

2. Strengthening health systems

“3 by 5” has prompted significant debate about the potential impact of introducing lifelong therapy for a chronic health condition such as HIV/AIDS on health systems that already lack resources. Although there have been fears that antiretroviral therapy programmes could divert resources from other, basic health services,¹⁴ antiretroviral therapy and the related scale-up of prevention are also widely seen as providing fresh opportunities to strengthen key components of health systems with benefits beyond the diagnosis and treatment of HIV/AIDS.

WHO has defined strengthening health systems as building capacity in critical components of health systems including policy, funding, human resources, service management and information and monitoring systems in order to achieve more equitable and sustained improvements across health services and health outcomes.¹⁵ “3 by 5” has contributed to governments, donors and technical agencies giving higher priority to strengthening health systems, with encouraging implications for the realization of all the health-related Millennium Development Goals. “3 by 5” has also challenged the belief that antiretroviral therapy cannot be provided where only basic health systems are in place.

Although it is too early to say that “3 by 5” has had system-wide impact, experience to date in many countries suggests that introducing antiretroviral therapy has begun to provide tangible benefits in some critical health system areas, as outlined in this section.

2.1 Human resource capacity

Using the opportunities afforded by the introduction of antiretroviral therapy to increase human resource capacity overall requires integrated approaches that include treatment for a range of common conditions as well as HIV/AIDS.

Some 29 countries have adopted such an approach in the form of the Integrated Management of Adult and Adolescent Illness (IMAI) curriculum developed by WHO and its partners as the key scale-up approach for “3 by 5”. Training on the general principles of good chronic care applies to all chronic diseases and therefore builds the capacity of health and community workers to manage a range of conditions in addition to HIV/AIDS. Health workers trained using the IMAI model learn an approach to the acute care of adults that, in addition to HIV/AIDS, can be applied to managing conditions such as pneumonia, diarrhoea, mental disorders, sexually transmitted infections and malaria. The training tools are readily adaptable to different contexts; for example, modules on drug substitution therapy and primary care for injecting drug users can be included.

IMAI also contributes to strengthening health systems by establishing “district networks” that enable efficient referrals between levels of the health system as well as case discussion during on-site visits by physician mentors (Box 4). With good preparation of mentors, this can strengthen all public health programmes that have a case management component.

The IMAI approach to task-shifting empowers clinical officers and nurses to take up simplified case management for adults as they have for children in many settings through the Integrated Management of Childhood Illness (IMCI) methods, which have also been developed by WHO. IMAI also promotes the expansion of clinical teams to include trained people living with HIV/AIDS in the role of counsellors and treatment supporters. These steps increase the number and range of providers, improve links with the community and contribute to more robust primary care.

IMAI has also helped to reinforce local health system capacity by reinvigorating local training institutions.

¹⁴ The following article provides a good overview of the debate on vertical versus horizontal approaches to public health: Mills A. Mass campaigns versus general health services: what have we learnt in 40 years about vertical versus horizontal approaches? *Bulletin of the World Health Organization*, 2005, 83:315–316.

¹⁵ *Opportunities for global health initiatives in the health system action agenda*. Geneva, Global Alliance for Vaccines and Immunization, 2005 (http://www.vaccinealliance.org/resources/17brd_5_HealthSystemsGHIs_6Dec2005.pdf, accessed 13 February 2006).

Box 4. IMAI supports health systems – three examples in Africa

"3 by 5" has encouraged many countries to adopt a public health approach for rapid scaling up of prevention, care and treatment services for HIV as well as other diseases.

In Senegal, where HIV prevalence is as high as 2.8% in rural regions, access to HIV care and treatment expanded from six sites in 2001 to 32 sites in 2005, greatly reducing the distance that people must travel for health care. HIV treatment regimens have been standardized and simplified, laboratory equipment has been purchased to monitor CD4-cell counts and nurses have been trained to take over from physicians the routine tasks of treatment and monitoring. To support this task-shifting, every day, in each of the country's 11 regions, a physician-mentor is on call (by phone or e-mail) to address urgent questions from nurses in district clinics and health posts. This public health approach helped Senegal to extend antiretroviral therapy to the most hard-to-reach parts of the country and provide treatment to 4200 people by the end of 2005. Senegal has accomplished this decentralization by making use of tools and training from the WHO IMAI programme. In 2005, health workers in 15 districts received IMAI training; in 2006, those in another 38 districts will be trained. Integrated training and follow-up using IMAI materials will increase the availability of provider-initiated routine offer of testing and counselling and intervention for preventing the mother-to-child transmission of HIV. This will also expand the treatment of other sexually transmitted infections and allow for more effective clinical co-management of TB and HIV.

Uganda's pioneering public health approach carefully integrates regional and district care programmes, engages communities and people living with HIV/AIDS in scale-up efforts and provides ongoing training and mentoring to develop the capacity of clinical teams. Here, the number of sites providing antiretroviral therapy expanded rapidly from 35, mostly in regional hospitals, at the end of 2003 to 175 sites, including district hospitals, large health centres and a number of smaller community health facilities, at the end of 2005. Since late 2003, Uganda has trained 1570 health care workers using the IMAI approach. From the end of 2003 to the end of 2005, the country increased the number of people receiving HIV treatment from 17 000 to 75 000 while also reinforcing drug supply systems and laboratory services.

In Swaziland, where adult HIV prevalence was estimated to be between 37.2% and 40.4% in 2003, clinical teams are now providing integrated services for HIV prevention, care and treatment using the IMAI approach. Recent innovations include routine offer of testing and counselling, training rural health workers to promote HIV treatment literacy in local communities and prevention education and support for people living with HIV/AIDS, which is provided through peer support groups.

2.2 Using existing entry points

"3 by 5" has highlighted the importance of using existing health infrastructure and services (often referred to as entry points), notably tuberculosis (TB), sexual and reproductive health, the prevention of mother-to-child transmission, harm reduction and drug dependence treatment, to deliver antiretroviral therapy and scale up HIV prevention in resource-constrained settings. Links between HIV and malaria are now also receiving more attention.

Tuberculosis

In countries with high HIV prevalence, up to 80% of people with TB also test positive for HIV. Worldwide, TB is among the most common causes of morbidity and mortality among people living with HIV/AIDS. TB programmes have therefore emerged as important partners in HIV diagnosis, treatment, care and prevention. Many TB programmes have established close collaboration with HIV programmes to implement the activities recommended in the *Interim policy on collaborative TB/HIV activities*,¹⁶ including joint coordination and planning between TB and HIV services, TB screening for people who test positive for HIV and the routine offer of HIV testing to people with TB and more effective referrals between TB and HIV services and the provision of co-trimoxazole preventive therapy and antiretroviral therapy through existing TB services. Collaborative

¹⁶ *Interim policy on collaborative TB/HIV activities*. Geneva, World Health Organization, 2004 (<http://www.who.int/hiv/pub/tb/tbhiv/en>, accessed 13 February 2006).

TB/HIV activities are not only being adopted in settings with very high HIV prevalence in sub-Saharan Africa but also in countries in eastern Europe and Asia with concentrated HIV epidemics, such as Cambodia, India, Myanmar, the Republic of Moldova, the Russian Federation, Ukraine and Viet Nam.

Where TB programmes are strong, the TB facility can provide eligible people with TB with antiretroviral therapy, support adherence and monitor and supervise antiretroviral therapy delivery during the period of TB treatment. With the TB community as a partner, HIV diagnostic and treatment services can be more rapidly decentralized to the facility level and thus closer to those who need them.

Promoting and providing HIV testing for people with TB can act as a major entry point to antiretroviral therapy. In Rwanda, 53% of all people with TB were tested for HIV in 2004; in Malawi, this figure was 49%. A high proportion of people with TB who are found to be HIV-positive will be eligible for antiretroviral therapy. In Malawi, more than 35 000 people living with HIV have started on antiretroviral therapy since the antiretroviral therapy programme began, and in the last quarter of 2005, 1186 (18%) people starting to receive antiretroviral therapy were referred from the TB programme.

WHO has collected data from the 41 countries with the highest estimated proportion of people living with HIV/AIDS among people with TB from 2002 to 2004. Of the 32 countries that have provided data for each year, the number that reported having a national policy to offer HIV testing to all people with TB increased from 7 in 2002 to 20 in 2004, and those with a policy of providing antiretroviral therapy to eligible people living with HIV/AIDS who also have TB rose from 7 in 2002 to 21 in 2004. In these countries, the number of people with TB reported to have started antiretroviral therapy rose from zero in 2002 to more than 9000 in 2003. WHO estimates that both the number of people living with HIV/AIDS globally who were screened for TB and the number found to have TB increased ten-fold between 2002 and 2004, while the number who began isoniazid preventive therapy more than doubled.

Fig. 7. Development of policies for collaborative TB/HIV activities in 32 countries, 2002–2004

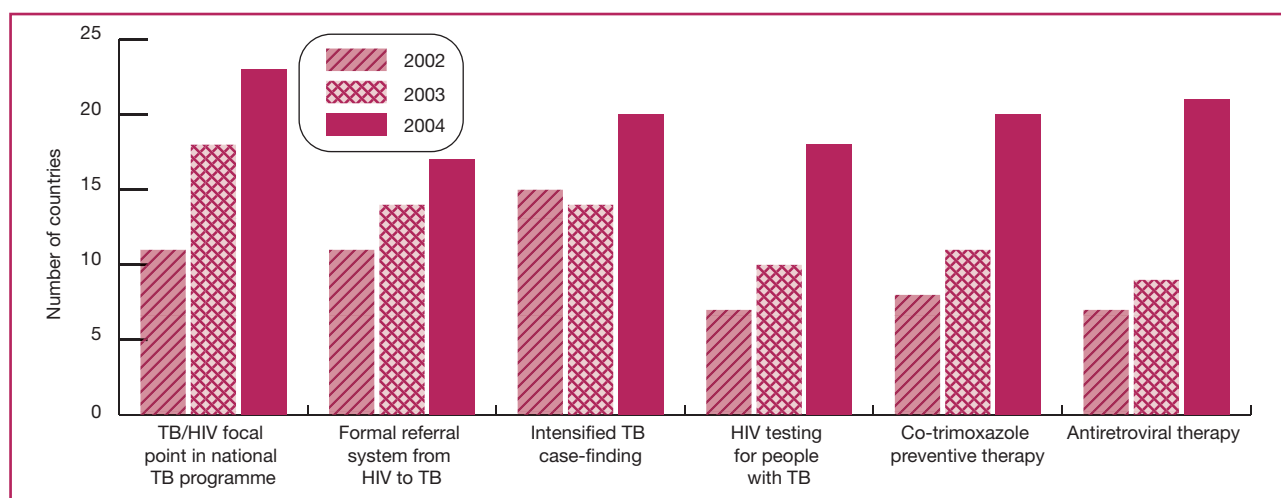


Figure 7 shows that the number of countries undertaking specific joint TB/HIV activities increased between 2002 and 2004. These include the number of countries that had appointed a TB/HIV focal person within the national TB programme, the number that had a formal system for referring people from HIV to TB services, the number that had a policy in place to carry out intensified TB case-finding among people living with HIV/AIDS, the number that had a policy to provide HIV testing and counselling for everyone with TB, the number that had a policy of providing co-trimoxazole therapy to people living with HIV/AIDS who also have TB and the number that had a policy of providing antiretroviral therapy to people living with HIV/AIDS who also have TB.¹⁷

Although much more attention is now being paid to joint TB/HIV programming, progress ultimately depends on the number of coinfecting people who receive appropriate treatment for both TB and HIV, and in general this still remains unacceptably low. More determined efforts must therefore be made to further scale up joint approaches to these two diseases.

¹⁷ *Second global plan to stop TB (2006–2015)*. Geneva, Stop TB Partnership, 2006 (<http://www.stoptb.org/globalplan/default.asp>, accessed 13 February 2006).

Malaria

The links between HIV and malaria are now receiving more attention.¹⁸ These are most apparent in areas with generalized HIV epidemics and stable malaria. Sub-Saharan Africa carries a high burden of both diseases, and coinfection is thus common in many areas. In Latin America and the Caribbean, malaria and HIV overlap somewhat in the general population in several countries. South-East Asian countries such as Myanmar and Thailand have a generalized HIV epidemic, but malaria distribution is heterogeneous in this region. Considering that an estimated 1 billion people in South-East Asia are exposed to unstable malaria, even small overlaps of malaria and HIV in these settings may have a large public health impact. Transmission of both malaria and HIV can also result from improper blood-transfusion practices and unsafe injections.

People with HIV-related immunosuppression, including pregnant women, living in areas of stable and unstable malaria are particularly vulnerable to malaria and need protection against malaria by insecticide-treated nets, prophylaxis or other preventive measures. In areas with stable malaria and high HIV prevalence, HIV should be suspected among people with repeated episodes of fever, and the treatment of fever as malaria alone (in particular among people other than young children) is inadequate; in addition to providing malaria treatment, health providers should offer HIV testing and counselling.

The simultaneous introduction of new medicines and diagnostics by malaria and HIV programmes offers opportunities for joint planning, training and service delivery in order to reduce the burden of the two diseases. Integration of services is particularly important within the framework of reproductive and children's health services. Reproductive health services, for example, need to ensure the delivery of the WHO-recommended antenatal care schedule of four visits (focused antenatal care), which includes a minimum package of interventions for preventing both malaria and HIV. HIV-infected pregnant women in areas with stable malaria should, depending on the stage of HIV infection, receive either intermittent preventive treatment with at least three doses of sulfadoxinepyrimethamine or daily co-trimoxazole prophylaxis. Because of potential drug interactions, malarial illness in HIV-infected pregnant women who receive co-trimoxazole prophylaxis should be managed with antimalarial medicines that do not contain sulfonamides or sulfones. In countries with generalized HIV epidemics, routine monitoring of antimalarial drug efficacy or effectiveness should also include assessing the effect of HIV on the outcome of antimalarial treatment.

Sexual and reproductive health

Most HIV infections globally are sexually transmitted or associated with pregnancy, childbirth or breastfeeding. The interactions between sexual and reproductive ill-health and HIV/AIDS are now widely recognized, including their common determinants such as poverty, gender inequality and social marginalization. Services for the prevention, care and treatment of HIV/AIDS now form an important component of family planning, sexually transmitted infections and other reproductive health services in most countries, as shown in Kenya, for example (Box 5). This is likely to lead to improved access to and uptake of key HIV/AIDS and reproductive health services and reduced related stigma and discrimination. For example, offering family planning clients in high-prevalence settings the opportunity to learn their HIV status is likely to enhance the quality of family planning services and make an important contribution to HIV prevention services.

¹⁸ *Malaria and HIV interactions and their implications for public policy: report of a technical consultation*. Geneva, World Health Organization, 2004 (http://www.who.int/hiv/pub/prev_care/malaria/en, accessed 13 February 2006).

Box 5. Kenya pioneers integrated HIV and sexually transmitted infection care

Kenya recently knitted together its HIV/AIDS and sexual and reproductive health programmes, with a significant positive impact on its efforts to scale up services for HIV treatment, care and prevention. For example, its Family Health Options Kenya programme provides voluntary HIV testing and counselling at 11 sexual and reproductive health sites, a move that has significantly boosted the uptake of testing. From January to November 2005, 16 311 people took advantage of testing and counselling at these clinics. Among other benefits, the programme has allowed thousands of pregnant women to know their status and access services for preventing mother-to-child transmission. It has also given many the opportunity to begin antiretroviral therapy in a timely manner. The programme also employs people living with HIV/AIDS as staff and managers, helping to reduce the stigma and discrimination associated with HIV disease. By bringing HIV prevention and care into sexual and reproductive health clinics, Kenya is scaling up treatment more swiftly and reducing HIV/AIDS mortality rates.

Prevention of mother-to-child transmission

In high-income countries, a full range of services for preventing mother-to-child transmission of HIV is nearly universal, and a proven package of measures has virtually eliminated this mode of transmission. Some low- and middle-income countries are also approaching this goal, having scaled up the prevention of mother-to-child transmission and incorporated treatment for women and children. Botswana (Box 6), Brazil and Thailand are prime examples, and countries throughout the Caribbean – Bahamas, Barbados, Belize and Bermuda, for instance – have also achieved impressive results. In most low- and middle-income countries, however, access to services for preventing mother-to-child transmission remains inadequate, with less than 10% of pregnant women living with HIV/AIDS estimated to be receiving antiretroviral prophylaxis. As a result, 1800 infants are infected with HIV every day, and the vast majority of the 570 000 children younger than 15 years who die from AIDS-related illnesses every year contract the disease through mother-to-child transmission.

To address this public health emergency, a growing number of countries and agencies have recently begun to push for a global initiative to swiftly scale up the prevention of mother-to-child transmission. In October 2005, UNICEF and UNAIDS launched *the Unite for Children, Unite against AIDS* campaign that aims, among other goals, to provide 80% of women in need with access to services to prevent transmission of HIV to their babies by 2010. In December 2005, a high-level meeting of governments, multilateral agencies, development partners, researchers and people living with HIV/AIDS jointly convened by WHO and UNICEF in Abuja, Nigeria, resulted in a Call to Action to eliminate mother-to-child transmission in low- and middle-income countries by focusing on gaps in services.

These gaps are many. In sub-Saharan African countries, for example, pregnant women seldom visit an antenatal care clinic, and less than half of all deliveries are attended by a health professional. The women who do visit antenatal clinics may not have access to HIV testing and counselling or may choose not to accept testing. Few women who test negative receive prevention counselling, condoms, testing or treatment for other sexually transmitted infections, and few programmes for preventing mother-to-child transmission are well linked with HIV services for mothers living with HIV/AIDS, even when in the same facility. After giving birth, few mothers receive counselling or infant feeding support and other postpartum services.

“3 by 5” has nevertheless helped to address such gaps. It has increased access to antiretroviral services for women and children and, most likely, contributed to increased uptake of testing and counselling and services for preventing mother-to-child transmission. It has also strengthened health systems as a result of the training of health care providers in methods of integrating the delivery of health services, including preventive interventions.

The Abuja Call to Action: *Towards an HIV-free and AIDS-free Generation* has six key action points. These include improving standards of care and uptake of services for preventing mother-to-child transmission, with measurable time-bound targets, monitoring and evaluation; mobilizing national and external resources to strengthen health systems for the delivery of services for preventing mother-to-child transmission; integrating these services into mother and child health services; decentralizing programmes; engaging communities and people living with HIV/AIDS in programme expansion; and undertaking operational research to continuously improve programmes for preventing mother-to-child transmission.

Box 6. Scaling up the prevention of mother-to-child transmission

"3 by 5" has encouraged countries to scale up antiretroviral therapy with measurable targets and a public health approach. Similar strategies are being employed to scale up services for preventing the mother-to-child transmission of HIV.

In sub-Saharan Africa, Botswana, where HIV prevalence among pregnant women has ranged from 35% to 37% since 2001, is the furthest ahead in the effort to slow mother-to-child transmission. The country first developed a programme for preventing mother-to-child transmission in 1999. Ninety per cent of the programme's resources come from the government.

Services for preventing mother-to-child transmission are fully integrated with mother and child health care services and are available in all public antenatal clinics free of charge. This includes testing and counselling, zidovudine plus single-dose nevirapine for both mother and baby and safe obstetric practices. In recognition of the high levels of HIV transmission occurring through breastfeeding, Botswana has made a policy decision to provide mothers 12 months' infant formula free of charge for replacement feeding.

Through careful monitoring and evaluation, Botswana has been able to continuously improve the programme. When it was discovered in 2002, for example, that, despite freely available testing and counselling, only 49% of pregnant women were being tested for HIV, the government moved to train health care staff to manage supply chains of essential commodities; increase use of rapid HIV tests; and routinely offer HIV testing and counselling in health care settings. The country is now working to strengthen its national infant feeding policy and programmes and the links between its prevention and care programmes.

As a result of these initiatives, Botswana has swiftly scaled up services for preventing mother-to-child transmission since 2002 and is approaching universal access. The percentage of women delivering in hospitals who were tested for HIV during pregnancy or in the immediate postpartum period increased from 49% in 2002 to 92% in 2005. The proportion of pregnant women living with HIV/AIDS receiving zidovudine prophylaxis during pregnancy rose from 27% in 2002 to 79% in 2005; and, during the same period, those receiving nevirapine increased from 0% to 70%. The country is now also scaling up antiretroviral therapy for pregnant women. The preliminary results of a pilot study on dry-blood-spot testing, using rapid polymerase chain reaction HIV testing among babies in Francistown, indicates that mother-to-child transmission has been reduced to under 6%. Botswana estimates that, without interventions for preventing mother-to-child transmission, 40% of all infants born to seropositive mothers would be infected with HIV.

Services for injecting drug users

Integrated services that meet the needs of injecting drug users are being scaled up in several countries. Harm reduction programmes, such as needle and syringe exchange sites and drug dependence treatment services provide valuable entry points for HIV testing and counselling, referral to HIV/AIDS treatment and care services and the direct delivery and monitoring of antiretroviral therapy, including antiretroviral therapy adherence support from peer networks of drug users. With its model of triangular clinics, for example, the Islamic Republic of Iran is showing how antiretroviral therapy programmes can also effectively integrate harm reduction and sexually transmitted infection treatment and prevention with drug dependence prevention, treatment and care.

Triangular clinics are being established in communities across the Islamic Republic of Iran as well as in prisons, with plans to cover all large prisons in the country by 2010. China and Indonesia are also planning to rapidly expand harm reduction and methadone maintenance services as part of comprehensive responses to HIV/AIDS, which make more effective use of existing health systems capacity. Malaysia is piloting needle and syringe exchange and methadone maintenance programmes and has initiated antiretroviral therapy for injecting drug users through drug rehabilitation centres.

Drug injecting is driving the HIV epidemic in a wide range of countries, particularly in eastern Europe, central Asia, other parts of Asia and Latin America. In most of these countries, the majority of people needing treatment are drug users. New models of antiretroviral therapy delivery are therefore required that include a parallel scaling up of drug dependence treatment services (Box 7). For heroin and other opioid users, the most effective form of drug dependence treatment is methadone or buprenorphine substitution treatment. In recognition of this, methadone and buprenorphine were included on the WHO Model List of Essential Medicines in 2005.

Further challenges exist in providing integrated and comprehensive services for drug users, recognizing the high levels of coinfection with hepatitis B and C and TB, the comorbidity with mental disorders such as depression and the presence of multiple-drug use with substances such as cocaine and amphetamine-type stimulants that are not responsive to drug substitution treatment.

Box 7. Ukraine: using substitution therapy to boost HIV treatment scale-up

In the last two years Ukraine has begun to scale up HIV treatment. The number of people on antiretroviral therapy increased from less than 200 in July 2004 to more than 3000 in December 2005. As in many other countries, however, scaling up requires measures to ensure that people who inject drugs benefit from antiretroviral therapy.

Ukraine has an estimated 340 000–425 000 injecting drug users (1.2% of the population aged 15–64 years), and sentinel surveillance in 2005 estimates that between 10% and 66% of them are living with HIV/AIDS. To help this marginalized population, Ukraine has used part of a Global Fund grant to begin scaling up an ambitious opioid-substitution therapy programme. Starting in seven regions, this will provide substitution therapy to 6000 injecting drug users by September 2008. Among other benefits, the programme helps people who inject drugs to stabilize their lives and adhere to antiretroviral drug regimens. The programme also provides substitution therapy to injecting drug users who are HIV-negative or of unknown status, as this therapy has been shown to be an effective way to prevent HIV among drug users.

In Ukrainian prisons, meanwhile, authorities have announced the implementation of an ambitious HIV prevention programme for injecting drug users, including needle and syringe exchange projects in several of them.

Established in the Ukrainian capital, Kiev, with the support of WHO and the German Gesellschaft für Technische Zusammenarbeit (GTZ), the Knowledge Hub for the Care and Treatment of HIV/AIDS in Eurasia is also playing an important role in expanding treatment and care capacity in the region. More than 500 Ukrainian caregivers and 350 health and social workers from Kazakhstan, Republic of Moldova, Russian Federation and Tajikistan have been trained at the Knowledge Hub since late 2004.