACT SHEET

Every minute, a child under the age of 15 is infected with HIV. AIDS kills over 1,000 children every day, and claims roughly half a million young lives every year[1].

Photo © MSF

In rich countries, paediatric HIV/AIDS is largely under control: prevention of mother-to-child transmission is successful, and infants and children have access to diagnostics and antiretroviral therapy. But 87% of the estimated 2.3 million children living with HIV/AIDS grow up in sub-Saharan Africa[2], and the vast majority are beyond the reach of these health services. They are condemned to die due to lack of access to treatment – without treatment, half of all babies infected with HIV die before their second birthday.

Médecins Sans Frontières' (MSF) experience has shown that children respond very well to treatment and can get better quickly. However, practical issues make diagnosing and treating children infected with HIV/AIDS much more difficult and expensive than for adults.

The impact of the HIV/AIDS epidemic on children has been, and will continue to be, devastating. By 2005, AIDS had left over 15 million children under the age of 18 orphaned in its deadly wake, 12 million of them in sub-Saharan Africa[3]. Most of these children are now in the care of their grandparents and other caregivers, or live in orphanages or in the streets.

Children infected with HIV/AIDS are often denied treatment, based on the perception that their deaths are unavoidable. With no voice to represent them, children are the silent victims of the HIV/AIDS pandemic.

Transmission

More than nine times out of ten, children become infected with the HIV virus through mother-to-child transmission. This infection can occur during pregnancy, childbirth, or breastfeeding.

Yet this vertical transmission of the virus from mother to child is easily preventable in rich countries. This is done by giving highly active antiretroviral therapy (HAART) to HIV positive mothers during their pregnancy and to the infant within a few hours of birth, and by providing safe alternatives to breast milk.

By adopting such strategies, wealthy countries have been extremely successful in reducing mother-to-child transmission. Poorer countries are unable to replicate this success because the majority of mothers do not have access to diagnostics to establish their HIV status, and so never initiate treatment. Nor do they have access to antiretroviral therapy for themselves or their child. Another reason is that, even assuming that mothers know the risks, something basic like an alternative to breast milk can be unavailable, or even dangerous due to unsafe water in more remote locations.

These disparities between rich and poor explain the gap in paediatric HIV/AIDS today: of the estimated 540,000 children in the world newly infected during 2005, 470,000 live in Africa, and only 700 in either Europe or North America[4]. But with infections in the developing world rising rapidly, the gap can only widen.

Diagnosis

Diagnosis of HIV infection is crucial so that antiretroviral therapy can be started as quickly as possible. It usually cannot be established on clinical symptoms alone, as these are often not manifest or can be confused with other typical childhood illnesses. HIV infection is commonly diagnosed through an antibody test. Antibodies, part of the body's immune response, appear in the blood within a few weeks following an infection.

But detection of antibodies is ineffective for newborns, because almost all babies born to women with HIV acquire their mother's antibodies. Establishing whether the child has been infected or not, whether the antibodies are the child's or the mother's, becomes highly complex. These maternal antibodies can remain in the blood as long as 18 months.

The current strategy for diagnosing children under 18 months requires high-tech and hugely expensive laboratory equipment that is largely unavailable in developing countries. The gold standard is to detect the presence of viral HIV particles in the blood stream. But the equipment necessary for this costs more than US$ 20,000, and conducting the test is very complicated, requiring a well equipped laboratory with a constant electricity supply and highly skilled technicians, all of which are rarely available in developing countries.

Today we need a simple, affordable, and rapid viral RNA or proviral DNA detection test that can be used in low-tech settings. An improvement has been made through 'dry blood spot' technology. This allows a patient's blood to be collected and dried on a piece of filter paper, which is then sent to a laboratory that has the necessary equipment (often a reference laboratory in the capital city). If widely implemented, this technique can bring significant improvement, but it relies on a functioning transport system and sufficient laboratory capacity to run all the tests.

What is really needed is a test that is simple enough to be performed while the patient is waiting. Multinational diagnostic companies have not been interested in the development of such a test, but a research group in Cambridge – with which MSF is cooperating – is trying to develop such a test.

Treatment

In wealthy countries, infected children and babies are diagnosed rapidly and treated with antiretroviral therapy – a strategy that has proven successful in reducing illness and death.

But treating a child today can be up to four times more expensive than treating an adult. For instance, treating a child weighing 10 kg for one year with stavudine, nevirapine and lamivudine can cost up to US$ 534, while treating an adult with the same drugs costs US$ 132[5]. This must change.

In wealthy countries, until a child is able to swallow tablets, drugs are commonly administered orally in liquid form, such as syrups or powders that need to be mixed with water.

Yet these seemingly simple procedures have practical implications that can make them ill-suited to remote or resource-poor settings. Some syrups must be refrigerated after opening, implying reliable electricity supply in patients' homes. Those marketed in powder form require suitable drinking water. To ensure the correct dosage is given, some drugs must be measured with a syringe before they are given, which can be too complex for caregivers. Bad taste can also be difficult to overcome.

UNICEF and WHO have recommended that liquids be used only for infants weighing under 10-12kg, and that solid drugs, as tablets or capsules, be preferred for older children[6]. Such guidance may be welcome, but the solution remains inadequate and fails to fully address the problem as companies still very rarely produce solid formulations for children.

Appropriate drugs are simply not available yet. Patient-friendly treatments for adults have become increasingly available over the past few years, with

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the production of fixed-dose combinations (FDCs), which combine different drugs into a single pill. FDCs are particularly useful, as they simplify treatment and show excellent clinical, immunological and virological results. While FDCs have been available for adults, equivalents in paediatric formulations have not. The only solution has been to treat children by opening adult capsules or breaking adult tablets. However, this practice is far from ideal, as it carries significant risks of under- or over-dosing.

Currently, two generic manufacturers in India are producing the first triple FDC for children, but most pharmaceutical companies have little interest in developing paediatric formulations. With the market for new formulations being mostly limited to the developing world, there isn't enough commercial incentive to stimulate action. But more paediatric formulations are needed today, to make sure that patients have access to a variety of different treatment options – this also includes second-line drugs that are needed once patients naturally develop resistance to their first set of medicines.

To address these issues, UNICEF and WHO have been consulting experts since late 2003 to come up with standardised treatment guidelines and dosing recommendations for children, in order to improve access to and encourage production of, appropriate paediatric ARV formulations. It will be crucial that these guidelines shift the focus from making do with existing and ill-adapted formulations, to making clear recommendations on which paediatric formulations are needed, so that they can serve as a guide to drug developers. Without clear indications from WHO and UNICEF as to what is needed, producers may be hesitant to invest in producing paediatric formulations. The guidelines will also need to be simple and user-friendly enough to be used by health care workers in primary health care settings.

MSF experience treating children with HIV/AIDS

MSF began treating children with antiretrovirals in December 2000. Today, MSF is treating more than 57,000 patients with ARVs in over 30 countries. Among these, about 4,100 (or 7.2%) of our patients are children under the age of 15.

Dr. Fasineh Samura, who works for MSF in Malawi, describes the daily reality for relatives caring for infected children: "*Since there are still no available easy-to-use triple drug combinations for children, I do what most doctors are doing: I try to show caregivers such as grandparents how to break adult tablets, hoping that the children will get the doses they need. It is even more difficult for the youngest children – small children can't swallow tablets so they have to use different syrups in different quantities, which complicates treatment.*"

Even for doctors the obstacles remain. "*We are still waiting for simple guidelines or standardised dosing charts to help doctors prescribe the correct dosages,*" Dr Samura explains. "*Because of this, physicians often hesitate before treating children – it can seem too difficult.*"

MSF teams have created innovative tools to help overcome these practical barriers, by supporting health care providers in prescribing ARVs and promoting adherence in children. These include health diaries, treatment calendars, and tools to improve children's understanding of the disease and the treatment.

MSF calls for:

WHO and UNICEF to develop a clear strategy to ensure that greater numbers of children receive antiretrovirals:

- Prioritise paediatric AIDS therapy, and support countries to achieve the clear targets for access to care for children
- Establish a realistic goal of reducing mortality in children with AIDS
- Ensure that paediatric treatment guidelines are simple and give clear recommendations to manufacturers on needed formulations and dosages for children
- Ensure that the WHO prequalification project prioritises the assessment of these urgently needed products
- Work proactively to encourage much-needed research and development for this neglected group of patients
- Call on companies to make all their products in paediatric formulations
- Help facilitate the field evaluation of new diagnostic tools to ensure that they are made accessible as quickly as possible
- Work with developers of new fixed-dose combinations to ensure that these new treatments are quickly validated by the WHO prequalification project, and reach the children that need them
- Increase support to national reference laboratories in order to strengthen their quality control and capacity to deliver

Pharmaceutical companies to facilitate access for children to antiretroviral therapy:

- Promptly submit the dossiers of paediatric formulations to WHO's prequalification project
- Pledge to make paediatric formulations of all their adult antiretroviral drugs, and provide them at the lowest possible prices
- Develop paediatric fixed-dose combinations to facilitate administration of drugs and adherence
- Accelerate the development of affordable laboratory tools suitable for diagnosing infants in the most remote settings

National programmes and international donors:

- Immediately promote the implementation of dry blood spot testing technology to transport samples toward national reference laboratories that are able to handle them properly
- Include paediatric AIDS therapy in national scale-up plans by setting targets, defining needs and setting up paediatric antiretroviral supply lines
- Ensure that national paediatric treatment guidelines are made available to health workers, along with appropriate training

1. UNAIDS: http://www.unaids.org/en/HIV_data/Epidemiology/epi_slides.asp 2006 Report on the Global Aids Epidemic, UNAIDS. Annex 2: HIV and AIDS Estimates and data, 2005 and 2003.
2. http://data.unaids.org/pub/GlobalReport/2006/2006_GR_ANN2_en.pdf
3. UNAIDS, op. cit.
4. UNAIDS, http://www.unaids.org/en/HIV_data/Epidemiology/epi_slides.asp
5. "Untangling the web of price reductions: a pricing guide for the purchase of ARVs for developing countries" MSF, 9th edition, pending publication July 2006. The cheapest WHO prequalified product was taken for the purpose of this comparison.
6. UNICEF/WHO Technical Consultation: Improving Access to Appropriate Paediatric Anti-Retroviral Formulations, 3rd-4th November 2004, Geneva.

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