EXECUTIVE SUMMARY

We need a dramatic change in thinking—and action from donors, policymakers, and program managers in the public, private, and nongovernmental (NGO) sectors—to focus on strengthening health systems in the countries most affected by HIV & AIDS. To meet the Millennium Development Goal of reversing the epidemic by 2015, we must change how we design and deliver services. We learned in the 1990s and 2000s that a host of separate activities cannot be scaled up in a sustainable way and that strengthening the health system is essential for long-term sustainability. The time has come to take a systems approach to HIV & AIDS programming. This holistic approach will create a strong foundation by focusing all efforts on integration, effectiveness, and sustainability.

THE EVOLUTION OF AIDS PROGRAMS

Programs to combat the AIDS epidemic in low- and middle-income countries have evolved dramatically over the last three decades in response to developments in public health science, politics, economics, and organizational capacity. This evolution can be described in terms of three “generations” of AIDS programs. (See the appendix.)

Zero Generation (1980s): No Effective Response
During the 1980s, little was known and little was done about HIV & AIDS. Complacency abounded. Prevention was rudimentary, treatment nonexistent, and funding limited.

First Generation (1990s): Early Prevention Response
By 1990, the epidemic was already showing signs of spiraling out of control. First-Generation programs were characterized by limited funding, a focus on prevention, continued denial in many quarters, and—as before—essentially no treatment in low- and middle-income countries.

Since 2000, the expansion of political and financial support has been massive, through the creation of the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), the US President’s Emergency Plan for AIDS Relief (PEPFAR), and other mechanisms. By 2008, Second-Generation AIDS programs had achieved the largest scale-up of
public health treatment in the history of Africa, had expanded prevention, and were providing support for millions of HIV-affected people.

Despite the unprecedented success of Second-Generation AIDS programs, prevention efforts still lag, and only 42 percent of people eligible for antiretroviral therapy (ART) in low- and middle-income countries can access it. Second-Generation interventions have been fragmented; lacked integration across the continuum of prevention, care, and treatment with other health services; and have not been focused on effectiveness or sustainability. Local ownership has been undermined by the huge number of actors operating independently, whereas local capacity has not developed enough to sustain interventions.

Third Generation (2010s): Health Systems Response
Acknowledgment of the shortcomings of Second-Generation programs has led to a growing recognition that AIDS programs in the 2010s must be centered on a health systems response. Increasing concern about the imbalance between investments in AIDS and other major health needs and about the aftermath of the global financial crisis, which threatens resources for AIDS, makes such a transition timely.

But what does this mean in practice? How will a health systems approach differ from the approach of the last decade?

HEALTH SYSTEMS FOR THIRD-GENERATION AIDS PROGRAMS
Mounting a genuine health systems response to AIDS requires a fundamental shift from a fragmented approach to an approach based on a vision of a holistic, high-performing system that builds on these six fundamental components:

1. Leadership, governance, and management
2. Health service delivery
3. Human resources for health
4. Pharmaceutical and laboratory management
5. Health care financing and financial management
6. Health information

For these components to work together, two visions for the future must be realized.

Vision for a Holistic Health System
Essential to the success of Third-Generation AIDS programs is a vision of a holistic health system as one that:

- works toward universal access to essential health services as its long-term goal;
- operates at all levels: from households, to communities, to health facilities, to municipal, regional, and national authorities;
- harnesses the strengths of all sectors: public, private, and civil society;
- works as a unified whole with all levels and sectors and many stakeholders for a common purpose: a “system” in the true sense of the word.

The health system must use evidence to guide policies, choice of interventions, and programmatic strategies. It should work from a vision of the desired impact on health to choose the inputs, processes, and outcomes to achieve measurable results.

Vision for AIDS Interventions within a High-Performing Health System
For Third-Generation programs to reverse the AIDS epidemic with the human and financial
resources likely to be available over the next decade, every intervention must demonstrate three essential characteristics that too often were lacking in Second-Generation programs.

1. **Integration:** operating comprehensive AIDS programs across the continuum of prevention, care, treatment, and support; integrating AIDS services with all other health services through revitalized primary health care;

2. **Efficiency:** achieving the same or higher quality and quantity of services for the same or lower cost and focusing on cost-effective interventions that achieve the greatest impact;

3. **Sustainability:** building the local capacity of people and organizations as well as strong partnerships that have the potential to expand with need; using available resources wisely, although many countries will not achieve financial independence in the near term.

**COMPONENTS OF A HOLISTIC, HIGH-PERFORMING HEALTH SYSTEM**

A holistic, high-performing health system rests on the six core components listed earlier. Our approach must strengthen the components of health systems, not as six separate parts, but as one vehicle moving forward with communities and clients on board. The six components should change in the following ways.

**Strengthened leadership, governance, and management** are fundamental to the success of all other elements of the health system. Little of lasting value will be achieved without a clear vision, sound implementation strategy, inspiring leadership, and systems that hold people accountable. Such stewardship will allow those in charge to manage scarce health resources to sustain and bolster leaders’ and communities’ ability to support movements that address the social factors that drive the AIDS epidemic. We believe leadership can be learned and practiced at all levels and that it should focus on health outcomes and improved management systems. Stronger leadership in ministries of health is crucial. Processes such as the Management Sciences for Health (MSH) Leading and Managing for Results Model and the Social Mobilization Process will help governments, communities, and civil society take charge and improve the sustainability of interventions.

**Decentralized and restructured health service delivery** will allow marginalized populations, including the most at-risk populations, to use prevention, care, and treatment services closer to where they live, thereby increasing the public health impact of interventions. A bottom-up approach is likely to achieve coordinated action faster than the reverse, but the role of national governments in providing stewardship to orchestrate evidence-based planning and implementation cannot be overemphasized. Mechanisms for public-private partnerships must also change so that nongovernmental actors can participate fully in the delivery of integrated, effective, and sustainable interventions.

Service delivery models must take into account the reality that ART is rapidly transforming HIV infection into a chronic condition. Among other things, this realization requires strengthening the participation of individuals and communities in prevention, care, and treatment. We advocate a shift from clinic-based care to a model of interlinked services (the Functional Service Delivery System) delivered in a variety of settings. High-quality, integrated, and comprehensive HIV & AIDS prevention, care, and treatment should be provided as part of primary health care—with clients playing an increasing role.

**A larger and better health workforce** will be required to support accelerated prevention efforts and expanded access to treatment. Expanding the capacity of national health training
will maximize efficiency, cost-effectiveness, and sustainability. As more patients move into their second decade of AIDS treatment and many new patients are recruited into treatment, treatment “literacy” and adherence will become more important.

**Improved financing and financial management** will help programs meet increasing demand for HIV & AIDS services at a time when resources are expected to be stable or diminished. An emphasis on efficiency in the Third Generation of AIDS programs will reduce the waste of resources, produce services at the least cost, and ensure that services are of the type and amount that people living with HIV (PLHIV) and communities value most. Policymakers and managers must abandon the notion of unlimited resources and help programs become more efficient in using available resources, while taking long-term sustainability into account.

In the Third Generation of AIDS programming, health managers will require adequate capacity in strategic as well as financial planning and management to apply effective new mechanisms. Creatively packaging and targeting HIV & AIDS services will increase effectiveness and efficiency in using resources. New funding mechanisms that build on local opportunities will need to be devised. Efforts that increase funding for HIV & AIDS services at both the national and local levels will need support. Partnerships with local microfinance institutions, social health insurance schemes, and other locally based health financing mechanisms are promising. Mechanisms such as performance-based financing (PBF) have proven that rapid results can be achieved and accountability enhanced through innovative ways of motivating health workers and institutionalizing performance improvements.

**Strengthened pharmaceutical and laboratory management** will be essential to support the increased demand for and complexity of ART and other treatments. As service delivery becomes more decentralized, delivery systems must be strengthened at the primary health care level. Addressing bottlenecks that hinder medical supplies from reaching this level will become a priority, as will better integrating pharmaceutical management at the lowest levels of the health system with comprehensive clinical care that includes HIV and other health conditions.

Managers must also prioritize strengthening laboratory infrastructure, not only to improve diagnosis but also to stem the development of drug resistance as more people are put on treatment. Governments should expand mechanisms, such as pooled procurement of AIDS medicines and supplies, that have already improved efficiency and scaled up access to treatment in multiple African countries. Similarly, integrating HIV-related pharmaceuticals into the supply system for essential medicines...
Integrated health information systems, which include service delivery, pharmaceutical management, and community-based information, will drive local action in Third-Generation HIV & AIDS programs. Instead of multiple databases focused on short-term processes and outputs, in the Third Generation, HIV & AIDS information should be part of an integrated health information system (HIS) that effectively combines prevention, treatment, pharmaceutical supply, laboratory support, supervision, and program management with a holistic system of primary health care reaching into the community. New HIS must enable comprehensive decision-making and performance improvement at the local level. HIS, including surveillance, should be decentralized, integrated, and designed to paint a picture of the local epidemic in the context of the overall health system, thereby enabling coordinated action. Donors and managers should pay more attention to indicators that measure the outcomes and impact of interventions.

IMPLICATIONS FOR THIRD-GENERATION HIV & AIDS PROGRAMS

Third-Generation programs need both policy and programming modifications to succeed.

Policy Recommendations
For Third-Generation HIV & AIDS interventions to be implemented effectively, policymakers must reform essential policies. Appropriate policies must be in place within the context of human rights to overcome sexual violence and end the stigma and discrimination that push the most at-risk populations and PLHIV underground, where they are unable to access services. Discrimination in health care must be stopped. As self-testing technology becomes available, policies that promote self-care and monitoring of HIV status should be put in place.

Programming Recommendations
We already know enough about what works and can be effectively applied to Third-Generation interventions. Application of this knowledge on a large scale, however, has been hampered by uncoordinated action, often driven by political considerations rather than scientific or programmatic evidence.

Integration requires that HIV & AIDS services become part and parcel of other health services such as family planning/reproductive health and maternal-child health care to increase effectiveness and ultimately sustainability. Non-health services, ranging from support for livelihoods to care of orphans and vulnerable children (OVC), should be included. Targeting high-impact services, such as prevention of mother-to-child transmission (PMTCT), services for the most vulnerable and at risk, and safe male circumcision, will have a multiplier effect.

Combination prevention—in which prevention components are integrated with care and prevention, packaged on the basis of knowledge about local epidemiology, and delivered through multiple channels—will help achieve high impact on a large scale. An access-to-prevention campaign is needed. The local customization of interventions, together with decentralized service delivery through a revitalized primary health care framework, is likely to accelerate the impact of interventions. Family-focused and community-based programming and behavior change communication that increase the participation of individuals and communities should be hallmarks of Third-Generation programs. Better partnerships with governments that pay attention to developing strong stewardship and coordination frameworks will sustain improvements in overall health systems performance.
THIRD-GENERATION AIDS PROGRAMS: A DIFFERENT WAY OF THINKING

Success for Second-Generation AIDS programs focused intensely on defined targets and doing what it took to achieve those targets. The emphasis on specific, measurable targets must continue in Third-Generation programs. But planning must be done and decisions made with the broader national and local health system in mind and with a longer-term time horizon. The following are examples of Third-Generation approaches for NGO and program managers, governments, civil society and the private sector, and donors.

Examples of Third-Generation Approaches for NGO and Program Managers

- Integrate HIV & AIDS services into other services—such as prenatal care and integrated maternal, newborn, and child health services—and deliver the continuum of prevention, care, and treatment.
- Use family-focused approaches with community-health facility linkages that empower families and communities to participate in their own health care.
- Apply fully functional service delivery models that enable self-monitoring, local decision-making, and resource planning and allocation at the local level.
- Use real-time consumption information to ensure supply and reduce both stock-outs and expiration of medicines.

Examples of Third-Generation Approaches for Governments

- Apply the MSH Leading and Managing for Results Model to strengthen and build local government leadership teams that can plan and implement in a more holistic, sustainable way and develop solutions that make the best use of available resources.
- Establish PBF to create the mechanisms and incentives for increasing performance, service quality, and accountability in prevention, care, and treatment.
- Expand Integrated Management of Childhood Illness and of Adolescent and Adult Illness at all national health training institutions in place of training focused on individual health problems and diseases.
- Deliver the right services at the right level using the right providers. Use a task-shifting approach to plan for, train, and support an affordable mix of the right types and numbers of health workers at every level, starting with the community.
- Implement pooled procurement systems and engage with global supply chains for antiretrovirals (ARVs), laboratory supplies, and test kits whenever they are found to lower costs, ensure reliable delivery, and provide products of assured quality.

Examples of Third-Generation Approaches for Civil Society and the Private Sector

- Advocate a health systems approach—integrated, effective, and sustainable—to AIDS programming and, for employers, model this approach in programs for workers.
- Take an active and strategic role in the national Country Coordinating Mechanisms for GFATM grants to encourage more integrated, efficiency-minded, and sustainable GFATM applications.
Examples of Third-Generation Approaches for Donors

- Harmonize terminology and approaches to health systems strengthening across major programs such as GFATM, the Global Alliance for Vaccines and Immunisation, and PEPFAR.

- Encourage and support more integrated, efficient, and sustainable programming of bilateral, GFATM, and other multilateral funding.

- Build the capacity of GFATM Country Coordinating Mechanisms to plan, implement, and monitor integrated health systems approaches.

- Use small grants mechanisms, such as the Rapid Funding Envelope, to provide access to funding for smaller NGOs from pooled contributions from multiple donors.
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## REFERENCES AND RESOURCES
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<th>ACRONYMS</th>
<th>Definition</th>
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<tbody>
<tr>
<td>ACT UP</td>
<td>AIDS Coalition to Unleash Power</td>
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<tr>
<td>AIDS</td>
<td>acquired immunodeficiency syndrome</td>
</tr>
<tr>
<td>ART</td>
<td>antiretroviral therapy</td>
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<tr>
<td>ARV</td>
<td>antiretroviral</td>
</tr>
<tr>
<td>AZT</td>
<td>zidovudine</td>
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<tr>
<td>CSO</td>
<td>civil society organization</td>
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<tr>
<td>ECSA HC</td>
<td>East, Central and Southern Africa Health Community</td>
</tr>
<tr>
<td>GFATM</td>
<td>Global Fund to Fight AIDS, Tuberculosis and Malaria</td>
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<tr>
<td>GMS</td>
<td>Grant Management Solutions [Project]</td>
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<tr>
<td>GPA</td>
<td>Global Programme on AIDS</td>
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<tr>
<td>HAART</td>
<td>highly active antiretroviral therapy</td>
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<td>HIS</td>
<td>health information system</td>
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<tr>
<td>HIV</td>
<td>human immunodeficiency virus</td>
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<td>HRH</td>
<td>Human Resources for Health [framework]</td>
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<tr>
<td>HRM</td>
<td>human resource management</td>
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<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
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<tr>
<td>MSH</td>
<td>Management Sciences for Health</td>
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<tr>
<td>NGO</td>
<td>nongovernmental organization</td>
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<tr>
<td>OVC</td>
<td>orphans and vulnerable children</td>
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<tr>
<td>PBF</td>
<td>performance-based financing</td>
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<tr>
<td>PEPFAR</td>
<td>US President’s Emergency Fund for AIDS Relief</td>
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<tr>
<td>PHC</td>
<td>primary health care</td>
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<tr>
<td>PICT</td>
<td>provider-initiated testing and counseling</td>
</tr>
<tr>
<td>PLHIV</td>
<td>person/people living with HIV</td>
</tr>
<tr>
<td>PMTCT</td>
<td>prevention of mother-to-child transmission [of HIV]</td>
</tr>
<tr>
<td>STI</td>
<td>sexually transmitted infection</td>
</tr>
<tr>
<td>TASO</td>
<td>The AIDS Support Organisation</td>
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<tr>
<td>UNAIDS</td>
<td>Joint United Nations Programme on HIV/AIDS</td>
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<tr>
<td>USAID</td>
<td>US Agency for International Development</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
</tr>
<tr>
<td>VCT</td>
<td>voluntary counseling and testing</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
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</tbody>
</table>
Daraus Bukenya and Jonathan Quick, the lead authors of this paper, provided its conceptual framework and wrote the executive summary. Dr. Quick wrote the introduction and sections on the vision, as well as the appendix on the history of the AIDS epidemic. Dr. Bukenya wrote the sections on policy, programming, and service delivery. John Berman, with Joseph Dwyer, wrote the section on leadership, governance, and management. Laura Sider Jost authored the section on human resources for health, with Mary O’Neil and Ummuro Adano. The sections on pharmaceutical and laboratory management, health care financing and financial management, and health information systems were written by Martha Embrey, William Newbrander, and Jon Rohde, respectively.

We appreciate the comments of those who participated in a panel to discuss an earlier version of this paper during the annual meeting of the Global Health Council in May 2009: Alvaro Bermejo, Executive Director of the International HIV/AIDS Alliance; Karen Cavanaugh, Health Systems Analyst, Bureau for Global Health, US Agency for International Development; and Princeton N. Lyman, Adjunct Senior Fellow for Africa Policy Studies at the Council on Foreign Relations. Joyce A. Sackey, Dean for Multicultural Affairs and Global Health Programs at the Tufts University School of Medicine, moderated the panel.

We are also grateful to the following MSH staff members for their reviews of this paper: John Pollock, Steve Sapirie, Godfrey Sikipa, and Paul Waibale.

We would also like to acknowledge and thank Lydia Shaw, who provided substantial research assistance to select and compile the list of references. Barbara Timmons oversaw the research, edited this publication, and managed its development.

INTRODUCTION

We need a dramatic change in thinking—and action from donors, policymakers, and program managers in the public, private, and NGO sectors—to focus on strengthening health systems in the countries most affected by HIV & AIDS. Without this change in approach, “a major pandemic will still be with us in 2031” (Hecht et al. 2009). To meet the Millennium Development Goal of reversing the epidemic, we must change how we design and deliver services. We learned in the 1990s and 2000s that a host of separate activities cannot be scaled up in a sustainable way. The time has come to take a systems approach to HIV & AIDS programming. This holistic approach will create a strong foundation by focusing all efforts on integration, effectiveness, and sustainability.

A strong health system comprises many different parts working together as an integrated whole to achieve a common purpose: improving the health of a population. The health system must unite all sectors—public, private, civil society—in working through a revitalized approach to primary health care (PHC), with universal access to essential health services as its long-term goal.

The health system must use evidence to guide policies, choice of interventions, and programmatic strategies. It should work from a vision of the desired impact on health to choose the inputs, processes, and outcomes to achieve measurable results.

The system operates at all levels: households, communities, health facilities, national ministries, and global institutions and organizations. By building local ownership through stronger partnerships and local capacity strengthening, strong health systems and the effective HIV & AIDS interventions they produce can be sustained.

THREE GENERATIONS OF AIDS PROGRAMS

The global response to HIV & AIDS has evolved with the epidemic. Like other areas of global health, AIDS programming is going through a series of developmental stages or “generations.” Each generation reflects the state of knowledge and practice at the time, the political and economic environment, and the organization of the response to the epidemic. Critical events in these areas have catalyzed each transition to the next generation.

In the 1980s—the Zero Generation—relatively little was known about HIV and its epidemiology, prevention programs were rudimentary, treatment was nonexistent, funding was limited, and many people considered intervention useless.

Recognition of the scope of the epidemic was delayed, but by 1990, the epidemic was already showing signs of spiraling out of control. During the first real programming in developing countries, the focus was on prevention. In the 1990s—the First Generation—treatment expanded rapidly in developed countries but remained largely inaccessible in developing countries, and political support remained weak.

The turn of the millennium created new momentum and ultimately a Second Generation of HIV interventions. They were catalyzed by millennial optimism, concern about disparity in treatment access between rich and poor countries, better knowledge about ART, and heightened political commitment that resulted in the resolutions of the United Nations General Assembly Special Session on AIDS and the Millennium Development Goals in 2000.

Since 2000, political and financial support has expanded massively and new global HIV
initiatives have been put in place; GFATM, PEPFAR, the Clinton HIV & AIDS Initiative, and the World Bank Multi-County AIDS Program are the major ones. These initiatives have focused largely on expanding treatment and care to save lives. As a result, treatment programs have expanded rapidly, and HIV programming has become more complex, with many more local and international actors and stakeholders and multiple, often free-standing interventions that have generated quick, but largely short-term, results. Second-Generation programming has also been characterized by a focus on measurable results and greater emphasis on partnerships and coordination at the national level. By late 2008, Second-Generation AIDS programs had achieved what had seemed unattainable: the largest scale-up of public health treatment in the history of Africa (and perhaps the world), expanded prevention programs, and support for millions of OVC and other HIV-affected people.

In spite of the rapid scale-up, new HIV infections remain a concern, although the rate of infection has slowed slightly. Prevention efforts still lag, and fewer than 50 percent of people eligible for ART in low-income countries can access it. Second-Generation interventions have been fragmented; lacked integration with other health services across the continuum of prevention, care, and treatment and have not been focused on integration, effectiveness, or sustainability. Local ownership has been undermined by the huge number of actors working independently, and local capacity has not developed enough to sustain interventions.

In the Third Generation (the 2010s), we foresee a transition heralded by increasing concern about the imbalance between investment in AIDS and other major health problems, and the negative effects on health systems related to the global financial crisis that began in 2008.

**CHALLENGES FOR THIRD-GENERATION PROGRAMS**

If in 2000 anyone had predicted that, by the end of 2008, outreach programs to prevent sexual transmission would have reached nearly 60 million people; 16 million pregnant women would have received services for PMTCT; 10 million people affected by AIDS would have received supportive care; and 3 million HIV-positive people would have been started on ART, most of them would probably have said, “Impossible!” Yet Second-Generation AIDS programs reached all of those milestones.

Although these achievements are impressive, because of the evolution of the epidemic, as we move into the second decade of the millennium the current emergency strategy will not only be ineffective but will also mean slow growth and poor performance. Second-Generation AIDS programs have often:

- been fragmented and lacked integrated programming;
- not focused on cost-effectiveness or efficiency;
- been only partly effective in building local capacity;
- been unsustainable because of an ill-defined long-term commitment.

We must shift gears from a short-term emergency strategy characterized by these approaches to a long-term strategy that focuses on strengthening the health system and building local capacities to sustain the response.

Treatment of AIDS has been described as an “international entitlement,” a commitment that present funding cannot sustain (Over 2007). In the developing world, although 3 million people are on treatment, more than twice that number do not have access to treatment. According

**INTRODUCTION**
to the Joint United Nations Programme on HIV/AIDS (UNAIDS), “Weaknesses in health care systems are slowing the scale-up of HIV treatment programmes, underscoring the need for intensified action to strengthen these systems” (UNAIDS 2008, p. 21). In short, expectations are high, but the global response may not be able to be scaled up or sustained, and it is undermining health programs in other areas (Oomman et al. 2008; UNAIDS 2008, chapter 7).
SECTION 1. A VISION OF HEALTH SYSTEMS FOR HIV & AIDS

Many of the practical challenges that Third-Generation HIV & AIDS programs face can be overcome. As the world enters a new decade, a new mindset is needed. We need a long-term perspective on a chronic condition that will finally be managed by the individual and the community. Realizing the UNAIDS Three Ones1 will entail strengthening health systems and the services they deliver; developing horizontal and comprehensive programs; and packaging and delivering targeted, evidence-based interventions through health systems characterized by integration, effectiveness, and sustainability (UNAIDS 1985).

EFFECTIVE HEALTH SYSTEMS

Effective health systems have many parts working together at all levels, across all sectors, to achieve a common goal. Three key parts are the following:

- **Universal access to essential services through PHC.** An effective health system works progressively toward providing universal access to essential health services through a revitalized approach to PHC. Some may argue that this goal is unachievable, but this is the case only if one assumes that universal access is a short-term goal.

- **Linkage from household to community to health facility.** An effective health system works from the household and community levels to the health facilities. If services at health facilities do not act hand-in-hand with households and communities, then no system provides a unified whole working for a common purpose.

- **Inclusion of public, private, and civil society sectors.** An effective health system comprises all sectors: public, private, and civil society. The contributions of these sectors vary by country.

An effective health system is a system in the literal sense, with many different parts working together as a whole to achieve the common purpose of greater positive impact on the health of a population. System comes from the Latin systema, meaning “the universe,” which is derived from the Greek word for “organized whole.” The systems perspective binds the components of a health system into a functioning whole.

THE SIX COMPONENTS OF A HEALTH SYSTEM

The World Health Organization (WHO 2007) defines a health system as the sum of the organizations, institutions, and resources whose primary purpose is to improve health. Six building blocks, or core elements, constitute the overarching WHO health systems framework. The US Agency for International Development has further developed the concept of health systems strengthening to clarify the involvement of a variety of actors in the “continuous process of implementing changes in policies and management arrangements within the health sector” to meet people’s health needs (USAID 2009). MSH has adapted and uses these components as the foundation for practical interventions to strengthen health systems to improve access to and quality of health services and, ultimately, improve health outcomes:

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1 The Three Ones are one agreed-upon HIV & AIDS action framework, one national AIDS coordinating authority, and one agreed-upon country-level monitoring and evaluation system.
Leadership, governance, and management
Health service delivery
Human resources for health
Pharmaceutical and laboratory management
Health care financing and financial management
Health information

These components form the organizing principle of this paper. We envision them not as six separate components but as a unified whole that must have all the parts to move forward (see figure 1).

**ESSENTIAL CHARACTERISTICS OF SCALABLE HIV & AIDS PROGRAMS**

Our vision is HIV & AIDS programs that are truly scalable through integration, effectiveness, and sustainability, which we define as follows:

- **Integration**: Coordinating partners (ministries of health, NGOs that deliver services, and others, including nonhealth organizations) to provide HIV & AIDS services in integration with all other health services at every level of the system—especially in communities—as part of rebalancing AIDS and other services and revitalizing PHC.

- **Effectiveness**: Paying close attention to cost and efficiency, including health workforce management, to make possible expansion of programs that have proven successful.

- **Sustainability**: Using innovative approaches to build partnerships and local capacity, of people and organizations, to lay the foundation for sustainability. These approaches should rely primarily on the resources available while finding ways to make the best use of them and to develop sources of support.

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**Figure 1. Model for Achieving Sustainable, Improved Health Outcomes**

<table>
<thead>
<tr>
<th>Vision for a Holistic Health System</th>
<th>Six Fundamental Components</th>
<th>Characteristics of a High-Performing Health System</th>
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<tbody>
<tr>
<td>Universal access to essential health services</td>
<td>Leadership, governance, and management</td>
<td>Integration</td>
</tr>
<tr>
<td>Operates at all levels, from households to national authorities</td>
<td>Health service delivery</td>
<td>Effectiveness</td>
</tr>
<tr>
<td>Harnesses the strengths of all sectors</td>
<td>Human resources for health</td>
<td>Sustainability</td>
</tr>
<tr>
<td>Works as a unified whole</td>
<td>Pharmaceutical and laboratory management</td>
<td></td>
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<td></td>
<td>Health care financing and financial management</td>
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<td></td>
<td>Health information</td>
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The war on AIDS is far from over. The epidemic is fighting back. For example, despite the unprecedented success in access to ART, five new infections occurred in 2007 for every two people put on treatment (UNAIDS 2008). New strategies will also have to take into consideration the changed nature of the epidemic, with HIV infection now largely a condition that calls for effective chronic care. The next generation of the fight will require new strategies because business as usual will not lead us to victory.

**P O L I C Y I M P L I C A T I O N S**

Nearly 95 percent of people infected by HIV live in low- and middle-income countries. In addition, epidemics are at different levels of maturity within and across countries and therefore require strategies tailored to local situations. For countries to cope with growing epidemics in an environment of shrinking financial resources, significant policy reforms will become an urgent necessity. Policies that need strengthening for Third-Generation AIDS programs include:

- policies that support the right to health, including those that address gender issues, stop stigma and discrimination, and promote the participation of individuals and communities in their own care;
- decentralization policies;
- policies for public-private partnerships.

**Policies That Support the Right to Health**

We believe leaders must advocate an approach based on the universal right to health (Office of the United Nations High Commissioner for Human Rights 2008) because the epidemic has become feminized, and stigma limits access to health care. We must address the socioeconomic drivers of HIV & AIDS, including discrimination against the most at-risk groups, women’s inequality, sexual violence, lack of education, and poverty. Since this discrimination has sometimes taken the form of criminalizing sex work and homosexuality, policymakers will have to advocate for change with legislators in many countries. Including communities as part of the health system is another way to address these structural determinants.

**Addressing gender issues.** Because sexual violence, stigma, and discrimination are related issues, involving boys and men—including teachers and community and religious leaders—in programs to change stereotypes and social expectations about men’s roles and responsibilities is crucial. Roughly one-third of all women in South Africa, by some reports, experience their sexual debut through rape. As such, sexual violence is a major driver of the epidemic in the country and throughout the region. According to WHO and a recent literature review on gender-based violence by the Harvard School of Public Health (2006), women who are raped are at significantly higher lifetime risk of acquiring HIV, not just because of the initial rape, but also because it increases their number of lifetime partners and risk-taking behaviors.

**Ending stigma and discrimination.** Stigma appears at every level, including in government, health care institutions, and the community. Although US President Barack Obama announced on October 30, 2009, that the ban on HIV-positive travelers entering the United States would be lifted in 2010, some 60 countries still have policies that deny entry by HIV-positive travelers (Ger-
man AIDS Federation et al. 2009). At the household and community levels, stigma and the fear of discrimination prevent millions of infected people from going for HIV testing, disclosing their HIV status, or seeking treatment. With a chronic health condition such as HIV & AIDS, the participation of patients in their own care is crucial. This involvement is possible only in an enabling environment. Governments must therefore review, revise, and implement policies that provide their populations with the safety and confidence they need to seek prevention, care, and treatment without the fear of stigma or discrimination.

**Decentralization Policies**

Decentralized services help enable the largest number of infected and affected populations to access and use HIV & AIDS prevention, care, and treatment services that are responsive to their needs. Our experience indicates that when comprehensive HIV & AIDS services are offered at the lowest level of the health system, marginalized populations, including women, children, and the most at-risk populations, are able to fully utilize such services (see box 1). Decentralization also allows services to be customized according to local needs and provides opportunities for communities and partners to sustain interventions.

Policies that decentralize HIV prevention, care, and treatment services are crucial for Third-Generation interventions. For example, governments should review current care provision arrangements that expand prescription authority to lower cadres of the health workforce as well as strengthen vertical and horizontal referrals across the health system.

**Policies for Public-Private Partnerships**

Policies that establish and strengthen public-private partnerships, especially at the lowest level of the health system, have to be instituted or, where they exist, transformed from rhetoric into practice. As the number of people on care and treatment escalates and the demand for prevention increases, private-sector engagement will have to be expanded, particularly close to patients’ homes, so patients can seek treatments from private local drug stores and providers. At this level, the private sector in poor countries tends to be less organized and often disregarded in terms of quality of care, thereby missing opportunities for effective resource leveraging. Policies that integrate this

**Promoting Participation of Individuals and Communities in Their Own Care**

Self-monitoring of status is a crucial part of care and treatment for PLHIV, just as it is for conditions such as diabetes and hypertension. Presently, self-testing for HIV, although it “could be almost as accurate as hospital testing” (Global Health Council 2009), remains largely unavailable and is often discouraged by national policies. Self-monitoring and home-based care by PLHIV are virtually nonexistent. Patients on treatment are heavily dependent on health care providers and formal health institutions. In the absence of policies that encourage self- and home-based HIV testing and care, technology developers have lagged in finding new and easy-to-use self-testing and care options and tools. Further evidence is urgently needed to inform policies on self-testing and care and their public health impact (Frith 2007; Pai and Klein 2008). Self-testing is likely to be accelerated only with new and improved diagnostics that are easy to apply as well as new medications that do not require frequent refills.

Communities can support individuals through “expert patients,” who can help identify people in need of care and treatment services, refer people for HIV testing and counseling, support the initiation of treatment, promote adherence and positive living, promote prevention, and identify and refer sexual partners and children for testing and counseling.
sector into the mainstream HIV & AIDS service delivery system will have to be instituted and the accompanying support provided.

**PROGRAMMING IMPLICATIONS**

National leadership, coordination, and long-term thinking will strengthen health systems to deliver integrated, effective, and sustainable responses in the Third Generation.

**Stewardship and Coordination**

Progress in implementing important instruments established during the past decade—including the Three Ones framework and the Paris Declaration on Aid Effectiveness—has been slow. Leadership is lacking to vigorously pursue a coordinated HIV & AIDS agenda at the global and national levels. Such coordination has not even been attempted at the operational and community levels. Future interventions will require leadership for harmonized action at the operational level, including the district and subdistrict levels of service delivery. A bottom-up approach is likely to achieve coordinated action faster than the reverse. The role of national governments in providing stewardship to orchestrate evidence-based action planning and implementation cannot be overemphasized.

**Box 1. Expanding Decentralized AIDS Services in Ethiopia**

Reaching out to about three-quarters of Ethiopia’s population in approximately 6,000 communities, MSH is working with the government of Ethiopia, with funding from USAID, to rapidly expand HIV & AIDS services. The number of people ever enrolled in ART increased from approximately 10,000 in early 2008 to more than 45,000 in 2009, and we expect 90,000 HIV-positive people to be on ART by 2010.

To date, more than 1.4 million individuals have been counseled and tested for HIV, and more than 14,000 HIV-infected clients attending care and treatment services are receiving treatment for tuberculosis.

Without consistent treatment, patients on ART will become sicker, potentially develop drug resistance, and die sooner. When health providers and pharmacies are far away or too expensive, these patients often have little choice. As many as one-third of ART patients in poor countries are “lost to follow-up.”

MSH’s community-based and family-focused strategies in Ethiopia include personalized care-planning by case managers and follow-up by a new cadre of community health workers who bring care to patients in their homes and communities. One dramatic result is a rate of loss to follow-up of only 7 percent in MSH project areas, compared to the national average of 20 percent or more than 25 percent among those receiving treatments at referral hospitals.

Another finding is that close to 60 percent of ART clients are women. ART services that are close to where people live are partly responsible for this result, because women are less likely to travel far away for health care.

In the future, health extension workers could be the most effective identifiers of people needing HIV testing and become treatment observers once diagnosis is made. Further integration of services is also needed, as is more funding of PHC.
Throughout these efforts, the orientation must be toward long-term results and impact. The orientation of today’s HIV & AIDS interventions to outputs and short-term planning has not helped actors to establish the long-term vision that the epidemic requires. In the absence of an effective vaccine and treatment, HIV is likely to be with us for the foreseeable future. Our responses must therefore be both larger and focused on longer-term results. Information systems will also have to change so that they can inform policy and action and can measure integrated service performance in terms of outcomes.

**The need for coordinated action based on evidence.** The past decade has been a period of learning about what works and what does not, but adaptation of what we know works for use on a large scale has been hampered by uncoordinated action, often driven by political considerations rather than scientific or programmatic evidence. As resources dwindle and the epidemic escalates, Third-Generation interventions must build on successes that are supported by evidence and emphasize scaling up service delivery for public health impact while staying within cost limitations and ensuring sustainability. Innovations should include not only technologies but also packaging of interventions in complementary, cost-effective ways.

**Integrating HIV & AIDS Services into Non-HIV Health Services**

Integrated programming is an important approach for Third-Generation HIV & AIDS programs. Although much talked about today, integration carries different meanings for different people. We envision integration for future AIDS programming taking place at all levels, from the family and community to the national level.

Integrating HIV & AIDS services into family planning/reproductive health and other services provides access to a large target base, while eliminating missed opportunities for prevention, care, and treatment when clients make contact with the health system. Health workers should be prepared to offer HIV & AIDS services as part of routine health care. Provider-initiated HIV testing and counseling (PITC) is a step in the right direction. Presently, PITC is underused, and many mothers who attend reproductive health services are not screened for HIV or, if eligible, are not enrolled in PMTCT services. Concerted efforts are needed to reorganize service delivery at the point of care to enable health workers who are already overworked to add PITC to the services they provide.

**Targeting**

Maximum impact can be gained when HIV services are targeted to the neediest populations among whom rapid change is likely to occur. Such groups may include those at most risk, such as mobile populations; injecting drug users; male, female, and transgender sex workers; adolescents; and men who have sex with men; as well as women and children, who, in part because of the circumstances in which they live, have an increased vulnerability to HIV infection.

Within these subgroups are also populations that primarily drive the epidemic. In many cases, HIV & AIDS interventions have failed to break the cycle of transmission among such populations. This failure has resulted in concentrated epidemics becoming generalized as high-risk groups interact with the rest of the population. Strategies for reducing risk and vulnerability will have to be built around local knowledge of the epidemic and the factors that underpin transmission and health-care–seeking within local contexts. For example, until recently, marriage was expected to provide safety against HIV infection, but now an increasing number of new infections are occurring within marriage, and discordance in couples has become one of the driving factors behind new infections in certain populations. Context-specific research is urgently needed to guide packaged, targeted interventions.
For youth, including OVC, we need dedicated resources that are commensurate with the magnitude of the problem and packages of appropriate biological, behavioral, educational, and socioeconomic interventions. In settings where large numbers of youth are not in school and unemployed, creative options should involve them in livelihoods, community participation, peer education, leadership opportunities, and social activities, including “edutainment”—all of which they should help define. In Uganda, for example, the Presidential Initiative on the AIDS Strategy for Communication to Youth was developed in 2001. The AIDS Support Organisation (TASO) and the Uganda Youth Anti-AIDS Association have been active in this area.

Combination Prevention
Three decades of HIV research and development have yet to produce the magic bullet for HIV prevention. An effective vaccine or microbicide is years away. Various tools and methods, however, combining behavioral, biological, and structural approaches are known to minimize HIV transmission. We also know that prevention is equally important for the infected and uninfected. PMTCT, safe male circumcision, life-skills–based education for young people, and condom use are only a few of methods that have been found effective under different circumstances.

Prevention must be part of every aspect of integrated HIV & AIDS services, for example, treatment of sexually transmitted infections (STIs) and prevention with HIV-positive people. Driven by community mobilization, prevention could take the form of a human rights approach that involves social and behavior change. New technologies, such as mobile telephones, can be harnessed for prevention. This approach must also be driven by public health leadership, based on sound epidemiological principles. Finally, the scaling up of prevention must be integrated not only with treatment but also with the full range of PHC and social services related to education and employment.

The next generation of interventions should see prevention taking center stage, but with a difference. Targeted prevention delivered using proven methods will help us stop further escalation. Even then, prevention cannot be seen in isolation from HIV treatment, care, and support but rather must be infused into the full spectrum of HIV & AIDS, PHC, and social services. Combination prevention will eliminate verticalization, facilitate targeted programming, increase efficiency, and help achieve public health impact.

Expanded Behavior Change Communication
We envision that behavior change communication will be a major focus of integrated programming. It is most effective when it is conducted through peer-driven dialogue in the community, as part of taking responsibility for one’s own health and the health of the family. Promising approaches include having HIV-positive clients recruit people for HIV testing, as volunteers with the MSH-managed AIDS Care and Treatment Project in Nigeria have done. Other approaches integrate HIV & AIDS services into “Open Days” in the community, as in Malawi, where a variety of PHC services and outreach activities (such as music, dance, and drama) are made available in one place on the same day (MSH 2009 [July]).

Decentralization, Local Customization, and Strengthening Primary Health Care
As epidemics grow in the coming years, hospitals and health centers will no longer be able to cope with the increasing number of people on care and treatment—partly as a result of the success of ARV combination therapy—as well as the increasing number of new infections. For example, in Ethiopia, regional hospitals are already overflowing, and health centers are rapidly becoming overwhelmed with patients offloaded from the hospitals. In the most af-
fected countries, the health care infrastructure is unlikely to expand fast enough to meet demand. Therefore, further decentralization accompanied by local customization of HIV services will become necessary so that health posts, communities, and households begin to make important decisions about HIV prevention, care, support, and treatment. New cadres of health workers will have to be trained cost-effectively and deployed to support delivery of PHC. Lessons learned about task shifting will have to be scaled up to the national level.

Family-Focused, Community-Based Programming

Family-focused, community-based programming allows rapid scale-up by engaging communities and families to play an active role in their own care. It also helps address structural issues that increase vulnerability and risk, and helps link communities to the health system. Through the family, the most at-risk and vulnerable populations, including children, can be reached with services. Achieving a family-focused approach will require the establishment of strong community systems and structures that can directly support families. Box 1 describes the large-scale application of this model in Ethiopia.
This section makes recommendations about how to strengthen the six components of health systems to scale up HIV & AIDS programs in the Third Generation.

**THE NEED FOR EFFECTIVE LEADERSHIP, GOVERNANCE, AND MANAGEMENT IN THE NEXT GENERATION**

The Congressionally mandated midterm review of PEPFAR by the US Institute of Medicine (Institute of Medicine 2007), which was conducted by dozens of the world’s most renowned AIDS experts, soberly described the probable decades-long march of this epidemic and called for a long-term and local response. The Institute of Medicine’s priorities for the next phase of PEPFAR include:

- greater emphasis on prevention of HIV infection in general and better linkage between program planning and improved data on prevalence and populations at risk in particular;
- increased attention to the factors that heighten the vulnerability of women and girls to HIV infection and to its consequences, such as their legal, socioeconomic, and educational status;
- strengthened and expanded country capacity—particularly the necessary human resources—to provide services through implementation of HIV & AIDS programs in a manner that strengthens systems overall.

Achieving a global response that addresses these factors will require tremendous local leadership from the affected countries. The international community can help build this leadership and thus both foster sound stewardship of scarce health resources and bolster support for movements that address the social factors driving the AIDS epidemic. The actions required to build this leadership are clear.

First, all affected countries and programs require a skilled, motivated, and supported health workforce, especially at the facility and community levels, to provide the services and support needed to prevent transmission of HIV and treat and care for PLHIV. The crucial missing component in this workforce is skilled and committed health care managers. The absence of such managers continues to compromise the utilization of resources and is an underlying cause for the breakdown of health systems in many countries.

Second, local communities and civil society organizations (CSOs) need management models that empower them to work together to reverse destructive social norms such as sexual violence and discrimination against marginalized groups as well as the proliferation of risky practices such as injecting drug use and concurrent sexual partnerships.

Finally, improved governance in all sectors underlies a multisectoral response that will be integrated, effective, and sustainable.

**Principles and Practices for Developing Leadership and Management Capacity**

MSH’s approach to leadership and management provides a model for developing skilled and committed health managers. It responds to the needs that health and community leaders have identified and is based on five guiding principles.
1. **A focus on health outcomes**: Good management and leadership result in measurable improvements in health services and outcomes. Only by focusing on real programming and service delivery challenges can managers develop their ability to lead.

2. **The need to practice leadership at all levels**: Strong leadership and management must be practiced at every level of an organization. Working with their teams, managers at all levels—from health posts and CSOs to national institutions—can confront challenges and achieve results.

3. **The understanding that leadership can be learned**: Leadership practices improve through a process of facing challenges and receiving feedback and support. By using this process, managers develop their leadership abilities and the abilities of their staffs.

4. **The observation that leadership is learned over time**: Becoming a manager who leads takes time. This process works best when it is owned by an organization or government agency, and people are permitted to take on progressively more challenging issues.

5. **The importance of sustaining progress through management systems**: Gains made in health outcomes can be sustained by integrating leadership and management practices into an institution’s routine systems and processes, including supervision and evaluation.

The Leading and Managing for Results Model in figure 2 shows how eight leading and managing practices transform individual practices and institutional performance, leading to improved services and improved health outcomes. The practices have been validated in the public and private sectors and across cultures.

**Figure 2. Leading and Managing for Results Model**

*How do management and leadership contribute to improved service delivery?*

**Managers Who Lead**

<table>
<thead>
<tr>
<th>Leading</th>
<th>Managing</th>
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<tbody>
<tr>
<td>Scan</td>
<td>Plan</td>
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<tr>
<td>Focus</td>
<td>Organize</td>
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<tr>
<td>Align/Mobilize</td>
<td>Implement</td>
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<tr>
<td>Inspire</td>
<td>Monitor &amp; Evaluate</td>
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</tbody>
</table>

**Results**

- Improved Work Climate
- Improved Capacity to Respond to Change
- Improved Management Systems
- Improved Services
- Improved Health Outcomes

Building and applying the body of knowledge about leading and managing in international health
Local Leadership and Social Mobilization

In addition to its leadership development programs for health professionals, MSH implements innovative programs to build community and civil society leadership to reverse destructive social norms in Nicaragua, Peru, and other countries. These programs are based on a model of social mobilization, as called for in Gupta and others (2008), on structural approaches to prevention, which is based on local ownership of health issues and a coordinated, integrated, and multisectoral response.

As table 1 shows, this model of social mobilization requires an analysis of key social drivers, engagement of local communities, the alignment of these communities’ activities, and the support of local efforts through national communication campaigns. Building mobilization programs requires the empowerment of local leaders, development of well-defined management structures, and the ability of multiple sectors and institutions to plan and implement in a highly coordinated fashion. Achieving this outcome requires a significant investment in the local capacity to lead and manage change.

Table 1. The Five Phases of the Social Mobilization Process

<table>
<thead>
<tr>
<th>Phases</th>
<th>Activities</th>
<th>Outcomes</th>
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<tbody>
<tr>
<td>Analysis</td>
<td>Facilitated meeting with core group of stakeholders</td>
<td>Action plan</td>
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<td></td>
<td></td>
<td>Identify social norms.</td>
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<td>Develop campaign objectives.</td>
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<td>Define outcomes.</td>
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<td>Identify sector partners.</td>
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<td>Develop next steps.</td>
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<td>Create steering group.</td>
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<td>Engagement</td>
<td>Facilitated meetings and planning with each sector</td>
<td>Sector-level action plans</td>
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<td></td>
<td></td>
<td>Expression of commitment</td>
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<tr>
<td></td>
<td></td>
<td>Activities</td>
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<td></td>
<td>Budget</td>
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<td></td>
<td></td>
<td>Support plan</td>
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<tr>
<td>Alignment</td>
<td>Facilitated intersectoral meetings</td>
<td>Intersectoral alignment</td>
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<tr>
<td></td>
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<td>Joint statement of mission</td>
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<td></td>
<td>Joint activity plans</td>
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<td></td>
<td></td>
<td>Accountability structures</td>
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<tr>
<td>Implementation</td>
<td>Sector-level mobilization</td>
<td>Social change</td>
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<td></td>
<td>“Amplification” campaigns</td>
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<tr>
<td>Evaluation</td>
<td>Assessment of process and results</td>
<td>Insights</td>
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<tr>
<td></td>
<td></td>
<td>What has changed?</td>
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<td></td>
<td></td>
<td>What has worked?</td>
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<td></td>
<td></td>
<td>What did not work and why?</td>
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</table>

How management and leadership contribute to improved service delivery
When communities within a country are able to come together to tackle major social factors, such as sexual violence, in this coordinated fashion and as called for in the reauthorization of PEPFAR legislation, key drivers of the AIDS epidemic can finally be reversed. This process is being used in a program to address gender-based violence in South Africa; results will be available in 2010.

Service providers as well as communities must play a leadership role in Third-Generation HIV & AIDS programs. An innovative fellowship program for health professionals in Nigeria is expanding the number of qualified providers and improving the provider-client relationship. Through a 65-day course focused on building leadership and management skills and strengthening technical knowledge in HIV & AIDS services, providers have been able not only to increase the number of voluntary counseling and testing (VCT) clients but also go on to train 1,000 other providers (MSH 2009 [May]).

Good Governance at All Levels
Although good governance is needed at all levels—whether it comes from an NGO’s board of directors or local support by mayors—one critical area for Third-Generation programs is building countries’ and organizations’ capacity to obtain and manage funds. For example, the Grant Management Solutions (GMS) Project assists countries that receive grants from GFATM. In 2008, GMS helped 40 countries manage a total of 121 grants, or about $2.7 billion. GMS also assists with financial and grant management and reporting and increasing participation by CSOs. In Morocco, the project helped the Country Coordinating Mechanism conduct an election using an Internet forum, so that four new representatives could be elected from among nearly 120 qualified CSOs through a fair and democratic process (MSH 2009 [August]).

Table 2 summarizes some of the major programs and interventions that Third-Generation programs should pursue to strengthen leadership, governance, and management.

<table>
<thead>
<tr>
<th>Integration</th>
<th>Effectiveness</th>
<th>Sustainability</th>
<th>Selected Interventions</th>
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</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Apply the Leading and Managing for Results Model to strengthen local government and NGO services.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Use the social mobilization process to empower communities and civil society.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Strengthen multisectoral partnerships.</td>
</tr>
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</table>

HEALTH SERVICE DELIVERY FOR SCALING UP

Service Delivery Models
Future HIV & AIDS service delivery models must take into account the programming implications discussed above. Current HIV & AIDS service delivery relies heavily on a medical model in which the provider initiates and manages treatment of a single disease within a formal clinical setting. Apart from having to comply, the client or patient is largely passive. This one-way flow is the traditional form of
health care in which the patient depends heavily on the provider, a scenario that does not fit well with the management of the chronic, multidimensional condition that HIV infection has become. As a result of the current organization of service delivery, attention is largely focused on tertiary and sometimes secondary clinical settings.

The expectation is that the patient will seek, receive, and adhere to care and treatment as needed. This model functions best in environments where health-care-seeking behavior is spontaneous and proactive, and care needs are better defined. In poor countries that are most affected by HIV, however, health-care-seeking behavior is not spontaneous, and the majority of the population is unable to access health services in formal settings due to barriers that include distance, poverty, and lack of education. As a consequence, individuals do not have a chance to benefit from available technologies to address HIV infection and AIDS disease.

Hence, we see fewer mothers on PMTCT because many or even most do not attend the clinic for prenatal care and subsequently do not receive HIV diagnosis and treatment. Similarly, AIDS patients do not seek care until the disease has progressed. Furthermore, the multiple care needs of those who seek formal care cannot all be addressed in an institutional setting. For example, in poor families, nutrition and household food security are crucial elements of AIDS care and treatment.

**Shifting Away from Clinic-based Services**

Future service delivery models will require a shift from a paradigm that is essentially based in clinics to a model of functional services delivered in a variety of settings that offer high-quality, integrated, and comprehensive HIV & AIDS prevention, care, and treatment—as part of PHC—in which the client plays an increas-

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**Box 2. The Functional Service Delivery System**

The MSH Functional Service Delivery System (figure 3) is a model that has been adapted to PHC and HIV & AIDS prevention, care, treatment, and support interventions. Using the Functional Service Delivery System model helps managers and health workers prepare a health service delivery point at the primary, secondary, or community levels to provide quality and sustainable health services that are responsive to client needs and in which clients play a part. The success of the Functional Service Delivery System model depends on the simultaneous availability of essential components of care at the service delivery point. Such components (in line with national guidelines and standards) include trained and motivated human resources, proper infrastructure and equipment, adequate medicines and supplies, accurate and usable health information, a functional referral system, and close linkages with and involvement of the community.

MSH experience with health facilities that have applied the Functional Service Delivery System framework shows that such facilities have been able to set and work toward their own targets, evaluate themselves, plan, and take corrective action by re-engineering processes and using their own assets to address gaps. This process has reduced the need for frequent top-down supervision and focused supportive supervision on critical areas. The empowerment created at the service delivery point allows sustainability to thrive. Ultimately, the service delivery point is able to deliver and sustain quality HIV & AIDS services that are responsive to and supported by the community. The result has been an increase in service uptake and satisfaction with the quality of care provided. The benefit to the entire health system has been more efficient use of resources.
ing role. (See box 2.) The service delivery point does not have to be a clinic; for example, a community health worker delivering services at the household level is also a service delivery point. In managing a chronic and complex condition such as HIV infection, fostering empowerment of PLHIV and those affected by it, as well as service providers at every service delivery point, to make decisions and find sustainable and cost-effective local solutions is imperative. For example, if a grandmother is caring for an AIDS orphan or a woman is caring for a husband who is living with HIV, the community must support her with information and resources.

Such empowerment can best be achieved within a PHC framework comprising service outlets that are functional, self-sustaining, decentralized, and integrated into the community and in which local resources are brought to bear on the nature and quality of the services delivered. The onus for quality service delivery should no longer be exclusively on providers but also on the recipients of services.

**The Means and Ends of Integration**

Integration is the crux of realizing the other characteristics—effectiveness and sustainability—because it is a large-scale, long-term strategy. Integration combines:
- **Health systems strengthening and HIV & AIDS service delivery** to improve efficiency in resource use, increase impact, and build local capacities that will enable affected countries and communities to sustain interventions in the long term. Health systems strengthening and HIV must be planned and implemented in tandem and not as separate entities;

- **HIV & AIDS services with revitalized PHC** to increase the ability of households and communities to participate in and sustain their own HIV & AIDS prevention, care, and treatment initiatives;

- **All levels of care with a community focus** to make the community an integral part of the health system that is empowered and enabled to offer services using its own assets. This move will involve strengthening referral systems throughout service delivery networks, including the community;

- **All HIV technical areas** to respond comprehensively to the needs and risks of communities, households, and individuals in ways that are attractive and culturally appropriate and thus likely to be effectively used. Packaging HIV prevention, care, support, and treatment services fosters complementarity, effectiveness, and efficiency. In designing packaged interventions, a lifecycle approach will allow clients and providers to choose services that accord with risk and vulnerability. For example, integrating PMTCT and pediatric AIDS care into a single package of services will increase service uptake for both mothers and children. Similarly, PICT delivered within a package of services that includes ART is likely to increase uptake of care and treatment for those who are infected.

Table 3 summarizes some of the major programs and interventions that Third-Generation programs should pursue to scale up integrated, effective, and sustainable health services.

<table>
<thead>
<tr>
<th>Integration</th>
<th>Effectiveness</th>
<th>Sustainability</th>
<th>Selected Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td></td>
<td></td>
<td>Integrate PMTCT/pediatric AIDS services into other non-HIV services, such as prenatal care and integrated maternal, newborn, and child health services; deliver the full continuum of prevention, care, and treatment.</td>
</tr>
<tr>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>Use family-focused approaches with community-health facility linkages that empower families and communities to participate in their own health care.</td>
</tr>
<tr>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>Apply fully functional service delivery models, such as the Functional Service Delivery System, that enable self-monitoring, local decision-making, and resource planning and allocation at the local level.</td>
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</table>
TACKLING THE CRISIS IN HUMAN RESOURCES FOR HEALTH

Throughout the Second Generation of AIDS programming, a major challenge to developing sustainable health systems in developing countries has been inadequate human resources. Public-sector spending caps contributed to the human resource crisis early on by limiting workforce expansion and capacity-building even as the number of PLHIV was multiplying quickly. When funding for AIDS programming increased, specialized services in separate locations were built under the assumption of unlimited resources, leading to an inefficient use of workers and infrastructure. In addition, globalization has contributed to people seeking employment elsewhere in response to the demand for service providers in resource-rich countries. WHO data reveal two stunning inequities in the global health workforce (WHO 2006, pp. 5, 99):

- An 11-fold variation exists among regions in the number of health workers. Africa has 2.3 health workers per 1,000 people; Europe and the Americas have 18.9 and 24.8, respectively.
- In sub-Saharan Africa, close to one-quarter of doctors emigrate.

The System Management Problem

The biggest felt problem is the scarcity of people who have the right skills to do the job. A singular focus on shortages does not tell the whole story, however—the primary problem is a system management problem. Human resource management (HRM) systems in developing countries are in grave condition: unsatisfactory health worker motivation, retention, performance, and productivity continue to be pervasive problems. Although most countries have identified the HRM challenges they face and many have developed an HRM strategy, potential solutions often stay on the shelf. This happens, first, because of fragmentation of effort (i.e., donors fund pieces of the solution, with little harmonization among these partial approaches), unrealistic time frames, and a lack of grounding in sustainable management systems (i.e., human resources authority is often spread among several ministries) and, second, because key stakeholders, especially those outside the health sector, are not involved. In addition, HRM strategies that have been implemented have only been partly effective. Despite much-needed attention to building local capacity, many still depend on highly trained health workers—despite the global shortage of doctors and nurses—and on parallel, externally managed systems rather than sustainable local capacity.

To support the implementation of sustainable HRM strategies, we must take a comprehensive, integrated, and scalable approach, one that situates HRM in a larger system that includes improvements in policy, finance, education, partnerships, and leadership. The Human Resources for Health (HRH) framework (figure 4) provides a pathway for governments and health managers to develop a multisectoral plan for addressing the critical shortage of staff in HIV & AIDS and PHC. It situates HRM within a system of broad components of planning and managing the workforce that will need to be addressed simultaneously if we hope to make real progress in the battle against AIDS.

Effective Human Resource Management

HRM systems must provide adequate and timely staffing, staff retention, teamwork, effective planning, and good performance. Professional, proactive HR managers who have the authority to champion a comprehensive response are lacking at all levels of the health system. At the facility level, responsibility for human resources is often tacked onto an existing management

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2 Developed by representatives of multilateral and bilateral agencies, donors, partner countries, NGOs, and the academic community at a technical consultation sponsored by WHO and USAID
Role. Where a human resources department is in place, it is usually underfunded and its employees are inadequately trained. Health managers report that they are mired in layers of civil service rules, highly centralized and fragmented HRM systems, poor incentives, underuse or misuse of existing staff, and external pressure to diminish social-sector expenditure. The need is urgent to professionalize this cadre of human resources managers, expand the organizational view of their roles, and update their skills so they can be more effective in leading change and implementing plans.

Human resources managers must make sure that staff are recruited and hired in an efficient and transparent manner, treated fairly, receive orientation, get timely feedback, feel respected, and have opportunities to learn on the job. These managers must take a systematic approach to the process of setting work goals and monitoring performance. Some evidence suggests that the traditional model of a visiting supervisor has not worked well—it can be costly while not significantly improving performance—but other evidence from the health and business sectors demonstrates that an approach in which teams work collaboratively with their supervisor (visiting or on-site) to set priorities, resolve challenges, and build skills can improve motivation and performance (Rohde 2006).

**Strong Leadership**

Managers at all levels must advocate for policy reform, demonstrate that they value health workers, and provide staff with leadership to face challenges and achieve results. Establishing stronger human resource leadership in health facilities will require stronger leadership in ministries of health. At present, most government human resource functions are handled by personnel administrators who were trained to handle routine civil service policies and procedures. Most governments have lacked the ability to adapt to the impact of HIV & AIDS, labor migration, structural adjustments, and hiring freezes. Furthermore, most ministries of health in sub-Saharan Africa have limited or no authority in key personnel areas such as setting salary levels and establishing attractive and equitable career paths that can help with retention.
National governments must equip ministries to develop and deploy human resource managers to high-volume facilities and larger clinics and, in decentralized systems, establish provincial and district human resource point people. In some cases, this change may require the hiring of new human resource qualified staff, but in most cases, it just involves giving existing staff, especially personnel administrators, where the role exists, additional HRM training and support to begin assuming a full HRM role.

Ministries of health should establish, staff, and strengthen human resource units or directorates to raise their profile and make sure that they have a reasonable budget and are strategically placed within the organizational hierarchy to contribute ideas and make decisions to meet the goals of the national health system. These units must contribute to the development and implementation of long-term human resource strategic plans. An HRH plan with strong champions who are able to articulate its benefits can help lead to more funding from national governments and more predictable development assistance in this area.

Adequate Financing
Countries need visionary leaders to advocate that funding for human resource solutions goes hand-in-hand with funding for HIV & AIDS programs. Millions of dollars, for example, have been invested to ensure the availability of AIDS and tuberculosis medicines, but hardly any funding has been committed to ensure the presence of a sustainable workforce to administer these medicines. Budgets must be adequate to sustain projected health workforce requirements. Allocation authority must be aligned with technical and management planning and decision-making.

African governments cannot tackle this HRH challenge on their own. With the formation of the Global Health Workforce Alliance and the commitment of organizations such as WHO, we now have mechanisms to provide leadership at the global level. The current financing mechanisms, models, and approaches, however, will not meet Africa’s needs quickly or effectively. What is required is a large-scale global health initiative modeled on GFATM or PEPFAR for resource mobilization and disbursement devoted to addressing the workforce crisis over a period of 10–15 years. Such a fund will complement the efforts that governments are already working on using their own tax revenues. Furthermore, such a mechanism will have several advantages, the most important of which is reliable funding over several years to rebuild the shrinking stock of health workers and strengthen the capacity to support and manage them.

Another way to gain funding for HRH for Third-Generation AIDS programs would be for donors to mandate that a certain percentage of funding be allocated for HRH. The global financial crisis makes this approach even more important. Policy changes are also essential to achieve cost-effectiveness through efficiency.

Appropriate Human Resource Policies
Governments must streamline employment processes and establish and enforce appropriate human resource policies (i.e., national civil-service rules; recruitment, hiring and deployment; authorized scopes of practice for health cadres). To support human resource managers at all levels in addressing shortages and maldistribution of health workers, policy reform is essential to enable stronger health worker recruitment and deployment practices and radical task shifting. On average, most ministries of health in Africa need 12–18 months to recruit and deploy a health worker, even when funds and workers are available. Policy changes are needed to produce efficiencies in public-sector hiring, deployment, and payroll processing procedures.
The quickest path to this change may involve identifying and using private-sector practices that are already available in-country or promoting efficient franchises to which these functions can be outsourced at competitive rates. (See box 3.) To avoid undermining HRH capacity, developing and adhering to a code of recruitment could reduce poaching of personnel from existing services.

**Task shifting** has the potential to achieve a better match between staffing levels and workload at limited cost. Task shifting can be used not only for redistributing tasks but also for planning and managing the health workforce. Workforce planning should be done using a database to show not only the numbers and locations of people, but also their skills (MSH and WHO 2006). Service providers with different competencies can

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**Box 3. The Emergency Hiring Program in Kenya**

In sub-Saharan Africa, tension often arises between effecting long-lasting change and rapid change to respond to an emergency. Stop-gap measures must go hand in hand with long-term systems strengthening. The Government of Kenya used the Emergency Hiring Program to put necessary staff in place quickly, but gradually the focus is shifting toward making fundamental changes in the HRM system, and because the stop-gap measures addressed policy, finance, education, partnerships, and leadership, they are well suited to become part of the shift.

Staffing levels of 50 percent at most facilities and maldistribution of existing staff contribute to the fact that thousands of PLHIV do not have access to ART. Even though Kenya has a substantial pool of qualified health professionals who are unemployed, this crisis occurred because the process of recruitment, hiring, and deployment can take as long as 18 months. This delay has been due in part to inefficiencies in the national administrative system. In 2006, however, with funding from USAID, stakeholders such as the ministries of health and finance and the Directorate of Personnel Administration in the Office of the President reached an agreement to hire health professionals on short-term contracts to staff facilities. As a result, the Ministry of Health, in collaboration with MSH, used a private-sector outsourcing mechanism, whereby local Kenyan organizations were contracted to develop and implement a plan to recruit and deploy new health workers and manage the payroll and employment contracts (with an agreement from the government to transfer these staff to the government payroll after three years). This model reduced the average time it takes to recruit and deploy health workers from 12 to 4 months.

The recruitment criteria was mindful of not pulling workers out of the public health care system, causing resentment among existing workers through inequitable compensation, or drawing from the private sector or faith-based organizations and reducing their effectiveness. Rather, the recruitment approach focused on the geographic areas where staff were needed, in the expectation that people would be less likely to want to transfer if they worked close to home.

Private nonprofit organizations provided refresher training and job orientation. Deloitte & Touche, Kenya, was selected to carry out most of these business functions, and the African Medical and Research Foundation, Kenya Medical Training College, and Kenya Institute of Administration were chosen to work together to ensure that the newly hired providers had the needed knowledge and skills to provide HIV & AIDS services.

The result was the rapid hiring, training, and deployment of 890 health workers to serve in 219 facilities across the country. One example of success: a large hospital near the border with Sudan was scheduled to be closed, but 15 nurses hired by the program are keeping it open and providing services for this remote region.
form teams with a range of knowledge and skills to offer appropriate health care in different situations to satisfy particular needs. Rearranging shift patterns and increasing time flexibility can also increase productivity.

A key part of task shifting—one that is integral to the cost-effectiveness and sustainability of health services—is building decentralized capacity. Local capacity is essential for empowering communities and families to make decisions and find solutions that are appropriate for them and to mobilize using local assets. Both managerial and technical activities necessary to address HIV & AIDS can be handled at this level, including improved efficiency and coverage in VCT, PMTCT, and ART. Local capacities are insufficient, however, in the absence of strong referral systems. We know that the management of HIV & AIDS, especially the clinical management of PLHIV, will remain complex until a time when more appropriate and easy-to-apply technologies (e.g., medications, laboratory and clinical monitoring) become available, which is unlikely in the near future. Therefore, as we build local capacities we also need to strengthen vertical and horizontal referral systems so that complex tasks can be undertaken by appropriately qualified cadres. (See box 1 for the example of case managers in Ethiopia.) In this regard, we need to clearly define what can be done at the local level (see box 4 for another example) and what needs to be referred to higher levels as part of a three-way integration of comprehensive HIV & AIDS services, health systems strengthening, and PHC.

Expanded Education
Pre-service training institutions must have the capacity to meet the demand for essential health workers and adapt curricula as needed for new content requirements. Most training today has been in-service and of an emergency nature. On the one hand, as HIV becomes a chronic condition, training has to be integrated into formal pre-service education. On the other hand, training should not aim to simply add more responsibilities to already overburdened health workers, because doing so would be unlikely to increase motivation. Instead, training ought to go hand-in-hand with task shifting and division of responsibility. Integrated Management of Adolescent and Adult Illness should replace training focused on individual diseases whenever possible.

In addition, working with local and regional management training institutions, a substantive but short HRM degree program should be established at one or more institutions in sub-Saharan Africa to produce HRM leaders and practitioners. This program should be closely aligned with ministries of health and other

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**Box 4. Building Human Resources for Community-Based, Integrated Services in Malawi**

Through the USAID-funded Community-Based Family Planning and HIV & AIDS Services Project, MSH works with the Ministry of Health and other community-based organizations in eight target districts to promote fully functional services to clients in rural areas through a revitalized network of 1,000 community-based distribution agents trained in family planning and HIV integration. The project is engaging and training decision-makers, nurses, and clinicians at the national, zonal, and district levels to heighten awareness of family planning and HIV issues and advocate for supportive policies, including a policy that allows provision of injectable contraceptives by community-based distribution agents. In 2008, more than 13,500 people were counseled and tested for HIV and received their results. The project also increased the total couple-years of protection from 20,000 in the first quarter of 2009 to 32,000 by December 2009.
related nongovernmental agencies and include a workplace-based, integrated practicum.

To support HRM staff and health workers in fulfilling their roles effectively, investments in human resource information systems are critical. These investments, including hardware, software, and skills to use data to make human resource planning and management decisions, will help produce high-quality data and analysis to strengthen workforce planning and management. Pre-service training must incorporate information system training. Performance-based indicators that measure HRM progress must also be developed so that the HRM function and leaders can be held accountable, and these indicators must be linked to training, education, coaching, and mentoring. Finally, South-to-South dialogue should continue so lessons are shared and considered as new or altered schemes are initiated.

Table 4 summarizes some of the major programs and interventions that we should vigorously pursue to expand the health workforce and its capacity to meet the needs of the Third Generation of AIDS programs.

<table>
<thead>
<tr>
<th>Integration</th>
<th>Effectiveness</th>
<th>Sustainability</th>
<th>Selected Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td></td>
<td></td>
<td>Expand Integrated Management of Adolescent and Adult Illness in place of training focused on individual diseases.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Use a task-shifting approach to identify an affordable mix of the right types of health workers.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Expand training capacity to produce adequate numbers of the right types of health workers.</td>
</tr>
<tr>
<td>✓</td>
<td></td>
<td>✓</td>
<td>Establish human resource management systems that recruit, retain, and reward staff.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Fund a large-scale global health initiative devoted to addressing the workforce crisis.</td>
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</table>

Partnerships among Levels and Sectors
Planned linkages among sectors, districts, and nongovernmental, community, and religious organizations must be used to increase human capacity. To achieve HRH goals, partnerships must be established at the country level (e.g., by a consortium of international and country-level partners) wherein human resource managers and staff at both the central and district levels have access to training, mentoring, and problem-solving follow-up. This approach should be complemented with agreement among donors and governments to recruit and fund a sufficient number of HRM managers and leaders.

**PHARMACEUTICAL AND LABORATORY MANAGEMENT**

As the promise of widespread access to ARVs edged toward reality, the global community responded, and new funding sources, such as GFATM and PEPFAR, made unprecedented sums of money available to procure AIDS-related medicines and supplies. GFATM alone has approved grants for over $15.5 billion, with over 60 percent allocated to HIV &
AIDS and almost half allocated for medicines and commodities. Other new pharmaceutical procurement and distribution initiatives have drastically changed the global pharmaceutical landscape through their mandates to increase access to medicines. For example, substantial price reductions have been leveraged by committing predictable resources to achieve economies of scale (UNITAID3), helping countries plan procurement and increase supply efficiencies (Supply Chain Management System), and negotiating prices with suppliers on ARVs and diagnostics (Clinton HIV/AIDS Initiative).

As a result of these multiple efforts, developing countries have dramatically increased ART coverage over the past few years. Even so, WHO estimates that 58 percent of people who need ART in low- and middle-income countries worldwide are still not receiving it (WHO, UN-AIDS, and the United Nations Children’s Fund [UNICEF] 2009). The progress has been impressive, but today’s treatment deficits illustrate the scale-up challenges that still lie ahead.

**Building Capacity to Support Access to Medicines for HIV & AIDS**

The effectiveness of these multibillion-dollar initiatives is limited by the capacity of health care and pharmaceutical supply systems at the national and local levels. The increase in HIV-related products is greatly expanding the value of pharmaceutical markets in the most-affected countries, and as ART programs continue to grow, public-sector supply systems, especially in Africa, have been expected to manage hugely increased volumes of expensive medicines and commodities. In addition, as countries move to decentralize ART services to the PHC level, pharmaceutical systems must be able to deliver supplies to more service delivery points, across different sectors, and for more clients. Even if they had been functioning relatively well, these pharmaceutical supply systems are struggling to accommodate the additional load while assuring the reliable availability of medicines and commodities (United Nations Integrated Regional Information Networks PlusNews 2008).

In this context, scaling up does not mean taking a supply system with 20,000 square meters of storage in three warehouses, 150 staff members, and 7 trucks and making it a system with 45,000 square meters of storage in five warehouses, 250 staff members, and 12 trucks. Although the amount of space available to store medicines and supplies is an issue, more critical issues include the lack of infrastructure, management systems, information technology, and adequate and experienced staffing in the health systems of many resource-limited countries.

A few years ago, a United Nations Millennium Project task force concluded that global programs cannot successfully address individual diseases until more resources are devoted to strengthening entire health systems and that the effectiveness of a health system can be measured by the consistent availability of medicines (Ruxin et al. 2005). Although the future level of global financial commitment for HIV & AIDS programs is unknown, media attention to the number of lives saved (e.g., Reuters April 6, 2009) and further decreases in prices for ARVs—some prices have come down 30 percent from 2008 (Reuters April 16, 2009)—will continue to spotlight the promise and potential impact of universal access to ART.

**Increasing the Efficiency and Sustainability of Pharmaceutical Management Systems, Including Laboratories**

Pharmaceutical management systems operate within a framework that represents the flow of

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3 UNITAID (http://www.unitaid.eu/) contributes to scaling up access to treatment for HIV & AIDS, malaria and tuberculosis, primarily for people in low-income countries, by leveraging price reductions for quality diagnostics and medicines and accelerating the pace at which these are made available.
activities that must be coordinated so that appropriate, high-quality medicines are available when patients need them (see figure 5). In the Pharmaceutical Management Framework, each major function builds on the previous function and leads logically to the next; selection should be based on actual experience with health needs and medicine use, procurement requirements follow from selection decisions, and so forth. At the center of the Pharmaceutical Management Framework is a core of management support systems: organization, financing and sustainability, information management, and human resources. These management support systems hold the framework together, and the entire framework relies on policies, laws, and regulations that define a government’s commitment to strengthen its pharmaceutical supply systems.

Although HIV & AIDS has underscored the importance of access to ARVs, medical laboratory services are a critical, yet often neglected, component of health systems in developing countries. Laboratories play a central role in public health, disease control and surveillance, and individual patient diagnosis and care, yet many millions of people still do not have access to basic diag-
nostic laboratory services. For example, as we move into an era in which more patients will experience AIDS treatment failure, a laboratory’s prompt identification of these failures not only prevents deterioration in patients’ conditions but also minimizes the threat of drug resistance.

Access to and effective use of laboratory services require the same flow of processes and activities related to access to medicines, but often laboratories are omitted from a government’s health system priorities. For example, many countries do not have a national laboratory policy, strategic plan, or dedicated laboratory budget. Weaknesses in the management of laboratory services, together with a lack of human and financial resources and poor infrastructure, can prevent the efficient operation and delivery of accessible, quality-assured laboratory services to support the delivery of ART. As a laboratory director in Mombasa, Kenya, put it, “Our systems are working, but if you don’t have equipment or supplies, you can’t function.”

The scale-up of HIV & AIDS programs is helping drive significant improvements in health systems in developing countries. Progress toward universal access to HIV & AIDS prevention, treatment, care, and support continues to push us in the direction of an effective, sustainable HIV response. For the Third Generation of HIV & AIDS programs, however, the challenge will be to create efficient pharmaceutical and laboratory management systems that will be sustainable for years to come. Although the challenge is immense, the outcome should be stronger pharmaceutical and laboratory sectors that serve not only AIDS-related needs, but all health needs.

To accomplish this, donors and governments must address all the components of the pharmaceutical management system. Examples of how AIDS-specific interventions and initiatives have contributed to strengthening countries’ overall health systems follow.

**Policy, laws, and regulation: Decentralizing ART and incorporating the private sector.** A major objective of improving access to health services is bringing those services closer to the community and the patient, an effort that is at the heart of many national ART decentralization policies. Decentralization policies should define both the role of each cadre and the appropriate skills mix needed at each level and should include a structure to provide oversight as staff take on new responsibilities. Governments may also need to make legislative changes, for example, to enable health care staff other than pharmacists to dispense certain medicines. (See box 5 for an example.)

Along with decentralization, more countries recognize the need to include the private sector in strategic health planning. Ethiopia changed its law to allow the private sector to provide

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**Box 5. South Africa Decentralizes Dispensing of ARVs**

In South Africa, the Department of Health created a system to refer patients who are stabilized on ART from hospitals to PHC clinics, while maintaining a centralized dispensing unit at the hospital. Hospital pharmacy staff prepare prescriptions for delivery to the clinic closest to the patient. At the clinic, pharmacist’s assistants or nurses dispense the ARVs, review patients’ treatment progress, and return progress reports and uncollected medication to the hospital. The system worked so well for ART patients in the first six months that the first hospital expanded it to include more than 1,000 patients needing long-term treatment for mental illnesses and other chronic conditions. As well as reducing the patient load for the hospital’s personnel-strapped pharmaceutical service, this strategy also lessens transportation costs for patients and brings services closer to home.
ART services, and, consequently, MSH helped build the capacity of private-sector health care providers at hospitals and community pharmacies to deliver ART, including providing training and standard operating procedures in ART and ARV management.

**Selection: Using pharmacovigilance data to choose medicines.** Medicine selection should be based on a country’s standard ART guidelines. When countries rushed ARVs out, however, they had little local experience related to the medicines’ safety and efficacy or knowledge about which were most appropriate for their populations. As treatment programs amass information on specific medications, they can adjust guidelines to fit changing contexts. The Third Generation of AIDS programs should see more countries establishing pharmacovigilance programs. (Box 6 provides an example.)

**Procurement: Promoting regional collaboration.** In a more financially constrained era, policymakers will need to explore new ways to expand their resources, such as regionalizing certain pharmaceutical management activities, sharing information, and adapting successful initiatives and tools for use in different settings. Faced several years ago with the daunting responsibility of expanding AIDS treatment programs, the 14 member countries of the East, Central and Southern Africa Health Community (ECSA HC) investigated ways to work together to adapt their health system management strategies to address scale-up challenges. They launched an advisory network known as the Regional Pharmaceutical Forum. The forum provides technical leadership and helps ECSA HC countries enable their policy environments and incorporate the best practices needed to maximize access to AIDS-related medicines and commodities.

Based on an analysis of member countries’ legal and policy issues, treatment policies, and logistics systems, ECSA HC developed a strategy to pool procurement of AIDS medicines and supplies to decrease members’ pharmaceutical prices. ECSA HC created a business plan and a website to support coordinated informed buying, which is an initial step in establishing pooled procurement. The website provides a database for members to monitor prices and share procurement and supplier information.

**Distribution: Integrating vertical supply systems.** The rush to get lifesaving ARVs to as many people as possible as quickly as possible resulted in an initial proliferation of HIV & AIDS

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**Box 6. Improving Medicine Safety and Selection in Namibia**

Namibia provides an example of how pharmacovigilance data have contributed to the medicine selection process. In 2008, Namibia launched its Therapeutics Information and Pharmacovigilance Centre, which instituted an adverse drug reaction surveillance and reporting system for ARVs. In 2007 Namibia had changed its recommended first-line ART from stavudine to zidovudine because of reports from other countries about peripheral neuropathy; however, the decision lacked any Namibian safety data to support it. The center’s surveillance indicated that zidovudine-associated anemia was the most frequent adverse effect reported in ARVs (64 percent of reported reactions). As a result of the surveillance, the national AIDS treatment committee now has this finding and other pharmaceutical data generated by the center to inform subsequent guideline revisions.

Creating systems and linkages that facilitate the use of pharmacovigilance information to improve medicine safety is imperative. To benefit the local population, this information needs to guide the development and review of treatment guidelines and formularies.
supply systems set up in parallel to primary pharmaceutical supply systems and other vertical systems, such as those for tuberculosis. As programs mature, countries should work toward integrating HIV & AIDS-related pharmaceuticals into the essential medicines supply system to maximize efficiency. By integrating public health programs and supply systems, countries can continue to scale up while strengthening existing pharmaceutical management systems for long-term effectiveness and sustainability.

The Government of Rwanda created a mechanism for collaboration to address multiple, donor-specific ARV distribution systems, which had been operating autonomously. The Coordinated Procurement and Distribution System optimized donor resources, simplified pharmaceutical management, and standardized ART medicines and commodities, independent from donor programs that supported each ART site. This system requires not only that national and international stakeholders agree on roles and responsibilities, but also that they define procurement and distribution procedures and implement a monitoring and reporting system. Coordination simplified ART pharmaceutical management and lowered costs in the first year of the program.

**Use: Promoting life-long adherence to treatment.** The success of ART relies on high, life-long levels of medication adherence to maximize clinical effectiveness and minimize the potential for drug resistance, which can lead to the need for second-line treatments, which are more expensive and often more toxic. As more patients move into their second decade of AIDS treatment, programs must try to promote patients’ long-term adherence in the face of lingering stigma. Effective and confidential medication counseling is critical. Programs in countries such as Ethiopia and Kenya have stressed the importance of improving communication skills among ART dispensers and have designated or constructed private spaces, such as booths, for patient counseling. Pharmacy staff note that better communication and other improvements in ART counseling benefit all patients and that when patients are more at ease, they ask more questions.

Recent research in Ethiopia, Kenya, Rwanda, Tanzania, and Uganda (Chalker et al. 2008) has shown that neither HIV & AIDS programs nor facilities have standardized definitions for treatment adherence, nor do they generally have rigorous procedures in place to track how well patients adhere to treatment or if they default on treatment altogether. In response, the Initiative on Adherence to Antiretrovirals of the International Network for the Rational Use of Drugs developed standardized indicators and simple data collection methods to monitor adherence using information routinely available in ART clinics. Subsequent research (Ross-Degnan et al. 2009) showed that the indicators correlate with positive clinical outcomes in individual patients.

The dissemination of these measurement approaches will provide a systematic way to assess and compare adherence measures across facilities, programs, and countries, and assess the impact of interventions to improve adherence. With a rise in the number of patients who need to be tracked, programs are exploring more efficient ways to encourage adherence, such as using cell phones and community partnerships.

**Management support: Integrating pharmaceutical and health information systems.** Integrated HIS, which should also include pharmaceutical management information, must be a component of Third-Generation HIV & AIDS programs. Without robust information systems, pharmaceutical managers can neither quantify the amount of medicines they need to order nor track inventory or medicine usage. At the program level, MSH has worked with many countries to establish and implement a core set of pharmaceutical management indicators that health care workers routinely use to monitor and evaluate the extent to which
HIV & AIDS programs are able to strengthen their pharmaceutical management systems and how well the systems are performing. Indicators measure components such as the adequacy of pharmaceutical reporting as well as the effectiveness of the pharmaceutical system in terms of minimizing ARV stock-outs. Although the indicators were originally designed for HIV & AIDS programs, other public health programs, such as malaria prevention projects, are also incorporating them into their monitoring and evaluation strategies. Ultimately, in the Third Generation, these indicators should be integrated into a fully functioning national HIS.

Management support: Building capacity in pharmaceutical management. Severe shortages of critical health care personnel, including pharmaceutical professionals, call for a systematic approach to establish and strengthen the capacity of local training institutions to produce competent personnel in response to national needs. For example, Namibia relies heavily on pharmacists' assistants because of its acute lack of pharmacists, but training programs have been unable to train enough candidates. Namibia expanded the capacity of its National Health Training Centre to increase the number of pharmacist's assistant graduates by providing tutors and consultants and developing standards and qualifications for the pharmacist’s assistant course—paving the way for national accreditation. Through these efforts, the National Health Training Centre increased the number of pharmacist’s assistant graduates by 300 percent, from 8 per year to 24. This number will more than double, to 50 per year, by 2010. The graduating pharmacists’ assistants have also contributed to government efforts to decentralize ART services by deploying to remote areas.

Providing technical assistance to academic institutions in resource-limited countries and fostering regional collaboration is another way to build long-term institutional capacity in pharmaceutical management. The Regional Technical Resource Collaboration for Pharmaceutical Management comprises groups from Makerere University in Uganda, Muhimbili College of Health Sciences in Tanzania, the University of Nairobi, and the National University of Rwanda. These institutions collaborate on tools and training approaches, then lead initiatives in their home countries to build the skills of local health care workers to manage HIV & AIDS medicines and other health care commodities.

Table 5. Selected Interventions to Pursue in Third-Generation HIV & AIDS Programs: Pharmaceutical Management

<table>
<thead>
<tr>
<th>Integration</th>
<th>Effectiveness</th>
<th>Sustainability</th>
<th>Selected Interventions</th>
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</thead>
<tbody>
<tr>
<td>✓</td>
<td></td>
<td>✓</td>
<td>Construct or renovate dispensing areas to serve the needs of all patients, not just those on ART.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Adapt the ART dispensing tool for all conditions to improve inventory management and use of staff.</td>
</tr>
<tr>
<td>✓</td>
<td></td>
<td>✓</td>
<td>Link to global supply chains for ARVs, laboratory supplies, and test kits for lower cost, reliable delivery, and good-quality products.</td>
</tr>
<tr>
<td>✓</td>
<td></td>
<td></td>
<td>Strengthen local supply chains to accommodate medicines and health products for all needs.</td>
</tr>
</tbody>
</table>
Table 5 summarizes interventions in pharmaceutical and laboratory management that will help meet the needs of Third-Generation AIDS programs.

HEALTH CARE FINANCING AND FINANCIAL MANAGEMENT

Changes are needed in the financing of HIV & AIDS programs, and challenges remain from earlier generations. What will change in the Third Generation?

What will certainly change in the near term is the amount of funding available for AIDS programs. The Second Generation saw an unprecedented commitment of resources globally to fight AIDS. The worldwide recession, however, may result in major changes, as global trade contracts, the growth of developing countries drops, and world credit markets dry up, severely limiting developing countries’ access to credit. This dire forecast for the world economy means that resources for HIV & AIDS may also decrease in the near term as a result of declining tax revenues, demands for governments to focus on improving domestic economies, and tremendous drops in the values of foundations’ portfolios (Yu et al. 2008; Hecht et al. 2009).

The global financial crisis and decrease in resources will impact the Third Generation of HIV & AIDS programs in five basic ways:

1. increased focus on sustainability
2. greater demands to show cost-effectiveness
3. requirements for improved efficiency in the operations of HIV & AIDS programs
4. greater pressure for innovation in developing models for generating resources for HIV & AIDS programs
5. increased accountability for resources devoted to HIV & AIDS, especially stronger financial management

Achieving Sustainability

For HIV & AIDS programs to succeed over the long term requires that resources be adequate and reliable over a period that will allow delivery of high-quality, integrated services to which there is equal access. Sustainability requires more than adequate financial resources, however. Sustainability includes not only financial sustainability, but also institutional capacities, such as human resources, HIS, planning and management, and appropriate structures, including policies.

From the health system perspective, eight challenges face HIV & AIDS programs seeking to become sustainable:

1. going to scale
2. integrating HIV & AIDS services into the health system
3. training, supervising, and motivating personnel
4. generating sufficient and reliable financial resources
5. managing resources prudently
6. setting up monitoring and evaluation systems
7. managing the growth of services
8. finding and nurturing effective leaders

With regard to financial sustainability, sufficient resources must be mobilized, the sources of those resources must be reliable, and the resources must be used effectively and efficiently. The imperative to expand and improve the effectiveness of AIDS services at a time of shrinking resources will mean that national, public and private, and international authorities will require the managers of Third-Generation...
programs to show how the interventions they choose will be sustainable over the near and long terms.

Working toward Greater Cost-Effectiveness
The increased scarcity of resources for HIV & AIDS programs will also increase the need to demonstrate how the resources that are available can be used more effectively. Cost-effectiveness analysis is a tool that can help decision-makers choose wisely from a range of alternatives and help those responsible for designing and implementing efficient programs. It is used to assess and then compare the benefits, or effectiveness, compared to the costs of implementing a set of activities in an HIV & AIDS program.

Such information can be used to generate support for certain elements of HIV & AIDS programs. As additional resources become available, cost-effectiveness analysis will provide data to support evidence-based decisions about what will provide the greatest health impact using those resources. Cost-effectiveness analysis also allows the measurement and comparison of performance among different programs and health facilities that are providing HIV & AIDS services. Finally, it facilitates the setting of performance standards.

Improving Efficiency
One way in which HIV & AIDS programs can obtain “more resources” is by achieving more outputs or impact, in economic terms, with the same level of resources—that is, by increasing efficiency. Improved efficiency of HIV & AIDS programs will become more important in the Third Generation of programming for three principal reasons: (1) to limit the waste of resources, (2) to enable the provision of more HIV & AIDS services with existing resources, and (3) to keep expenditures for HIV & AIDS services from being higher than necessary and, thus, out of balance with expenditures on other PHC services.

Efficiency takes several forms: technical, economic, scale, and allocative. HIV & AIDS programs will be held accountable for achieving the maximum of each form of efficiency.

Box 7. Performance-Based Financing Can Underpin Expansion of HIV & AIDS Services

From 2005 to the present, the Rwanda HIV/PBF Project has achieved impressive results in health finance reform, quality assurance, capacity-building, and monitoring and evaluation in district hospitals, health centers, and the Ministry of Health. These improvements to Rwanda’s health system have contributed greatly to increased availability of HIV & AIDS services across the country, making them part of basic health services. A Web-based system for collecting and analyzing performance data has helped increase the efficiency, accuracy, and transparency of the health care financing system—and resulted in reporting of data by 100 percent of the facilities providing HIV & AIDS services that receive PBF incentive payments.

The HIV/PBF Project has set up a national administrative model for PBF, allowing the government and donors to purchase basic and complementary health services reaching 7.12 million Rwandans. In 2005–06, the first project year, the United States Government paid $13.30 for each of 3,008 VCT tests in four health centers in Gicumbi District. After PBF was introduced in these centers, in the first nine months of 2006–07, the administration of HIV tests increased by 155 percent, to 7,670, and the cost per test dropped to less than $6.14.
Technically efficient solutions will be required in the use of resources. As a result, clinicians will have to minimize inappropriate prescribing or overuse of treatments because they will face greater scrutiny of their use of scarce resources. Management also has an impact on technical efficiency.

Economic efficiency means using the lowest cost combination of inputs for producing the desired results, such as using appropriate mixes of health personnel, diagnostics, and treatment regimens. For example, improved laboratory equipment can lead to improved economic efficiency, and gains can be made through improvements in management, such as greater decentralization for decision-making at clinical sites or flexibility for re-allocating budget line items.

Scale efficiency, especially for countries with high prevalence rates, demands that the average cost of treatment or prevention be minimized. Scale efficiency is important in planning and will also affect the extent of decentralization when the resources and equipment required are at higher levels of the health system. PBF is an approach that has been shown to help increase the scale efficiency as well as the quality and availability of HIV & AIDS services. (See box 7.)

Allocative efficiency means that resources for HIV & AIDS programming must be used for the services that have proven to be the most effective for achieving impact in reduction of HIV & AIDS as well as improved treatment of PLHIV.

Basically, technical, economic, and scale efficiency involve “doing things right” by choosing the least costly way to implement the program, whereas allocative efficiency is “doing the right things.” Third-generation HIV & AIDS programs will have to prove much more clearly than in the past that they are seeking and achieving efficiency gains.

Striving for efficiency gains in HIV & AIDS programs and the information this effort will generate will be beneficial to policymakers and community governance structures. Increased efficiency will also facilitate improving HIV & AIDS services by reducing their costs and making better use of resources—including equipment, facilities, medicines, supplies, and human resources—and will promote comparison of performance and establishment of standards. Information that comes from working to improve efficiency will help in making projections about how to allocate resources. Good coordination—for example, harmonizing donors’ inputs and activities so they are complementary, not duplicative—will also continue to be a crucial aspect of efficiency.

Without question, efficiency will become a strong part of judging the effectiveness of Third-Generation AIDS programs. The results of this new emphasis will be reducing the waste of resources, producing services and outputs at least cost, and ensuring that the services that are provided are of the type and amount that PLHIV and communities value most.

Using Innovative Models for Developing Resources

Although we can expect that the Third Generation will yield, and increasingly be able to apply, new means of offering high-quality, integrated services, HIV & AIDS programs will be expected to seek innovative ways of financing these programs and services. This effort will involve rethinking the basic economic questions about “producing” HIV & AIDS services:

- What should be produced? This question concerns the allocation of resources.
- How should it be produced? This question relates to the mix of inputs used to produce the services—for example, should the service be based in communities or hospitals?
Who should receive what is produced? To what parts of the population should the services or interventions be targeted and distributed? The answer to these questions will determine the equity with which the resources are used.

Demands to be innovative in how services are produced, as well as how they are paid for, will be greater in the Third Generation. The challenge of financing involves seeing if the usual means of paying for health services (i.e., government budgets, donors, multilateral funding sources, health insurance, or user fees) function well in terms of such criteria as equitable access to services. The innovations may be a combination of creative funding means or development of financing hybrids. The Rapid Funding Envelope (Tanzania Commission for AIDS 2006), for example, could be used provide access to funding for smaller NGOs.

Schneider and Garrett (April 2009, p. 28) offer the following ideas about financing mechanisms that developing countries could use: “innovative indirect taxes, taxation reform to minimize evasion, introduction of social health insurance and prepayment schemes to reduce inequality of out-of-pocket expenditures, more effective channeling of remittance flows, and creation of public-private partnerships to maximize resources of the private sector.”

Microfinance is another mechanism that will help to create wealth—thereby underpinning long-term sustainability—and promote gender equality at the community level. When people have more economic opportunities, they can apply their earnings to meet their health care needs, and their children are more likely to be able to go to and stay in school, for example.

Increasing Accountability

Finally, the demands for accountability will increase because of the large amounts of financial resources devoted to HIV & AIDS programs. Accountability will include improving governance and making sure that PLHIV and communities have a role in determining how resources are used. At the program level, accountability will require greatly improved financial management that ties use of resources to results. An increased emphasis on measurement that links resources to what is achieved with the funds will continue to accelerate rather than decrease in the Third Generation. PBF (see box 7) provides a model for linking use of resources to achievements.

Effective financial management. The increased demand for accountability will mean that financial management concepts and skills will be essential for policymakers and managers of all programs that include HIV & AIDS services. The managers of these programs will have the formidable task of ensuring that resources are used in the best way possible to achieve program objectives. This responsibility necessitates that managers plan, control, and monitor the generation, safekeeping, and use of funds for HIV & AIDS programs, as well as provide timely, informative, and accurate financial reports to government authorities, donors, and others who pay for programs and services.

Financial management has four basic stages:

1. Programming
2. Budget formulation
3. Operations and measurement
4. Reporting and evaluation

The implication for the next generation is that managers of HIV & AIDS programs will have to become more skilled in financial management. Managers will have to be able to:

- prepare long-range plans that correspond to program development initiatives;
set targets for resource generation that will meet program goals;

- prepare and use budgets to plan and contain expenses;

- prepare cash flow forecasts to ensure the availability of cash to cover anticipated financial obligations;

- analyze costs to assess cost-effectiveness and monitor efficiency;

- control and manage the collection, safekeeping, and spending of funds;

- maintain proper accounting records and prepare reports for management, government, and donors.

Effective financial management systems.

Traditional public-sector financial management systems are often not ideal for managing HIV & AIDS programs, especially with regard to generating revenues, which is often a new feature in government ministries. Under such circumstances, managers of government programs may need to develop and use supplementary financial management systems to help them manage their resources effectively. NGO managers face equally challenging situations, as they attempt to work in an environment where the “rules of the game” change frequently.

As a result, although a new mindset is needed for the Third Generation of HIV & AIDS programs, some financial requirements remain unchanged: sustainable programs must be forged, and those programs must be managed in an accountable and cost-effective manner so they can demonstrate that efficiencies are being achieved through innovative means of addressing the financial requirements of HIV & AIDS programs. Excellence in these areas will set apart the next generation of HIV & AIDS programs and their managers from the programs and managers of earlier generations. Capacity-building, such as the strengthening of Country Coordinating Mechanisms, will be crucial for improving effectiveness and sustainability.

Table 6 summarizes interventions in health care financing and financial management for Third-Generation AIDS programs.

### Table 6. Selected Interventions to Pursue in Third-Generation HIV & AIDS Programs: Health Care Financing and Financial Management

<table>
<thead>
<tr>
<th>Integration</th>
<th>Effectiveness</th>
<th>Sustainability</th>
<th>Selected Interventions</th>
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<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Build the capacity of GFATM Country Coordinating Mechanisms.</td>
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<tr>
<td></td>
<td>✓</td>
<td></td>
<td>Use Rapid Funding Envelope to provide access to funding for smaller NGOs.</td>
</tr>
<tr>
<td>✓</td>
<td></td>
<td></td>
<td>Establish PBF to increase results within available resources.</td>
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THIRD-GENERATION HEALTH INFORMATION FOR HIV & AIDS PROGRAMS

Earlier generations of HIS related to HIV & AIDS varied in their information demands. During the Zero Generation, the initial challenge was simply to identify cases (defined by the syndrome that became AIDS) and their epidemiologic correlates in order to define risk factors: high-risk sexual behaviors among men who have sex with men, needle sharing, and sexual networking emerged as risks from studies of affected groups. The “4 Hs” (Haitian, ...
homosexual, hemophiliac, and heroin user; see Farmer 1992) initially stigmatized many people, misled the public, and led to the strong movement for confidentiality. No real effort was made to reach population-wide estimates. With the development of tests for the virus, blood bank testing to screen blood supplies became a major intervention, effectively eliminating one important source of transmission.

In the 1990s, HIV tests became affordable and widely available and were used largely for identification of cases in high-risk groups (such as people in gay communities or at drug abuse clinics), with little attention to denominators. Initial population-wide estimates were based on anonymous HIV testing in prenatal clinics; little or no HIV information was collected or reported as part of routine HIS. HIV infection was still treated as highly confidential and not reported to public health authorities.

In the Second Generation, with ARVs available, a strong rationale emerged to test because treatment could be offered. Select populations at risk were targeted: all women attending prenatal care, all TB cases, all those with STIs, and all partners of those with STIs. Later sample surveys of entire populations and subpopulations (e.g., university students, sex workers) gave more accurate information. Funding agency demands created large and often complex parallel information systems to measure and drive performance, but they were often not linked to denominators or indicators useful for management. Data tended to account for inputs and processes, with few output and no outcome measures. The demands of donors for extensive HIV-related program data—sometimes collected by project staff and reported directly to donor data warehouses, bypassing the national HIS—undermined the efforts of health systems to develop comprehensive, integrated HIS.

### Five Questions to Help Define Priorities for the Future

In the Third Generation, priority must be given to developing HIV & AIDS information as a part of an integrated HIS that reflects the entire range of important PHC activities. This would effectively integrate prevention, treatment, pharmaceutical supply, laboratory support, supervision, and program management into an integrated system of PHC reaching into the community.

Developing an information system for Third-Generation HIV & AIDS programs that enhances effectiveness, sustainability, and integration with a broad range of PHC activities requires asking the following five questions.

1. **What information is essential for frontline health workers to provide better quality care in HIV & AIDS?** Those who develop information systems must ask, for every data item to be collected: Of what use is this data item for the worker who is caring for the patient or the manager who is monitoring the coverage of target groups? Will it motivate? Measure quality? Track important milestones? Lead to better performance for the patient or the community? If these questions do not produce positive answers, the data items should not be collected because they will divert attention and resources from the important issues.

2. **What information is useful and meaningful for monitoring service performance and disease trends, and what is simply “bean counting” and nonproductive?** Useful information guides the care of a patient or helps managers track disease trends and the services provided to a given population. Most information needed for quality patient care is best kept in a patient record and goes no further. It is rarely a useful indicator of program effectiveness or efficacy but may be of great value in managing an individual patient optimally.
The difference between useful patient information and useful population information is critical to reducing the reporting overload often seen as a result of new HIV & AIDS programs. Information for population-wide assessment must have a denominator to permit calculation and tracking of coverage: positivity rates, uptake rates, continuity rates, and so on. The numbers of client interactions or services provided have little or no value to managers or providers unless they are related to an overall target group. Some required reporting in donor-funded programs has been unrelated to any denominator, has been unverifiable, and has not represented a reliable measure of program effectiveness or coverage.

3. What kind of HIS can be designed to facilitate action to achieve goals and improve quality? The key challenge in Third-Generation HIV & AIDS information systems is to identify one or two sensitive indicators of each element of the care delivery system that can drive coverage, continuity, and quality of care. Multiple measures are rarely more useful than a single well-defined indicator. For example, “pregnant women counseled to get HIV testing” is not as useful as “pregnant women tested for HIV/all first prenatal care visits.” Increasing attention should be paid to outcomes (e.g., “pregnant women who were successfully treated with ARVs before delivery/all estimated positives”) rather than inputs and processes. Simply reporting the numbers of people counseled or condoms distributed has no value for program management.

Open-source electronic health record systems—which have been implemented in more than a dozen countries in sub-Saharan Africa—show promise for providing high-quality integrated services in a cost-effective manner (Braistein et al. 2009). It is critical, however, to engage experienced persons and use existing open-source free-ware systems to avoid the disastrous delays and cost overruns that well-meaning people have experienced when trying to develop such systems de novo. Most successes have started managing HIV and especially patients on ART, later expanding into other chronic conditions that require continuity of care and continuous record-keeping. Involving users in the design and keeping the system as simple as possible are critical elements of system design and gradual implementation.

PBF is also relevant in the context of quality, and it provides incentives for accurate, timely reporting of useful information. (See box 7.)

4. How can this information system strengthen and support systemwide HIS rather than weaken and compete with them? HIV & AIDS information should build on and enhance the full range of health service information and become an integral part of monitoring PHC services, rather than be part of a stand-alone HIS. By forming part of the routine information system, regular reporting and orderly feedback will embrace the full range of PHC services that should be available. Thus, PMTCT is a part of reporting on prenatal care and deliveries, whereas use of family planning services is an important aspect of PMTCT. VCT should be a routine service in the HIS for tuberculosis, STIs, and other illnesses and not just a target for HIV. The combination of HIV data with other service indicators gives a more comprehensive picture of the entire PHC service system and strengthens the overall health system through a relevant set of sensitive indicators of the delivery of key services.

Other examples of meaningful indicators that can be integrated with other essential functions include use of contraceptives, tracing STI contacts, preparation for safe birthing, and assuring that TB cases are tested for HIV, and vice versa. A program in South Africa designed the District Health Information System, an integrated nationwide system that provides a full range of PHC indicators by choosing a small group of sensitive indicators from each program—include-
ing pharmaceuticals, management, supervision, and PHC service delivery of all types, including HIV & AIDS care.

5. How does an HIS strengthen the entire HIV & AIDS program and its full integration into a health system? The information demands of the first two generations of HIV & AIDS programs have polarized information collection and set up a false dichotomy between HIV information and the rest of the system. By creating an integrated set of carefully chosen indicators, HIV & AIDS programs in the Third Generation will not only strengthen HIS across the system but also, more important, support full integration of HIV activities into the routine work of PHC. This integration will lead to a comprehensive system of health care with synergies among both services and the information that reflects the array of activities that are appropriate to the health of individuals and communities.

Supportive supervision of workers will help train and guide them on the range of activities for which they are responsible, rather than just HIV & AIDS. Thus, family planning and immunization coverage are just as relevant to the prevention of HIV spread and the care of young children born to HIV-positive mothers as are VCT and young-child polymerase chain reaction testing. An integrated HIS fosters integrated services and more efficient and efficacious outcomes.

MSH has developed a clinic supervision manual with checklists for HIV & AIDS, tuberculosis, and STI services. The manual, which is available online and designed to be

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**Box 8. Improved Use of Information for Supervision in Malawi Strengthens PHC**

In Malawi, in 8 of 28 districts, a district management team member visited four to six facilities monthly. The team member started simply, by helping staff solve the most pressing problems, which were usually related to infrastructure or lack of essential equipment for PHC, including HIV & AIDS services.

Within six months, the district management teams reported improvements that included the following:

- posting of graphs of local data on the walls
- use of hand-drawn maps of catchment areas
- improved orderliness of drug stores
- development of clinic mission and vision statements
- visibly improved staff morale

New checklists for malaria, nutrition, and infection control were designed and tested, and files containing records from each clinic visit were opened. A series of management checklists was developed, covering information systems for health centers and hospitals, pharmaceutical management, finances, human resources, and transport. Reduced costs of supervision compared to earlier program-specific visits were documented, written feedback from hospital referrals was carried back by supervisors, and monthly statistics reports became more timely and complete.

In short, a dynamic, responsive, and supportive system of supervision and use of information is now in place in one-third of Malawi’s districts, and many improvements in service standards, client environment, and infrastructure are already apparent from team efforts—without additional expenditure.

Source: Rohde 2006
adapted to the needs of specific settings, has been used at the district level in South Africa and Malawi to help establish and oversee new services, such as PMTCT, that were integrated into comprehensive clinics. Box 8 presents Malawi’s experience with the manual, in the context of health information and supportive supervision for integrated services.

Table 7 summarizes recommendations for strengthening HIS.

Table 7. Selected Interventions to Pursue in Third-Generation HIV & AIDS Programs: HIS for HIV & AIDS Programs

<table>
<thead>
<tr>
<th>Integration</th>
<th>Effectiveness</th>
<th>Sustainability</th>
<th>Selected Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>Limit indicators to those needed for programs to operate better to serve clients.</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>Use real-time consumption information to ensure supply and reduce both stock-outs and expiration of medicines.</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Establish common reporting systems to reduce duplication of effort.</td>
</tr>
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</table>
This section provides recommended programs and interventions for NGO and program managers, governments, civil society and the private sector, and donors.

**Examples of Third-Generation Approaches for NGO and Program Managers**

- Integrate HIV & AIDS services into other services—such as prenatal care and integrated maternal, newborn, and child health services—and deliver the continuum of prevention, care, and treatment.

- Use family-focused approaches with community-health facility linkages that empower families and communities to participate in their own health care.

- Apply fully functional service delivery models that enable self-monitoring, local decision-making, and resource planning and allocation at the local level.

- Use real-time consumption information to ensure supply and reduce both stock-outs and expiration of medicines.

**Examples of Third-Generation Approaches for Governments**

- Apply the Leading and Managing for Results Model to strengthen and build local government leadership teams that can plan and implement in a more holistic, sustainable way and develop solutions that make the best use of available resources.

- Establish PBF to create the mechanisms and incentives for increasing performance, service quality, and accountability in prevention, care, and treatment.

- Expand Integrated Management of Childhood Illness and of Adolescent and Adult Illness at all national health training institutions in place of training focused on individual health problems and diseases.

- Deliver the right services at the right level using the right providers. Use a task-shifting approach to plan for, train, and support an affordable mix of the right types and numbers of health workers at every level, starting with the community.

- Implement pooled procurement systems and engage with global supply chains for antiretrovirals, laboratory supplies, and test kits whenever they are found to lower costs, ensure reliable delivery, and provide products of assured quality.

**Examples of Third-Generation Approaches for Civil Society and the Private Sector**

- Advocate a health systems approach—integrated, effective, and sustainable—to AIDS programming and, for employers, model this approach in programs for workers.

- Take an active and strategic role in the national Country Coordinating Mechanisms for GFATM grants to encourage more integrated, efficiency-minded, and sustainable GFATM applications.

**Examples of Third-Generation Approaches for Donors**

- Harmonize terminology and approaches to health systems strengthening across major programs such as GFATM, the Global Alliance for Vaccines and Immunisation, and PEPFAR.
- Encourage and support more integrated, efficient, and sustainable programming of bilateral, GFATM, and other multilateral funding.

- Build the capacity of GFATM Country Coordinating Mechanisms to plan, implement, and monitor integrated health systems approaches.

- Use small grants mechanisms, such as the Rapid Funding Envelope, to provide access to funding for smaller NGOs from pooled contributions from multiple donors.
As the Third Generation begins, policymakers must accelerate the use of HIV & AIDS resources to strengthen all six components of health systems—not as six separate pieces but as one vehicle moving forward. “Global health needs global financing, and there is enough money in the world to assure it,” as El-Sadr and De Cock (2009) assert.

Resources for health systems strengthening will not be enough, however: leaders and managers must use the characteristics of integration, effectiveness, and sustainability as the criteria against which all approaches are measured. In the areas of prevention, treatment, and care, all those responsible for programming and services at every level must make choices based on good science and ask whether the activities they plan will achieve the greatest health impact for the lowest cost.

Furthermore, the time has come to fold HIV & AIDS services into revitalized PHC programs. Donors, policymakers, and managers will need to make sure they use the right indicators to measure those services, keeping the three characteristics in mind. Simply counting the number of inputs is not a good investment of limited resources.

If a health system is a vehicle and that vehicle’s destination is health, then patients are the passengers on the journey and the participants in it. We must recognize that communities, households, and individuals are a seventh component of health systems—or actually its reason for being—which cuts across the whole system. No health system will be able to provide Third-Generation AIDS services without fully integrating the people most at risk of HIV infection into the comprehensive range of services to meet their needs. A decentralized approach in which local community members and facility teams solve problems together is essential.

Finally, a broad, multisectoral perspective will be critical to promote the long-term sustainability of HIV & AIDS programs. It should encompass structural change to reduce vulnerability to infection, including the behavioral and socio-economic drivers of the epidemic and the most promising ways to address them, ranging from innovative behavior change communication approaches to microfinance initiatives.
Like other areas of global health, AIDS programming is going through a series of developmental stages or “generations.” Each generation reflects the state of knowledge and practice at the time, the political and economic environment, and the organization of the response to the epidemic. Critical events in these areas have catalyzed each transition to the next generation.

THE ZERO GENERATION (1980s)

The decade of the 1980s was characterized by limited awareness, minimal funding, and lack of large AIDS programs.

Developments in the AIDS Epidemic and in AIDS Prevention, Care, and Treatment

The AIDS epidemic unfolded slowly. The first clinical case of infection with the human immunodeficiency virus (HIV) was reported in 1981, the US Centers for Disease Control and Prevention formally established the term “acquired immune deficiency syndrome” (AIDS) in 1982, and the virus was identified as the cause of AIDS in 1984. By 1985, at least one HIV case had been reported from each region of the world. The years 1982 and 1983 saw the first documented cases of HIV in women and the first cases of transmission from mother to child, from transfusions, and among injecting drug users.

These and other early epidemiological and clinical observations led to the first infection control guidelines, recommendations for PMTCT of HIV, an HIV test, blood bank screening for HIV in the United States, endorsement of condoms for prevention, and other prevention programs. The first ARV, zidovudine (or AZT), was approved by the US Food and Drug Administration in 1987, but truly effective treatment was still a decade off.

The Political and Economic Environment

In the United States, as in most developed countries, the recognition of the scope of the AIDS epidemic was delayed and its impending impact was met with denial. In And the Band Played On: Politics, People and the AIDS Epidemic (1987), Randy Shilts provides a history of the early years of the epidemic: the political silence was deafening. Widespread prejudice against men who have sex with men meant that US President Ronald Reagan did not use the word “AIDS” in public until 1986.

Action by PLHIV occurred as early as 1983, when a group overtook the stage at a US conference and issued a statement on the rights of PLHIV. The PLHIV movement led to the formation of what became two influential AIDS activist groups: the Global Network of People Living with HIV/AIDS in 1986 and ACT UP (the AIDS Coalition to Unleash Power) in 1987. The year 1987 also saw the formation in Uganda of the first African organization for PLHIV: TASO.

The Organization of the AIDS Response Globally and in Africa

Two events of the 1980s with lasting influence on the global response to AIDS were the First International AIDS Conference, hosted in 1985 by US Department of Health and Human Services and WHO, and the creation in 1987 of WHO’s Global Programme on AIDS (GPA). In 1988, WHO declared the first World AIDS Day, with the theme of communication.

The establishment of TASO and creation of the GPA were among a small number of promising developments for Africa and other developing countries during the 1980s. For the most part, awareness was limited and denial was common among political leaders, knowledge of
HIV & AIDS within the general population was quite limited, and the number of civil society or community-based organizations working in HIV & AIDS was small.

Despite denial and delay, for developed countries the foundations of the clinical and public health infrastructure were put in place that would help these countries begin to bring their AIDS epidemics under control in the 1990s. Even though the first cases of AIDS in Africa were reported as early as 1983 (AVERT 2009), Africa saw effectively no comparable movement. Public- and private-sector AIDS programs were essentially unknown in developing countries in Africa and elsewhere at the close of the 1980s.

**The First Generation (1990s)**

First-generation AIDS programs were characterized by a focus on prevention, inadequate funding, and generally weak political commitment. Programs were rudimentary, although by 1990 the epidemic was already showing signs of spiraling out of control. WHO had received reports of more than 300,000 AIDS cases but estimated the real number of PLHIV worldwide to be 9–10 million, more than 60 percent of them in Africa. Estimates also indicated that since the beginning of the epidemic, 3 million HIV-infected women had given birth to an equal number of infants, of whom more than 700,000 likely had been infected with HIV (AVERT 2009).

**Developments in the AIDS Epidemic, and AIDS Prevention, Care, and Treatment**

As the AIDS epidemic continued to expand largely unchecked in most parts of the world, the focus on prevention led to the first rapid HIV tests (1992), recommended use of ARVs by pregnant women to reduce perinatal transmission of HIV (1994), development of viral load testing to quantify HIV activity in the body (1996), and evidence that needle exchange programs could reduce transmission without encouraging use of illegal drugs. By the mid-1990s, essential prevention messages and approaches had been identified for each mode of transmission and major risk group. The gay community took a leading role in bringing risk factors to light and changing practices. The result was that by 1996 the number of new AIDS cases in United States declined for the first time since the epidemic had begun (AVERT 2009). Similar patterns were seen in other developed countries.

The second half of the 1990s saw comparable progress in treatment, with the advent of highly active antiretroviral therapy (HAART). This combination therapy paradigm often included new medicines. The 11th International AIDS Conference in 1996, which highlighted the life-extending effectiveness of HAART, became a catalytic event for access-to-treatment movements in developing countries. The following year, largely as a result of HAART, AIDS-related deaths in the United States declined by more than 40 percent, providing clear evidence of the potential impact of widespread treatment (Brown 1997).

In sub-Saharan Africa, the number of new cases of HIV infection was steadily rising, and AIDS was fast becoming the leading killer of adult men and women. Early prevention programs gradually expanded through the decade. Social marketing was introduced as a strategy for demand creation for preventive services—mostly condoms. Initial attempts at voluntary counseling and testing (VCT) were unsuccessful in the mid-1990s but accelerated in the late 1990s as an important preventive approach. Syndromic management of STIs took center stage on the basis of the Mwanza study, which demonstrated that STI treatment reduces risk of HIV infection by up to 40 percent (Grosskurth et al. 1995). Prevention was increasingly targeted, with interventions aimed at youth, the workforce, sex workers, and the most-at-risk populations.
Whereas by the late 1990s prevention programs in developed countries were beginning to contain the epidemic and state-of-the-art treatment was fast turning AIDS into a chronic disease, in Africa the focus remained almost exclusively on prevention. The exorbitant price of AIDS medicines (well over $10,000 per person per year), lack of funding, concerns about infrastructure, lack of monitoring capacity, and skepticism among doctors about treatment adherence by PLHIV meant that treatment was limited to the wealthy and influential. Less than 1 percent of those in need received treatment (Schwartländer, Grubb, and Perriëns 2006).

Despite these constraints, the dramatic impact of HAART in high-income countries and the example of treatment scale-up in Brazil inspired UNAIDS in 1997 to establish pilot treatment programs in Chile, Côte d’Ivoire, Uganda, and Vietnam. Doctors Without Borders and Partners in Health soon followed with treatment programs.

The Political and Economic Environment

Although stigma remained a major barrier to care in many countries, wherever political and social commitment existed, the financial resources were eventually found for AIDS prevention and treatment. Prompted by AIDS activists, public health communities, and growing public concern, in the early 1990s governments in high-income countries became much more active in combating the growing epidemic. Examples of such action included the creation of the National Commission on AIDS by the US Congress (1990), establishment of the White House Office of National AIDS Policy by US President William Clinton (1993), and the First White House Conference on HIV/AIDS (1995).

In the broader political and economic environment, on one hand, many Western countries and the “Asian tigers” experienced steady economic progress and national development in the 1990s. On the other hand, the growing imbalance in national accounts led to an International Monetary Fund (IMF) and World Bank program of “structural adjustment,” which resulted in substantial reduction in public health programs in Africa.

The early 1990s saw declining growth in gross domestic products, high inflation, declining currencies, high domestic debt, increasing poverty, and cuts in development aid to sub-Saharan Africa. It also saw a health sector reform agenda focused on changing roles and financing arrangements in health (World Bank 1993). Mechanisms for financing health systems were discussed and new mechanisms—such as user fees, health insurance, capitation, and global budgets—were pursued. Nongovernmental sources of financing and the private sector’s share of health expenditures both grew.

The Organization of AIDS Programs Globally and in Africa

Primary health care—the importance of which was underscored at Alma-Ata in 1978—was nurtured in the 1980s and could have provided a firm public health platform for the response to AIDS. The vision of “Health for All” was based on the assumptions that economic growth would continue, foreign aid would increase, and developing-country governments would spend more on health. The reality was that even though many resource-intensive hospitals had been built (often with donor financing), newly trained doctors and other health professionals wanted to remain in urban areas, and domestic and international financial commitments to PHC were insufficient.

By the mid-1990s, it had become evident that the epidemic was accelerating in developing countries and that a much larger, multisectoral response was needed. In 1996, UNAIDS was established to advocate for global action on the epidemic and to coordinate HIV & AIDS efforts across the entire UN system.
Just as most governments were slow to respond to the growing AIDS crisis in Africa, so too were many activist organizations. The International Council of AIDS Service Organizations was formed as a global network of nongovernmental and community-based organizations, but not until the late 1990s, with the rise of the access-to-treatment movement, did PLHIV groups truly begin to mobilize global support to combat AIDS. The South African Treatment Action Campaign, formed in 1998, proved to be one of the most powerful catalysts for this movement.

Throughout the 1980s and 1990s, the dogged efforts of AIDS researchers, national and international public health officials, AIDS activists, and a small number of celebrity champions drove progress in prevention, care, and treatment for HIV & AIDS in developing countries. Too often, these efforts were met by denial, dithering, and foot-dragging by political leaders.

THE SECOND GENERATION

(2000s)

The Second Generation of the AIDS epidemic ushered in a massive expansion of funding, a focus on treatment, increased complexity, and more players. At the dawn of the millennium, the epidemic in Africa continued seemingly unchecked, despite the advocacy efforts of UNAIDS and PLHIV groups, the growing strength of some national AIDS control programs, and the greater willingness of political leaders to speak out on AIDS. The number of PLHIV had tripled during the 1990s, with an estimated 2.6 million people worldwide dying in 1999 alone (AVERT 2009). The number of new cases continued to rise, there was little consensus on the most effective means of prevention, treatment was still only a dream for all but the wealthiest in Africa, global funding for AIDS remained in the hundreds of millions of dollars (a fraction of the need), and political support remained uneven.

The years leading up to 2000, however, witnessed an astonishing reversal in these dynamics, with an unprecedented swell of support for a global response to AIDS. The increasingly untenable disparity in access to treatment between rich and poor countries, growing concerns among high-income countries about the potential security threats posed by the seemingly uncontrolled progression of the epidemic, and turn-of-the-millennium optimism for a better world combined to fuel a “millennium fever” of global and local action.

Developments in AIDS Prevention, Care, and Treatment

The groundswell of public and political support, extraordinary expansion in funding for HIV & AIDS, and maturation of global and national AIDS programs provided the essential elements for dramatic expansion in prevention, care, and treatment that began in the early 2000s.

Unquestionably the most stunning success of Second-Generation AIDS programs was the scale-up of ART. In just five years, the number of HIV-positive people on ART in developing counties increased from nearly 300,000 in late 2002 to just under 3 million in late 2007, a 10-fold increase worldwide. In Africa alone, the number increased from fewer than 50,000 in 2002 to an estimated 2.1 million in 2007—a more than 40-fold increase (WHO 2006; WHO, UNAIDS, and UNICEF 2008).

Vital “scale-up” tools included a WHO list of 12 essential ARVs for national programs (2002), WHO guidelines for use of ARVs in resource-poor countries (2002), establishment of a UN/WHO quality assurance system for generic ARVs, and a patchwork of price negotiations and price competition that resulted in medicine costs that by now are well below $200 per person per year.

The PEPFAR program, launched in 2003, played a vital leadership role in global treatment scale-up. Critical factors in PEPFAR’s success includ-
ed setting specific targets, actively engaging international and local implementing partners and working with them to design programs to achieve the targets, providing adequate funding to those programs, closely monitoring achievement of targets, and insisting on corrective action when targets were not achieved. In terms of funding and implementation oversight, the other major actor was GFATM. The PEPFAR-funded Supply Chain Management System, a group of 16 organizations with offices in 17 countries, has played a crucial role in procuring essential medicines and supplies at affordable prices and helping strengthen and build reliable and sustainable supply systems since 2005.

In contrast to the remarkable scale-up in treatment, HIV prevention is widely seen as having lagged seriously behind treatment during the 2000s (Horton and Das 2008). The challenge, however, is not too much treatment, but too little prevention. By many accounts, treatment has helped prevention through reduction in transmission (Piot et al. 2008).

Prevention efforts have had an impact, however, as noted in the UNAIDS report of 2008. Political and financial support has led to prevention successes through shifts in sexual behavior in countries such as Thailand, Uganda, and Zimbabwe (Global HIV Prevention Working Group 2007). PMTCT efforts averted more than 136,000 infant infections in 2007 and 2008 alone (PEPFAR Annual Reports to Congress 2008 and 2009). At the same time, prevention activities have been inadequate, and behavior change has been slow. Although some countries have seen successes and some specific interventions have made strides, less than 10 percent of individuals at risk worldwide receive key prevention services (Global HIV Prevention Working Group 2007). The lack of accurate, comprehensive knowledge about HIV among youth is a particular problem (UNAIDS 2008, pp. 15–16). This and other challenges to scaling up prevention were articulated in a six-part series in 2008 in The Lancet.

**The Political and Economic Environment**

High-profile political and popular support from national political leaders, heads of UN agencies, private philanthropists, outspoken academics, celebrities, private-sector leaders from the pharmaceutical industry, and AIDS activists produced a steady stream of initiatives that launched the largest public health treatment scale-up in the history of Africa. This surge is finally showing signs of stemming the tide of new HIV infections.

The year 2000 proved pivotal for AIDS. The UN Security Council, US National Security Council, and G8 leaders all acknowledged AIDS as a security threat and advocated for increased funding. African leaders openly committed themselves to fight AIDS. Brazil inspired hope when it reported that its approach to treatment had reduced AIDS deaths by up to 50 percent since the introduction of ART in 1996. The 13th International AIDS Conference in South Africa, the first to be held in a developing country, helped propel the global movement for access to AIDS medicines.

A global commitment ensued. Through the UN’s Millennium Development Goals (2000), the World Bank Multi-Country HIV/AIDS Program (MAP) in 2000, Global Drug Facility (2001), GFATM (2002), the US President’s Emergency Fund for AIDS Relief (2003), the Bill & Melinda Gates Foundation national prevention initiative in India (2003), the US President’s Malaria Initiative (2005), UNITAID (2006), and PEPFAR reauthorization (2008), over $80 billion has been committed so far during the 2000s to combat AIDS, tuberculosis, and malaria.

The dramatic rise in commitment to combatting AIDS came as developed countries were increasing their commitment to development
assistance, which had flagged during the 1990s. At the 2001 Monterrey Conference on Financing for Development, developed countries committed themselves to increasing development assistance to 0.7 percent of their gross domestic products (although most of the countries have not fulfilled this commitment). This commitment came at a time of not only steady growth in high-income countries but also strong growth in the economies of Africa, Asia, and other emerging economies (IMF 2008).

The Organization of AIDS Programs Globally and in Africa
With the massive increase in funding for HIV & AIDS came fundamental changes in the organization of the AIDS response. At the global level, UNAIDS and WHO continued as the central advocacy and standard-setting organizations. GFATM, established primarily to increase resources channeled to the three diseases, introduced a development assistance model based much more heavily on country-led program design and implementation. PEPFAR, which describes itself as “the largest commitment ever by any nation for an international health initiative dedicated to a single disease” (PEPFAR May 2009), has wielded considerable influence over the development of Second-Generation AIDS programs. Finally, European and other donors of the Organisation for Economic Co-operation and Development, foundations, and private companies have shaped the current organization of AIDS programs in Africa.

Although variation is considerable, major international funders of Second-Generation AIDS programs have generally pursued a new paradigm with certain common features. These features have included more focus on targets and measurable results, substantially greater emphasis on partnerships at all levels, and more emphasis on transparency and account-ability. PEPFAR is known for its disciplined pursuit of performance targets, which many argue has been a primary driver of the unprecedented scale-up of PEPFAR-funded AIDS programs. Similarly, the WHO “3 by 5” target of putting 3 million people on AIDS medicines by the year 2005 boosted global momentum. Through the efforts of countries themselves and with resources primarily from GFATM and PEPFAR, the target of 3 million on treatment was achieved in late 2007. It represented a more than sevenfold increase in just four years.

PEPFAR has also emphasized working through partnerships, especially local partnerships, and this trend will continue in the second phase of PEPFAR. The US Government has defined a process for working through partnership frameworks (“five-year joint strategic plans designed to fully align PEPFAR support with national strategies for HIV/AIDS”) with the goal “for each country to assume primary responsibility for the national responses to HIV/AIDS, both strategically and financially” (Goosby 2009). In fiscal year 2007, PEPFAR partnered with 2,217 organizations—87 percent of which were local—in 15 countries, an increase from 1,588 organizations in 2004 (PEPFAR 2008). Through its requirements for Country Coordinating Mechanisms and grant proposals, GFATM has broadened the involvement of CSOs and the private sector to the extent that these segments of society represent half of all primary recipients of GFATM grants.

Developing countries have become more assertive in their relationships with multilateral agencies and donors, focusing on their priorities and not simply accepting what multilaterals or donors see as key issues. The challenge of country-level coordination became an increasing concern in the mid-2000s, in 2004 leading UNAIDS, the United Kingdom, and the United States to cohost a high-level meeting to strengthen commitment to country-led national
AIDS responses. The principle of Three Ones endorsed at that meeting aimed “to achieve the most effective and efficient use of resources, and to ensure rapid action and results-based management” by supporting one HIV & AIDS action framework as the basis for coordinating the work of all partners, one national AIDS coordinating authority with a broad multisectoral mandate, and one country-level monitoring and evaluation system.

At the same time, national AIDS commissions, ministries of health, and others involved in the AIDS response must now work with an extraordinary number of external initiatives. More often than not, each has its own reporting requirements, as well as a wide range of partners. The executive chairman of the Tanzanian Commission on AIDS reports having contact with some 6,000 local NGOs and other AIDS-related organizations.

**Challenges for Third-Generation HIV & AIDS Programs (2010s)**

Third-generation AIDS programs of the 2010s must overcome a series of daunting challenges if they are to achieve the enormous expansion in prevention that is vitally needed even as they continue to increase the number of people on treatment.

**Challenges in AIDS Prevention, Care, and Treatment**

Less than a decade ago, AIDS treatment was considered a complex medical challenge that in many places still required specialist care. Today, in many places in the developing world, treatment protocols, laboratory support, availability of medicines, counseling services, adherence outreach, and other support systems have become routine. In the next decade, however, the complexity of AIDS treatment is likely to increase as more people need treatment, viral resistance increases, and new ARVs come on the market.

Prevention efforts will continue to be hampered until measurable targets such as those that helped drive treatment scale-up are developed. An “access-to-prevention campaign” like the access-to-treatment movement is needed (Horton and Das 2008), as is a much more operational approach to prevention (Bertozzi et al. 2008; Gupta et al. 2008; Merson et al. 2008; Ooms 2008; Padian et al. 2008; Piot et al. 2008). Combination prevention—which unites behavioral, biomedical, and structural strategies (Coates et al. 2008)—is a promising model for the Third Generation.

**Challenges in the Political and Economic Environment**

The global financial crisis will doubtless prove to be one of defining events for AIDS programs in the next decade (Navario 2009; Schneider and Garrett 2009 [January]; Schneider and Garrett 2009 [April]). The world economy has actually contracted for the first time since World War II. World trade has shrunk—with a disproportionate impact on developing countries. Economic growth in established market countries is not expected to be fully realized until after 2010.

The negative effects of the global recession will be felt in all developing countries. Early indicators from the Obama administration suggest that the commitment to HIV & AIDS will be maintained at current levels but with differences in terms of priorities and program design, so efficiency must increase. GFATM, however, is already putting the brakes on its financial commitments, cautioning countries that they may not receive full funding. The commitments of governments to protect the poor and vulnerable may not be honored as economies come close to collapse. The global recession has had the most negative impact on health in the poorest strata of each country.
Challenges for AIDS Programs Globally and in Africa

The response to AIDS has often been fragmented and built on the involvement of many specialized organizations that handle only one component of services or support, such as treatment, PMTCT, high-risk groups, or OVC. Most services are not integrated. Instead, they are offered in separate clinics, sometimes in separate locations, requiring extra health workers and additional physical infrastructure. Lack of efficiency also hampers services and threatens their continuation. The huge US Government budget increase between 2006 and 2008 unintentionally contributed to building some programs that were based on the assumption of unlimited resources. Finally, the present response has been only partly effective in building local capacity. Some models of care still depend on highly trained health workers, despite the global shortage of doctors and nurses, and on externally managed systems rather than sustainable local systems.

Implementation partners can be expected to proliferate, with great variation in their effectiveness and ability to manage services efficiently. Some weaker partners are likely to drop out as funding diminishes. Approaches to health problems may become even less integrated as donors and governments continue to want to see the impact of their investments demonstrated. As incomes fall, demand for health services will be greater from the public sector at a time when it will be increasingly difficult to finance them.

Together, these dynamics imply that a focus on cost-effectiveness and efficiency will be critically important in the next decade. Changes in the management of HIV & AIDS programs that would have been necessary for continued scale-up will be vital just to maintain what was achieved in the 2000s.


Organisation for Economic Co-operation and Development. 2009. *Paris Declaration on Aid Effectiveness*. [http://www.oecd.org/document/18/0,3343,en_2649_326398_35401554_1_1_1_1,00.html](http://www.oecd.org/document/18/0,3343,en_2649_326398_35401554_1_1_1_1,00.html)


