

Scaling up HIV/AIDS care:

service delivery

&

human resources perspectives



English only

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and human resources perspectives



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Preface

In mid-2003, the newly appointed Director-General of the World Health Organization, Dr LEE Jong-wook, announced the 3 by 5 initiative as one of the main priorities of his incoming administration. The intention of the initiative is to provide three million people with antiretroviral therapy (ART) in developing and middle-income countries by 2005. It is a step towards the goal of providing, as a human right, universal access to treatment for all who need it.

ART will add to the tasks that the health workforce must provide on a large scale in high-burden HIV/AIDS countries. Most of these countries are also resource-poor. Their health services have suffered years of erosion and lack of investment, as well as the emergence of pluralist service delivery systems with public, private and nongovernment providers of care working concurrently, and weak government infrastructure to steer the evolving system along national population health needs. Under the impact of macroeconomic reform programmes, these countries have also often suffered from inability to expand their human resource base, as public expenditure-capping measures have led to hiring freezes for the public sector. In the midst of this, the HIV/AIDS epidemic went unabated, population growth added further demands on service delivery and hospital beds were increasingly filled with AIDS patients in the final stages of the disease.

HIV/AIDS has thus added a specific burden on the services and the service providers: ever-increasing workloads, coupled with demotivating working environments; despair of seeing patients die with no treatment in sight; service providers themselves being affected by HIV/AIDS, leading to long spells of absence with no possibility of interim replacement, thus prolonging the working hours for those remaining; and a host of other factors undermining service capacity.

The 3 by 5 initiative therefore comes at a critical time. It is expected that widespread access will help reverse some of the ill-effects the disease has caused for service delivery and human resources.

Human resources and antiretroviral therapy

ART is a new, chronic-care service. When the 3 by 5 initiative was launched, the World Health Organization, through its Department of Human Resources for Health, reacted promptly in full knowledge of the constraints already imposed on delivery systems in high-burden HIV/AIDS countries. In order to provide countries with advice and guidance on how best to organize ART services and maximize human resources input, a method for analysing existing ART delivery systems and human resources components was devised and a series of studies was launched in 41 sites in 11 countries.

The intention was to collect information on how ART services were designed. Another focus was to find out how tasks were distributed among members of an ART team so that countries could learn from each other's experience and possibly avoid some of the problems encountered by previous projects elsewhere. A further objective was to gather ad hoc estimates of how much time staff would spend on specific tasks assigned to them.

The study organizers also teamed with members of the Millennium Task Force on HIV/AIDS of the Secretary-General of the United Nations and shared methodologies and, later on, results of their investigations. This document provides an overview of the findings and conclusions about current knowledge on ART service delivery and human resources involvement. It is presented in three independent but interrelated sections.

Section 1 identifies services delivery options and places the use of human resources for 3 by 5 in a health systems and community perspective. The section further provides a broader overview and indications of service delivery models for ART and illustrates findings from site visits. Section 2 provides a more in-depth account of the characteristics of the systems studied. Section 3 is a report

of an international workshop on human resources and ART delivery. It brings together the reactions and proposals to the discussion paper and further site-visit presentations from a large set of public, private and nongovernmental providers and international multilateral and bilateral support groups.

Acknowledgements

Attempts to gather and disseminate new knowledge on specific public health challenges are normally the work of a multitude who collaborate to provide answers. After the announcement of the 3 by 5 initiative in July 2003, the willingness of often extremely busy service providers, academics, civil servants, private practitioners, volunteers working in NGOs and people living with HIV/AIDS to assist in this effort was extremely inspiring. WHO staff in country and regional offices and at headquarters also made it possible to design a study, collect data and organize and hold an international workshop within a span of 10 weeks from late August 2003. The efforts of all these colleagues are gratefully acknowledged.

Special thanks are due to Orvill Adams, former Director of the Department of Human Resources, for initiating the field studies and guiding the process with Mario Dal Poz, Coordinator of Human Resources for Health. Norbert Dreesch, Hedwig Goede and Mark Wheeler steered the development of data collection tools, and, together with Sylvie Essengue, undertook field data collection and guided other consultants' contributions. Together with Gulin Gedik, Miklos Zrinyi and Virginia O'Dell, the data-collection team developed the framework and field data analysis presented in Section 1. Mark Wheeler contributed more in-depth analysis of field observations in Section 2. Virginia O'Dell provided the report of the international meeting on Human Resources for Health and 3 by 5, in Section 3. Norbert Dreesch, Mario Dal Poz and Janet Clevestine gave technical and editorial assistance; Amel Chaouachi and Sigrid Dräger helped complete the publication process.

Section 1

Health services delivery
and scaling up access
to human resources for 3 by 5:
issues and evolving solutions

Introduction

At the United Nations General Assembly High Level Meeting on HIV/AIDS on 22 September 2003, the World Health Organization (WHO) declared the lack of access to HIV/AIDS treatment a global health emergency and announced its commitment to lead the way towards an ambitious 3 by 5 target: working with a wide range of partners including the Joint United Nations Programme on HIV/AIDS (UNAIDS), WHO proposed to take urgent action to provide antiretroviral therapy (ART) to three million people by the end of 2005. To make this ambitious but necessary vision a reality, WHO developed a detailed strategy announced on World AIDS Day, 1 December 2003.

To achieve the 3 by 5 target, WHO will:

- provide Emergency Response Teams, at the request of governments, to conduct a rapid assessment of the barriers and opportunities in achieving the 3 by 5 target;
- establish an AIDS Drugs and Diagnostics Facility to assist countries in procurement;
- publish simplified treatment guidelines;
- publish uniform standards and simplified tools to track the progress and impact of ART programmes, including surveillance of drug resistance;
- start the emergency expansion of training for health professionals;
- advocate adequate funding, not only for drugs but also for a massive investment in training and strengthening health services, which will benefit ART delivery and the delivery of other health services.

As part of the WHO preparations, a meeting was held from 19 to 21 November 2003 in Lusaka, Zambia, to address the need for consensus on technical and operational issues in scaling up. The deliberations on service delivery and human resource aspects of scaling up that took place in Geneva on 20–21 October 2003 fed into the Lusaka meeting, where the detailed implementation strategy was adopted.

A working group on human resources and service delivery contributed to this process by assembling relevant literature and undertaking a series of site visits to Botswana, Cambodia, Kenya, Malawi, Rwanda, South Africa, Thailand and Uganda.

This section consists of five parts. The first highlights the contextual issues in scaling up. The second part provides information on various approaches in delivering ART, and the main challenges and issues related to human resources as they are reflected in the literature, supplemented by observations from sites visits conducted by the Department of Health Service Provision (now the Department of Human Resources for Health) during September–October 2003. The third part focuses on community involvement in services for HIV/AIDS patients; the fourth part addresses the key issues, challenges and possible strategies for scaling up ART. The fifth part offers reflections on the prospects for ART and the human resources implications.

The context

The scope of challenges

With 42 million people now living with HIV/AIDS – and 14 000 people newly infected and 8000 people dying of HIV/AIDS each day – expanding access to ART for those who urgently need it is one of the most pressing challenges in international health. Providing treatment is essential to alleviate suffering and to mitigate the devastating impact of the epidemic. It also presents

unprecedented opportunities for a more effective response by involving people living with HIV/AIDS, their families and communities in providing care, and it will strengthen HIV/AIDS prevention by increasing awareness.

The challenges are great. The health sector in many of the places most affected by HIV/AIDS is extremely weak, and health services are faced with severe shortages of human and financial resources. The growing impact of HIV/AIDS exacerbates an already difficult situation. This is clearly demonstrated in sub-Saharan Africa, where people with HIV/AIDS-related illness occupy more than 50% of hospital beds, and where organizations and facilities providing care are overwhelmed by the demand.

At the same time that demand for health services increases, more health care personnel in sub-Saharan Africa and other high-prevalence regions are themselves dying or unable to work as a result of HIV/AIDS. Morale is weakened by poor working conditions in concert with the increased workload that must be borne by a workforce reduced by migration as well as ill-health.

In order for three million people to be on ART by the end of 2005, the pressing needs of the health sector will have to be adequately addressed. In addition to ensuring that affordable medications are available where they are needed, service delivery and human resources deficiencies will need to be rectified.

Challenges for scaling up

The Commission on Macroeconomics and Health argued that a relatively small number of health conditions are responsible for most of the burden of avoidable mortality in poor countries; that effective interventions exist to prevent and treat most conditions; but that these interventions are not available or accessible to the world's poor. Scaling up these interventions faces a number of challenges and constraints. Most analyses have focused on the financial resources required, but funding is not the only constraint to effective delivery of services. Constraints should therefore be defined more broadly than inputs alone; they also include systems, processes, incentives and values or norms (Hanson et al., 2003). The Commission classified the constraints at different levels as:

- community and household level (such as lack of demand for effective interventions; physical, financial or social barriers to use of effective interventions);
- health services delivery level (such as shortages and poor distribution of appropriately qualified staff; weak technical guidance, programme management and supervision; inadequate supply of drugs and medicines; lack of equipment and infrastructure, including poor accessibility of health services);
- health sector policy and strategic management level (such as weak and overly centralized systems for planning and management; weak drug policies and supply systems; inadequate regulation of pharmaceutical and private sectors and improper industry practices; lack of intersectoral action and partnership for health between government and civil society; weak incentives to use inputs efficiently and respond to user needs and preferences; reliance on donor funding that reduces flexibility and ownership; donor practices that damage country policies);
- public policies cutting across sectors (such as government administrative systems, civil service rules and remuneration, centralized management system, civil service reforms);
- environmental and contextual characteristics (such as the governance and overall policy framework).

Intervention across the whole continuum is crucial, with health policy, management and service-delivery level constraints all playing an important role. With relative improvements in health funding, other operational constraints – such as the lack of qualified staff, drugs and medical

supplies; poor accessibility to services and low demand for health interventions – now constitute the major bottlenecks in improving health outcomes. The levels of these constraints are also the critical factors in determining the ceilings of health sector performance in the medium term. Though much still needs to be done in terms of mobilizing resources, the focus of concern is also shifting from raising funds to effectively channelling them to address such constraints.

At the health services level, shortages of infrastructure, equipment and human resources now constitute the most important bottlenecks. The biggest problems have been identified as very limited geographical, financial and cultural access; poor quality of services; the shortage of human resources in both quality and quantity; low motivation of health workers and huge gaps in both initial and continuing professional training; weak institutional capacity for the management of the health system; and insufficient support structures at central, regional and local levels (Ranson et al., 2003; Wyss, Moto & Callwaert, 2003).

These general constraints affect scaling up ART and can constitute more serious bottlenecks as implementation progresses, especially as they can hamper expansion of the coverage beyond a certain threshold. Acknowledging this threat, the paper focuses on overcoming the constraints in health policy, management and services delivery in the short and medium term.

Broad health policy and system context for scaling up ART

Globalization and international finance and credit-agency priorities towards containment of public sector expenditures have had an impact on health policy options over the past decade. The adoption of macroeconomic policies under structural-adjustment programmes normally called for strict fiscal stringency measures to be implemented and led to widespread capping of public-sector spending.

In countries with large levels of health coverage provided by the public sector and with human resources consuming often more than 60% of health budgets, the consequences were dire. These included widespread reductions in facility and equipment maintenance, the impossibility of increasing staffing levels in response to population growth and newly emerging diseases, such as HIV/AIDS, and high levels of dependency on national and international NGOs and bilateral support for health interventions.

As a result, pluralist health systems emerged, creating challenging problems of policy and service delivery coordination in a context of poverty reduction and equity concerns that strained impoverished national health stewardship capacity. With additional needs generated by the HIV/AIDS epidemic, many governments in resource-poor settings can respond only by allowing ever more nongovernmental organizations (NGOs) and other well-intentioned providers to assume essential service provision functions.

Fiscal stringency can pose problems in the absorption of available human resources. In one African country it is anecdotally reported that 3000 trained nurses are not currently employed in the health sector, primarily because expenditure and establishment ceilings mean that the public sector does not have effective demand for their services, although they are needed according to technical criteria. Private-sector employment possibilities are presumably limited by the stagnation of personal incomes, in line with the overall stagnation of the economy.

The challenges to scaling up access to ART cannot be divided from these sociopolitical trends. Wars and the impact of genocide on the destruction of trust in the social fabric also need to be seen as underlying factors when developing programmes for scale-up, as they will need a high degree of social cohesion in order to expand rapidly.

The area of service delivery is central to responding to the population's need and demand for health care. Nevertheless, the provision network is only the more visible part of the complex aggregate of institutions, norms and values involved in the functions of steering, financing and resource

generation, which impose conditions on the functioning of the provision network. The steering role of ministries of health is crucial in facing the challenges associated with HIV/AIDS.

Since the costs of caring for those with HIV/AIDS can be high, it is especially important that both those with AIDS and those deemed at risk for contracting HIV/AIDS – potentially the entire population – are included in risk-pooling arrangements. The health care needs of the population are financed variably across countries through general taxation for national health systems, social health insurance, out-of-pocket payments or combinations of these methods. Up to now, only a few developing countries have included the provision of antiretroviral drugs in the benefits package through national health systems, or through social health insurance such as established in Argentina, Brazil and Cuba. In Argentina, a special fund has also been created to pay for antiretrovirals for those not covered by social security (PAHO, 2003).

Strengthening health systems and HIV/AIDS programmes

In countries where the greatest challenges for scaling up ART are encountered, health systems face two major challenges: the malfunctioning of the service system and the HIV/AIDS epidemic. The former is a long-term development problem, while HIV/AIDS is an epidemic that is still expanding. Thus, although the problems are closely related, they demand solutions that should be undertaken simultaneously: gradual strengthening of the service system in conjunction with urgent and effective action to control the epidemic. It should be noted that the heavier the burden of HIV/AIDS becomes, the more the health system will be weakened and the fewer the resources that will be available to treat other major diseases, resulting in increased overall mortality.

To better manage the challenge of HIV/AIDS, countries must strengthen various aspects of their health systems. Specific investments in strengthening health systems may improve the capacity of the system to plan and deliver services. Reforms at the sector level may strengthen incentives for efficiency – for example, the introduction of contractual relationships, decentralization of decision-making, increased autonomy for health providers and integration of services. Investment in systems can also help improve the ability of the sector to absorb additional resources. System-wide changes are required and managers and health professionals need more autonomy and performance incentives to be able to improve outcomes. It is argued that even if funds are made available, effective expenditure limits are defined by the absorption capacity and constraints of the health system.

The need to reform the health sector is therefore widely accepted and has figured in the policy agenda of most countries for a long time. Decentralization is frequently an essential part of the reform process. Although it may not lead to any short-term improvements of service output with present resource levels, it is often seen as prerequisite preparation for a future system with more resources available (Hanson, 2000). Decentralization of services and strengthening local decision-making power are important elements of the system in scaling up ART to attain the target of 3 by 5, since the autonomy given to local decision-makers creates space for innovation, community participation and adaptation of public services to local circumstances, all assumed to be conducive to successful implementation (Khaleghian, 2003).

The evidence on the potential impact of decentralization on implementation of vertical programmes is mixed. Some studies showed that in low-income countries decentralization is associated with higher rates of immunization coverage (Schwartz, Guilkey & Racelis, 2002; Khaleghian, 2003). There are also examples in which the expected benefits of decentralization were not achieved, and where the delivery of some vertical programmes worsened after decentralization. For example, in Zambia a decline in immunization rates, which started before decentralization, did not reverse after increased funds were made available through decentralization (Jeppsson, 2001). In two pilot districts for decentralization in Uganda, there was still a lack of capacity in districts to increase

allocations of funds to maternal and child health services. Moreover, user fees, though entirely decided upon by districts, had a negative impact on use of MCH services (Mwesigye, 1999).

In delivering ART, similar problems may appear with regard to the impact of decentralization on service delivery. For example, in South Africa it has been shown that rigid bureaucracies inherited from the apartheid government may have sidetracked the implementation of many HIV/AIDS policies developed at the end of the apartheid period. But the government changed its policy towards giving access to antiretroviral drugs in a most dramatic manner during the latter part of 2003, rapidly developing a strategy to reach those in need of antiretrovirals and joining the international drive to provide treatment.

Integration is another common policy followed in the reform agendas that has implications for ART. An ongoing discussion on the merits of providing priority interventions vertically or in an integrated way may well be relevant to HIV/AIDS programmes. Some systematic reviews of integration of vertical programmes concluded that there is no strong evidence of variation in the impact of outcome between vertically provided programmes and integrated ones (Briggs, Capdegelle & Garner, 2001). However, it would appear from these results that integration is indeed a less costly form of service delivery; the important advantage that integration could have is that of cost-saving (Briggs, Capdegelle & Garner, 2001). When it comes to the overall health system, lack of integration has been implicated as the cause of problems such as patients getting lost, needed services either failing to be delivered or being delayed, and less-than-optimal outcomes (Berwick, 1991; Brodsky, Habib & Hirschfeld, 2003).

Some argue that in resource-poor settings there is also a risk, in a highly integrated system, that resources will be spread so thinly across the different service-delivery activities and horizontal functions, such as supervision, logistics and training, that activities fail to reach the minimum quantity and quality for any impact on health. This risk is greater in a decentralized integrated system, if it is not drastically reduced in size, than in systems composed of different disease-specific programmes, which could allow one programme to fail without a serious effect on others. Below a certain resource level, the service outputs of integrated systems are therefore likely to be lower than in systems based on vertical health programmes (Hanson, 2000).

It is necessary to take into account the nature of HIV/AIDS as a chronic disease, giving rise to the requirement for a wide range of services and lifelong care. It would appear important to organize ART services on the basis of integration into existing health facilities, which would allow the use of facilities at all levels and ensure the continuity of prevention and care.

Another challenge for the health system will be the integration of different stakeholders into the system, such as the private sector, NGOs and communities. Contracting out some health services in low- and middle-income countries to private-sector providers is sometimes suggested as a mechanism to increase coverage and efficiency. However, the need would then arise for development of mechanisms for contracting and for strengthening the regulatory framework, both of which have proved problematic.

The increased attention to ART may also challenge health systems with increased and disproportionate flows of funds. On one hand, the absorption capacity of the system would be challenged with the rapid increase of the funds. On the other hand, the health system would face the risk of deterioration of the rest of the services while special attention is paid to one type of services, ART. The key emphasis must be on making this initiative an opportunity to develop the whole health system.

Impact of HIV/AIDS on service delivery

The advent of HIV/AIDS has brought many challenges to health systems in both developed and developing countries. One such challenge is the need to provide adequate health care to the increasing number of people who become ill as a result of HIV infection. Various types of services exist to provide health care to people living with HIV/AIDS (PLWHA). The role of home care and other community-oriented care services has gained prominence with the shift in the character of HIV/AIDS-related illness from subacute to largely chronic.

The HIV/AIDS epidemic has increased the burden on existing facilities. Wide variations in the amount of inpatient and outpatient service use have been observed in different European countries. These differences ranged from 4.3 days per patient-year for patients in the chronic stage of HIV/AIDS in Greece to 159.8 days for patients in the late stage of the disease in Spain. A longitudinal study in five hospitals in different African countries showed that the proportion of beds occupied by HIV-positive patients varied between 50% and 70 % (WHO, 2003a). In Tanzania, patients with AIDS-related illnesses spent on average of 18 days in hospital against six days for all other patients. Two district hospitals were forced to increase bed capacity by building new wards to accommodate the increasing demand for HIV/AIDS-related admissions. The hospitals have been forced to create HIV/AIDS counselling units by using the available nursing personnel, thus increasing their workload (Malecela-Lazaro et al., 2001).

The cost implications for the health budget have been significant. This has been caused mainly by increased admissions, prolonged stay for AIDS patients, increased expenditure on drugs for treatment of opportunistic infections, purchase of HIV reagents, treatment cost of sick staff and expenses related to the funerals of health workers. A case study of the possible impact of HIV/AIDS estimated an increase of about 46% in costs for the same quality of health care due to the increased number of patients and other expenses such as diagnostic and treatment requirements (Gilks et al., 1998). A study in Uganda showed that HIV/AIDS has more than doubled the health sector's recurrent expenditures since the epidemic started (Jjemba, Madraa & Lutalo, 1998).

On the whole, hospital personnel were overwhelmed by increases in workload. Even where the original staff was not adequate to cover the increased demand, it had to accommodate further shortages due to illness or death of the staff themselves, and absences in order to attend funerals, care for sick relatives and attend training, such as seminars and workshops. The increasing number of tests performed to diagnose HIV infection or screen blood for transfusion risks was found to overwhelm laboratory staff.

Overall the stigma associated with HIV/AIDS still exists, despite all the campaigns. On the one hand, patients who are infected and have severe symptoms claim to be neglected at the hospitals and not given the best care. On the other hand, health workers complain that the lack of protective clothing and equipment is a major hindrance to providing the appropriate services in many cases. Of 23 951 AIDS cases among people with a history of having worked in health care reported through 13 December 2001, a total of 57 cases (0.24%) were documented as having been occupationally acquired and a further 138 (0.58%) were classified as possibly having been acquired occupationally (CDC, 2002). Despite the objective evidence that occupational risk is low for health workers, the perceived risk may remain high, especially where health worker education and safety measures have been neglected and equipment (such as safe injection equipment and protective clothing) is in short supply.

The long incubation period and long months of morbidity have been recognized only over the past half-decade or so to have long-reaching effects on workforce productivity. Two decades into the epidemic, ever more persons carrying the virus are now presenting with symptoms, and absence levels of health care professionals reach ever more drastic levels in high-burden countries.

At the same time, administrative systems have not been prepared to accommodate such swift changes in the impact of disease on workforce availability, and this is particularly the case in public-sector employment. There, positions are planned and budgeted for several years in advance, and positions are occupied by incumbents in specific posts. If illness of a prolonged nature strikes, it is often impossible to hire additional labour to make up for the productivity loss. Positions can be filled only when identified as vacant on the death of the incumbent, and no interim funds are available.

A disease as devastating as HIV/AIDS has, therefore, added a different dimension to planning for human resources and ensuring adequate service delivery: as is the case with its silent spread among the community for a number of years, it makes no exception for health workforce members as part of the general public. As a result, a crisis has arisen from years of neglecting to invest properly in health services infrastructure and human resources development, exacerbated by the epidemic in high-burden countries.

Current approaches in ART provision

Approaches to ART delivery

Evidence demonstrating the possibility of bringing ART within the reach of the poorest of the poor has been gathered from a number of projects that have been acclaimed internationally. *Médecins Sans Frontières* (MSF) [Doctors Without Borders] recently evaluated its experience, making a strong case for rapid expansion of ART programmes (Kasper et al., 2003).

A variety of approaches are now developed to deliver ART to people with HIV/AIDS, ranging from national strategies on ART delivery via public-sector facilities to community-based approaches and involvement of private-sector and national or internationally supported NGOs, research sites, mission institutions and innovative company-based employee and family-member care schemes. Increasingly governments have started to design their own programmes, with the welcome addition of South Africa, which recently announced its programme for nationwide access to ART.

ART has been introduced at different levels in countries. Government initiatives in providing ART are not well documented in the literature, with the exception of Brazil's National AIDS Control Programme.

In several sub-Saharan African countries progress is being made at the government level. Botswana has been the first African country to offer ART through the public system, and, at the time of the visit, implemented the programme through hospitals at four sites and associated satellite clinics, with further scale-up to remaining hospitals and satellite clinics planned.

In Uganda, 12 700 people currently have access to ART. A system for increasing ART nationwide is being developed and includes a plan of action developed with all partners, using community members, mechanisms for training and guidelines for treatment and care (WHO, 2003e).

Kenya is another country that has drawn up legislation related to ART and has imported antiretroviral drugs for 6000 patients. Thirty start-up centres have been identified and plans are under way to equip them with appropriate staff. Training materials are in place and there is a plan to train additional staff.

In Benin, an "Initiative to Access ARVs" has been in place since early 2002. Since then, 50 patients have started on ART.

Existing national programmes highlight the management needs in establishing ART programmes: sufficient numbers of well-trained doctors, nurses and other health care workers are urgently needed

and clinical and laboratory facilities are required, along with distribution systems and social support services.

Some countries have ensured universal access to ART. Brazil provided an example of a success story through an effective prevention programme and ensuring universal access to ART. The ministry of health (MoH) also invested in infrastructure improvement to have laboratories prepared for tests throughout the country, with allocations for laboratory staff training, equipment purchase and the provision of reagents. The MoH also established procedures for the accreditation of public hospitals, and expanded the hospital network for the care of HIV-infected patients. With the creation of the Alternative Assistance Program, professionals were trained in HIV/AIDS care and funds were transferred to state and municipal governments to assist patient care at different need levels. Multidisciplinary teams that served the needs of both patients and their families typically provided these services.

In the period between 1996 and 2001 the average admissions per patient per year dropped from 1.65 to 0.28, with 358 000 hospitalizations having been prevented, which resulted in savings of more than USD1 billion. All ART medications registered in Brazil became increasingly accessible. ART medication costs were brought under control by MoH investment in Brazilian-owned manufacturers, which today supply 50% of all ART medications used in the country (Levi & Vitoria, 2002; Bastos et al., 2001). Cuba is another example of a country that provides universal access, as well as South Africa, with its recent commitment.

On the other hand, in many resource-poor countries, ART has been introduced on the basis of pilot projects. Most of these sites have been driven by external inputs. The Côte d'Ivoire pilot started in 1998 and involved six treatment centres in Abidjan. The initial treatment regime depended on what could be afforded at the time; some patients' medication was able to be subsidized.

In terms of ART demonstration projects, various national sections of *Médecins Sans Frontières* support well-developed sets of pilot projects providing ART in developing countries. In 2002, MSF provided ART for people with HIV/AIDS in 10 countries: Cambodia, Cameroon, Guatemala, Honduras, Kenya, Malawi, South Africa, Thailand, Uganda and Ukraine, covering approximately 2018 adults and 122 children. A recent review of the experiences gained clearly made the point that ART can be provided in even the most resource-poor settings, giving communities full opportunities to assume an active ownership role, reduce stigma and enhance access (Kasper et al., 2003).

Some countries started as pilot projects with a clear expansion plan. For example, the ART programme in Zambia was started in 2001 at two national sites in Lusaka and Ndola as the pilot phase of a four-stage programme consisting of pilot, extension, expansion and consolidation phases. The extension phase will involve all nine provincial centres, where ART will be introduced in subcentres including district hospitals in the third phase. The consolidation phase will focus on improving the capacity of facilities, quality of services, monitoring and evaluation systems (WHO, 2003f).

Auspices for ART delivery

There are various examples of where and how ART is delivered. In some countries, ART was initiated in hospitals. In Nigeria, a pilot programme was started in 2002 to provide ART in 25 treatment centres based in government hospitals across the country. The intention is to expand to 100 centres. Similar examples are valid for many other countries, such as Botswana, Kenya and Rwanda.

ART is delivered in both dedicated and integrated HIV/AIDS prevention and care clinics. At some sites, the facility manager had decided to combine the TB and HIV/ART clinics to be able to establish a logical care flow. In many countries, NGOs were found to be expanding their sites in

order to contribute to wider access throughout countries and provinces/districts. For the most part, they were cooperating with government district or national level facilities, establishing dedicated clinics on hospital premises. For example, MSF national sections (Belgium and France) were expanding their ART programmes and intake of patients rapidly after one month of operations in Cambodia and Rwanda (Essengue, 2003; Dreesch, 2003).

Some attempts have been made to initiate ART at primary-care settings. In April 2000, MSF South Africa set up three HIV/AIDS clinics within the township health care centres in Khayelitsha, Cape Town. In 2001, they began to offer ART to people with advanced HIV/AIDS. The clinics are located within community health centres and provide a package of comprehensive HIV/AIDS services that include counselling, support, prophylaxis, treatment of opportunistic infections, ART and referrals. The staff initially comprised one physician, one nurse and one lay counsellor. An additional nurse and lay counsellor have since joined the teams. This nurse-based service model is thought to be appropriate to the realities of the health care setting in South Africa. After two years of experience, the programme has shown that ART can be provided in primary health care settings in resource-limited countries. The success of the clinics suggests that community participation is an important component of successful ART programmes (WHO, 2003d).

The Haiti *Clinique Bon Sauveur*, established in 1998 by Partners in Health and the Haitian organization *Zanmi Lasante*, is a model of what NGOs and international collaboration can accomplish when they work together. The clinic provides a basic minimum package for HIV/AIDS that includes ART using DOT, DOT using community health workers, monthly support meetings for patients, social support to families, ART and milk substitutes to prevent mother-to-child transmission of HIV, and post-exposure prophylaxis for professional accidents and rape. The clinic uses basic lab analysis and clinical criteria rather than CD4 counts or viral-load testing for the initiation of ART. By 2002, more than 4000 HIV-positive people were followed at the *Clinique Bon Sauveur*, and over 400 people living with HIV/AIDS started directly-observed therapy with ART, based on laboratory and clinical criteria (WHO, 2003d).

There is a move towards incorporating ART delivery in district health systems. For example, ART was introduced at the ART clinic in the Thyolo district hospital in Malawi. As the project progresses, the primary-care facilities have been involved in the system as satellite clinics, with a referral mechanism to the district hospital.

Senegal is scaling up from pilot programmes to a national ART programme, using major hospitals as the entry point for antiretroviral drugs and district facilities to manage counselling, opportunistic infections, prevention of mother-to-child transmission, patient monitoring and referral.

The private sector is currently extensively involved in most countries. Private physicians have provided ART for some time at their own practices or at other private facilities, even in the poorest countries. But there is little information on the private sector, as there is no coordinated reporting system in most cases. The site visits showed extensive involvement of private physicians, but no detailed information has been gathered as to its magnitude or on the physicians' training in or knowledge of ART.

One study in Kenya found that prescribing of antiretroviral drugs was consistent with international standards (Macharia et al., 2004). Another study, in Uganda, showed that drug regimens and the extent of CD4 and viral-load monitoring vary considerably. The study in Kenya found the adherence level over the long term quite low, with only 32 % still on treatment after two years.

The costs of ART by private providers are covered mainly by out-of-pocket payments. The treatment is still expensive, even though the drug prices have been reduced significantly. The major concerns with private provision of ART include wide variations in cost, sometimes questionable quality of treatment and lack of information on the number of patients on treatment, their treatment progress and adherence.

During the site visits, ART was found to be provided in a multitude of settings: government facilities with or without NGO support, employer-based schemes, university-affiliated research sites, and in private practice. Hardly any of the sites visited did not cooperate in one way or another with elements of the existing government or medical school infrastructure – for example, for determination of CD4 cell counts or training or other elements of the care process.

Private-sector involvement in ART and workplace initiatives

Private-sector involvement in ART is seen in two ways. One is the involvement of private health care providers by directly providing the treatment. The second is the support and commitment of private companies to providing ART to their staff living with HIV/AIDS.

The impact of HIV/AIDS on the workforce has been significant in the last decade, and further depletion of the workforce is projected. This has forced companies to take action. Most companies have started intensive programmes on HIV/AIDS prevention; some have already expanded their programmes to provide ART. With increased reduction in costs of antiretroviral drugs, more will likely add ART to their services.

Companies that currently provide ART include Côte d'Ivoire Electricité, Volkswagen do Brasil, De Beers Consolidated Mines, Anglo American, Anglo Gold, Debswana, Heineken, Eskom and DaimlerChrysler. Information available about these programmes suggests that a mix of delivery models is used, with some providing services directly to employees, while others contract services to private health care providers. Some companies provide treatment free of charge, while others subsidize costs and use a scheme of employee copayments to fund the ART. Some companies extend the coverage to the dependants of staff.

Anglo Gold, for example, has a comprehensive in-house medical service, the largest private employer-funded not-for-profit medical service of its kind. This health service employs 1000 people and provides health care to Anglo Gold's 44 000 employees in South Africa. In addition to providing outpatient services, the company owns and operates two hospitals. Health services related to HIV/AIDS include voluntary counselling and testing (VCT), care in "wellness clinics" (where people who have tested HIV-positive can have their disease progression and health status monitored, receive ongoing counselling and obtain prophylaxis against TB and bacterial pneumonia), treatment of opportunistic infections and – since August 2002 – ART. Home-based care is provided through community partnerships.

Anglo American has been actively involved in addressing issues related to HIV/AIDS for the past 12 years. In 2002 Anglo American announced further steps in its HIV/AIDS strategy: providing ART to employees with HIV/AIDS. Operating companies are now encouraged to enhance their HIV/AIDS wellness programmes by making ART available at company expense to HIV-positive employees who do not have an ART benefit through a medical aid scheme and who have progressed to a stage of HIV infection where ART is clinically indicated. These companies are to consult with both trade unions and government on issues relating to implementation.

The key components of the De Beers Group's approach to employee wellness include the Employee Assistance Programme already in existence; HIV/AIDS education and awareness programmes, including the training of peer educators; access to free voluntary counselling and testing; conveying the importance of general healthy living, general fitness and nutrition; disease surveillance and management programmes; tuberculosis control; and occupational health best practices at all operational levels.

In August 2002, DeBeers announced the decision to introduce ART as another integral component in its strategy in fighting HIV/AIDS. Access to drug treatment would initially run for a two-year pilot period starting in January 2003, at the end of which De Beers would review its position. This

was with a view to the dynamic environment of continuing drug development and possible government intervention.

Accra Brewery Limited Ghana, a subsidiary of SABMiller PLC in South Africa, employs more than 300 employees. SABMiller, the parent company of Accra Brewery, commissioned a knowledge, attitude and perception survey of its various locations in Africa. The company had an existing corporate policy for life-threatening diseases. The company already had a condom distribution programme and provided support for the treatment for malaria and tuberculosis. The policy was expanded to reflect the broad array of services that would now be offered to employees, including ongoing health education and training; VCT; and ART for workers and their immediate families. The company has also identified available community resources that enable workers and their family members living with HIV/AIDS to seek counselling and support.

In 2001, Heineken's board decided to expand its HIV/AIDS employee programme to include access to care, support and treatment, most notably access to antiretroviral drugs. Access is available to employees, a partner and children. Heineken is currently considering how to ensure continuing access to treatment for chronic conditions once employees' children cease to qualify for company benefits (at age 18). The ART programme is being pilot-tested in selected sites before being phased in throughout the company's operations.

The company has contracted with Pharmaccess, a foundation that organizes ART in Africa, to acquire drugs and advise on the establishment of regimes. The programme has been able to take advantage of the price reductions made by manufacturers. Heineken has sent its own doctors to the Netherlands for training and arranged for the local training of nurses and lab personnel. Treatment is then managed by the company's own clinics, which are based in the workplace.

The Cameroon Aluminum Company (ALUCAM) set up a HIV/AIDS prevention programme in 1996, with the help of OPALS (Pan-African Organization of the Fight Against AIDS). In June 2000, it launched a triple-therapy treatment programme called TRICAM, with contributions from the Rothschild Hospital in Paris.

Another example of a workplace programme for HIV/AIDS is that of DaimlerChrysler in South Africa. HIV-infected employees have access to a comprehensive care, support and treatment project offered by a third-party health plan, Medscheme. Included in the plan is ART, as well as a worksite wellness clinic. In 2003, more than 70 HIV-infected employees received ART.

As there is concern about the quality and cost of the treatment, some attempts are being made to coordinate efforts. In Zambia, the Business Coalition on HIV/AIDS has developed a proposal to create a scheme that will manage ART treatment on behalf of companies; the Business Coalition is prepared to cover the running costs if the funds for initial establishment are raised (WHO, 2003f).

Uptake of ART services

It is well known that making antiretroviral drugs available is not enough to guarantee access. Uptake of ART has been lower than anticipated in some high-prevalence settings. In Malawi in anticipation of the high need, some selection and prioritization criteria for patients were developed at the onset of the project. It was found that the demand was not as high as expected, so no selection process has been needed.

The uptake of ART is influenced by financial, organizational, physical and social factors:

Organizational: such as attitudes of health workers; lack of staff, drugs and supplies; confusing procedures;

Physical: such as lack of transport; distance to health facilities; lack of access to VCT;

Social: such as stigma and discrimination; lack of knowledge; denial and misinformation;

Financial: such as poverty; cost of drugs; user fees and other charges; cost of transport; lack of medical insurance schemes.

Many people are not aware of their HIV status. The availability of ART for PMTCT has increased uptake of VCT in a range of settings, such as in Haiti and South Africa. It is still claimed, though, that only 10 % of HIV-seropositive persons in developing countries know their status.

Affordability is a major barrier to access to treatment in contexts where patients are expected to pay all or some of the costs. Provision of antiretroviral drugs and related laboratory services free of charge increases their uptake. But even patients covered by social or private insurance may not request tests because of fear of disclosure of their status and possible discrimination.

The Mildmay Centre in Kampala, Uganda, conducted a survey to find out why, despite reduced drug prices, uptake of ART did not increase. It was found that limited knowledge and negative attitudes toward antiretroviral drugs on the part of both health workers and patients were the main limiting factors. After efforts to increase health worker knowledge and involvement of PLWHA already taking antiretrovirals to educate others about therapy, the number of patients increased. Another barrier to demand for treatment is lack of transport, especially in more remote and rural areas.

Stigma and fear of discrimination are the main barriers that deter people with HIV/AIDS from seeking treatment. Private-sector firms have also found that uptake of ART among employees is often poor, because of concerns about the impact on employment rights after disclosing their HIV status to the company.

It is essential to intensify efforts to destigmatize HIV/AIDS, among both the general population and health workers. The availability of life-prolonging ART will itself contribute to destigmatization by removing the perception of patients with AIDS as facing an inevitably fatal outcome. At present, however, many are being deterred from seeking the available services by entrenched denial and discrimination, which must be tackled by forceful leadership in all spheres. There is increasing evidence that the availability of treatment can increase uptake of services, change community perceptions of HIV/AIDS and reduce discrimination towards PLWHA.

The range of services in HIV/AIDS control and treatment

Scaling up access to ART poses a considerable challenge to existing service delivery systems and human resources deployment. Staff currently engaged in the whole range of services offered in public, NGO and private provision of care must be trained and reoriented towards delivery of antiretroviral care. While transmitting knowledge on ART to existing staff and new staff does not differ from other training processes, ART – because it must continue indefinitely – demands a commitment to treatment by both the patient and the service provider.

The services needed for the control and treatment of HIV/AIDS span a range from prevention and care services, including VCT, PMTCT, diagnosis and treatment of opportunistic infections and other HIV-related illnesses, to other prevention, care and social support services (UNAIDS & WHO, 2002). These services are intrinsically related to monitoring activities including laboratory work, drug distribution, psychological support, adherence and safe sex behavioural counselling and nutrition education, even in a situation without complications. All these tasks demand service-provider time, and with more patients taken on, existing personnel are likely to reach capacity constraints at some point, if the conventional model of service delivery is used.

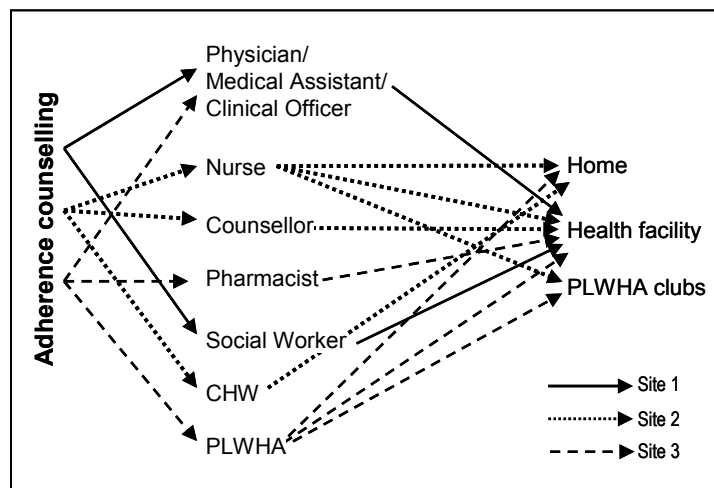
In Cambodia and Thailand, the countries visited in the Western Pacific and South-East Asian regions of WHO, respectively, access to ART had started to be expanded as an extension of ongoing HIV- prevention programmes, which had been initiated when the size and dimension of the problem became apparent during the late 1980s and early 1990s. With drug prices coming down,

most activities were driven by NGO initiatives, such as that of *Médecins Sans Frontières*, to start treating patients, as in South Africa and most other African countries visited (Dreesch, 2003).

At sites visited, existing HIV prevention and infectious-disease services were expanded or remodelled to accommodate additional service needs. In Thailand, the existing system of “anonymous” outpatient delivery (OPD) clinics were adjusted to start treating patients. In order to reduce the additional time commitments for staff, a system of “patients’ clubs” of people living with HIV/AIDS was used to bring patients on ART into the care process. As volunteers they are part of the clinic treatment staff, providing pre-counselling, peer group advice and monitoring of adherence, home visits with decision to refer patients back for check-up, and other psychosocial support. This support by patients considerably reduces the time requirements of the clinical staff involved, as a large share of monitoring tasks could be transferred to community members (Dreesch, 2003).

In Rwanda, most of the initiatives include the community (volunteers, members of associations of PLWHA, families) in the process of treatment and follow-up of patients on ART under the supervision of nurses and social workers. A similar model was observed in Thailand, where government policy actively supports the role of PLWHA in the care process – both at clinic/facility levels, as volunteers working side-by-side with nurses for clerical, pre-counselling and follow-up – and in home-visit tasks. At other sites visited, only a very limited role was foreseen for the group of PLWHA within the facilities themselves (Essengue, 2003). Figure 1.1 illustrates the wide variation in three sites as to who undertook drug-adherence counselling tasks and where these tasks were undertaken.

Figure 1.1 Variability of providers and settings for the delivery of adherence and counselling tasks at three sites



Human resources issues related to ART scale-up

HRH and the supply–demand balance

In most countries visited, a severe shortage of trained health workers was encountered, though the form in which this was manifested differed between countries.

In Kenya, the shortage was not so much of trained personnel but of the financial resources to employ them. Although no specific details were acquired, it was understood that the Ministry of

Health was subject to limitations on the number of established posts, dictated by fiscal pressures (pressure for fiscal restraint from the IMF was cited). Moreover, a hiring freeze was in operation, so that even posts that theoretically existed could not be filled, though it was also claimed that there had been some relaxation of the hiring freeze to accommodate Kenyan graduates from medical schools. It is anecdotally reported that there are 3000 to 4000 trained nurses without jobs in the health sector, and approximately 1000 in the clinical officer cadre.

In Malawi, there appeared to be an absolute shortage of trained personnel, although it was not possible to verify the national situation. In Thyolo District, which was probably far from the worst-off, it was claimed that only one quarter of government established posts were filled. There was no government doctor in the district; there was a clinical officer who was both Medical Superintendent and District Medical Officer; there were three or four health centres in the district without a Medical Assistant; and two centres were completely closed for want of staff. The hospital operated on two shifts instead of three. There were 40 nurses out of a district establishment of 190, of whom only four were senior registered nurses; 14 were assigned to the district, leaving 26 to staff the 100+ beds of the hospital and OPD. In Thyolo District, the position was ameliorated by MSF employment of 100 health workers, but this support was not available in most districts. The situation was said to have been exacerbated by the decision to suspend training of clinical officers and medical assistants when the medical school started, though these training programmes had resumed.

In Botswana, where the supply of trained health workers from domestic sources had traditionally fallen well short of demand, the scaling up plan for ART was predicated on the recruitment of 130 expatriate doctors, plus nurses, pharmacists and laboratory technicians. Since Botswana's preferred source of recruitment of these personnel is neighbouring African countries, its efforts to overcome its staffing shortage were likely to exacerbate the problem in surrounding but less well-endowed countries. At the same time, Botswana loses some of its citizen health workers to South Africa and other richer countries that offer better terms and career prospects.

In Thailand, changes in the system of financing health care designed to improve access to care for the poor had increased service use and the demand for health workers, especially doctors. The intention was to reduce the duration of medical training from seven to six years in order to increase the supply of doctors, though it will be a number of years before the benefit of this measure is felt. In Rwanda, Cambodia and Uganda, genocide and economic reverses from which the countries are now emerging have left a legacy of lost human resources and low average levels of skill in the employed workforce. Exacerbating the overall shortage is the uneven geographical and professional distribution of the available stock, and low productivity, especially in public-sector employment.

Shortages

Shortages of human resources are a major constraint to scaling up HIV/AIDS treatment and care. Inability to recruit and retain a well-motivated and appropriately skilled workforce is related to low pay and morale, poor conditions of work and inadequate management. Shortages of staff are exacerbated by migration to the private sector or other countries and HIV/AIDS-related attrition of existing staff. In Botswana the need was identified for 150 additional full-time doctors to enrol, assess and supervise 110 000 new patients, plus an additional 330 nurses, 50 pharmacists, 90 pharmacy technicians and 190 lab technicians (McKinsey Consulting, 2001).

Skill mix

A wide variety of skills must be deployed and many ways were found to provide them. For counselling skills, many settings chose to entrust nurses with this task. At other sites, counselling was undertaken by specially trained psychologists or social workers, sometimes without health backgrounds, or individuals trained by community-service HIV/AIDS organizations as counsellors. Adherence tasks were often shared among many providers, each checking the knowledge of the

patient on treatment regimen and further prevention activities as the patient reached their station. At some sites, however, this was exclusively the responsibility of just one or two members of the treatment cycle, such as the pharmacist, nurse or nurse counsellor, or a counsellor alone. Dispensing of drugs was in many instances the task of a nurse or nurse counsellor, once patients were on a stable regimen; at one site it was exclusively the task of the pharmacist (Dreesch, 2003).

Skills specific to the ART care process are both clinical and those related to patient monitoring, counselling and psychosocial support. Skills were transferred through one-week courses for clinical staff and refresher training at regular intervals and/or included a mixture of classroom training and “bedside” teaching: direct supervision of trainee staff by an expert physician, either continually or at scheduled intervals. In Uganda, TASO transferred counselling skills to several hundred individuals (with or without a clinical background) by means of a six-month course. Thus a wide variety of approaches to teaching and training exists.

Workload and staffing

Total patient enrolment at sites visited varied widely, for which many factors were responsible. In one setting, government funding until recently allowed only a specified number of patients to be provided with free access to ART, thus limiting the potential number of patients. At times, freeing staff for HIV/AIDS care from existing duties proved difficult, thus OPD opening hours were restricted to less than five full working days. At other times, mandatory procedures for CD4-cell counts for initiation of ART restricted patient inflow. One country had only one CD4 cell-count machine, thus limiting access. At most sites, ART had only recently been instituted, so patients were few and the optimum staff/patient ratios had not been attained.

Table 1.1 Number of patients receiving ART at four sites

Sites	Number of patients receiving ART
Princess Marina Hospital, Gaborone, Botswana	4818
Hospital Centre of Kigali, Rwanda	1050
HIV Netherlands/Australia/Thailand Research Collaboration, Bangkok, Thailand	1510
Joint Clinical Research Centre, Kampala, Uganda	>4000

At all the remaining sites (28/32) those receiving ART were fewer than 1000, and in a few cases were fewer than 100, as a result of factors explained above.

Treatment was very labour-intensive, though in no cases were clinics at the capacity ceilings that would optimize staff/patient ratios. In the sites with the largest numbers of patients, the patient/doctor ratio ranged from 688 to 1007 patients per physician, while the ratio of patients to total staff fell in a narrower range of 127 to 157. Because these empirical observations were all at sites that had not reached their optimum number of patients, a better impression of staffing levels that might be appropriate for scaling up might be obtained from two models, recommended by experienced practitioners based on experience at sites in Kenya, each related to 1000 patients:

Table 1.2 Recommended models for staffing levels (staff per 1000 patients)

	Doctors	COs	Nurses	Counsellors	Others	Total
Moi Hospital, Eldoret	1	1	2	-	5	9
PMTCT+, Kisumu	1	2	2	2	3	10

These staffing patterns, when scaled up to national targets, imply very considerable requirements for additional staff to be made available for increased levels of coverage (Dreesch, 2003; Essengue, 2003; Wheeler, 2003a).

Recruitment of staff into the care cycle and destigmatization

Because the proposed ART treatment is in fact a chronic-care activity resulting in lifelong therapy, adequately trained professionals will be needed to guarantee the sustainability and quality of ART services and the functioning of health care systems as a whole. But recruitment of staff to care for HIV/AIDS patients must address the problem of staff attitudes towards people affected by the disease.

Unfortunately stigma and fear do not reside in the general population alone, but also affect the predisposition of staff to care for patients suffering from the disease. There are reports in the literature that high stigma levels even among professional staff and hazardous working conditions [, coupled with inadequate access to protective equipment and clothing] attach a negative or even fearful reputation to HIV/AIDS care (Mbanya et al., 2001; Sagoe-Moses et al., 2001)

Addressing the attitudes of potential staff towards HIV/AIDS and people living with HIV/AIDS is a particular challenge that must be addressed before starting the process of scaling up. Strategies for overcoming fear and prejudice must be developed in a culture-sensitive fashion.

There is, of course, a need for service outlets to start treating patients. But at the operational level, strategies addressing sociocultural attitudes and behaviours also must be developed and included.

Site visits were quite informative in this respect. A district facility manager decided that existing monthly supervisory and information meetings with other facility managers and staff could be used to expand the network of facilities offering treatment. By rotating the monthly meeting from one facility to the next and inviting treating physicians from an associated NGO to give presentations and advice on ART care, the district manager enabled other clinic managers and staff to become more familiar with treatment needs and a process of destigmatization was initiated. Bringing members from the PLHA support group who are on ART and active at his hospital into these meetings provided additional ways to reduce fear and stigma (Dreesch, 2003).

Retention, motivation and support

When adding new service requirements to existing workloads, it is a particular challenge to assess and redistribute the workload so that chronic care needs for ART can be met with adequate human resources. However, retention of personnel or temporary reassignment of professionals from other areas of health services may prove extremely difficult. Doctors reported a high degree of demoralization and burnout from having to manage an increasing number of patients presenting with late-stage AIDS symptoms, and the declining working conditions made doctors reluctant to consider long-term reassignment to HIV/AIDS care (Raviola et al., 2002; WHO, 2003c). At sites visited, however, this phenomenon seems to have been reduced with increasing availability of antiretroviral drugs that enable staff to treat patients.

Supervision

There is a perceived lack of supervision capacity and skills in many countries, where supervisors are usually expected to deal with every type of problem but do not have the technical skills necessary. In a review of the human resources problems in sub-Saharan Africa, infrequent or irregular supervision of rural health facilities was considered an important factor for declining staff morale and probably the declining quality of services provided as well (Tawfik & Kinoti, 2003).

Cuts in supervision budgets (personnel travel allowances, expenditures for gasoline and vehicle repairs) have severely hampered programme monitoring in many African countries. Many districts are not visited by central MoH supervision teams. One possible cause of this supervision gap may be poor communication services (lack of radios, telephones or fax machines or allowances to maintain these) and inadequate or absent electronic connectivity.

Regulation

Two main issues are relevant from the regulation point of view: prescribing by private medical practitioners and defining and ascribing new roles and tasks related to new paradigms of care, such as behaviour and adherence counselling. Perceptions of the need for regulation of the private sector and capacity assessment for implementation varied among the countries visited.

In Malawi, for example, the national “Guidelines for the use of antiretroviral therapy”, published by the National AIDS Commission and the Ministry of Health and Population, propose that a prerequisite for being able to prescribe antiretroviral drugs is to have undergone a formal training course and have a certificate of competence, registered with the Malawi Medical Council, renewable every three years.

ART treatment implies lifelong case management, which requires new tasks to be performed, such as behaviour and adherence counselling. Shifts in tasks may emerge as patient cohorts move through several years of continuous treatment, acquire more experience and can share more treatment-related tasks in well-founded community PLWHA support structures. Many tasks are currently performed by nurses, but there is no reason to restrict them to only one category of providers. In terms of task distribution, most health care systems have not yet been able to shift from an acute-care to a chronic-care model (Sabaté, 2001).

Training

Pre-service training

Offering a few discrete training sessions on HIV/AIDS to nursing students engenders little significant change in their knowledge and skills about HIV/AIDS (Atulomah & Oladepo, 2002). Such programmes should instead recur at regular intervals from the onset of their training to the end. What is crucial is the protection of students in the clinical setting through adequate supervision by competent clinicians.

In-service training

In-service training remains a valuable tool, but knowledge of the local circumstances, practices and procedures may not be transferable to other settings. Although it responds better to rapid scale-up purposes, systematized education by curricula that ensure in-depth knowledge and skills is more important for sustainable and good patient outcomes (Uwakwe, 2000). Therefore, education for all health professionals directly involved in ART therapy should be competence-based (Omisakin, 2001).

Thailand reported having trained almost all public-sector hospital staff through one-week courses in preparation of scale-up. In addition, it was found most beneficial to bring the highest-level office holders from the national health administration into local training courses. It was felt that demonstrating the concern and visibility of the highest-level staff helped reduce prejudice and stigma during the training sessions (Dreesch, 2003).

Impact of ART on health services

There are hopes that the great burden of treatment of opportunistic infections, which now consumes so much of the capacity of hospital wards and outpatient departments in high-burden countries, will be lifted when ART becomes generally available. The burden on health personnel is expected to be reduced and the staff shortages to be less dramatic.

There is evidence that ART can reduce the burden on health services – as in San Francisco, where the prevalence is low and all those eligible were able to be absorbed in ART – and on a national scale in Brazil. Universal provision of ART in Brazil has had a positive impact on health service expenditure. An estimated 358 000 hospital admissions were avoided between 1996 and 2002, saving USD 2.2 billion.

However, it is doubtful whether the same results will occur in high-prevalence, low-income countries. The information from high-prevalence, low-income countries is very limited. The information from companies suggests some cost-saving in health expenditures as well as some savings from increased staff productivity, but does not provide any implications for overall services. The Electricity Company of Côte d'Ivoire (CIE), for example, has reported both health benefits and cost savings as a result of providing ART to employees. In the two years following the introduction of comprehensive HIV/AIDS care with ART, there was a fivefold increase in company-based voluntary counselling and testing, a 94% decrease in absenteeism, an 81% decrease in HIV/AIDS-related hospitalizations, a 78% decrease in new AIDS cases and a 58% decrease in HIV/AIDS-related mortality. During this period, the company saved USD 287 000 from reduced absenteeism, USD 294 000 in health care costs and USD 194 000 in funeral costs (Eholi et al., 2002).

There are some arguments that the expected impact on health services may not occur in low-income countries (Wheeler, 2003b). For one thing, the hospital wards were already full before the HIV/AIDS epidemic; now the wards are occupied mainly by HIV/AIDS patients, leaving other cases to be turned away or treated on an ambulatory basis. If there are fewer HIV/AIDS patients, the demand from other conditions will occupy the beds and require the attention of the staff. In addition, the release of staff from current inpatient and outpatient areas in response to a potential decline in workload would be expected if those units were adequately staffed for the current workload. Then, too, a proportion of those placed on ART will encounter complications and treatment failure, triggering recourse to those inpatient facilities that treat complex and demanding problems. Furthermore, ART clinics and associated services will recruit staff from other services at the initial stage of scaling up.

Community involvement in treatment

The lessons learnt in 20 years of effort against HIV/AIDS have confirmed the significant role of communities, families and people living with HIV/AIDS in responding comprehensively to HIV/AIDS. Global consensus has been reached on the need for full involvement and participation of communities, particularly of PLWHA, young people and civil society actors in HIV/AIDS programmes (United Nations, 2001). Therefore, efforts to address human resources and service delivery issues for scaling up ART should not be limited to a focus on the formal health care delivery system. It is crucial to go beyond a focus on professional service providers and beyond facility-based service provision to plan for community-based activities and the active involvement of families, communities and PLWHA in treatment services.

Direct involvement in treatment services

It is important to explore with communities their potential to fulfil some functions in treatment and care. Given the shortage of professional health workers, this could enable clinical staff to use their

scarce time for tasks that only they can perform. A core function of communities and families in many of the treatment models includes adherence support in various forms. Adherence is an important determinant of therapeutic success and receives substantial attention in the literature. Numerous patient-focused adherence strategies have been developed (Stone, 2001) that require substantial staff time for ongoing contact with patients and could in large measure be assigned to or shared with communities.

Involvement in supportive services

In addition to direct involvement in treatment, communities have a leading role in related services that enhance the effectiveness of ART services or provide a supportive framework for them. These related functions and activities include:

- **Nutrition:** Adequate nutrition to accompany medication is a major concern for poor people. Treatment sites frequently refer patients for nutritional support to community-based organizations with which they collaborate.
- **Addressing stigma and misconceptions about treatment:** Dealing with these serious barriers to use of services and adherence is usually a core activity of organizations of PLWHA in order to provide an enabling environment for treatment.
- **Maintaining the link between treatment, care and prevention efforts:** This is an important function to guarantee a comprehensive approach and emphasizes prevention as the primary response to HIV/AIDS.
- **Providing directions to the choice of service models:** Community input enhances the acceptability of and demand for services and includes, at some sites, input towards setting socially acceptable eligibility criteria.

The players

Several organizations and individuals at community level should be considered for the various functions in ART services.

Family members

The involvement of a family member as a supporter in the initiation of treatment (such as in making decisions regarding the treatment plan and later in detecting side effects) and in follow-up compliance (such as in verifying pill-taking as prescribed) is a fully integrated component of care in the AHF models in Kwazulu-Natal, South Africa, and Masaka, Uganda, as well as in several MSF models in various resource-constrained settings (Goede, 2003).

Community-based organizations of people living with HIV/AIDS

Many of the treatment models ensure a strong partnership with community organizations, specifically HIV/AIDS service organizations and organizations of PLWHA. These organizations play direct roles in the treatment cycle as well as maintaining linkages with other care and prevention services.

In Thailand the backbone of the care and treatment system is the extension of the community organization of PLWHA into the care cycle. The organization of patients into treatment clubs, which also receive government funding, and the transmission of maximum prevention, care and adherence to a group of knowledgeable patients provide substantial institutional human resource savings and would definitely merit further research for strategies for scaling up access to ART

(Dreesch, 2003) They also constitute a potential of human resources that can be involved in the training of other persons.

At one site in Uganda, patients on ART expressed their willingness to be involved as treatment counsellors in order to help their peers gain the same benefits from receiving ART. In Masaka district in Uganda, a referral system is set up between communities and the ART health care centre in the Masaka regional hospital. Community organizations refer and prepare patients for initiating treatment, provide nutritional support for those in need and contribute to the follow-up by home-visiting patients who miss appointments and organizing transport to the clinic for the very sick. This coordination guarantees the follow-up of patients to the community and home level, a task that could not be accomplished by the regional hospital (Goede, 2003).

Traditional practitioners

There are various experiences with collaboration between traditional and modern practitioners in HIV/AIDS prevention and care, but no reporting on direct involvement of traditional practitioners in ART services. A task force on traditional medicine and HIV/AIDS in East and Southern Africa has been established and is coordinated by THETA (Traditional and Modern Health Practitioners Together Against AIDS and other Diseases) in Uganda. THETA has started building ART knowledge among traditional practitioners who were previously trained in HIV/AIDS prevention and care (Goede, 2003). In Thailand traditional practitioners and medicines are integrated in comprehensive HIV/AIDS programmes. In Kenya, the organization WOFAK (Women Fighting AIDS in Kenya) has a combined team of traditional and allopathic health practitioners for the management of HIV/AIDS-related diseases in its drop-in centre in Nairobi. In Tanzania, the Tanga AIDS Working Group (TAWG) established a joint traditional healer-biomedical practitioner home-care programme (UNAIDS, 2002a). The potential for direct involvement of traditional practitioners in the ART treatment cycle has yet to be explored.

Community health workers

There are numerous examples of community and home-based care programmes that have trained volunteers from the community to provide care to people living with HIV/AIDS. This concept of community health workers¹ has also been applied to treatment. The *Zanmi Lasante* ART scale-up projects in Haiti, for example, introduced the system of "accompagnateur" modelled after DOTS for adherence and other functions. In Rwanda, a similar model is used that involves community volunteers previously trained in the home-based care programme in directly observing drug intake of patients on ART and in the monitoring of complications. In weekly meetings with health staff the community volunteers report and discuss findings, using a specific monitoring form (Essengue, 2003). In the clinics in Khayelitsha, Cape Town, laypeople trained as counsellors assist patients in developing treatment plans (WHO & MSF, 2003). In Uganda The AIDS Service Organization, TASO, works with paid counsellors as well as community volunteers (AIDS/HIV Model District Programme, 2002).

Prerequisites for involvement

The experiences demonstrate that lay people have the capacity to perform essential functions in ART services. However, some critical prerequisites to meet quality and effectiveness standards were observed.

¹A "community health worker" is defined by WHO as someone selected by the community who is trained and supported by the formal health care system to provide some health services in his or her community (Kahssay et al., 1998).

Training

Community members involved received specific training either from facility-based health professionals (usually nurses) or from HIV/AIDS service organizations. The length of the training ranged from a two-day workshop up to 50 days for a comprehensive course in HIV/AIDS prevention, care and treatment (Dreesch, 2003).

Support from the organized community

The community-based organizations of people living with HIV/AIDS provide important support to the community volunteers, who are sometimes members of the organization. Experiences from other disease programmes suggest that recognition of and support to community health workers from the community is an important incentive for volunteers (Bhattacharyya et al., 2001).

Supervision and reporting

Community volunteers involved in treatment tasks meet regularly with facility-based staff to report on adherence, complications and other needs and to receive supportive feedback. The use of simple forms to document findings helps structure the process. Experiences elsewhere, for example in community treatment of tuberculosis and in home care programmes, confirm the importance of supervision and support to maintain good-quality care (WHO, 2003f; Uys, 2002; Nsutebu et al., 2001).

Partnership process

A prominent feature of many of the sites visited is a well-developed interface between health institutions and community organizations and volunteers, in the form of partnerships that facilitate ongoing dialogue, the necessary supervision and mutual support. Such an interface is recognized as a promising opportunity to mobilize and harmonize health institutional and community resources to address the challenges presented by the HIV/AIDS epidemic, including providing access to ART (Goede & El Ansari, 2003). The health institution's capacity for partnership work with patients, families and communities will be crucial in this respect. One excellent example of bringing down boundaries between the health service domain and the community domain is provided in Box 1.1.

Box 1.1 Combining various functions to make the most of human resources

Helen is the administrative clerk at one of the HIV/AIDS clinics in rural Uganda. As a person living with HIV/AIDS who started ART nine months ago, she has gained considerable knowledge about treatment. As an expert patient she can answer many questions from patients visiting the clinic. Helen is also an activist of the national organization of women living with HIV/AIDS. In that function she is involved in organizing nutritional support to patients on treatment. She is also a member of the local AIDS drama group and as such is involved in group education within the community. Helen is in an excellent position to bridge between service providers, patients and community members.

Source: Goede, 2003

Strategies for scaling up

Key issues in scaling up

ART has been provided in resource-rich countries for several years. Few developing countries have introduced ART on a large scale, so that the reported experience is generally based on small-scale

initiatives, especially in the high-burden developing countries where the major challenge in achieving 3 by 5 lies ahead. The previous sections have highlighted that all these sites have been developed on the basis of opportunities arising (committed donors, implementing NGOs, etc.) specific to the context. A wide range of approaches has been pursued, offering indications for scaling up, though it should be noted that most of them represent quite resource-intensive models. The following propositions are offered for discussion:

- There is a crucial need to intensify efforts to destigmatize HIV/AIDS, among both the general population and health workers. The availability of life-prolonging ART will itself contribute to destigmatization by removing the perception of HIV/AIDS patients as facing an inevitably fatal outcome, but at present many are being deterred from seeking the available services by entrenched denial and discrimination, which must be tackled by forceful leadership in all spheres.
- ART is best conceived, and in many environments best provided, as part of a continuum of prevention and care for HIV-seropositive patients that embraces testing, behavioural counselling, psychosocial support, prevention of vertical transmission, treatment of opportunistic infections, home-based care, nutrition support and ART. A purely clinical approach not only wastes human resources but is inadequate as a response to the many needs of the HIV-seropositive patient.
- Given the widespread shortages of trained personnel, the pattern of human-resource use in existing pilot ART sites is too labour-intensive, and particularly too intensive in its use of highly skilled labour, to be replicated on an extensive scale. It follows that new patterns of service delivery and staffing must be developed that entail less frequent patient contact with the provider system, that rely less on skilled labour inputs and that optimize the use of inputs other than from the formal delivery system. This implies maximum delegation of tasks within the formal health care team, and maximum involvement of community resources.
- The principle of delegation within health teams requires that tasks that can be performed (with suitable preparation) by less-skilled members should be performed by them, leaving the more skilled to concentrate on the tasks only they can perform, including supportive supervision of other team members. The most demanding clinical tasks in ART are generally concentrated towards the early stages of each patient's treatment: the initial assessment, the treatment of opportunistic infections, the decision on when to initiate ART, and dosage adjustments in the early treatment period.

While physician specialists have often pioneered treatment practices, experience shows that the necessary skills can be transferred to general-duty physicians and, in those countries that have them, to physician extenders such as clinical officers, medical assistants and family nurse practitioners. Once therapy has been established and patients are responding well, the less-demanding tasks of routine monitoring and adherence support predominate, and these do not require the participation of the most highly skilled staff, except as a point of referral for patients who encounter complications of treatment.

Many programmes already acknowledge this progression; although most treatment regimens entail follow-up appointments every month, many require that patients on follow-up visits see a doctor routinely only every second or third month, with the intervening visits being primarily for the purpose of distributing medication and checking adherence, and consultations with a nurse or counsellor focusing on screening for adverse effects and counselling on adherence.

- Both epidemiological and technological developments may facilitate the necessary changes. The epidemiological change that may be anticipated is a gradual shift in the average severity of illness in the patient population. As most pilot ART sites are still expanding the numbers of patients under treatment, and as many patients seeking treatment are extremely ill when they

enter programmes, the proportion of the total workload generated by routine monitoring visits for stabilized patients is relatively small. As programmes mature, a higher proportion of the total numbers of patients under treatment will consist of those who have been under treatment for some time, and who on average will be in better health than those who have not yet started treatment. However, this effect will be moderated by the rapid growth in total numbers implied by scaling up targets, so that the proportion of “new” and “old” patients will change only slowly.

- The technological developments that may be expected are simplified and standardized treatment regimens, many of which may be embodied in combination-therapy formulations, colour-coded and pre-packed; simplified laboratory tests, and possibly less dependence on laboratory tests to guide therapeutic decisions; algorithms embodied in flowcharts to aid diagnosis and treatment of opportunistic infections and complications of therapy; and course-of-treatment packages for the most commonly encountered infections. All these developments should reduce the time that health workers need to spend in diagnosing, treating and educating each patient.
- The process of task delegation can also be linked to a process of geographical decentralization. In health systems that concentrate scarce medical skills in hospitals while health centres and clinics are staffed by auxiliaries and nurses, it is feasible to start patients on treatment at a better-staffed hospital, then transfer them to a peripheral site for follow-up (always with the possibility of referral back in the event of need). The provision of treatment as close as possible to the patient’s home (or sometimes workplace) is intrinsically desirable as a means of reducing travel time and cost, which otherwise might be an impediment to adherence. Given the numbers targeted for ART in high-prevalence countries, it is necessary that the number of treatment sites be multiplied to the extent that resources allow.
- Mobilization of community resources, including those of family members and people living with HIV/AIDS, is highly desirable. It helps to change the prevailing community attitudes of stigma, discrimination and hence denial, which do so much to inhibit take-up of the available services, including the voluntary counselling and testing that are the normal prerequisite for ART. It reduces the sense of isolation otherwise suffered by HIV/AIDS patients, and gives them a basis of encouragement for positive living.

Community mobilization makes possible the further delegation of some tasks from the formal health service delivery team to additional workers. Community involvement provides linkages across the whole spectrum of prevention and care. Community resources are not without cost to the formal system, since support may need to be provided in the form of training, equipment and supplies, stipends for volunteers and salaries for organizers, but they provide a means of enormously increasing the total human resource inputs at modest cost in a highly constrained environment.

- One of the community resources it is crucial to engage is traditional practitioners. Not only are they more numerous than formal-sector health workers in many countries, they are often the preferred providers of care and high-validity sources of opinion on health-seeking behaviour and social conduct. They can be important allies of the programme, as sources of patient recruitment and as educators; they can be trained for specific roles as counsellors and information, education and communication (IEC) agents; and they can participate in referral systems. For example, traditional birth attendants can promote PMTCT.

As yet there is little experience of the contribution of traditional practitioners in ART, by contrast with extensive experience with them in other areas of prevention and care. Sometimes it is necessary to engage traditional practitioners in order to neutralize any destructive influence they could potentially exert – such as by disputing the efficacy of treatment or the necessity for

continuous adherence. Some of the reported cases of defaulting from ART are attributed to patients whose families have persuaded them to consult traditional practitioners.

- It is to be anticipated that the mix of providers will change significantly as scaling up occurs. With some exceptions, the public sector has hitherto been largely absent as a provider of ART services, presumably on the grounds of the high cost per patient. At some referral hospitals and some faith-based hospitals, ART has been available only to those able to pay. Finances have dictated where services have started. The pioneers of ART in resource-poor countries have been either private practitioners serving the more affluent patients able to pay out-of-pocket, or international agencies able to mobilize resources, mostly from external sources, to provide services on a small scale, sometimes in public hospitals, where the main publicly funded contribution has been the use of the premises.

There are also examples of occupational health schemes providing ART to employees (and sometimes their dependants) of large, usually international, firms. The scope for further expansion or replication of some of these pioneering schemes is limited by institutional and economic factors. The international NGOs (and especially the various national branches of MSF) are unlikely to be able to expand significantly their pioneering schemes from their own resources, and indeed are contemplating phasing out from some existing sites. But they may have an expanded role as preferred agents for the implementation of schemes with the new international funds becoming available.

The scope for occupational health schemes is limited by the small proportion of the population in formal-sector employment. Scaling up to cover half those clinically eligible inevitably means serving a much higher proportion than hitherto of the majority of the population living in rural areas and employed in the informal economy. This in turn implies a much larger role for the public sector, which is generally by far the largest and most widely disseminated provider system. The changing balance of funding sources will reinforce these trends.

Although the new funds poised to arrive from the Global Fund, the World Bank and bilateral donors are not automatically earmarked for public-sector providers, they will dwarf existing inflows from charitable and research funds that have been deployed in the small-scale projects. Therefore, while it can be anticipated that there will continue to be a multiplicity of ART service providers, it is important to the prospects for rapid scale-up that the experience of the pioneers be widely disseminated.

- A greatly expanded role for the public-sector provider system in ART delivery will expose the fragility of existing structures, and particularly in the area of human resources. Indications to date are that systems have proved very unresponsive to the need to repair deficiencies in both quantity and quality of human resources, and because the publicly funded health-provider system is embedded in a wider system of public-service management, the health authorities have had little scope to act independently to reform their own jurisdiction.

The greater flexibility that NGOs of all types have to frame their terms and conditions of service and to recruit from a labour market for whose supply they have no responsibility is likely to prove an irresistible attraction to funding agencies seeking quick results in the scaling up of ART. It is predictable that resources will be channelled to these agencies (or that governments will be urged to contract with them) in order to provide services that governments are slow or even unable to provide, because they cannot overcome the human resource constraints.

The outcome of such a process is that there will be selective transfer of the most skilled and able staff from government to nongovernment employment, leaving the public system ever more enfeebled. Recognition of this threat, self restraint in the face of ambitious targets, and a willingness to invest heavily and long-term in creating capacity in the public sector, are major challenges that scaling up ART will present to the international community.

Organizing and managing ART services

ART is not a cure; for optimal outcomes it must be inextricably linked with prevention and care efforts as part of comprehensive care. It is well recognized that HIV/AIDS responses should be comprehensive – providing prevention, care and treatment, and addressing the needs not only of those living with HIV/AIDS but also of their families and caregivers. This will include a range of services and efforts to meaningfully involve people living with HIV/AIDS and measures to address stigma and discrimination. Scaling up ART will also mean scaling up testing, counselling and prevention efforts (WHO, 2003a, e).

Comprehensive HIV/AIDS prevention, care and treatment programmes should, therefore, constitute a continuum from prevention to treatment and to palliative care at the end of life. ART is lifelong and requires a chronic-disease approach. This is a different approach from typical models of acute and episodic care.

The issue is also *how to deliver* as much as *what to deliver*. The attainment of the target of 3 by 5 requires intensive efforts. Health services delivery mechanisms are of the utmost importance as mentioned earlier, since financial resources are not the only constraint to scaling up.

The adopted service delivery approach would aim to ensure the following:

- **Physical accessibility:** Physical accessibility of services is important for PLWHA, who face a chronic disease and who are on long-term treatment. It is well known that use of health care facilities declines as distance to providers increases. Time is another factor of accessibility related to distance and transportation facilities. In fact, travel time to a health facility and the waiting time to see a health professional seem to be more important to consumers' perception of accessibility of services than distance.
- **Resource availability:** It must be determined whether sufficient resources and technology are available to deliver an intervention. This might include the number of health facilities, the number of personnel and the availability of technology (drugs, equipment, etc.).
- **Affordability:** ART services should be provided affordably – that is, taking into account the individual's disposable income for health.
- **Acceptability:** Even if resources are available and accessible, they may not be used if they are not acceptable to the population. Currently, the stigma associated with HIV/AIDS is an impediment to take-up of available services.
- **Quality of care:** It is important to note that on an absolute scale, technical quality will be a function of provider behaviour and available resources.
- **Adherence:** Adherence to the treatment regimen for chronic diseases is an important condition for realization of the potential health gain from the intervention. This takes on more importance for ART with the risk of drug resistance².

² Out-of-pocket payment is an issue to be further considered for improving the accessibility of and adherence to ART.

The current experience shows that a wide range of providers are and can be involved in the delivery of ART. These providers can be grouped in terms of:

- ownership (public, NGO, private for-profit practices, commercial enterprises, military);
- settings (home, outpatient primary care clinics, private practices, ART clinics, MCH centres, hospitals, research centres);
- individual providers (physicians, clinical officers, medical assistants, nurses, nurse assistants, midwives, pharmacists, pharmacy technicians, lab technicians, PLWHA, community members, volunteers).

On the basis of some site examples and principles, whether approaches to delivering ART are likely to be successful within any specific context will be determined by the following as well as the country's overall health policies and health system:

- local circumstances
- availability of resources and existing infrastructure
- relationships between various providers at different levels of care
- health-seeking behaviour of the population.

Depending on the specific circumstances, designing the approach will require identifying *the services* to be delivered, *where* to deliver them and *who* will deliver them. Innovative approaches are recommended to overcome resource constraints. These include the delegation of tasks customarily performed by doctors to other health care providers, such as clinical officers and nurses who exist in greater numbers, and the enlistment of community organizations and family members in ongoing patient support.

The following matrix illustrates the three dimensions to be taken into account.

Figure 1.2 The services required for delivery of ART and potential settings and providers

Services	Providers											Settings									
	Physician	Clinical officer	Medical assistant	Nurse	Nurse assistant	Midwife	Counselor	Pharmacist	Pharmacy technician	Lab technician	Social worker	CHW	PLWHA	Other types	Home	Primary care clinic	ART clinic	MCH centre	District hospital	Provincial/Regional hospital	Other types
PMTCT +																					
VTC																					
Post-test counselling																					
Lab testing																					
Medical examination																					
Decision of ART																					
Treatment of OI and TB																					
Adherence counselling																					
Evaluation and social support																					
Prescribe ARV																					
Dispense ARV																					
Patient record keeping																					
Follow up supportive counselling																					
Adherence monitoring																					
Defaulter tracing																					
Follow up consultation																					
Follow up lab																					
Follow up CD4																					

The matrix provides a guide to different ways of delivering services in terms of human resources and infrastructure. The providers and settings listed in the matrix do not represent an exhaustive list, but are based on the experience of existing sites. In response to varying conditions, new ways can be explored and the list can be expanded. Scaling up efforts for ART requires flexibility and innovative approaches for each local context.

As far as is possible, ART should be delivered within whatever infrastructure is already present. One of the lessons learnt about successful delivery of ART with regard to infrastructure is that well-planned site preparation is crucial. Responsibility for this among the stakeholders should be clearly delineated. Attempts can be made to select sites made up of a referral network of facilities rather than single, isolated facilities.

Continuity of care is essential in ART; it can be approached from two perspectives. One is the continuity of individual care provider, exemplified by the continuous contact with the same physician that resulted in 99% adherence at sites in Cambodia and Thailand. The second is continuity of care within the health system ensured by a good referral system, such as by linking the ART site with lab facilities or with inpatient care for infections when necessary.

Furthermore, optimal continuity of care is characterized not only by contact with providers and collaboration with patients and their caregivers, but also by communication, coordination, contingency, consistency and convenience. The vital link to equally important prevention programmes is likewise a sign of effective programme management. For improving continuity of care, there are several systems approaches: guidelines, policy and standards; functioning health information systems and telecommunications technology; disease management and integrated clinical pathways and referral systems (Biem et al., 2003).

Public-private collaboration and partnerships have become a common feature of health delivery and efforts to combat the HIV/AIDS epidemic. For these to be effective, the public policy environment must support these types of partnership. They require particular attention as examples of stakeholder involvement because of the nature of the different partners and the differing priorities of public health provision and private businesses and organizations. Engaging the private sector is thought to be a complex process for policy-makers and programme managers, but it might be a necessary strategy to achieve ART service-delivery goals.

Coordination is a challenge to scaling up. A good example of this challenge is the experience of Kenya, where donor organizations are starting to fund a selection of projects with the sanction of the Kenyan government, including research and funding that may provide antiretroviral drugs, even if on a limited basis. Commitments from donors in Kenya vary from provision of post-exposure prophylaxis only or prevention of mother-to-child transmission only, to limited access to antiretroviral drugs for a small number of individuals in various mission and district hospitals. Each project has selected its own drug regimen and its own system for selection of who is to benefit from treatment. Each has its own training, its own monitoring systems and its own research agendas. Despite good intentions, the result may well be a situation of extreme diversity and complexity of approaches to delivery of ART.

Implementing an ART programme within existing health systems and linking it with existing health care services will provide an opportunity to improve overall health service delivery. It will also provide better support for long-term patient care and achieve better health outcomes. This will also simultaneously contribute to the goals of health-system strengthening and health sector reform. These approaches will require a concerted, coordinated effort by a range of stakeholders if the health care system is to be strengthened beyond the narrowly defined needs of an ART programme.

In order to address the challenges that will arise from implementing the scale-up of ART, some planning and simulation tools can be beneficial in projecting, planning and operationalizing strategies. Scaling-up of ART will further tax the ability of service providers to deliver good-quality

care within current resource constraints, re-emphasizing the need for a comprehensive and practical approach to efficient resource planning and management.

Mobilizing demand

Uptake of ART has been lower than anticipated in some high-prevalence settings, suggesting that it is not sufficient to make ART services available, physically accessible and affordable, but it is also necessary to stimulate demand. Mobilizing demand and improving the uptake of ART require some targeted interventions. Besides tackling organizational and financial barriers, reducing stigma and discrimination is central to mobilizing demand. Appropriate interventions include provision of education on ART and availability of services, reduction of stigma among the general public and health workers, strengthening entry points to HIV/AIDS care and improving referral from entry points to ART services.

- Educating communities about ART, its benefits and limitations, is also an essential step in improving uptake as well as taking persuasive and motivational measures.
- Promote appropriate attitudes, skills and behaviours in treatment providers and beneficiaries.
- Making the services available and geographically accessible is crucial, but the services should be organized in a way that is culturally acceptable to the community.
- Provide incentives to use the services.
- Tackle discrimination in employment and practice of civil rights.

The entry points to HIV/AIDS services are crucial for entry to ART. These entry points can include health centres, VCT, PMTCT, hospitals, sexually transmitted infection (STI) clinics and TB clinics. Thus it is important to strengthen services at the entry points, improve the access to these services and take the opportunity to interact with people living with HIV/AIDS. In Rwanda, the demand for ART significantly increased when the preventive services were expanded and the gap between supply and demand narrowed.

In mobilizing demand it is crucial to address equity concerns. The goal should be to reach the entire population: rural and urban; adult and child; women and men. Actions to increase uptake always face the risk of selecting people who are easy to reach, which can result in inequity.

Adherence

ART requires an adherence to medication above 95% to achieve viral suppression, gain immune recovery and thus reach treatment success (Paterson et al., 2000). This is much higher than the adherence level required for other chronic diseases. In addition to therapeutic failure, non-adherence has an important public health impact, as it may lead to the development of drug-resistant strains and limit therapeutic options. Achieving optimal adherence is therefore a central concern in scale-up efforts.

But adherence to medication is low worldwide for most chronic illnesses. A number of reviews have found that in developed countries adherence among people with chronic illnesses averages about 50%. The magnitude of the problem in developing countries is thought to be higher, given limited health resources and inequities in access to health care (WHO, 2003f).

It was therefore assumed that adherence within resource-constrained settings would be difficult to achieve. However, studies in Senegal and South Africa demonstrate that high levels of adherence can be achieved in resource-constrained settings, similar to or higher than those in developed countries (Orell et al., 2003; Laurent et al., 2002). Many of the treatment sites reported an adherence rate of more than 95%. Although the reported measures of adherence were less stringent

than those used in studies, the clinical improvement of patients suggests that the required adherence level was indeed met (Dreesch, 2003; Essengue, 2003; Goede, 2003).

Adherence of children needs very specific attention. Often the diagnosis has not been disclosed to the young patient and she or he doesn't understand the reason for taking the drugs. In Uganda at Mildmay centre, the experience with treating children is that adherence problems may arise when children grow up without being informed about their HIV status. Disclosure, on the other hand, improves adherence (Goede, 2003).

Adherence support system

Because of the complexity and the multiple determinants of adherence, a combination of adherence-support strategies is the preferable approach. Many of the sites combine more than one of the following support mechanisms. Some of the mechanisms focus on preparing new patients for treatment adherence, while others focus on maintaining ongoing adherence. Some of the support mechanisms are as follows.

- **Initial counselling and assessing adherence competence:** Developing an individual treatment plan and getting the patient's agreement to the recommendations is one of the measures taken at the site in Khayelitsha to enhance initial adherence (WHO & MSF, 2003). Jointly signing a treatment commitment letter (counsellor, patient and family supporter) was a technique used in a site in Uganda to formalize the process (Goede, 2003).
- **Assessing follow-up adherence:** Patient self-reporting and pill count at the clinic visits are frequently used at the sites and form a basis to discuss adherence problems when they occur. Some of the clinics make use of simple patient self-reporting forms that patients fill in and bring with them to clinic visits (Wheeler, 2003a).
- **Family support:** Encouraging the involvement of relatives is practised at most sites. At some sites, especially at those that provide free drugs, a stricter approach towards family support is taken. For example, patients may need to identify a relative as treatment supporter before initiating ART. In some cases an assessment is made of the available family support and social network for adherence support. Without demonstrated support the patient will not be enrolled in the treatment programme.
- **Clinic-based counselling:** Clinic-based counselling is frequently combined with refill of drugs and usually takes place once a month.
- **Community and home based support:** Community organizations and volunteers contribute in significant ways to adherence support. For example, they undertake home visits to patients with missed appointments, organize transport to the clinic for the very sick, assess side effects and provide nutritional and social support (Goede, 2003).

Supporting delivery of ART

In providing ART, it is essential to have some systems and mechanisms in place, such as laboratory support for both the initiation and monitoring of the ART, supply mechanisms for drugs and other supplies, and an information system. However, as other groups are working on these issues they are not discussed here in detail, but the implications for designing service delivery approaches are highlighted.

Laboratory support

Laboratory support is important for both the initiation and monitoring of ART. Advances in technology have led to the development of high-quality, simple and rapid tests to diagnose HIV.

Rapid tests are quick (most rapid tests will provide results within 10 to 30 minutes) and do not require specialized equipment or highly technical skills. There are additional laboratory requirements posited for ART, but the recent WHO guidelines for ART in resource-poor settings (under development) envisage a much-reduced reliance on laboratory tests (WHO, 2003g).

Minimum laboratory tests include an HIV-antibody test, and (if ZDV is part of the regimen) haemoglobin or haematocrit level. Highly desirable tests are white blood-cell count and differential, CD4 count, serum alanine, aspartate aminotransferase level, serum creatinine, blood urea nitrogen, serum glucose, bilirubin, amylase and serum lipids, and pregnancy tests for women. Toxicity should be monitored clinically based on patient reports and physical examination, supplemented by a limited number of laboratory tests depending on the symptoms that arise and the specific combination regimen that is used.

As many of the initial sites are at hospitals, they benefit from the lab facilities available there. Some sites based at primary-care facilities, such as in Rwanda, performed the basic tests at the facility level, but the patient is referred to the central hospital in Kigali for CD4 counts. In this situation, a patient must travel for more than two hours, implying both time and travel costs. At the same site, the tests required for monitoring adverse effects of ART are available at non-hospital level, provided through intensive support from MSF.

Laboratory services have implications in terms of human resources, infrastructure and supplies. Good networking is required between the clinical and laboratory facilities, as well as arrangements for transporting samples and communicating the results.

In Uganda, the training of lab technicians has been identified as an overlooked issue in designing and implementing ART. Supply management, training of laboratory staff and quality assurance mechanisms are some issues expected to be faced in scaling up, even though they have not been crucial in small-scale, resource-intensive sites.

Logistics management and drug supply

The continuity of access to antiretroviral drugs is crucial to the continuity of care. The importance of providing drugs under a structured framework and the complex nature of drug supply management cannot be underestimated. Drug supply systems in developing countries are often under-equipped and haphazardly organized. This creates scenarios in which drug interruption is likely because drug procurement and distribution capacities are weak.

Commodities for HIV/AIDS and ART programmes can be handled just as other health commodities, but the following constraints apply:

- ART requires high levels of adherence, otherwise there is high risk of treatment failure and development of drug resistance.
- Supplies of antiretroviral drugs and other commodities to support treatment and monitoring must be continuous, reliable and easy to store and use.
- Accurate quantification and frequent monitoring/review of stock positions will be essential to support continuous supply.
- Medicines and tests for ART are currently high-value items and will require secure management to prevent their being diverted from public health programmes.
- To achieve the 3 by 5 goal, supply management will have to adapt and extend to community delivery and support of ART. There is some field experience with supply at this level for TB and home-based care, but not yet much with ART.

The challenge for commodity management

The basic challenge is to translate the principles of essential health commodities management for rapidly scaling up ART delivery. Sourcing and procurement are expected to be carried out largely through existing national supply systems, at least in the early days. Supply systems will have to extend from national level through to delivery of drugs and tests at community level, beyond even rural health centres or health posts and relying on nurses and community health workers, at least for maintenance of prescribed treatment.

Methods of quantification and forecasting will have to be developed to collect information accurately and regularly from implementation levels to allow the supply pipeline to be adequately and continuously filled with needed commodities. Transparency and effective communication will be essential between all involved. Training and education will also be essential – from patients and their treatment supporters to all grades and levels of health service staff involved in ART.

The implications for human resources and for logistics are as follows:

- Delivery to community level is likely to require integrated mobile services to reach more people and achieve good uptake.
- Logistics systems must be capable of rapid and flexible responses to changing circumstances during scaling up.
- Systems must be able to deliver goods when and where they are needed.
- Systems must also be able to redistribute commodities in response to changes in demand – forecasting and quantification are likely to be inexact, at least in the early stages of scaling up, due mainly to development of treatment protocols as more experience is gained (changes in drug regimens) and to emergence of true patterns of demand (estimates may be wildly inaccurate if true levels of HIV prevalence are not known or if estimates at local level are "trimmed" by staff fearful of being denied supplies if they ask for "too much", as related in an experience from MEDS in Kenya).
- Supply to patients is an integral part of commodity supply systems – procedures, facilities and information for drug dispensing and counselling about treatment must be delivered as well as the drugs, tests and other commodities.
- Training and education will be major requirements for optimum use of all levels of human resources. This includes knowledge about requirements for handling drugs and other commodities, but it will also include skills in relationships and networking to ensure full cooperation and transparency to support the programme and develop it.
- Delivery at community level requires that professional nurses or clinical officers take a front seat in treatment and that community health workers (or similar) are key agents for delivering and maintaining good use of supplies.
- Private-sector suppliers and providers can also be regarded as potential human resources to support the ART programme, including NGOs, CBOs and FBOs, private doctors and pharmacies, and employers who set up or will support an ART programme.
- Whatever health management information systems are developed must be easy to use at implementation level and preferably integrated with existing systems – avoiding additional bureaucratic burdens on busy health workers.
- The information system will likely require additional human resources for data extraction and analysis at procurement level. Many existing procurement systems rely mainly on past usage as a guide to future procurement needs. ART will use a variety of treatment regimens and will

require detailed analysis of which patients receive what drugs and tests and how often, which is time-consuming but essential within a developing programme.

Information systems

Processing individual patient information for monitoring and follow-up is an essential element of the ART process. A meeting on the issue of strategic information needs for scaling up access to ART was held at WHO, Geneva, in July 2003. Presentations demonstrating the issue in-depth can be consulted at: <http://www.who.int/hiv/strategic/mt300703/en/index.html#presentations>. Site visits confirmed the heavy workload requirements for following patients through the care cycle and confirmed the observations made during this meeting.

Accessibility and adherence to ART: out-of-pocket payments

Existing practice in patient payment for ART is highly diverse, varying by country, treatment site and individual circumstances. Between the extremes of all patients paying in full (as occurs in most private-practice settings) and all patients receiving free treatment (as occurs in the national programme in some countries and the more localized programmes supported by international NGOs such as MSF), there is a kaleidoscope of mixed regimes offered at government, academic and mission sites, with patients benefiting from various degrees of subsidy from multiple sources.

The future of national programmes seems equally diverse. A few countries are known to have made a clear commitment to free treatment for all citizens. Others have taken the opposite line, arguing that free treatment is unsustainable and proposing that the standard regime of partial cost recovery that applies to other publicly provided care should apply to ART. Another set of countries has laid plans for heavily subsidized access to care without making a clear commitment to free treatment.

Does it matter whether or not ART is free? Could it even be desirable that patients should make some financial contribution? There would seem to be three sets of considerations that should be explored before reaching a judgement.

The first is the impact of direct out-of-pocket payment on aggregate demand. In a context in which demand for ART exceeds supply, price might serve as a useful rationing mechanism (subject to the equity reservation discussed below). In a context where, because of stigma, only a small proportion of the eligible population is willing to take an HIV test and seek treatment when found HIV-seropositive, the scaling up of supply capacity may outstrip overt demand. Any additional impediment to treatment seeking, such as the burden of out-of-pocket payment, would appear unhelpful in such circumstances. Which of these contexts will be most frequently encountered is an empirical question, varying with HIV prevalence, the degree of stigma and the rate of expansion of service capacity in each country.

The second area of concern is that it may be confidently predicted, on the basis of benefit incidence studies conducted on health and other social service provision in general, that the combination of a regime of partial cost recovery and incomplete geographical access to services will lead to a perverse distribution of public subsidies. The more affluent and the geographically proximate (these groups tend to overlap), will capture a disproportionate share of the available subsidized service. However, devising access arrangements that secure perfect equity among all contenders, particularly through the start-up phase of national programmes, is beyond the scope of this paper.

The third issue is the impact of out-of-pocket payment on adherence. The assumption is that patients who have to pay for treatment are more likely to discontinue (because they, and their support networks, run out of money) than those whose treatment is provided free. The further consequence of discontinuous treatment is the potential development of resistant strains of the virus, rendering existing first-line drug regimens ineffective and forcing use of more expensive second-

and third-line regimens. If free treatment is appropriate as a public health control measure to secure compliance in TB treatment, does not the argument apply with even greater force to ART, which requires lifelong adherence?

The experience of some pilot ART sites at which patients pay is that the main reason why they are lost to treatment is lack of money. Even at sites where treatment itself is free, finances are found to be a factor in defaulting. At one such site, the defaulter-tracing team making home visits reports “no money for transport” as the second most frequent reason, after being too ill to attend, for failure to keep clinic appointments.

Supposing the causal sequence from burden of payment to discontinuous treatment to resistance to be credible, there remain two important probabilities to be quantified. One is the frequency with which treatment will be discontinued as a consequence of the patient's inability to pay. The other is the frequency (and seriousness) of development of resistant strains in the event of discontinuous treatment. There is anecdotal reporting from Botswana that the consequences of irregular prescribing by private practitioners are much less severe than the literature has generally suggested.

Those who might see advantages in out-of-pocket payment could deploy two arguments. One is that willingness to pay at least a small contribution to the cost of treatment can be taken as evidence of commitment to the treatment regimen. The other is that if quality improvements are financed out of user fees, there may be a net welfare gain to consumers. In the absence of detail on the net financial impact of user fees for ART, the latter argument is difficult to assess.

Ensuring the quality of care

Achieving and maintaining acceptable levels of quality of care is a matter of concern in most countries. Providing good-quality health care to increasing numbers of people living with HIV and AIDS is a tremendous challenge for developing countries, which often lack the capacity and resources to cope with other major diseases. The scale-up of ART poses additional challenges to weak health care systems, threatening their capacity to deliver acceptable health care to increasing numbers of HIV/AIDS patients.

Quality-improvement strategies are cyclical managerial methodologies, where improvement comes from testing and evaluation and requires cooperation among individuals, disciplines and sectors. Creating appropriate environments for ART requires appropriate governance and management structures, adequate input supply and management, incorporation of current knowledge into practice and decision-making, and an effective monitoring and evaluation system. Other features are training and community support, partnership and efficient logistic management. Quality-improvement strategies are instrumental to ensure the effectiveness of interventions.

Quality improvement for ART can be defined as all activities that contribute to improving the quality of health care. It thus includes adopting guidelines and protocols, developing and communicating standards of practice, setting appropriate incentives, favouring continuous education, measuring the level of compliance with standards, adequate management and problem-solving methods and programme monitoring and outcome evaluation. These activities can be performed as part of the routine district or programme management, specific performance assessment or accreditation of facilities, or other efforts to improve the performance and the quality of health services.

Institutionalizing quality improvement within health systems or organizations is a major solution for effective service delivery. Quality improvement, however, is not a vertical, independent programme but a crucial component of the management of health service provision in all elements and levels of care, synergistic in nature, with the greatest impact on quality of care being achieved when all these activities are carried out in a coordinated fashion.

Quality improvement is therefore a systems or organizational activity that to be successful may involve a combination of strategies. It requires the optimal disposition and use of the main determinants of health-care effectiveness, which are the different components (regulatory and financing frameworks, resources and processes) that intervene in health care. Quality improvement may also incorporate external evaluations, such as accreditation programmes, which in the case of the scale-up of ART may be beneficial to ensure adequate compliance with standards by multiple providers.

In this respect, the technical quality of the ART programme can be defined and assessed in terms of its net effectiveness in reducing mortality, the rate of opportunistic infections, the perinatal transmission of HIV or the viral load among the patients treated. Furthermore, it can also be assessed as improving the CD4+count, the quality of life and the productivity of patients treated.

The quality of ART relates to the net effectiveness on the recipients of the therapy. Its impact on an entire community would be best expressed by its effective coverage, or the probability that HIV-infected patients of a community experienced health gains (in the same order of outcomes as mentioned for quality) due to ART. Effective coverage is a function of ensuring access to antiretroviral drugs (availability, affordability, acceptability), good technical quality and use.

Monitoring and evaluation of quality are the systematic identification of what level of quality the system is currently producing and includes collecting and analysing data on programme management and outcome achievement. Management information systems are among the most important elements in the quest for quality. Monitoring of supplies (procurement, stock, distribution), activities (laboratories, testing and counselling, visits, referrals), human resources (staffing and levels, absenteeism, productivity), patient management (staffing, drop-outs, follow-ups, migration) and treatment effectiveness (including toxicity and adherence) are some of the major areas that need to be considered.

For the success of ART there should be access to specific services and facilities, such as HIV/AIDS counselling and testing and follow-up counselling services to ensure psychosocial support and adherence to treatment; basic medical services with capacity to appropriately manage HIV-related illness and opportunistic infections; a continuous supply of antiretrovirals and medicines for the treatment of opportunistic infections and other HIV-related illnesses; reliable regulatory mechanisms; and reliable laboratory services capable of doing routine laboratory investigations as outlined in the WHO guidelines (WHO, 2003a, e).

The management of HIV/AIDS needs to consider the complexity of issues arising from living and coping with chronic disease. Linkages with other services with a view to providing comprehensive care and prevention for persons receiving ART is important. Treatment should be delivered as part of a package including prevention, care and support interventions with close linkages to the community structure, and with the participation of people living with HIV/AIDS. Maintaining adherence to ART represents the greatest challenge. Strategies involving the community have proven to be successful.

Table 1.3 Example of outcome indicators for the evaluation of the technical quality and effective coverage of ART

	Operational definitions	Major outcomes	Examples of indicators
Technical quality of ART	Health gains in patients receiving ART attributable to the therapy	Diminished AIDS incidence Diminished mortality Diminished incidence of opportunistic infections Diminished perinatal transmission of HIV Diminished viral load Increased CD4+ count Increased quality of life Increased productivity	<ul style="list-style-type: none"> • New AIDS cases among HIV-treated patients/time • Mortality among HIV-treated patients/time • New cases of opportunistic infections among HIV-treated patients/time • New HIV-infected babies of mothers treated with antiretrovirals/time • % HIV-treated patients with reduced viral load/time • % HIV-treated patients with increased CD4+/time • % HIV-treated patients reporting increased quality of life/time • Days of work lost among HIV-treated patients/time
Effective coverage of ART	Probability that HIV patients in a community experienced health gains attributable to the therapy	Diminished AIDS incidence Diminished mortality Diminished incidence of opportunistic infections Diminished perinatal transmission of HIV Diminished viral load Increased CD4+ count Increased quality of life Increased productivity	<ul style="list-style-type: none"> • New cases of AIDS/total population targeted • Mortality among HIV patients/total population targeted • New cases of opportunistic infections/total population targeted • New HIV infected babies of HIV+ mothers/total population targeted • % HIV cases with reduced viral load/total population targeted • % HIV cases with increased CD4+ counts/total population targeted

Scale-up velocity at facility level

Finding the right organizational frame for offering ART services required a learning period for fine-tuning patient and staff encounter flows for several months, which naturally has an impact on the capacity to rapidly increase patient intake. A nine-month period has been cited at one facility in South Africa for setting up ART facilities (Bekker et al., 2003). But the experience gained has been shared among those setting up HIV/ART service facilities. At an HIV/ART clinic operating from within a district hospital in Cambodia with MSF support, within one month of setting up and rendering the facility operational, HIV/AIDS patient attendance had reached 156, with five patients receiving ART. Considering that this rapid installation of HIV/ART treatment facilities included recruiting staff from among existing hospital personnel and organizing administrative, laboratory and logistics support, this is a rather encouraging observation.

Some data could be collected on the rate of intake of patients during the initial year, levels of coverage reached during the following year and estimated additional intake. Estimates are based on continuing access to current human resource levels, initial CD4-cell count determination and ongoing monitoring needs, facility space, supplies, testing for determination and treatment of common OIs and TB, and sufficient equipment.

At smaller district hospitals in Thailand, for example, OPD services were offered two days per week, including comprehensive HIV prevention and TB/OI/ART-care services. The team would consist of one nurse, one physician, two or three volunteers from the PLWHA community available during clinic days and for home visits for adherence counselling and patient follow-up, and access to a pharmacist and laboratory facilities for a range of diagnostic procedures to determine OIs, TB and CD4-cell count. The first year of operations usually saw smaller numbers of patients, while staff became familiar with patient characteristics. Given this configuration, service provider and patient-contact times in minutes were estimated by staff within the care flow as follows:

Table 1.4 Length of contact between service providers and ART patients, in minutes

Staff	First visit	Follow-up	
		No complications	With complications
Registry clerk	5-10	5	5
Nurse/PLWHA	60	5-10	15
Physician	15	0	15
Nurse/PLWHA	10-15	5-10	10-15

The table below illustrates the intake development over a two-year operations period at a small subdistrict-type facility (18 beds). It further indicates the estimated capacity increase before the current configuration of clinic opening hours and staffing levels would reach its capacity limits.

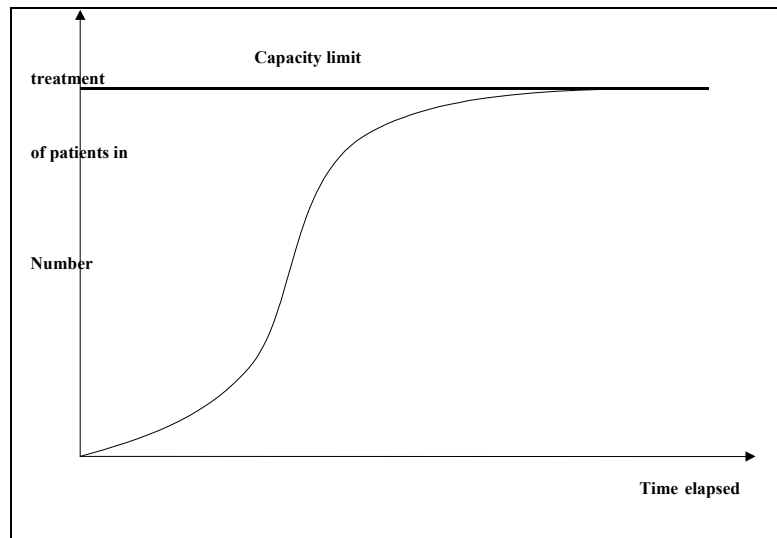
Table 1.5 Example of ART coverage over two years

Year	Patient intake
2001	10
2002	27
Total end 2002	37
Estimated scale-up capacity	30

Intake increased rapidly to nearly triple the initial annual coverage levels. The estimate for capacity after scale-up – which was based on the experience of a physician and clinic manager – was confirmed at similar levels by other, smaller, treatment sites. Assuming that this intake pattern is widespread, the challenge is to find mechanisms for payment and patient-recruitment for services to permit the anticipated numbers to be taken into care.

At a larger MSF-supported facility in Cambodia, the finding of rapid increase after an initial break-in period was confirmed during discussions with the site manager. Between mid-2001 and September 2003, a total of 935 patients had been placed on ART. Estimated further capacity within the staffing pattern described below would allow for reaching an estimated 1500 patients by 2004. Again, the pattern was of a substantial increase within a short period, to capacity limits.

The following figure illustrates the relationship between the patient intake patterns, facility capacity and time.

Figure 1.3 Scale-up velocity and capacity for patient admission to ART

The outpatient department depicted here is entirely dedicated to HIV prevention and ART. During the initial phase, service for both types of visits was offered throughout the day. When problems with patient flows for different types of services were noticed, scheduling was changed so that HIV-prevention services were offered in the morning and ART services in the afternoon, five days per week by appointment. Staffing consists of two expatriate treating and teaching physicians, one of them responsible for data processing and management; six local physicians attending various parts of the morning and afternoon sessions; two nurses; and counselling, social worker and PLWHA input. All patients see their treating physicians at regular intervals (12 to 15 times the first year, six visits per year thereafter) once treatment is stabilized. A strong doctor–patient relationship of trust is considered central to the 100% adherence reached.

In order to massively increase access to treatment, these approaches indicate that patient coverage can be increased rapidly within a one- to two-year span, provided the access conditions to the currently defined necessary diagnostic and monitoring needs are met.

In order to reach rapid coverage with these approaches, the current configurations of staff and facilities would need to be repeated in a large number of smaller district and subdistrict facilities with access to sufficiently large inpatient facilities. It must be remembered that patients now present very late, so access to inpatient facilities, either on-site or by referral, must be provided for initial treatment of advanced stages of accompanying diseases, prior to starting ART. After the number of the most severely ill patients is reduced and patients with levels of CD4 high enough for routine chronic care are taken in, scale-up is likely to see additional opportunities in terms of numbers covered and staff time efficiencies per patient visit.

Expanding health workforce supply and raising productivity

The commitment to 3 by 5 comes at a time when a long-festering crisis of inadequate investment in developing, deploying and motivating health-sector workers in the poorest countries has finally been widely recognized. The scarcity and demoralization of trained workers has been exacerbated by the HIV/AIDS crisis itself, with the ironic consequence that at the very time when more interventions are needed to address the problem, the means of doing so are deeply eroded.

Because of the depth and gravity of the staffing crisis, it should not be expected that the early stages of systemic reform will produce dramatic results. But it is essential that systemic reform not be further deferred.

There is a potential opportunity generated by the current global focus on scaling up ART to reverse decades-long neglect of the human resource situation, but the opportunity will evaporate if all the attention is focused on the retraining of part of the existing, inadequate stock of health workers in order to staff expanded ART services. Training is a necessary part of the preparations for scaling up, but if nothing is done concurrently to address the underlying supply constraints, all that will have been achieved is a diversion of resources from one set of health programmes to another, and early arrival at an inflexible resource constraint.

There is a risk that the pool of those currently available for retraining and redeployment to scaled-up ART services may be smaller than has been assumed in the process of target setting, because managers of other programme areas, conscious of shortages, may be reluctant to release staff for training or reassignment. Moreover, without adequate incentives, existing trained health workers may be reluctant to be retrained and deployed in a professional area still heavily stigmatized by health workers and the public alike.

It is therefore a matter of prudent management of the ART programme, as much as for the rest of the health system, that interventions do not focus only on short-term training but begin to address the deep-seated causes of the scarcity and demotivation of health workers. In the face of pervasive shortages of trained health workers, there is a range of options countries can explore, among which optimum choices will be country-specific. But all these options can be grouped under the broad headings of measures to increase the supply, or improve the productivity, of the stock of health workers.

As is evident from any stocks and flows modelling, over the long term the most important determinant of the stock of trained health workers, and the one most susceptible to conscious manipulation by the health authorities, is the volume of pre-service training. Unfortunately, there are considerable lead times involved in any changes to current volumes of pre-service training, so that it is usually many years after the moment of decision that any impact on the human resource stock is detectable. This does not mean that decision and implementation action should be deferred, since to do so would only further defer the benefits of expanding this source of supply.

Interventions acting within a shorter time horizon involve the migration of health workers and the attrition rate. External recruitment is a feasible option for countries with adequate health budgets, or those that can induce third parties (be they bilateral or multinational donors, or international NGOs) to bear the costs of expatriate employment. Expatriate personnel are sometimes difficult to absorb, and some countries find the disadvantages outweigh the advantages of increasing supply in this manner. Discouraging emigration is much more difficult, since coercive measures are easily evaded, and the positive incentives that would deter emigration are generally unaffordable. WHO, the Commonwealth Secretariat, Rockefeller Foundation and the Joint Learning Initiative are working on these issues.

Attrition can be broken down by cause (death, permanent disability, retirement on grounds of age, transfer to alternative occupations, and emigration) and the feasibility of intervention to reduce losses from each cause can be assessed. In the past, death and permanent disability were minor sources of attrition and considered relatively intractable to any intervention. In the era of HIV/AIDS, they are both more prominent sources of loss and more susceptible to modifying interventions, such as giving priority to health workers in ART programmes. Losses due to retirement can be reduced by raising the age of retirement, and even reversed by the offer of post-retirement contract employment. But overwhelmingly the largest source of attrition has historically been transfer into alternative occupations (including, from a purely public-service perspective,

transfer to nongovernment employment). Reducing attrition from this source depends largely on improving terms of service.

Over recent decades, trained health workers have increasingly found employment outside the public service, including in individual private practice. One particular form of this phenomenon is the “dual practice” of workers who, while nominally holding full-time positions in the public service, also operate their own private practices, with or without explicit licence to do so. An inevitable and near-universal consequence of “dual practice” is that the hours actually worked in the public service are fewer than those nominally contracted-for, and the productivity of the workers concerned is accordingly reduced. One of the interventions that may be considered in this environment is to “buy back” the time that would otherwise be given to private practice by the payment of sessional fees for work in ART clinics.

Adequate incentives are necessary to induce sufficient numbers to both enter and remain in the health professions and to function productively in that employment. These incentives are not all expressed in monetary terms. For example, one of the least-welcome parts of the public-service contract in many countries is the liability to posting to undesirable positions or locations.

Individuals judge the relative attractiveness of different employment opportunities by evaluating the whole package of benefits and obligations offered to them (including intangibles such as job satisfaction and service to fellow citizens) and take account of future prospects as well as current conditions. What they have seen of health-sector employment, particularly in the public sector, has not induced sufficient candidates to enter or remain, and of those that do remain, few are sufficiently motivated to perform well.

Two factors, largely beyond the control of ministries of health, account for this situation. The absolute insufficiency of rewards is due to fiscal constraints imposed by the ministry of finance that are attributable to the weak performance of national economies, the low tax base and the limitations on deficit financing imposed by the IMF. The inflexibility of the reward system is imposed by the Public Service Commission or its equivalent, which seeks to apply uniform pay and grading structures across the entire public service, with long incremental salary scales based on educational qualifications at entry, and which has lost any objective means of verifying individual performance so that promotion, where it is not based on patronage, is based on seniority, and disciplinary procedures are so cumbersome that they are rarely invoked.

Against this background, the systemic reforms to incentives that are needed to improve the supply and motivation of health workers, particularly in the public sector, are the simultaneous improvement of net benefit packages whose cost must be partially borne by external donors, and re-establishment of the link between performance and reward by more flexible and market-sensitive grading and pay systems, allowances for exceptional duties, and objective performance evaluation. Blanket increases in pay or benefits are not likely to help. Productivity is not just about individual incentives; work organization, task assignment and delegation are equally important.

Reflections on future prospects for ART and HRH implications

Perhaps the most important reflection to emerge from the accumulated observations is that it should not be assumed that the future of ART will be the experience of the pilot sites writ large. This may be a somewhat surprising assertion, given that the very purpose of this rapid operational research was to learn about that previously insufficiently documented experience. However, one of the key observations was that most of the ART pilot sites were not typical of the health services in which they were implanted.

As documented in Section 2, they benefited from a number of exceptional features: special funding, a research or demonstration motivation, special management arrangements often involving

international NGOs, and expatriate personnel. They were pioneering projects, sustained by the altruism, enthusiasm and dedication of trailblazers. These projects had not yet become jaded, they had not even reached maturity – they were still in a phase of rapid growth and change. Almost all the programmes were dealing with small numbers of patients. No site had as many as 5000 enrolled, and only four sites had more than 1000 patients.

It is important to understand these characteristics of the sites visited, because it is unlikely that the future of ART provision can take the form of a simple replication of the pilot sites. Both the pattern of financing and the distribution of service providers can be expected to change. As scale-up proceeds, it is inevitable that the participation of government providers will increase, if only because the government is the owner of the largest single provider network. The self-contained nature of present programmes, which sets them apart from the general run of health services (even when they are physically located in the premises of public hospitals) will gradually disappear as they become subject to the general financial and administrative rules. The current large expatriate component of programme leadership will be progressively diluted, and the pioneering spirit will predictably succumb to the routine. Above all, it is likely that the high ratios of staff to patients, especially skilled staff including physicians, observed during the site visits will be diluted as programmes encounter the absolute shortages of staff obtaining in the high-burden countries.

ART as the “leading edge” of chronic care in developing countries

Although the global pattern of morbidity is changing with the apparently inexorable unfolding of the demographic and epidemiological transitions, so that chronic diseases and disabilities assume a growing share of the disease burden even in the poorer countries, the organization of medical services still largely reflects a tradition of episodic intervention more suited to acute infectious diseases, susceptible to cure. With a few exceptions, such as TB treatment and antenatal care, health systems are not adapted to the need for the continuing care of a defined individual, as manifested in the patient-record systems (or rather their general absence). Neither the information systems nor the mindset have adapted to the notion of a cohort of patients whose debilitating but not necessarily fatal conditions must be managed for the rest of their lives.

While it is true that hypertension, diabetes, asthma and other forms of degenerative disease have provoked some scattered experiences in long-term case management, HIV/AIDS and the potential for its management with ART will provide the first large-scale experience of chronic-care management for developing-country health systems. If ways can be found to handle the huge burden of ART, then this will provide valuable lessons for the wider application of chronic case management.

ART as a primary care service

Although the majority of pilot ART sites have been hospital-based (other than general practice and occupational schemes), some of the programme managers have from the outset envisaged the need, and the feasibility, for ART to be delivered through the more geographically disseminated primary-care facility network.

Two factors underlie the need: the first is numbers. Although the immediate target of the 3 by 5 initiative is three million patients under treatment, the logical implication is that eventually all 40 million currently infected should be treated. With adult prevalence rates above 30% in the highest-burden countries, it is evident that hospitals alone would be overwhelmed by the numbers requiring treatment.

The second factor is distance. While a small minority of current patients travel sometimes hundreds of kilometres to their treatment site, the great majority of clinically eligible patients, especially in

rural areas, are barred from access to care not only by the cost of treatment but by distance and the unavailability or unaffordability of transport. It is in response to the perceived needs of their existing patients from outlying areas that directors of hospital-based programmes have developed services in satellite facilities such as rural hospitals and health centres.

The feasibility of making ART a primary-care service is already demonstrated in a few sites, for example the Mosoriot Health Centre satellite of the Moi Teaching Hospital programme in Kenya, and the Thyolo District programme in Malawi, and is implicit in the recommendations from the Lusaka consensus-building conference on the staffing of ART services.

This does not necessarily imply a free-standing service in each primary care facility. A preferable design of district-wide services would appear to be the core-periphery model assumed in the WHO treatment guidelines, which envisage a relatively well-equipped and well-staffed reference centre and a network of satellite treatment centres.

The optimum division of function between reference centre and satellites has yet to be decided (some existing examples of peripheral sites aimed to replicate all the treatment activities of the centre, while the different levels of skill involved would appear to argue for a model closer to that of TB DOTS, whereby diagnosis is confirmed and treatment is initiated at a specialist centre with continuing treatment delegated to the peripheral facility) (WHO, 2003b).

Recruitment of HRH into ART

One of the great concerns expressed about the 3 by 5 initiative is that, in an environment of prevailing human resource shortages, the attempt to recruit and train large numbers of staff to deliver ART could only be at the expense of diverting human resources from other programmes, including HIV prevention. In the short run, some diversion of existing staff seems inevitable. Although every effort should be made to expand the total supply by short-term devices such as re-engaging staff on post-retirement contracts, offering flexible hours and contract terms to trained staff who have withdrawn to home-care duties or other occupations, and even external recruitment, it may be anticipated that these measures will have only a marginal effect on the total supply.

A more considerable impact would be achieved by expansion of pre-service training, and while the benefits of this would occur only outside the immediate 3 by 5 timeframe, it is strongly urged that it be initiated immediately, to reduce the risk that human resources will become the binding constraint to future expansion of services.

It has also been argued in some quarters that the concern about diverting staff from other programmes is unwarranted, as staff could be released from other care of HIV/AIDS patients, notably treatment of opportunistic infections, as ART becomes increasingly available.

But will this release of staff from other commitments occur? There is some indication that it has occurred in low-prevalence situations where all eligible patients were rapidly absorbed into ART, as in San Francisco, and on a national scale in Brazil. It is less clear that it will occur in high-prevalence, resource-poor countries in which only a fraction of total morbidity is presented to the formal health care system.

There are certainly a number of grounds for scepticism. First, in many hospitals, the wards were already full before the HIV/AIDS epidemic (and in most high-burden countries, there has been very little hospital expansion since). What appears to have happened is that, as the epidemic developed, the threshold for hospital admission rose under the pressure of severely ill HIV/AIDS patients so that patients with other diagnoses who would previously have been admitted were turned away or treated on an ambulatory basis only. If the wards were miraculously emptied of HIV/AIDS patients, then presumably the pent-up demand from these other patients would return, still requiring the full attention of the available hospital staff.

Second, even if the patients placed on ART no longer fill the inpatient wards, they may be replaced by other patients with HIV/AIDS, either not yet diagnosed as HIV-seropositive, or not yet eligible for ART. It is claimed that only 10% of HIV-seropositive persons in developing countries know their status, while those eligible for ART are typically only 10% to 15% of the estimated numbers of the infected. Only if the hospitals were already providing adequate coverage for all those suffering opportunistic infections could it be assumed that placing some patients on ART would diminish the total hospital workload, but it is widely assumed that only a small proportion of the total burden of illness attributable to HIV/AIDS is addressed by existing health services. By design, those progressing to ART will in the near future still represent only a small fraction of the total number of HIV-seropositive persons (though a much larger proportion of the severely ill). Assuming the success of 3 by 5, those three million will still be far fewer than 10% of the HIV-seropositive persons in the developing world by 2005.

Third, the release of staff from current inpatient and outpatient work areas in response to a potential decline in workload would be feasible and acceptable to programme managers if those units were adequately staffed for the current workload, but by universal report this is not the case. Virtually all high-burden countries describe chronic shortages of all categories of health workers, attributable to supply constraints (due to constricted inflows from pre-service training, or emigration) and lack of effective demand (due to fiscal constraints leading to hiring freezes, or unattractive terms of service), exacerbated by the ravages of HIV/AIDS among health workers themselves. Given the chronic understaffing of existing services, a reduction in workload, even if it occurred, would merely reduce the burden of excess demand on the time available to give services, not liberate an excess supply of health workers for reassignment.

Fourth, a proportion of those placed on ART will encounter complications and treatment failure, triggering recourse to those inpatient facilities with problems as complex and demanding as the opportunistic infections with which they now present.

Fifth, the epidemic continues to grow. Despite encouraging signs of stabilization or decline in prevalence in a small number of countries, on a global scale the number of new infections is still increasing. For some time to come, the numbers of patients progressing to full-blown AIDS will exceed the numbers being removed from the pool at risk for opportunistic infections by being placed on ART.

Finally, there is a timing issue. ART clinics and associated testing services and entry points will need additional staff at the outset of scaling up, when the numbers initiated to ART will still be very small. Even if the five points above turn out to be invalid, and there is a reduction in workload elsewhere in the existing provider system, it will occur only some time after the incremental staffing need has arisen.

If the arguments above are sound, it would be rash to assume the existence of an ART dividend in the form of a surplus of trained manpower that can readily be re-deployed.

The little empirical experience reported so far gives little comfort. Figures from Homa Bay District Hospital in Kenya, and Princess Marina Hospital in Botswana, show inpatient and general outpatient numbers continuing to grow since the advent of ART services. Impressions from Moi Teaching Hospital in Kenya and Thyolo District Hospital in Malawi (though without numerical evidence) confirm the continued high workload elsewhere in the hospital since ART was introduced. Given the inflexibility of supply of health workers in the short run, it does seem inevitable that drawing existing health workers into ART training and service delivery will take place at the price of further weakening the staffing of other programme areas (what has been labelled the siphoning effect).

Section 2

Antiretroviral therapy, service delivery
and human resources in developing countries:
experiences from site visits

Introduction

The context: planning for contributing evidence to the 3 by 5 initiative in an emergency mode

In July 2003, immediately on taking office as Director-General, Dr LEE Jong-wook announced that he was committing the World Health Organization to supporting the 3 by 5 initiative – the proposal that three million people in developing countries should be receiving ART by the end of the year 2005. This global target was derived by taking half of the six million assumed to be in need of ART for treatment of late-stage complications of HIV infection (around 15% of all those infected) in 2003. It was further assumed that the 3 by 5 target was only a staging post on the route to eventual universal provision. The target implied a massive scale-up of service provision relative to the numbers then receiving ART in developing countries, believed to have been around 300 000, of whom more than half were in Brazil. It was estimated that in the whole of sub-Saharan Africa only 40 000³ patients were receiving ART, compared with more than 28 million people infected with HIV.

While the initiative within WHO was to be spearheaded by the Department of HIV/AIDS and the 3 by 5 Task Force, all departments were expected to contribute to the huge task of supporting Member States in planning and implementing the rapid scale-up of ART provision. Within the cluster of Evidence and Information for Policy, the Department of Human Resources for Health was centrally involved in discussions on the implications of scaling up. The failings of health systems in most high-burden countries, and in particular their widespread staff shortages, were perceived as a threat to the feasibility of the initiative, the more so as progress in other areas (reduction in drug prices, reduced dependence on laboratory testing) left human resource requirements as the outstanding “killer assumption”.

At that time, some information was available on the experience of the first sites at which ART delivery had been undertaken in developing countries, notably in the form of a series of case studies published by WHO. But these case studies were generally silent on two issues vital for future planning: the numbers of patients under treatment, and the numbers of staff of different categories who were providing ART.

It was therefore decided that there was no substitute for empirical evidence on staffing relative to patient numbers, and that the best way to provide that evidence was to undertake first-hand data collection at a number of sites. While the initial impetus came from the need to assess staffing requirements, other issues of service delivery (location, auspices, linkage to related services, financing) were subsequently added to the scope of the enquiry.

It was planned (and with the exception of South Africa it occurred) that the data collection in each country would be undertaken by one of a team of four from HRH, variously supported by other WHO staff from regional and country offices, and national staff from the ministry of health or its local representatives. In South Africa, the team member who visited the country arranged with a number of informants to provide reports on selected sites, but was not able to visit the sites in person. The format in which the South African reports were submitted does not, in general, permit direct comparison with the sites in other countries.

In accordance with the declaration of a public health emergency, the whole process of planning and executing the site visits was undertaken with considerable urgency. There was only a three-week gap between the decision to proceed with the site visits and the first departure, which allowed no time for any pretesting of the data collection instruments. The timing was unfortunate in that some

³ This estimate was subsequently raised to 100 000, still only 2% of those presumed to be in need.

visits coincided with the ICASA conference in Nairobi. The attendance of some key informants at this meeting, and their corresponding absence from their usual posts, had the most effect on the missions to Kenya, Malawi and South Africa. This coincidence was unavoidable, however, because dates had already been set for a workshop in Geneva in mid-October 2003 to review human resource and service delivery aspects of scaling up ART in resource-limited settings, and time was needed to distil the findings of the site visits into presentations for the workshop. In turn, the deliberations of that meeting were to be fed into the international consensus-building workshop scheduled to be held in Lusaka in late November 2003.

Country selection

To some extent, the selection of countries to be visited reflected a decision already made by the 3 by 5 Taskforce: that WHO support should be focused on the 34 countries with the highest disease burden. It also reflected the prevailing understanding of where the most progress had been made in establishing pilot-scale programmes to deliver ART.

Given that the HIV/AIDS epidemic is so heavily concentrated in sub-Saharan Africa, and particularly its central and southern regions, it is not surprising that the initial choices all fell in central and southern Africa (Botswana, Kenya, Malawi and Uganda). South Africa was added in the wake of an announced change in government policy on ART, and Rwanda as a francophone complement to the preponderance of anglophone countries. Although they are less-heavily infected, the inclusion of Cambodia and Thailand allowed representation of the Asian continent and two further WHO regions (Western Pacific and South-East Asia, respectively).

No claim is made that this sample of countries is representative. There was a large opportunistic element in the selection, reflecting the contacts of team members and the willingness of WHO country offices and national governments to receive what were fact-finding rather than technical-assistance missions.

Site selection

Within each country, the selection of the sites to be visited was made by the individual team member, in conjunction with local counterparts. Again, no attempt was made to select a random sample of sites. Those chosen constituted a convenience sample, governed by the feasibility of travel arrangements and the imperfect knowledge that all team members possessed of the universe of potential sites.

Some attempt was made to select sites with diverse characteristics, even when they were atypical, however. For example, in Botswana, although most ART is provided through a national programme in public hospitals, a conscious effort was made to include ART programmes delivered at a mine hospital, by the armed forces and in private general practice. In Rwanda, two occupational health schemes were included. The intent was to explore the widest range of programme experience rather than seek a measure of central tendency.

In Botswana and Malawi there were only a limited number of sites in operation (excluding private practice), so that it would have been feasible to visit most if not all, but in Kenya, South Africa and Thailand it was possible to visit only a small fraction of those known to exist. Although there was no evident bias in the selection of sites by type of ownership or size, it is not known whether the sites selected were representative of the universe in each country.

Because of logistic considerations there was inevitably some bias in the selection of sites in favour of those located in or near the capital city. All observations about the frequency of arrangements or practices should be interpreted with this element of non-randomness in mind, as it relates both to country and site selection.

Process of the site visits

The data-collection instruments went through several revisions during the preparatory period. There were three documents, each intended to be used more as an aide-memoire to discussion than as a formal questionnaire.

The first instrument was designed to elicit data on the individual ART sites. At a relatively late stage of the planning, it was decided to base this instrument on an existing form used by the Millennium Development Goals Task Force on HIV/AIDS, known as the ATSAP2⁴ form. This decision was taken on the grounds that there was considerable overlap in the data sought, the form was being used by WHO colleagues to collect material for further case studies, and there was the potential to increase the coverage of the survey initiated by colleagues in the MDG Task Force.

On closer examination, however, it was found that the form did not cover two key topics: the number of patients and staff employed in treating them. Accordingly, supplementary questions were added to the original form, expanding it from an already-lengthy 15 pages to a still more extended 19 pages.

The second instrument focused on community involvement, a topic not addressed by the ATSAP2 form, and for which a wholly new set of questions was developed. The third consisted of a set of issues for discussion with national policy-makers and managers covering plans for scaling up ART, anticipated impact on other services, the overall human resources situation in the health sector and arrangements for training in ART. In the event, only a few of the intended interviews with national-level personnel could be achieved, which accounts for the cursory treatment of issues transcending the individual site level in the October workshop and in this report.

It had been anticipated that it would take about half a day to extract and record the information on each ART site, and travel plans were made on this assumption. In practice, it was often found that less time was available, either because travel plans had been too optimistic or because the site directors were busy clinicians who simply could not spare the time required to cover all issues. There were some exceptions to this experience, notably a valuable full-day programme prepared for the team member visiting the MSF project in Thyolo district, Malawi, and site visits to various facilities in Cambodia and Thailand.

The combination of a heavy interview schedule and limited time available inevitably resulted in selective adaptation of the data collection instrument in the field. Often, only the most important questions were posed, and in extreme cases even some of these had to be omitted. In addition, it was found that some of the questions were not suitable to all contexts, either because the assumed logical categories did not apply, or because the most detailed data sought – for example, on allocation of time among tasks or the previous activity of health workers – was not directly known to the informant (usually the programme director). With more time, more complete and more accurate responses might have been obtained. The most complete responses to the modified ATSAP2 forms were obtained from those sites where the form was left for completion with the programme director, either before or after the interview.

The second document – the interview schedule on community involvement – was found difficult to complete. In some cases, this was because community involvement was scanty or nil. Where specific enquiries were made, or the community involvement was a conspicuous feature of the setting, abundant observations were made, though not in the predicted format. Despite these methodological limitations, which are largely explained but not excused by the urgency of the endeavour, it was felt that reliable data were obtained, particularly on the previously inadequately recorded topics of patient volumes and staff inputs.

⁴ ATSAP = Antiretroviral Treatment Site and Affiliated Programmes Survey, developed by the Millennium Development Task Force on HIV/AIDS.

It should perhaps be stressed that the findings from these site visits relate to a very specific time and set of circumstances. In almost all cases, provision of ART had started only within the last year or two, sometimes within a few months of the visit. Some were explicitly research projects; others were conceived as service-delivery demonstration projects. At each site, the number of patients on treatment was increasing rapidly. In no case had the volume of patients treated reached a planned capacity limit (though in some programmes numbers on treatment were constrained by financial limits).

Many of the programmes were led by charismatic physicians who devoted long hours to managing and fund-raising for their pioneering projects, in addition to their daunting clinical workloads. External finance often enabled the programmes to escape the constraints applicable to the wider health system. The programmes had nowhere become routine; rather, they were still “breaking the mould” with vigour and optimism.

The challenge of the epidemic, and the national responses

The HIV/AIDS epidemic is far from uniform across the group of countries in which ART sites were surveyed. Adult prevalence rates vary between 1.8 % in Thailand and 38.8% in Botswana. In terms of absolute numbers, the range of persons infected across all ages falls between 170 000 in Cambodia and 5 million in South Africa. All figures are taken from the UNAIDS web site as of 24 February 2004, and refer to the estimates for end 2001 (UNAIDS, 2004b). The next revision of these country data will be published in July 2004.

Horrifying as all these figures are in their implications for human suffering, there is a silver lining to the dismal story in certain countries. In Uganda there has been a dramatic decline in adult prevalence, from a high of 13% to a most recent estimate of 5%. In Thailand, whereas it had been projected that adult prevalence would exceed 3% by the year 2000, it has actually stabilized at less than 2%, a containment that is credited to an effective national response. The main features of each country situation are summarized below.

Botswana

The epidemic in Botswana is stunning in both its magnitude and the speed of its progression. There is little systematic information on the situation before 1990, when HIV surveillance at antenatal clinics was started. HIV prevalence among ANC attendees increased rapidly from 18.1% in 1992 to 32.4% in 1995, 38.5% in 2000 and 36.3% in 2001. In the peak age group of 25 to 29 years of age, HIV prevalence among ANC attendees was 50.4% in 2000. At the end of 2001, adult prevalence was estimated at an average of 38.8% for the entire country; in individual districts it exceeded 50%. The major mode of transmission in Botswana is clearly heterosexual, with vertical transmission estimated to contribute around 10% of total infections. Among adults, more women (170 000) are infected than men (130 000).

The national response is now urgent and intensive, with saturation coverage in the media prompted by the president’s identification of HIV/AIDS as a threat to the very survival of the nation. A National AIDS Council coordinates the multisectoral response. Within the health sector there is widespread availability of VCT, including at all 230+ antenatal clinic sites where PMTCT is offered, and several walk-in testing centres in urban areas. Botswana became the first country in Africa to offer publicly funded ART to all its citizens when it launched its Masa (New Dawn) programme in January 2001 with the aim of enrolling 19 000 patients in its first year. The actual take-up has been slower than planned, so that by April 2003 it was estimated that 6061 patients had been enrolled and 4643 were in treatment. These figures do not include patients treated by private practitioners and occupational schemes.

Cambodia

The first case of HIV infection notified in Cambodia was in 1991, since when there has been a rapid increase. In 2001 it was estimated that there were 160 000 infected adults, corresponding to an estimated adult prevalence rate of 2.7%, of whom slightly more were men than women. The predominant mode of transmission was by heterosexual intercourse, with high rates of HIV infection among female sex workers and high rates of reported use of sex workers by men (between 22.2% and 46.4% of men aged 15 to 49 at different sites reported commercial sex in the previous 12 months in 2001).

Kenya

HIV surveillance of ANC clinic attendees started in the mid-1980s in Nairobi and Mombasa, with prevalence increasing from 2% in 1985 to 19% in 1995. In 12 sites outside these major centres, HIV prevalence increased from less than 1% in 1988 to 13% in 1997. In two towns near the Uganda border, prevalence rates were close to 35% in the late 1990s. By 2001, it was estimated that 2.5 million people were living with HIV/AIDS. Of these, 2.3 million were adults, corresponding to an adult prevalence rate of 15%. Women constituted almost 60% of infected adults. Heterosexual transmission was the predominant mode, with very high rates of HIV prevalence among female sex workers tested.

The response to the epidemic in Kenya has been limited in both scope and intensity. There is little overt media attention, a condom social marketing programme is modest in impact, and services such as VCT and PMTCT are available at only a small proportion of potential service delivery points. In 2003 the National AIDS Control Programme announced plans to provide ART at 19 hospital sites, mostly provincial and larger district hospitals, with an interim coverage target of 40 000 patients.

Malawi

The trends in Malawi are very similar to those in Kenya. HIV surveillance of those attending antenatal clinics started in the major urban centres in the mid-1980s and showed an increase in those HIV-seropositive from 2% to 30% between 1985 and 1993. Testing was undertaken at rural centres a little later, and in 1998 showed rates between 14.5% and 20.9%. In 1998, data combined from all 19 sentinel surveillance sites showed that 14% of pregnant women under 20 years were infected, and a peak prevalence of 28% was found in women 25 to 29 years of age. By 2001, it was estimated that 850 000 Malawians were living with HIV/AIDS, of whom 780 000 were adults, corresponding to an adult prevalence rate of 15%, with more women than men infected.

Rwanda

The distribution of HIV prevalence changed as a result of the 1994 genocide and civil war. Previously the epidemic had been heavily concentrated in urban areas, notably Kigali, where as early as 1988 32% of women attending antenatal clinics were infected. Subsequently, prevalence rates were little different between urban and rural areas. By 2001, it was estimated that 500 000 people were infected, of whom 430 000 were adults, corresponding to an adult prevalence of 8.9%, with significantly more women than men infected.

South Africa

National HIV sentinel surveillance at antenatal clinics started in 1990, and showed a rapidly rising trend, from 0.7% in 1990 to 10.5% in 1995, 22.8% in 1998 and 24.5% in 2000. In the three most heavily infected provinces – KwaZulu-Natal, Mpumalanga and Gauteng – rates are still rising,

reaching 36.5% in 2000, while in other provinces rates appear to be stabilizing between 11.2% and 27.9%. By 2001, the estimated number of those living with HIV/AIDS reached 5 million, of whom 4.7 million were adults, corresponding to an adult prevalence rate of 20.1%, with more women than men infected.

The country has also experienced one of the most comprehensive and effective condom distribution programmes, using a combination of social marketing and free distribution through government clinics, and both creative NGOs and occupational health schemes have pioneered prevention, care and more recently treatment for HIV/AIDS patients. In large part due to the political pressure applied by HIV/AIDS activists, the government dramatically reversed its previous posture on ART, and has now undertaken to provide publicly funded treatment to all in need.

Thailand

The HIV/AIDS epidemic in Thailand appears to have peaked, and at a relatively low rate, thanks to an effective national response. High rates of HIV infection were first reported among injecting drug users (IDUs) and female sex workers (FSWs) and their clients. While the surveillance data indicate that HIV prevalence has declined since the mid-1990s among FSWs and their clients, rates among IDUs tested have remained between 20% and 50% both in and outside Bangkok. The 2001 estimate is that 670 000 Thais are infected, of whom 650 000 are adults, corresponding to an adult prevalence rate of 1.8%, with twice as many men as women infected.

Thailand is celebrated as one of the countries to respond effectively with a comprehensive national programme. After a brief period of denial, a national system of surveillance was introduced and rapidly disseminated to all 76 provinces. Policies of public education and condom promotion (including a policy of 100% use of condoms in brothels) have had a dramatic effect on behaviour, with a reduction in the proportion of adult males visiting brothels from 25% to 10%.

Uganda

In Africa, Uganda was one of the first countries in which AIDS was recognized as a new disease configuration (popularly known as “slim disease”) and the synergy with TB noted. In Kampala, HIV infection among antenatal clinic attendees rose from 11% in 1985 to 25% in 1990 and 29.4% in 1992. From 1993, rates in Kampala fell, reaching 11.25% in 2000. There was a similar fall in sites outside the major urban centres, from lower peaks to still lower recent observations. The direct evidence on prevalence is supported by evidence on behaviour change, including a rising mean age of first intercourse for girls from 15.9 years in 1989 to 16.5 years in 1995, and increasing use of condoms in sex with non-regular partners. By 2001, it was estimated that there were 600 000 Ugandans living with HIV, of whom 510 000 were adults, corresponding to an adult prevalence rate of 5.0%. Roughly 20% more women than men were infected.

It is not totally clear how the dramatic reduction in national prevalence, from a peak of 13% to the current 5%, was brought about. President Museveni is widely credited with being the first of the few African leaders who have openly urged behaviour change as a means of curtailing the epidemic, thereby creating a climate for public discussion of sexual behaviour and its consequences, and legitimizing sex education among the youth. Uganda was early in adopting the model of a National AIDS Council to coordinate an intersectoral response. However, it is unclear how much programme effort contributed to behaviour change, and how much was the spontaneous response to the experience of seeing a generation decimated by the disease.

Service delivery issues

Auspices of ART service delivery points

Understandably, given that they were still considered as pilots, the ART sites visited were generally not typical service delivery points of the countries concerned. There were often exceptional features present, such as external financial support, a research or demonstration-project motivation, programme-specific management arrangements, a considerable expatriate presence and sometimes a different financing regime. A much larger proportion of ART provision was managed by international NGOs, research centres and occupational health schemes than was true for the general run of health services. In Rwanda, faith-based organizations, which provide some 30% of general health services, were not yet involved in providing ART. In most countries, private practice was a significant source of supply of antiretroviral drugs, but this activity was unregulated and unrecorded. With some exceptions (Botswana and Thailand), national governments had not assumed responsibility for financing and providing ART services, so that even when services were provided from a public-hospital base, they were funded and managed by an external agency, giving a distinctly self-enclosed character to the ART programme. These aspects of the sites visited are summarized in Tables 2.1 and 2.2

Table 2.1 Ownership of the parent facility where ART was provided

Country	Government	FBO	Private	Total sites
Botswana	3	-	2	5
Cambodia	3	-	-	3
Kenya	4	1	-	5
Malawi	2	-	-	2
Rwanda	5	-	1	6
Thailand	6	1	-	7
Uganda	3	1	1	5
Totals	26	3	4	33

Table 2.2 Exceptional features of ART sites visited

Country	External funding support	Research/Demo motivation	Special fees for ART patients	Special management	Expatriate presence
Botswana	2	1	-	-	4
Cambodia	3	2	-	-	3
Kenya	4	5	4	5	5
Malawi	2	1	1	2	2
Rwanda	4	2	4	4	3
Thailand	5	2	-	-	1
Uganda	5	2	2	1	2
Totals	25	15	9	12	20

Excluding occupational health schemes and private practice, most ART sites were hospital-based. There were a few cases of ART provision from primary-care facilities (health centres and clinics),

and more examples are known than were actually visited. In terms of location, sites were more frequently found in the capital and other major cities than in rural locations. These characteristics of the sites visited are summarized in Table 2.3.

Table 2.3 Service settings and location of ART sites

Country	Referral hospital	District hospital	PHC	Capital city	Other urban	Rural
Botswana	2	2	1	2	2	1
Cambodia	1	2	-	2	1	-
Kenya	2	2	1	-	3	2
Malawi	1	1	-	1	1	-
Rwanda	2	1	3	5	1	-
Thailand	2	4	1	2	2	3
Uganda	3	2	-	3	2	-
Totals	13	14	6	15	12	6

Organization of service delivery at sites surveyed

There was considerable diversity in the patterns of service delivery. The core element in all cases was an outpatient clinic attended by patients receiving antiretroviral drugs, but examples of dedicated ART clinics were rare. Most frequently, ART provision was combined with other services, such as the management of opportunistic infections in a general HIV/AIDS clinic, management of other specific conditions, such as STIs and TB, or general outpatient services. In some facilities, short-course administration of antiretroviral drugs was given for the prevention of mother-to-child transmission (PMTCT). These programmes were not treated as ART, but the few examples encountered of PMTCT-plus programmes (which regard mother, partner and child as the unit for long-term care) were treated as ART.

Since provision of ART is contingent on a prior determination of HIV status, in some locations voluntary counselling and testing was offered as part of the HIV/AIDS service at the same site, while in others it was offered under other auspices at the same location or in a few cases as a free-standing off-site programme. Furthermore, the responsibilities of clinicians staffing the ART clinic frequently included management of inpatients in the same facility, falling in a range of categories: those with a definitive or presumptive diagnosis of HIV infection, HIV/AIDS patients and those with related conditions such as TB, or in some cases general inpatients.

The arrangements at the sites surveyed are summarized in Table 2.4. The specialization of function was carried furthest in the large hospital settings, and integration of ART with other services was most complete in primary care settings and general practice. These large variations in the organization of services, and the distribution of responsibilities among staff, complicate comparisons of staffing ratios across the sites visited and should be borne in mind when interpreting the data presented further below.

Table 2.4 ART service delivery patterns

Country	ART only	HIV only	HIV+, TB, STIs	General outpatient services	VCT onsite	VCT offsite
Botswana	2	1	-	2	3	2
Cambodia	-	-	-	3	3	-
Kenya	-	4	1	-	4	1 check
Malawi	-	2	-	-	2	-
Rwanda	1	2	1	2	6	-
Thailand	-	2	-	5	7	-
Uganda	1	3	-	1	5	-
Totals	4	14	2	13	30	3

Principal features of ART regimens, and dependence on laboratory tests

In accordance with WHO guidelines, all the sites except one used a triple-drug regimen covering at least two of the three broad classes of antiretroviral drugs to achieve viral suppression and minimize the emergence of drug-resistant strains of the virus. Typically there were two standardized first-line regimens, selected according to risks attendant on concomitant TB infection or possible pregnancy, and a standardized second-line regimen consisting of totally different drugs. The specific drug combinations varied between sites and over time as availability and relative prices changed.

There was more diversity in the frequency of clinic attendance and the degree of dependence on laboratory test results for the decision to initiate treatment and monitor treatment outcomes. These two issues are related, because some visits and revisits were necessitated by the need for patients to be tested and then reappear for consultation once the results were known. In some cases, where laboratory facilities were available only offsite, there was a considerable interval between taking the specimens and the return of results.

In general, the best-equipped sites with the most accessible technology used viral-load testing and CD4 counts most frequently to inform clinical decision-making. Those with less access to laboratory facilities took advantage of the WHO guidelines, which make testing desirable but not essential, and relied instead on clinical staging to make the decision on initiation of ART and monitored weight and other vital signs to gauge progress.

It was noted that in those programmes where patients paid all or most of the costs of medication and laboratory tests, use of monitoring tests depended on a patient's ability to pay; as a consequence, they were frequently omitted. Viral-load monitoring in particular, as the more expensive test, was most frequently discarded either by programmes or by individual patients.

In the MSF programme in Thyolo District, Malawi, to further the demonstration that ART could be given in severely resource-constrained settings including primary care, the CD4 count was used for monitoring but not for clinical decision-making. It was found that approximately 10% of patients initiated on ART on the basis of clinical staging had CD4 counts greater than 200, the customary threshold. Availability and use of laboratory tests at the sites surveyed is summarized in Table 2.5.

Table 2.5 Availability and use of laboratory tests in ART management-selected sites

Country	Availability of test				Use of test for patient			
	CD4		Viral load		Initiation		Monitoring	
	onsite	offsite	onsite	offsite	CD4	Viral load	CD4	Viral load
Botswana								
Gaborone PGP		X		X	X		X	X
Jwaneng MH		X		X	X		X	X
PMH	X		X		X		X	
Cambodia								
P Sihanouk H		X			X		X	
Kenya								
Homa Bay H		X		X	X	X	X	X
Moi H	X		X		X	X	X	X
Mosoriot HC		X		X	X	X	X	X
Nazareth H		X		X	Dependent on clinical signs			
Malawi								
Thyolo DH	X				Research monitoring only			
Rwanda								
Biryogo S-MC		X		X	X		X	
Butare CH		X		X	X	X	X	X
Faycal H		X		X	X	X	X	X
Kigali CH	X		X		X	X	X	X
Kimiranko HC		X		X	X		X	
San Francisco HC		X		X	X		X	
Thailand								
Mae On DH		X			X		X	
Uganda								
Arua RH	X				X		X	
JCRC	X		X		X	X	X	X
Masaka RH		X			X		X	
Mildmay	X				X		X	
Nsambya H	X			X	X	X	X	X

CH = hospital centre (*centre hospitalier*); DH = district hospital; H = hospital; HC = health centre; JCRC = joint clinical research centre; MH = mine hospital; PGP = private group practice; PMH = Princess Marina Hospital; RH = regional hospital; S-MC = socio-medical centre

The frequency of patient attendance was also related to the intensity of counselling prior to admission to treatment and the arrangements for promoting adherence. Some sites required a number of counselling visits before starting treatment, to assess both the commitment of the patient and the depth of understanding of the information conveyed in the counselling sessions. Once treatment was initiated, the intervals at which patients were required to come back were generally extended, from two weeks at the outset (when complications of treatment, including the immune reconstitution syndrome, might be expected to appear), to one month when treatment was well established, or even two months in some cases. Some individuals who resided at considerable distances from the clinics were allowed to attend less frequently on these grounds also. The standard schedules for clinic attendance for those sites from which these data were obtained are summarized in Table 2.6.

Table 2.6 Patient contact frequency at selected sites (reference point is first visit at which ART was prescribed)

Country	Required visits before starting ART	First follow-up visit	Second follow-up visit	Third follow-up visit	Fourth follow-up visit	Total scheduled visits, year 1
Botswana						
Serowe DH	1	2 weeks	1 month	1 month	3 months	12
Cambodia						
Takeo DH	1	1 week	2 weeks	1 month	1 month	12
Kenya						
Homa Bay H	3	2 weeks	1 month	1 month	1 month	12
Malawi						
Thyolo DH	1	2 weeks	2 weeks	1 month	1 month	15
Rwanda						
Faycal H	1	1 week	1 month	2 months	2 months	7
Kigali CH	1	1 week	2 weeks	1 month	1 month	14
Thailand						
HIV NAT	1	1 month	3 months	3 months	3 months	5
Mae On DH	1		1 month	1 month	1 month	12
Uganda						
Arua RH	3	2 weeks	1 month	(1 month x counsellor, 3 months x clinician)		
Masaka RH	2+?	1 week	1 week			

CH = hospital centre (*centre hospitalier*); DH = district hospital; H = hospital; HIV NAT = Netherlands/Australia/Thailand Research Collaboration; RH = regional hospital

Note: Masaka RH required 1+ visits with CBO as well as clinical assessment before initiating ART. PHC sites in Rwanda recorded 28, 40 and 80 contacts in the first year, as DOT was used for initial periods of two to eight weeks.

Drug procurement, distribution and dispensing

Although this topic was not specifically addressed by any of the data-collection instruments, the impression was gained that, other than in Rwanda, where the *Centre d'approvisionnement en médicaments du Rwanda* (CAMERWA) handled antiretroviral drugs alongside all other drugs, there were very few centralized procurement operations in place in the countries visited. Botswana was a partial exception, in that the government programme had standing arrangements to obtain drugs from partners in ACHAP (African Comprehensive HIV/AIDS Partnership, a joint undertaking of the Government of Botswana, the Merck Company Foundation and the Bill and Melinda Gates Foundation) and other sources, and to distribute them to the sites participating in the programme. Elsewhere, each site had its own arrangements for procurement, often linked to specific funding sources or traditional supply chains, such as the in-house system of MSF (France) or the FBO suppliers. In Kenya, the Mission for Essential Drugs and Supplies (MEDS) supplied a network of mission and NGO facilities.

Frequently at the facility level, antiretroviral drugs were stored and dispensed within the clinic rather than in the general hospital pharmacy. This no doubt reflected the separate financing and accountability arrangements that often applied to ART programmes, concerns about security and managing drug stocks to prevent the stock-outs to which the general pharmacy was prone, and the close relationship between dispensing and adherence counselling. Thus in a number of programmes the actual dispensing of drugs was performed by clinic-based nurses or nurse counsellors, in conjunction with a check on the consumption of the previous supply and constant reinforcement of messages about the importance of strict adherence to the dosage schedule. However justified, where it happened, the separation of antiretroviral drug handling and dispensing from the general pharmacy routines reinforced the impression of the ART programme as a distinct enclave within the larger health-care enterprise.

Adherence to treatment

Because current antiretroviral drugs suppress viral replication but do not eliminate the reservoirs of infection, if patients stop taking their drugs the symptoms recur. Both to achieve full viral suppression in the individual and to prevent the emergence of drug-resistant strains of the virus, it is necessary that very high levels of adherence to the drug schedule be achieved by all patients for the rest of their lives. This is a very demanding requirement in the light of data on suboptimal adherence to other lifelong therapies for conditions such as hypertension or diabetes in rich countries, or the experience of adherence to the more time-limited DOTS for tuberculosis in developing countries. Since patients commonly discontinue taking drugs either because they feel better when treatment begins to take effect, or because they attribute unwelcome side effects to the drugs (correctly or incorrectly) or for other reasons, a constant effort is needed to maintain high levels of adherence.

ART programmes operate a number of strategies, sometimes simultaneously, to achieve high levels of adherence. The selection of more palatable drug formulations that need to be taken, sometimes in a combination pill only once or twice a day, is one important measure. Intensive counselling of patients, both before they start medication and then on each visit for re-supply, is widely practised. Some programmes rely on adherence to prophylactic medication for opportunistic infections (which can be monitored by the occurrence of those infections) as a predictor of adherence to ART. Some programmes provide mechanical aids in the form of pillboxes with divisions for the daily dose, and counting of leftover pills at each re-supply visit. Most rely on some form of external support to the patient, which can range from direct observation of pill taking to less formal “buddy” arrangements implying more intermittent contact with the patient. (The role of communities in supporting patients on ART is discussed further below). At some sites, social and nutritional support was made available to patients on ART. Practices reported from the sites surveyed are shown in Table 2.7.

Table 2.7 Support to adherence, selected sites

Country	Intensive counselling	Many visits	Buddy system	Pill count	Pill boxes	Strenuous	Defaulter tracing	
							Limited	None
Botswana								
Jwaneng MH	X							
	1 st visit only							
Serowe H			X	X			X	
Kenya								
Homa Bay DH			X	X		X		
Moi H	X		X	X	X	X		
Mosoriot HC	X		X	X	X	X		
Nazareth H	X		X	X				X
Nyanza RH			X	X			X	
Malawi								
Thyolo DH			X	X		X		
Uganda								
Arua RH	X	X	X	X		X		
Masaka RH	X	X	X	X		X		
Nsambya H			X	X				X

DH = district hospital; H = hospital; HC = health centre; MH = mine hospital; RH = regional hospital

Reactions to missed appointments varied considerably between programmes. At some sites, the location of residence was meticulously recorded, transport was available and dedicated staff would follow up defaulters and encourage them to continue with their medication. In others, particularly where patients were drawn from a wide geographical radius, or where in fee-paying programmes it could be assumed that the most likely reason for default was inability to purchase the next month's supply of drugs, little or no effort was made to follow up defaulters. Other programmes fell between these extremes, endeavouring to maintain contact with all patients admitted to treatment but handicapped by lack of staff or transport to fully implement defaulter tracing. In the MSF programme in Homa Bay, Kenya, where medication was provided free to patients, the most common reason for default was that the patient was too sick to come to the clinic, followed by insufficient money to pay for transport.

Geographical and financial barriers to access

At the time of the site visits, ART was usually available at only a few locations in each country, while the distribution of HIV infection was country-wide (though not necessarily uniform: for example, in Botswana seroprevalence among pregnant women exceeded 50% in certain eastern districts, but was between 20% and 30% in more sparsely populated western and central districts). As a result, large segments of the population, particularly but not exclusively from rural areas, were precluded by geographical barriers from access to ART services.

Some programmes limited admission to treatment programmes to residents of the district concerned or even a more narrowly defined geographical area (for example, in Nairobi, Kenya, patients had to be resident in the specific slum area to qualify for admission to certain programmes). Proximity of residence to the service delivery point was sometimes assumed to be a necessary condition to secure good adherence. Other programmes chose not to exclude patients resident at a considerable distance, either because they sympathized with the needs of patients without a nearby service, or by default because they lacked the means or motivation to verify reported places of residence. There is some suggestion that patients who travelled long distances to the service delivery point were more likely to drop out, though in some cases they are likely to have switched to a more accessible outlet as the number of ART centres expanded.

There were some examples of patients who actually preferred to visit a more geographically distant ART site than that most accessible to them, presumably on the grounds of avoiding disclosure of their serostatus to family, neighbours and workmates. For example, when the occupational scheme was started at Jwaneng mine in Botswana, patients were offered – and some took – the choice of consultations at the mine hospital or with selected private practitioners as far away as Gaborone and Francistown. Other examples of this preference were encountered in Uganda and Thailand.

The burden of patient payment for the costs of treatment varied considerably between sites, and sometimes between different patients at the same site. For example, in Rwanda at the Central Hospital, Kigali, 50 patients benefited from free ART under the ESTHER project, while a further 1000 patients paid at the rate of USD 28 monthly for drugs, USD 12 for a CD4 count, and USD 24 for a viral-load estimation.

The sites that provided treatment completely free at the point of delivery were either those that had adequate external resources (such as the MSF projects in Cambodia, Kenya, Malawi and Uganda), or those participating in national programmes to provide free treatment (government hospitals in Botswana, and in South Africa, not yet implemented at the time of the site visits), or occupational health programmes where the employer covered the medical care expenses of employees and sometimes of their immediate dependants (examples in Botswana, Rwanda and South Africa).

At the other extreme, full-cost fees were usually levied on patients attending private practitioners, though in some cases the burden might be mitigated by private or occupational insurance. In

countries without a policy of free treatment (such as Kenya and Malawi) patients receiving services from public hospitals usually paid the full cost of drugs and the customary fees for consultations and laboratory tests, which may or may not have corresponded to the full cost of services. At mission hospitals, academic and research institutions, and other situations where considerable discretion in financial management was vested in the programme director but where external grants did not allow for free treatment to all patients, the costs of treatment were subsidized to varying degrees, generally with the aim of ensuring that those who could afford it paid standard fees and those who needed treatment but were unable to afford the standard fees had them waived partially or in full.

The standard fees themselves may have been subsidized by externally funded inputs of drugs, equipment and staff time. In some centres, there was a quota for the number of patients given access to free treatment by external grants, and a waiting list of patients unable to pay out-of-pocket hoping to be admitted to the free treatment programme.

It is clear that, where they applied, full-cost payments for drugs, consultations and laboratory tests represented an insurmountable barrier to access to ART for those with average earnings or less. Even though the prices of antiretroviral drugs and laboratory tests were in steep decline at the time of the site visits, the annual costs still represented a high multiple of average incomes. Moreover, even when user fees did not totally deter use of services, other effects of fee payments recorded during the site visits had adverse consequences for adherence to treatment. At certain sites in Uganda, patients' difficulties in paying for drugs led to purchase of either too few drugs to last a month, or only the least-expensive components of the triple-drug regimen. The decision on whether patients received viral load and CD4 tests before starting and during treatment was governed as much by ability to pay as by clinical information needs. In Kenya, only half the patients ever initiated on ART were still attending one fee-paying site, despite a flexible application of partial subsidies (other factors contributed to the low continuation rate at this site).

Influence of stigma on patient behaviour

While geographical and financial barriers were highly effective in curtailing the demand for ART, there was another factor at work that was even more powerful. In all countries, patients were reluctant to acknowledge that their symptoms might be caused by HIV/AIDS, because of the stigmatizing reactions of family, friends, co-workers and employers to this diagnosis. In order to avoid encountering reactions of hostility, ostracism and rejection, many patients preferred not to know their serostatus, and avoided seeking treatment when it could not be passed off as treatment for "ordinary" illnesses.

One important consequence of stigma was that the take-up of voluntary counselling and testing programmes was very modest. The figure was frequently quoted that fewer than 1 in 10 infected persons were aware of their infection. Since a confirmed diagnosis of HIV infection is a prerequisite for entry to ART programmes, the reluctance to be tested constituted an important bottleneck.

The widespread fear of stigma was held accountable for the relatively low uptake of the PMTCT programme in Botswana. Despite the service's being available at every antenatal centre in the country, only 26% of pregnant women availed themselves of the opportunity to protect their unborn child. Over half refused to take a test, and nearly half of those who tested positive did not go on to accept treatment.

By extension, there was a reluctance to disclose HIV-positive status, even among those who had been tested and were on treatment. At one ART site in Kenya, the programme director bitterly recounted that he had been unable to persuade a single patient to publicly disclose his or her status and undertake educational activities among the community. Furthermore, he was aware of the deliberate intent of the majority of young women that he treated not to disclose their serostatus to

intimate partners, for fear that it would nullify their ambitions to marry and have children. Lack of disclosure carries the further implications that the patient cannot benefit from community support, and is unlikely to discuss or practise safe sex with partners. If the patient has not disclosed to close family members, he or she may have difficulty in taking pills regularly in view of the family.

Community participation in HIV prevention, care and treatment

The extent to which ART sites were linked with, and benefited from, strong links with community organizations varied considerably between countries and individual sites. With minor exceptions, these links were weak or absent at most sites in Botswana and Kenya. In Cambodia, Malawi, Thailand and Uganda there were instances of strong community linkages.

Among the factors that discouraged community participation were the recruitment of patients from a large geographical radius, high levels of stigma in the community and receiving treatment from for-profit providers. At one site in Kenya, it was explained that there was no natural community in the immediate vicinity of the hospital. The land was divided up into tea estates that were worked by migrant labourers from distant districts, whose movements were restricted by the estate owners and where visitors were discouraged. It was considered a major achievement when a health educator was allowed access to a number of these estates to talk about HIV/AIDS and the availability of treatment.

At another site, the hospital served an amorphous population of half a million, mostly working in the much-expanded industrial zone, but a satellite health centre in a rural part of the same district was surrounded by a more conventional rural community. There it had been possible to induce a local chief to donate land, which was cultivated by women receiving ART and thereby met their income and nutritional needs.

By contrast, there were some powerful examples of communities assisting in the care and treatment of people living with HIV/AIDS in Uganda. At the Masaka Regional Hospital, an ART programme was established in 2002 under the “Uganda Cares” initiative, a partnership of the Ministry of Health, the Uganda Business Coalition on HIV/AIDS, and an international AIDS organization, AIDS Healthcare Foundation/Global Immunity. All patients enter the programme by referral from partner organizations, TASO (The AIDS Support Organization), Masaka, Kitovu Mobile Homecare Services and the VCT centre at the hospital. Recently some children have been admitted from AIDCHILD, an orphanage.

These community organizations have not only supported HIV/AIDS patients at earlier stages of their illness, but they have helped prepare them for ART treatment. Should they miss an appointment, it is the community organizations that follow up, that know where the patient lives and that make the effort to bring the patient back into compliance with the treatment schedule. TASO employed a total of 45 persons in Masaka, of whom 14 were community-based counsellors covering the entire spectrum of HIV/AIDS care. There were also unpaid volunteers, who were motivated to work in the programme by the support they themselves had received as people living with HIV/AIDS.

At the Arua Regional Hospital, where MSF (France) managed the ART delivery programme, TASO had provided support in setting up the counselling unit and in training the treatment counsellors. NAGWOLA (the National Community of Women Living with AIDS) has about 20 trained counsellors, many themselves on treatment, educating patients and the community about HIV/AIDS matters, including ART. NAGWOLA also has a major role in nutrition support: it has an office on the hospital site and receives support from the World Food Programme to provide nutrition support to patients in need.

In Malawi, the MSF project in Thyolo District has strong community links. The local authorities and civil society organizations are enlisted in HIV-prevention activities and traditional healers are involved in treatment and education concerning STIs, while traditional birth attendants are involved in PMTCT. There is a home-based care programme, which provides access to treatment and prophylaxis of opportunistic infections, nutritional support for the malnourished and socially destitute, and palliative care for the terminally ill. Home-based care is professionally organized but depends on dozens of volunteers, some but not all of whom are HIV-positive. VCT is available at three locations within the district; the plan is to extend it to a further six centres.

Patients found to be HIV-positive may be referred to the home-based care programme or to the ART clinic if warranted by the progression of their illness. After initiation of treatment at the district hospital, some patients may obtain their maintenance therapy at outlying health centres nearer to their place of residence. The MSF programme is very consciously attempting to develop a model that will make the continuum of care, including ART, accessible, affordable and culturally acceptable for all people living with HIV/AIDS in the rural areas of one of the poorest countries in the world.

In both Cambodia and Thailand, ART sites made extensive use of volunteers drawn from groups of PLWHA as adherence counsellors. They were also given the role of community educators, and supported the treatment programme by visiting patients at home for counselling, checks on drug administration and missed clinic appointments. In some cases, patients' clubs were engaged in income-generation and nutritional-support activities. In Rwanda, no community involvement was reported from some sites, but at others PLWHA and other volunteers had a role in nutritional and psychosocial support and in community education on HIV prevention. At one site, community members were involved in the selection of patients to receive ART.

HRH issues

Workload and staffing

In general, ART was found to be a highly labour-intensive activity, and moreover, skilled labour-intensive. The reasons for this include the fact that each patient attends the treatment centre many times per year, and that (at least when first encountered) many patients are severely ill. Comparisons between different sites are complicated by the observations made above: that the caseload composition varied across clinics; that none of the sites had reached full capacity and therefore were not achieving economies of scale or an optimum balance of staff to patients; and the available types and relative numbers of different categories of health workers differed between countries. Therefore neither the measures of workload constituting the numerator nor the measures of staff constituting the denominator of the patient/staffing ratio are strictly comparable across sites. Table 2.8 should be interpreted with this caution in mind.

Table 2.8 Workload and staffing at selected sites

Country	Number of patients		Monthly attendances	Staffing in full-time equivalents				
	Total	Receiving ART		Doctors	COs/MAs	Nurses	Counsellors	Others
Botswana								
PMH	NA	4818	3006	7		23	1	8
Serowe DH	NA	833	700–800	2		5		5
Cambodia								
Calmet H	150	NA	125	1.4		4		
P Sihanouk H	935	NA	2000	4.3		2	2	
Kenya								
Homa Bay H	2128	704	1377	1	5	4	2	8
Moi RH	1179	1073	NA	3	4	4	1	10
Mosoriot HC	400	140	300	0.2	1	1	1	
Nazareth H	NA	110	300	2		1.5	2	1
Malawi								
Thyolo DH	NA	250	521	1	2	2	2	2
Thailand								
HIV NAT	1510	NA	500	1.5		3.3		4.8
Mae On DH	64	NA	NA	0.4		0.5		1
Thonburi H	800	NA	750	1	0.5	1.5	1	4.5

DH = district hospital; H = hospital; HC = health centre; HIV NAT = Netherlands/Australia/Thailand Research Collaboration; PMH = Princess Marina Hospital; RH = regional hospital

Table 2.8 is purely descriptive; it summarizes actual observations at the sites but in no sense encapsulates a recommendation as to staffing levels that ought to apply. At two of the sites in Kenya, programme directors had formulated recommended staffing plans per thousand patients (in both cases the patients were assumed to be a mix of those receiving ART and those diagnosed as HIV seropositive but waiting to begin ART). Although the composition varied, each plan assumed 9 to 10 staff per 1000 patients, consisting of one physician, one or two clinical officers, two nurses and five other staff, including counsellors.

Task assignment

Assignment of tasks among different categories of personnel differed considerably across sites, but there were some prominent trends. At all sites visited, ART was initiated by a doctor or clinical officer, and in almost all sites the initiating clinician was in fact a doctor. Clinical officers – non-graduates trained to diagnose and prescribe – were found initiating treatment at some sites in Kenya, Malawi and Uganda. Sites in other countries either did not have these or equivalent categories of personnel, or did not use them in the ART activities observed. Some sites used nursing and other paramedical staff for follow-up consultations, but at others (including all sites in Botswana and South Africa) all consultations were with doctors.

Some of the greatest variations occurred in the role of pharmacists, or pharmacy technicians. At a number of sites, particularly in Kenya, Malawi and Rwanda, they did not perform their traditional role as dispensers of antiretroviral drugs, since drug ordering, storage and dispensing were part of the special project-management arrangements at those sites. At the opposite extreme, sites in Botswana not only dispensed antiretroviral drugs through the main hospital pharmacy, but also

relied on pharmacists as the principal advisers to patients on adherence to treatment. Pharmacists also had a role in monitoring adherence at certain sites, clearly related to the dispensing function.

The single most frequently engaged category of staff was nurses, but they were not confined to traditional nursing roles. They were frequently employed as counsellors, and occasionally as clinicians for repeat visits by stabilized patients; in Botswana they frequently functioned as translators for expatriate medical staff.

Counsellor roles were filled by three categories of personnel: purpose-trained counsellors or social workers, usually in small numbers; nurses, with or without specific additional training; and lay counsellors, often volunteers, sometimes engaged by community-based organizations (CBOs) rather than the health facility itself, including among them a high proportion of people living with HIV/AIDS. This use of PLWHA was especially pronounced in Cambodia, Thailand and Uganda. In Botswana, where the voluntary tradition is not strong and where nurses were reluctant to modify traditional roles, the government introduced a new cadre of HIV/AIDS counsellors, emergency-trained and drawn from recent high school graduates, but this device was only partly successful, since many had alternative career aspirations. Table 2.9 examines the assignment of tasks among various categories of health workers at selected sites.

Table 2.9 Assignment of tasks at selected sites

Country	Decision to begin ART	Initial adherence	Treatment of OIs	Dispense ARVs	Vital signs	Follow-up consultations	Follow-up counselling, adherence monitoring
Botswana							
Jwaneng MH	Dr	Dr	Dr	Ph	Dr	Dr	Debswana
PMH	Dr	Ph	Dr	Ph		Dr	N
Serowe DH	Dr	Dr, Ph	Dr	Ph	N	Dr	Cllr, Ph
Kenya							
Homa Bay H	Dr, CO, Cllr	Cllr	Dr, CO	N		Dr, CO, N	N, Cllr
Moi H	Dr, CO	Dr, CO	Dr, CO	N	N	Dr, CO	N, Cllr
Malawi							
Thyolo DH	CO	N, Cllr	CO	N, Cllr	N	CO, Cllr	CO, N, Cllr
Rwanda							
Butare CH	Dr	Dr, CO	Dr	SW	CO	CO	N, CO
Faycal H	Dr	Dr, N	Dr	N, SW	Dr	Dr	Dr, N
Kigali CH	Dr	N, SW	Dr	N	N, SW	N	N, SW
San Francisco HC	Dr	N	Dr	N	N	N	N, Ph
Uganda							
Arua RH	Dr	Cllr		Cllr			Cllr
Masaka RH	Dr	Cllr		N, Cllr			N, Cllr
Mildmay	Dr	Cllr		Ph			Cllr
Nsambya H	Dr	Dr		Ph			Dr

CH = hospital centre (*centre hospitalier*); DH = district hospital; H = hospital; HC = health centre; MH = mine hospital; PMH = Princess Marina Hospital; RH = regional hospital

Dr = Physician, CO = Clinical Officer, N = Nurse, Ph = Pharmacist, Pharmacy Technician, Cllr = Counsellor. Debswana refers to the computerized tracking system used in the occupational health scheme to alert doctors and patients to missed appointments.

Incentives

There were considerable variations across sites in the extent to which staff engaged in ART were provided with monetary and nonmonetary incentives. Two broad patterns can be discerned, though there were exceptions to each. Generally, in those countries where there was a national commitment to provide ART to all clinically eligible patients, and where public employees were largely dependent on salaries for their incomes (both these conditions appear to apply to Botswana, South Africa and Thailand), no specific incentives were given. Staff members were assumed to be adequately motivated by their standard conditions of service and their innate sense of altruism. This motivation was also specifically remarked at certain sites in Rwanda.

In other countries where ART was piloted largely by NGOs with external funding, which largely coincided with those countries where official salaries were widely deemed insufficient to provide a living wage and were therefore supplemented by various other forms of income generation (Cambodia, Kenya, Malawi and Uganda), it was the norm that staff employed by NGOs were paid at rates considerably higher than those offered by the government, and that government staff (usually engaged by the projects on a sessional basis, as in Cambodia and Kenya) were paid extra for what were considered exceptional duties. In Malawi, the MSF project based on Thyolo District Hospital directly hired its own staff at well above government rates, but in addition paid salary supplements to all government health staff in the district in order to motivate the health workers and minimize discrimination between health workers of the same type engaged in different duties.

In both contexts, there were nonmonetary incentives in the form of opportunities for training and professional advancement. Particularly at the research-motivated sites, encouragement was given to locally recruited professional staff to join research teams, to write journal articles and to attend international conferences. A further set of motivating factors that must be recognized include the charismatic leadership at several of the pilot sites and the personal self-fulfilment, even exhilaration, that comes from participating in a team of successful pioneers in a manifestly life-saving operation.

It is important to recognize the contribution of these motivations to the achievements of the pilot sites, because it will be difficult to replicate them in future. Inevitably, as ART becomes routine, the charismatic leadership will be diluted and the intrinsic rewards will become wasting assets. Staff will understandably look more to extrinsic rewards, and this may pose a threat to scaling up endeavours, especially in those countries such as Kenya and Uganda where the future plans envisage a much greater participation of public providers, but little flexibility exists to provide rewards within the official terms of service. At one MSF project, it proved difficult to draw clinical officers staffing the outpatient department into in-service training in the ART clinic (where treatment was free to patients) because, it was surmised, they were reluctant to forgo the informal fees they were able to generate as supplementary income in the general outpatient department.

Demotivation of health workers

It also must be acknowledged that factors negative to the motivation of health workers still attach to HIV/AIDS. Health workers are not immune to pervasive community attitudes of fear and willingness to stigmatize infected individuals, including colleagues. The element of fear is sometimes sharpened by misinformation on the true extent of occupational risk, but it also has a realistic basis wherever (as is common) protective clothing, sharps disposal and post-exposure prophylaxis are absent or in short supply.

The overall shortage of human resources for health

Each of the countries visited, with the possible exception of Thailand, claimed a severe shortage of trained health workers, though the precise manifestations of the shortage differed among them. In

most of the countries of middle Africa, decades of erosion of the real value of public-sector salaries had discouraged recruitment into the public service and retention of those already employed. Emigration of trained professionals and resignations to take up alternative employment prompted high rates of attrition, even before the impact of the HIV/AIDS epidemic itself. In the 1990s, significant losses from the workforce were inflicted by AIDS deaths and prolonged sickness absence. In some countries, the shortages were exacerbated by misguided civil service “reforms” taking the form of crude retrenchments or hiring freezes. In Cambodia and Rwanda, the legacy of genocide contributed to the shortage of trained personnel.

In all the low-pay environments, the workforce responded by taking time out of official working hours for other income-generating activity, usually private practice. In this context, ART projects in Cambodia and Kenya wishing to hire government-employed doctors could do so by offering a sessional fee sufficient to tempt them away from their afternoon private practice.

In Botswana and South Africa, which paid relatively high salaries relative to neighbouring African countries, the shortage arose out of a mismatch between the employment opportunities generated by a buoyant economy and the volume of professional training conducted domestically. As a consequence, both countries have become highly dependent on external recruitment of health professionals, particularly from neighbouring countries (thereby worsening the shortages in those countries in a beggar-thy-neighbour spirit, though it should be recognized that both countries have themselves been the object of energetic recruitment from Europe and North America).

It needs to be stressed that the widespread shortages of trained health workers have not hitherto impeded recruitment into the pilot ART sites, for two reasons. The first is the small scale of operations to date; the second is that the exceptional financing available from external sources has enabled projects to draw existing trained staff away from other programme areas.

Section 3

Health services delivery
and scaling up access to
human resources for 3 by 5:
*report of an international workshop
held in Geneva, 21–22 October 2003*

Preface

With 42 million people now living with HIV/AIDS – and 14 000 new infections and 8000 people dying of HIV/AIDS each day – expanding access to ART (antiretroviral therapy) for those who urgently need it is one of the most pressing challenges in international health. Providing treatment is essential to alleviate suffering and mitigate the devastating impact of the epidemic. It also presents unprecedented opportunities for a more effective response by involving people living with HIV/AIDS, their families and communities in care, and it will strengthen HIV prevention by increasing awareness.

The challenges are great. The health sector in many of the places most affected by HIV/AIDS is extremely weak and health services are faced with severe shortages of human and financial resources. The growing impact of HIV/AIDS exacerbates an already difficult situation. This is clearly demonstrated in sub-Saharan Africa, where people with HIV-related illness occupy more than 50% of hospital beds, and where organizations and facilities providing care are overwhelmed by the demand.

At the same time that demand for health services increases, more health care personnel in sub-Saharan Africa and other high-prevalence regions are themselves dying or unable to work as a result of AIDS. Morale is weakened by poor working conditions and by a workforce reduced by migration and ill health.

In order for three million people to be on ART by the end of 2005, the pressing needs of the health sector will have to be adequately addressed. In addition to ensuring that affordable medications are available where they are needed, service delivery and human resources deficiencies will need to be rectified.

Introduction

At the United Nations General Assembly High Level Meeting on HIV/AIDS on 22 September 2003, the World Health Organization (WHO) declared the lack of access to HIV treatment a global health emergency. WHO is committed to leading the way towards the ambitious 3 by 5 target: working with a wide range of partners including UNAIDS (Joint United Nations Programme on HIV/AIDS), there will be urgent action to see that three million people receive ART by the end of 2005.

To achieve the 3 by 5 target, WHO will:

- provide Emergency Response Teams at the request of governments to conduct a rapid assessment of the barriers and opportunities that exist in achieving the 3 by 5 target;
- establish an AIDS Drugs and Diagnostics Facility to assist countries in procurement;
- publish simplified treatment guidelines;
- publish uniform standards and simplified tools to track the progress and impact of ART programmes, including surveillance of drug resistance;
- start the emergency expansion of training for health professionals;
- advocate adequate funding, not only for drugs but also for a massive investment in training and strengthening health services, which will benefit ART delivery and the delivery of other health services.

As part of the WHO preparations, a meeting will be held over the period 19 to 21 November 2003 in Lusaka, Zambia, to address the need for consensus on technical and operational issues in scaling up. The deliberations on service delivery and human resource aspects of scaling up that took place

during the meeting in Geneva on 20–21 October 2003, on which this report focuses, will be fed into the Lusaka meeting for development of a comprehensive implementation strategy.

The context in which ART scaling up will occur

Globalization and international finance and credit agency priorities towards containment of public sector expenditures have had an impact on health policy options over the past decade. The adoption of macroeconomic policies under structural adjustment programmes normally called for strict fiscal stringency measures to be implemented and led to widespread capping of public-sector spending.

In countries where most health coverage was provided by the public sector and with human resources consuming often more than 60% of health budgets, the consequences were dire. These included widespread reductions in facility and equipment maintenance, the impossibility of increasing staffing levels in response to population growth and newly emerging diseases such as HIV/AIDS, and high levels of dependency on national and international NGOs (nongovernmental organizations) and bilateral support for health interventions.

As a result, pluralist health systems emerged, creating challenging problems of policy and service delivery coordination in a context of poverty reduction and equity concerns that strained impoverished national health stewardship capacity. With additional needs generated by the HIV/AIDS epidemic, many governments in resource-poor settings can respond only by allowing ever more NGOs and other well-intentioned providers to assume essential service provision functions.

Fiscal stringency can pose problems in the absorption of available human resources. In one African country it is anecdotally reported that 3000 trained nurses are not currently employed in the health sector, primarily because expenditure and establishment ceilings mean that the public sector does not have effective demand for their services, although they are needed according to any technical criteria. Private-sector employment possibilities are presumably limited by the stagnation of personal incomes, in line with the overall stagnation of the economy.

The challenges to scaling up access to ART cannot be divided from these sociopolitical trends. Wars and the impact of genocide on the destruction of trust in the social fabric also must be seen as underlying factors when developing programmes for scale-up, as these programmes will need a high degree of social cohesion in order to expand rapidly.

The area of service delivery is crucial in responding to the population's need and demand for health care. Nevertheless, the provision network is only the more visible part of the complex aggregate of institutions, norms and values involved in the functions of steering, financing and resource generation that impose conditions on the functioning of the provision network. The steering role of the ministries of health is vital in facing the challenges associated with HIV/AIDS.

Since the costs of caring for those with HIV/AIDS can still be extremely high, it is especially important that both those with the disease and those deemed at risk for contracting HIV – potentially the entire population – are included in risk-pooling arrangements. The health care needs of the population are financed variably across countries through national health systems, social health insurance, out-of-pocket payments or combinations of these methods. Up to now, only a few developing countries have included the provision of antiretroviral drugs in the benefits package through national health systems, or through social health insurance such as has occurred in Argentina, Brazil and Cuba. In Argentina, a special fund has also been created to pay for antiretroviral drugs for those not covered by social security (PAHO, 2003).

The potential impact of strengthening health systems on HIV/AIDS programmes

In the countries where the greatest challenges for scaling up ART are encountered, health systems face two major challenges: the malfunctioning of the service system and the HIV/AIDS epidemic. The former is a long-term development problem, while HIV/AIDS is still expanding. Thus, although the problems are closely related, they demand solutions that should be undertaken simultaneously: gradual strengthening of the service system in conjunction with urgent and effective action to control the epidemic. It should be noted that the heavier the burden of HIV/AIDS gets, the more the health system will be weakened and the fewer the resources that will be available to treat other major diseases, resulting in increased overall mortality.

To better manage the challenge of HIV/AIDS, countries need to strengthen various aspects of their health systems. Specific investments in strengthening health systems may improve the capacity of the system to plan and deliver services. Reforms at the sector level may strengthen incentives for efficiency, such as introduction of contractual relationship, decentralization of decision-making, increased autonomy for health providers and integration of services. Investment in systems can also help improve the ability of the sector to absorb additional resources. System-wide changes are required and managers and health professionals need more autonomy and performance incentives to be able to improve outcomes. It is argued that even if funds are made available, effective expenditure limits are defined by the absorption capacity and constraints of the health system.

The need to reform the health sector is therefore widely accepted and has figured in the policy agenda of most countries for a long time. Decentralization is frequently an essential part of the reform process. Although it may not lead to any short-term improvements of service output with present resource levels, it is often seen as prerequisite preparation for a future system with more resources available (Hanson, 2000). Decentralization of services and strengthening local decision-making power are important elements of the system in scaling up ART to attain the target of 3 by 5, since the autonomy given to local decision-makers creates space for innovation, community participation and adaptation of public services to local circumstances – all assumed to be conducive to successful implementation. (Khaleghian, 2003).

The evidence on the potential impact of decentralization on implementation of vertical programmes is mixed. Some studies showed that in low-income countries decentralization is associated with higher rates of immunization coverage (Schwartz, Guilkey & Racelis, 2002; Khaleghian, 2003). There are also some other examples in which the expected benefits of decentralization were not achieved, and where the delivery of some vertical programmes worsened after decentralization. For example in Zambia, a decline in immunization rates, which started before decentralization, did not reverse after increased funds were made available through decentralization (Jeppsson, 2001). In two pilot districts for decentralization in Uganda, there was still a lack of capacity in districts to increase allocations of funds to maternal and child health services. Moreover, user fees, though entirely decided upon by districts, had a negative effect on use of MCH services (Mwesigye, 1999).

In delivering ART, similar problems may appear with regard to the impact of decentralization on service delivery. For example, in South Africa it has been shown that rigid bureaucracies inherited from the apartheid government may have sidetracked the implementation of many HIV/AIDS policies developed at the end of the apartheid period. More recently, however, the decentralized health system allowed some provincial doctors to administer antiretroviral drugs (Pankhurst, 2003).

Integration is another common policy followed in the reform agendas that has implications for ART. There has been an ongoing discussion on the merits of providing priority interventions vertically or in an integrated way that is potentially relevant to HIV/AIDS programmes. Some systematic reviews of integration of vertical programmes concluded that there is no strong evidence of variation on the impact of outcome between vertically provided programmes and integrated ones

(Briggs, Capdegelle & Garner, 2001). But it would appear from these results that the integration is indeed a less costly form of service delivery and the important advantage that integration could have is that of cost-saving (Briggs, Capdegelle & Garner, 2001). When it comes to the overall health system, the lack of integration has been implicated as the cause of problems such as that patients get lost, that needed services either fail to be delivered or are delayed, and that there are less than optimal outcomes (Berwick, 1991; Brodsky, Habib & Hirschfeld, 2003).

In resource-poor settings some argue that there is also a risk, in a highly integrated system, that resources will be spread so thinly across the different service delivery activities and horizontal functions – such as supervision, logistics and training – that activities fail to reach the minimum quantity and quality for any impact on health. This risk is greater in a decentralized integrated system, if not drastically reduced in size, than in systems composed of different disease-specific programmes, which could allow one programme to fail without a serious effect on others. Below a certain resource level, the service outputs of integrated systems are therefore likely to be lower than in systems based on vertical health programmes (Hanson, 2000).

It is necessary to take into account the nature of HIV/AIDS as a chronic disease, giving rise to the requirement for a wide range of services and lifelong care. It would appear important to organize ART services on the basis of integration into existing health facilities that would allow the use of facilities at all levels and ensure continuity of care.

Another challenge for the health system will be the integration of different stakeholders into the system, such as the private sector, NGOs and communities. Contracting-out some health services in low- and middle-income countries to private-sector providers is sometimes suggested as a mechanism to increase coverage and efficiency. However, the need would then arise for development of mechanisms for contracting and strengthening the regulatory framework, both of which have proved problematic.

The increased attention to ART may also challenge health systems with increased and disproportionate flows of funds. On one hand, the absorption capacity of the system would be challenged with the rapid increase in funds. On the other hand, the health system would face the risk of deterioration of the rest of the services while special attention is paid to one type of services – ART. It is crucial to make this initiative an opportunity to develop the whole health system.

Objectives of the workshop

1. Review information and experiences on different approaches to delivery of ART services within existing health care systems.
2. Assess realistic options on HR for scaling up ART.
3. Define a set of concrete steps and actions to move forward.
4. Identify issues to include in the background document for the Zambia meeting.

Presentations

Presentations were made by country participants, as well as selected participants from WHO headquarters. A brief summary of country site presentations follows:

Botswana

A brief overview of HIV/AIDS care and ART was made by the meeting co-chair, Professor Sheila Tlou. While Botswana is regarded as a model of HIV/AIDS treatment and care by many of its southern African neighbours, the country does have challenges related to HIV/AIDS care. Chief

among these is the need for human resources. Additional foreign workers have been recruited to achieve the provision of ART, with all counselling and adherence tasks provided by nurses. Sustainability and the need for further development of home-care services were also addressed.

Cambodia

Dr Ly Penh Sun discussed the approach of his government, in cooperation with NGOs, in providing ART in Cambodia. Challenges for scaling up successful but small initiatives include the need to provide community care and a continuum of care. As with previous speakers, capacity building, procurement and monitoring and evaluation were also seen as important issues to be addressed.

Kenya

A description and assessment of ART in Kenya was provided by Dr Mary Wangai (National AIDS Control Programme Officer) and Dr John Adungasi (Family Health International). The Government of Kenya is committed to providing 20% of infected people with ART by 2005, and 50% by 2008. Government policy includes HIV/AIDS as a top priority, with capacity building and quality assurance crucial to achieving their goal. Challenges were summarized as sustainability, weaknesses in the health system and physical infrastructure of health facilities, lack of adequately trained health care staff, quality control and inadequate home-based care. The way forward was summarized as policy and strategic plan formulation. The overview of FHI's ART Initiative in Mombasa provided the description of a well-functioning model for ART delivery. The chief challenge to ART was noted to be adequately trained human resources.

Malawi

The MSF (Médecins Sans Frontières) programme in Thyolo District was presented by Dr Roger Teck. This site is seen as a model of treatment and care, in Malawi as well as worldwide. Care is provided by a team supported by one expatriate physician. Here, as in other sites, the human-resource issue is seen as crucial for scaling up ART: long-term solutions are needed, while short-term solutions are being implemented.

Nigeria

Dr Anyamele Chukwemeka provided an overview of ART provided by the Center for the Right to Health. This small clinic dedicated to providing ART sees four to six new patients each week. Problems identified for scaling up included lack of staff capacity, poor partnerships with others providing HIV/AIDS care, issues of HIV/AIDS stigma, monitoring and information management, and patient movement across sites.

Rwanda

Dr Jean-Claude Karasi spoke about the reorganization of HIV/AIDS care, support and treatment by the Rwandan Ministry of Health. Care is provided within the existing health system at the district level. Expansion of the infrastructure is needed to ensure adequate care: key areas were identified as management and supervision, training, procurement, materials and supplies, human resources, and monitoring and evaluation.

South Africa

The experience of Harmony Mines in South Africa was presented by Dr Tony de Coito. Harmony Mines is the largest employer after the federal government of South Africa, with 60 000 employees.

The company provided comprehensive HIV/AIDS services, including ART, and is considered a centre of excellence in both the country and region.

Uganda

Professor Elly Katabira, also co-chair of the meeting, noted that although HIV/AIDS treatment and care are more developed in Uganda, there remains the need for further training of health care staff. The issue of involvement of foreign NGOs in ART (such as MSF) and future sustainability was highlighted.

Outcome of the meeting: priority areas for action

In addition to the country presentations above, a summary of 35 sites in developing countries providing ART was made by Mr Mark Wheeler on behalf of the WHO Department of Health Service Provision (now the Department of Human Resources for Health). These findings, as well as the presentations and discussions of the meeting, both in plenary and small groups, identified priority areas for action related to human resources and service delivery in scaling up ART.

ART as part of a continuum of care

Antiretroviral therapy should not be conceived as a freestanding programme, but as one option within a spectrum of services. Patients can be recruited to ART via other services – and will need continuing support from them.

Optimal continuity of care is characterized not only by contact with providers and collaboration with patients and their caregivers, but also by communication, coordination, contingency, consistency and convenience. To improve continuity of care, approaches include guidelines, policy and standards as well as disease management, integrated clinical pathways and referral systems (Biem et al., 2003). It will be important to both organize ART services on the basis of integration into existing health facilities and to provide services addressing the needs of people at all stages of HIV infection, ranging from prevention to terminal care.

Dissemination of care

Having services available to people with HIV/AIDS at the primary health care level (with referral to the district level as needed) is seen as an important component of an adequate response to HIV/AIDS. Primary-care facilities, with supervision and referral support, can provide maintenance ART (and can, with appropriate clinical inputs, initiate therapy). Chronic care must be provided close to the patient's residence or workplace to promote adherence.

Training needs

HIV/AIDS is still not incorporated into professional curricula used in basic training programmes in all countries, while in-service training may be irregular or nonexistent. Country adaptation of existing WHO guidelines will allow scale-up velocity to be increased.

Simplified standard guidelines

The scale-up of HIV/AIDS care will be enhanced by the use of simplified, standardized guidelines both clinically and as a training tool.

Addressing stigma

Stigma, and the denial to which it gives rise, is a major obstacle to take-up of services and preventive action. Stigma must be reduced among both the general population and health workers. Forceful leadership in all spheres is required to reduce stigma. ART will in time change perceptions, but urgent action is needed.

Although some gains have been made, stigma associated with HIV/AIDS still exists, despite all the campaigns. Health workers complain that the lack of protective clothing and equipment is a major hindrance to providing appropriate services in many cases. Despite the objective evidence that occupational risk is low for health workers, the perceived risk may remain high, especially where health worker education has been neglected, as has often been the case. If stigma is not adequately addressed, increased numbers of health care workers may be recruited, trained and retained – but will not provide the *appropriate* care needed to adequately provide for people with HIV/AIDS.

Involving communities in HIV/AIDS care

The lessons learnt during 20 years of efforts against HIV/AIDS have confirmed the significant role of communities, families and people living with HIV/AIDS (PLWHA) in responding in a comprehensive manner to HIV/AIDS. Global consensus has been reached on the need for the full involvement and participation of communities, particularly of PLWHA, young people and civil society actors in HIV/AIDS programmes (United Nations, 2001). Therefore, efforts to address human resources and service delivery issues for scaling up ART should not be limited to a focus on the formal health care delivery system. It is crucial to go beyond a focus on professional service providers and beyond facility-based service provision and plan for community-based activities and the active involvement of families, communities and PLWHA in treatment services.

A prominent feature of many successful ART programmes is a well-developed interface between health institutions and community organizations and volunteers, in the form of partnerships that facilitate ongoing dialogue, the necessary supervision and mutual support. Such an interface is recognized as a promising opportunity to mobilize and harmonize health institutional and community resources to address the challenges presented by the HIV/AIDS epidemic, including providing access to ART.

New staffing patterns and the delegation of tasks

Given the widespread shortages of trained health care personnel (whether because of difficulties related to retention, migration or financial resources to pay them) the issue of human resource needs must be urgently addressed. Further, the pattern of human resource use in many existing pilot ART sites is too labour-intensive – and particularly too intensive in its use of highly skilled labour – to be replicated on an extensive scale.

It follows that new patterns of service delivery and staffing must be developed that entail less-frequent patient contact with the provider system, that rely less on skilled labour inputs and that optimize the use of inputs other than from the formal delivery system. This implies maximum delegation of tasks within the formal health care team, and maximum involvement of community resources.

The principle of delegation within health teams requires that tasks that can be performed (with suitable preparation) by less-skilled members should be performed by them, leaving the more skilled to concentrate on the tasks only they can perform, including supportive supervision of other team members. In some cases delegation of tasks will require changes in existing legislation (for example, if nurses are to be allowed to initiate ART under standing physician orders or standard protocols) or if new cadres of health workers (such as lay counsellors) are to be developed within a

country. All health workers, both skilled and unskilled, will need to have adequate pre- and in-service training related to HIV/AIDS.

Fostering public/private relationships and change in the public sector

Many private organizations and businesses have innovative and well-developed programmes of care for PLWHA. Every effort should be made to enhance public and private relationships to capitalize on these strengths. The public sector must learn from and adopt practices of NGOs, particularly in human resource management. Systemic reform in the public sector will likely necessitate external assistance. If the public sector fails to respond, financial and human resources will flow to NGOs – and the public-sector capacity will further decline.

Developing guidelines to manage international/donor input

An important point of discussion at the meeting was the need to further develop international cooperation in all areas. Duplication of efforts and lack of cohesiveness by multilateral and donor agencies has a detrimental effect on the effort to scale up ART. It was felt that WHO and other international organizations must be more vocal about financial and social inequities, that local capacities must be more fully used by multilateral and bilateral donors, and that the workforce policies set by such organizations as the IMF must be changed. It was further felt that capacity should be developed to disperse funds rapidly at the community level – and that these funds should subsequently be moved to communities. At the same time, public accountability must be enhanced.

Moving ahead: turning priority areas into action

In order for three million people to be on ART by the end of 2005, as proposed by WHO, the pressing needs of the health sector must be adequately addressed. To date, much of the focus on providing ART to the millions of people in need has been on the medications themselves. In addition to ensuring that affordable medications are available where they are needed, however, service delivery and human resources deficiencies must receive urgent attention. To manage the challenge of HIV/AIDS, countries will clearly need to strengthen various aspects of their health systems.

A contribution of the meeting, as part of a larger working-group process, has been to provide input to the development of recommendations addressing human resource and service delivery needs for ART. Recommendations made by the WHO Working Group on Human Resources and Service Delivery, of which this meeting was one component, were as follows:

- provide ART as part of a continuum of care; integrate it at all levels;
- all health care professionals providing ART should be trained using simplified standard guidelines (mechanisms for regulation to be determined at country level);
- tasks related to ART should be delegated; subsequent to training in ART, skilled health workers and lay personnel should be used creatively to increase capacity for ART initiation and follow-up;
- community participation and partnerships must be enhanced: communities should be involved early in treatment preparedness as well as provision of ART and HIV/AIDS care services;
- improve staff working conditions and incentives; address stigma by health care workers;
- develop guidelines to manage international/donor input into the strengthening of human resources and service delivery for scaling up ART.

These recommendations will become part of the WHO strategy for to reach the goal of three million people on ART by 2005. This strategy will be further refined in Lusaka, Zambia, at a meeting 19–21 November 2003 and will serve as the basis of WHO recommendations to achieve 3 by 5, launched by WHO's Director General on World AIDS Day 2003 (1 December).

The real work of achieving the ambitious goal of three million people on ART by the end of 2005 still lies ahead, however. Putting in place the recommendations and strategies for actions made at the meeting will be a challenge for the international community. Reversing decades of health system decline will not be easy – but it must be done.

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Annex 1. Partners in ART delivery

Creating access to ART has started to receive large-scale support, ranging from US President George W. Bush's Emergency Plan for AIDS Relief, a USD 15 billion plan to be rolled out over the coming five years (<http://www.whitehouse.gov/news/releases/2003/01/20030129-1.html>) to response by the European Union from many international foundations in health such as the William J. Clinton Presidential Foundation, the Nelson Mandela Foundation and numerous HIV/AIDS-specific NGOs. An overview of the major actors follows.

World Bank (<http://web.worldbank.org/>)

The World Bank's Multi-Country HIV/AIDS Programme (MAP), launched in September 2000, has set aside USD 1 billion to fund projects, including many ongoing projects in more than 25 sub-Saharan African countries. In mid-June 2004, the World Bank Board approved a grant of USD 60 million in support of a regional programme to scale up access to HIV/AIDS treatment in Burkina Faso, Ghana and Mozambique. This Regional HIV/AIDS Treatment Acceleration Project (TAP) is intended to complement both the MAP project and WHO's 3 by 5 initiative.

William J. Clinton Presidential Foundation (<http://www.clintonpresidentialcenter.org/>)

The Clinton Foundation aims to assist countries in implementing large-scale, integrated HIV/AIDS prevention, treatment and care programmes. In their activities' plan, the governments take the lead and the Foundation provides technical assistance, mobilizes human and financial resources, and facilitates the sharing of best practices across projects. The Clinton Foundation aims to treat at least 700 000 people living with HIV/AIDS in Africa and the Caribbean during the next five years

United States Agency for International Development (USAID) (http://www.usaid.gov/our_work/global_health/aids/index.html#)

By the end of 2003, a total of 500 patients were expected to be receiving ART at USAID projects in Kenya, Ghana and Rwanda. Data presented at a USAID satellite meeting on treatment and care at the 13th International Conference on AIDS and STDS in Africa (ICASO) discussed the planning process and time necessary to initiate ART projects. In an initial pilot project for ART in Mombasa, Kenya, it took 18 months of planning to enrol 40 patients between May and September 2003. Using lessons learnt from one project can significantly reduce time spent setting up another project: a subsequent Kenyan site was established in only three months. The experience gained suggested the need for close collaboration between national, district and private-sector entities, as well as the coordination of activities among clinical care facilities, community support systems and NGOs. Further lessons learnt included the need to address community preparedness and adherence strategies, as well as health worker concerns regarding workload, pay and fears about HIV/AIDS. The experience suggests that after an initial site is established, subsequent sites can profit from its experience to develop more rapidly.

Partners in Health (<http://www.pih.org/index.html>)

In 1998, Partners in Health, a non-profit-making charity affiliated with Harvard Medical School, and the Haitian organization *Zanmi Lasante* launched the HIV Equity Initiative to deliver ART in rural Haiti with staff and support from Harvard's School of Public Health. The clinic provides a basic minimum package for HIV/AIDS that includes ART with DOT provided by community health workers; monthly support meetings for patients; social support to families; ART and milk

substitutes to prevent mother-to-child transmission of HIV; and post-exposure prophylaxis for professional accidents and rape.

***Médecins Sans Frontières* (<http://www.doctorswithoutborders.org/>)**

Médecins Sans Frontières (Doctors Without Borders) appears to have the best-developed pilot projects providing ART worldwide. In addition to current projects, MSF intends to begin additional ART projects in Burkina Faso, Ethiopia, Honduras, Indonesia, Kenya, Laos, Malawi, Mozambique, Myanmar, Peru, Rwanda, Zambia and Zimbabwe.

Other NGOs in Africa

NGOs, faith-based organizations and international cooperation efforts scattered across Africa are also becoming involved in providing ART. Examples include the following.

- The Cameroon Baptist Convention Health Board provides ART in a general medical clinic to more than 50 patients. Two physicians trained in ART and support staff (nurses, counsellors, pharmacists and laboratory technicians) provide care according to standardized guidelines (consistent with national and WHO guidelines). Health care staff is trained and laboratory and medical services are supported by collaboration with other institutions.
- At the *Centre de Traitement Ambulatoire* (CTA), *Hôpital de Fann*, in Dakar, Senegal, an international NGO coordinates with a government hospital to provide ART to approximately 500 patients in an outpatient clinic. A multidisciplinary team of nurses, doctors, laboratory technicians, social workers, educators, counsellors, pharmacists and community lay workers provide the care needed. In addition to ART, opportunistic infections are treated and other primary health care provided to PLWHA. Trained educators include PLWHA; outreach workers are involved in the care and the project liaises with other associations and NGOs.
- The Mother of Peace Community in Mutoko, Zimbabwe (<http://www.motherofpeace.net>), provides approximately 100 people with ART and provides care for PLWHA. Zimbabwean nurses work in a clinic at a district hospital with a local physician or with a physician from an American faith-based organization to care for patients. Monitoring between three monthly physician visits is ensured by nurses. External resources (medicines and training) are provided by the American organization. A shortage of funding and lack of HIV test kits and laboratory services, as well as limited antiretroviral drugs, prevent a greater number of patients from being served. Lack of training manuals and formal training is also seen as a limitation to scaling up.

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Annex 3. Meeting agenda

Tuesday, 21 October 2003

08h30-09h00	Registration
09h00-09h30	Welcome and introduction: Dr Evans/Mr Adams
09h30-10h30	Country/site presentation: Chair/Co-Chairs: Mr Adams/Drs Katabira/Tlou) Kenya Nigeria Botswana Uganda
10h30-11h00	Coffee break
11h00-12h30	Rwanda South Africa Haiti Cambodia Thailand
12h30-14h00	Lunch
14h00-15h30	Service delivery and HR approaches to ART care: Site visit findings: Mr Wheeler, Dr Goede, Mr Dreesch Discussion
15h30-16h00	Coffee break
16h00-17h30	Working groups

Wednesday, 22 October 2003

09h00-10h30	Working groups: Chair/Co-Chairs: Mr Adams/Drs Katabira/Tlou)
10h30-11h00	Coffee break
11h00-12h30	Working groups reports/ discussion
12h30-14h00	Lunch
14h00-15h30	Working groups reports/discussion
15h30-16h00	Coffee break
16h00-17h30	Presentation of recommendations

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