



## **Interim Report of Task Force 5 Working Group on HIV/AIDS**

February 1, 2004

### **Coordinators**

Agnes Binagwaho  
Josh Ruxin

### **Lead Authors**

Paul Wilson  
Lara Stabinski

**Comments are welcome and should be directed to:**

Paul Wilson at [pw2101@columbia.edu](mailto:pw2101@columbia.edu)

### **Note to the reader**

This Interim Report is a preliminary output of the Millennium Project Task Force 5 Working Group on HIV/AIDS. The recommendations presented herein are preliminary and circulated for public discussion. Comments are welcome and should be sent to the e-mail address indicated above. The Task Force will be revising the contents of this document in preparation of its Final Task Force report, due December 2004. The Final Task Force report will feed into the Millennium Project's Final Synthesis Report, due to the Secretary-General by June 30, 2005

### **Disclaimer**

This publication does not necessarily reflect the views of the United Nations Development Programme (UNDP), its Executive Board or its Member States.

The Millennium Project is the independent advisory body to United Nations Secretary-General Kofi Annan that is commissioned with recommending, by June 2005, operational strategies for meeting the Millennium Development Goals (MDGs). This includes reviewing current innovative practices, prioritizing policy reforms, identifying frameworks for policy implementation, and evaluating financing options. The Project's ultimate objective is to help ensure that all developing countries meet the MDGs.

As a United Nations-sponsored initiative, the Millennium Project proceeds under the overall guidance of the Secretary-General and United Nations Development Programme (UNDP) Administrator Mark Malloch Brown in his capacity as chair of the United Nations Development Group (UNDG). Professor Jeffrey Sachs directs the Project, which brings together the expertise of world-class scholars in both developed and developing countries, United Nations agencies, and public, non-governmental, and private-sector institutions. Ten Task Forces carry out the bulk of the Millennium Project's analytical work with support from a small secretariat based at UNDP headquarters in New York. The Task Forces and their Coordinators are listed below.

| <b>Task Force</b>   | <b>Task Force Coordinators</b>  |
|---|---|
| 1 - Poverty and Economic Development  | <ul style="list-style-type: none"> <li>• Mari Pangestu</li> <li>• Jeffrey Sachs</li> </ul>  |
| 2 - Hunger  | <ul style="list-style-type: none"> <li>• Pedro Sanchez</li> <li>• M.S. Swaminathan</li> </ul>   |
| 3 - Education and Gender Equality   | <ul style="list-style-type: none"> <li>• Nancy Birdsall</li> <li>• Amina Ibrahim</li> <li>• Geeta Rao Gupta</li> </ul>  |
| 4 - Child Health and Maternal Health  | <ul style="list-style-type: none"> <li>• Mushtaque Chowdhury</li> <li>• Allan Rosenfield</li> </ul>   |
| 5 - HIV/AIDS, Malaria, TB, Other Major Diseases and Access to Essential Medicines | <ul style="list-style-type: none"> <li>• Agnes Binagwaho</li> <li>• Jaap Broekmans</li> <li>• Paula Munderi</li> <li>• Josh Ruxin</li> <li>• Burton Singer</li> </ul> |
| 6 - Environmental Sustainability  | <ul style="list-style-type: none"> <li>• Yolanda Kakabadse Navarro</li> <li>• Don Melnick</li> </ul>  |
| 7 - Water and Sanitation  | <ul style="list-style-type: none"> <li>• Roberto Lenton</li> <li>• Albert Wright</li> </ul>   |
| 8 - Improving the Lives of Slum Dwellers  | <ul style="list-style-type: none"> <li>• Pietro Garau</li> <li>• Elliott Sclar</li> </ul>   |
| 9 - Open, Rule-Based Trading Systems  | <ul style="list-style-type: none"> <li>• Patrick Messerlin</li> <li>• Ernesto Zedillo</li> </ul>  |
| 10 - Science, Technology and Innovation   | <ul style="list-style-type: none"> <li>• Calestous Juma</li> <li>• Lee Yee Cheong</li> </ul>  |

**Additional information on the Millennium Project is available on its website at [www.unmillenniumproject.org](http://www.unmillenniumproject.org)**

# Combating HIV/AIDS in the Developing World

Interim report of Millennium Project Task Force 5: Major Diseases and Access to  
Medicine, HIV/AIDS subgroup

Paul A. Wilson, Lara Stabinski, Agnes Binagwaho, and Josh Ruxin

*February 1, 2004*

## Table of Contents

|  |           |
|--|-----------|
| <b>ABBREVIATIONS .....</b>   | <b>4</b>  |
| <b>EXECUTIVE SUMMARY .....</b>   | <b>5</b>  |
| <b>1. INTRODUCTION .....</b>   | <b>12</b> |
| 1.1 Overview of the epidemic.....  | 12        |
| 1.2 The response to the epidemic.....  | 15        |
| 1.3 The Millennium Project and HIV/AIDS .....                                    | 17        |
| 1.4 Organization of the interim report and relationship to the final report..... | 20        |
| <b>2. PREVENTION .....</b>   | <b>22</b> |
| 2.1 Overview .....   | 22        |
| 2.2 The essential interventions.....   | 24        |
| 2.3 Current coverage of prevention services .....                                | 28        |
| 2.4 Prevention targets.....  | 28        |
| 2.5 Setting priorities .....   | 31        |
| 2.6 Integrating prevention with treatment .....                                  | 32        |
| 2.7 Structural interventions.....  | 35        |
| 2.8 New ideas and technologies.....  | 35        |
| 2.9 Issues and controversies.....  | 37        |
| 2.10 Recommendations .....   | 41        |
| <b>3. TREATMENT .....</b>  | <b>42</b> |
| 3.1 Treatment and care interventions.....  | 43        |
| 3.2 Current status of AIDS treatment .....                                       | 43        |
| 3.3 Treatment targets .....  | 44        |
| 3.4 Scaling up treatment .....   | 46        |
| 3.5 Equity and human rights in treatment .....                                   | 54        |

|   |           |
|---|-----------|
| 3.6 Ensuring a well-coordinated multisectoral response.....         | 54        |
| 3.7 Recommendations .....   | 55        |
| <b>4. HEALTH SYSTEMS .....</b>                                      | <b>57</b> |
| 4.1 How health systems constrain HIV/AIDS prevention and care ..... | 57        |
| <b>5. ISSUES IN IMPLEMENTATION.....</b>                             | <b>59</b> |
| 5.1 International financing .....                                   | 59        |
| 5.2 Roles for the United Nations.....                               | 60        |
| 5.3 Monitoring and evaluation .....                                 | 62        |
| 5.4 Recommendations .....   | 63        |
| <b>6. OBSTACLES .....</b>   | <b>64</b> |
| 6.1 Gender and HIV/AIDS .....                                       | 64        |
| 6.2 Stigma and discrimination.....                                  | 66        |
| <b>7. ESTIMATING THE COST .....</b>                                 | <b>68</b> |
| <b>LITERATURE CITED .....</b>                                       | <b>70</b> |
| <b>Appendix: Task force projects and working papers.....</b>        | <b>80</b> |

## Abbreviations

|        |  |
|--------|--|
| ANC    | Antenatal care or clinic                                     |
| ART    | Antiretroviral therapy                                       |
| ARV    | Antiretroviral drug  |
| ATSAP  | Antiretroviral Treatment Site and Affiliated Programs Survey |
| CCM    | Country Coordinating Mechanism                               |
| CDC    | Centers for Disease Control                                  |
| CMH    | Commission on Macroeconomics and Health                      |
| GDP    | Gross Domestic Product                                       |
| HIV    | Human Immunodeficiency Virus                                 |
| IMCI   | Integrated Management of Childhood Illness                   |
| IDU    | Injecting drug users   |
| IFI    | International Financial Institution                          |
| INCB   | International Narcotics Control Board                        |
| LFA    | Local Funds Agent  |
| MAP    | Multi-country AIDS Program                                   |
| MDG    | Millennium Development Goal                                  |
| MSF    | Medecins sans Frontieres                                     |
| MSM    | Men who have sex with men                                    |
| MTCT   | Mother-to-Child Transmission                                 |
| NGO    | Non-Governmental Organization                                |
| OECD   | Organization for Economic Cooperation and Development        |
| OI     | Opportunistic Infection                                      |
| PLWHA  | People Living With HIV/AIDS                                  |
| PMTCT  | Prevention of Mother-to-Child Transmission                   |
| PRSP   | Poverty Reduction Strategy Paper                             |
| STI    | Sexually Transmitted Infection                               |
| SW     | Sex workers  |
| UNAIDS | Joint United Nations Programme on HIV/AIDS                   |
| UNDP   | United Nations Development Programme                         |
| UNGASS | United Nations General Assembly Special Session              |
| TB     | Tuberculosis   |
| UNDCP  | United Nations International Drug Control Program            |
| UNICEF | United Nations Children's Fund                               |
| UNODC  | United Nations Office on Drugs and Crime                     |
| VCT    | Voluntary Counseling and Testing                             |
| WHO    | World Health Organization                                    |

## Executive Summary

HIV/AIDS is a global catastrophe, threatening the most affected nations with social and economic collapse while it continues its relentless spread to new regions. In the past year, 3 million people died of AIDS, more than ever before and more than from any other infectious disease. Meanwhile, about 5 million more became infected with HIV. 40 million people now carry the virus worldwide, almost 30 million of them in sub-Saharan Africa. This number includes 2.5 million children. Despite local successes and some recent signs of growing commitment, national and international responses to the epidemic remain wholly inadequate, whether judged by the barely discernable impact on the course of the epidemic or by the limited reach of prevention and treatment programs. For example, only 7% of those who need antiretroviral therapy in the developing world are receiving it (and only 2% in sub-Saharan Africa); access to services for preventing transmission from mother to child is equally poor; and even in the hardest-hit regions, most young people do not have reliable information on protecting themselves from infection. Moreover, the distribution of treatment and prevention services remains profoundly inequitable.

The HIV/AIDS epidemic takes radically different forms in different communities, countries, and regions. HIV prevalence ranges from a fraction of a percent to well over 30%; the virus spreads through different populations by different means; and national capacity and willingness to respond vary enormously. No discussion of the epidemic can ignore this great diversity. Although local responses must be guided by a full accounting of local conditions, the Task Force believes that a simple dichotomy can capture many important features of the global pandemic. On one hand are the most affected countries, almost all in sub-Saharan Africa and almost all very poor. There, prevalence is high, the epidemic is well established in the general population, transmission is primarily by heterosexual intercourse, and the fundamental challenges to reversing the epidemic are lack of resources and weak health systems. On the other hand are many countries of Eastern Europe, Asia, and Latin America, with lower prevalence epidemics concentrated in key populations such as injecting drug users, sex workers, and men who have sex with men. In these countries, the greatest obstacles to containing HIV/AIDS are lack of political will and misguided, punitive policies toward those most affected by the epidemic. This basic distinction is a recurring theme of our report. Perhaps inevitably, our report focuses in large part on the African epidemic, but several of our most important recommendations apply with particular force to those countries with concentrated epidemics.

### The Millennium Development Goals and the Millennium Project

The Millennium Development Goals (MDGs) represent an unprecedented global commitment to combating poverty, hunger, disease, and inequality. Goal #6, “to combat HIV/AIDS, malaria, and other diseases”, elevates the fight against AIDS to a place among the world’s highest development priorities, recognizing the enormous suffering the epidemic causes as well as the threat it poses to achievement of the other goals.

The HIV/AIDS Task Force of the Millennium Project<sup>1</sup> has been asked to outline how this goal and the accompanying target, “to have halted and begun to reverse the spread of HIV/AIDS by 2015”, can be met. In working to fulfill this broad mandate while avoiding unnecessary duplication, we have relied

---

<sup>1</sup> The HIV/AIDS group is formally one of four subgroups of Task Force 5 on HIV/AIDS, Malaria, Tuberculosis, Other Major Diseases, and Access to Essential Medicines, but for simplicity will be referred to as the AIDS task force in this report.

in great part on the work of others. Our report is drawn from the vast body of existing research, as well as from our modest new analyses and the experience and judgement of Task Force members. We have sought to draw new attention to neglected issues, to redress what seem to us imbalances in current dogma, and to begin translating the high aspirations and idealism of the Millennium Project into recommendations for practical action.

### **Interpreting the goal, setting targets**

The MDG target for AIDS lacks the quantitative benchmarks that make many of the other goals verifiable commitments. To give the AIDS goal a rigorous interpretation, the Task Force proposes two demanding but attainable targets for 2015:

- Reduce prevalence among young people to 5% in the most affected countries and by 50% elsewhere by 2015.
- Ensure that affordable and effective antiretroviral therapy is available to all who have need of it by 2015.

Recognizing the need for immediate action as well as careful planning for 2015, we propose interim goals for 2005, building on the commitments of the UN General Assembly Special Assembly on HIV/AIDS (UNGASS). To motivate specific action, we supplement the overall goals with coverage targets for key prevention and treatment interventions. Together, the outcome goals and the coverage targets provide clear benchmarks for measuring both overall progress and concrete action.

The Task Force recognizes it might be possible to reduce HIV prevalence and meet other goals without reaching the poorest and most vulnerable populations; this would not be acceptable. Our report stresses two basic requirements for ensuring equitable access to HIV/AIDS services, especially antiretroviral treatment. First, the poor will be left out unless the health systems that serve them are strengthened. Second, marginalized populations such as injecting drug users will be excluded if their right to care and other services is not vigorously defended.

We have organized our most important findings into ten basic imperatives which, if followed, should ensure that the world meets the Millennium Development Goal for HIV/AIDS.

#### **1) Ensure equitable access to treatment**

The Task Force believes that treatment and care must stand alongside prevention as essential elements of a comprehensive response to the epidemic. Although management of opportunistic infections and palliative care are important components of care, expanding access to antiretroviral therapy (ART) must be the highest priority. Only treatment can substantially prolong the lives of the 40 million people who already carry the HIV virus. In the highest prevalence countries, only urgent expansion of treatment will forestall continued catastrophic rates of illness and death and the attendant social and economic devastation. Moreover, the current situation, in which access to life-saving treatment is primarily determined by ability to pay or country of residence, is fundamentally unjust.

After years of delay, a growing number of governments, donors, and international organizations are at last committed to rapid scaling up of ART. We endorse the WHO/UNAIDS initiative to provide antiretroviral therapy to 3 million people by 2005 (“3 by 5”), which has now been adopted by the UNAIDS cosponsors. Our report focuses less on making the case for expanding treatment – we consider this battle to be largely won – and more on how to overcome the considerable challenges to bringing treatment to those who need it in the poorest countries.



The Task Force believes that the greatest barrier to meeting the goal of universal access to treatment is the deplorable state of health systems in most of the hardest hit countries. Poverty, misplaced priorities, and years of externally imposed restrictions on social spending have left health systems for over 2 billion people dysfunctional, non-existent, or too expensive. The greatest challenge in the most affected countries, besides lack of resources, is an acute shortage of skilled health care workers. As remedying this situation will take time, treatment programs must be designed to make optimal use of existing staff. Nurses, clinical officers and other personnel must assume roles assigned to doctors in the rich countries. Appropriately trained lay people must help provide counseling, adherence support, and other vital services now handled by health care personnel. Clinical protocols and drug regimens must be simplified to the greatest extent possible. Communities, and especially people living with HIV, must be involved in decision-making and contribute to treatment delivery itself. These issues have been the focus of intense consultation as WHO finalized its strategy for meeting the 3 by 5 goal. Our discussion draws in large part on the principles and guidelines emerging from this process.

## **2) Invest in health systems as HIV/AIDS services are expanded**

Even with the most creative delivery strategies, it will be impossible to bring ARV treatment to all who need it in the poorest countries without strengthening health systems and recruiting and training many new health workers. Critical prevention measures, including the treatment of sexually transmitted infections and ensuring safe injections, also depend on functioning health systems. Moreover, the health MDGs as a whole, and more generally, the elusive goal of bringing basic health services to all, will never be met without a vigorous financial and political commitment to health systems. Since it will take years to expand the pool of skilled health care workers, investments in training capacity, along with other critical elements of health systems, must begin now. Thus countries must build for the future as they urgently expand access to treatment and other services in the short run. The Task Force recommends that a significant share of new treatment resources be devoted to investments that benefit health systems generally. This will ensure that progress toward the goal of universal treatment access is sustainable and that gains against HIV/AIDS are not achieved at the expense of other health priorities, including combating malaria and tuberculosis and improving maternal health and child health.

Investing in health systems is also essential to ensuring equity in AIDS treatment in the most affected countries. Where many do not have access to even basic health care, ART will benefit the better off first. While expansion of treatment cannot wait for health systems to be fully built, access will remain inequitable if scaling up is not accompanied by steps to strengthen basic services for the poor.

In many of the countries facing concentrated HIV epidemics, by contrast, the key to treatment equity is guaranteeing access to vulnerable populations: injecting drug users, sex workers, men who have sex with men, and ethnic minorities. In Russia, China, Vietnam and many other places, it will be very important to ensure that access to treatment is not denied to the very groups who need it most. The Task Force urges countries to develop systems for monitoring access to ART among these critical populations as well as among women and children under 10.

## **3) Reinvigorate prevention**

The drive to expand treatment – energized by the 3 by 5 goal – has mobilized activists, national governments, and the United Nations system. Every effort must now be made to bring the same sense of urgency and excitement to meeting ambitious prevention goals. Unless prevention remains a fundamental priority of leaders, donors, and those who battle the epidemic on the ground, tens of

millions more will become infected and the burden of treatment will grow inexorably. As is now widely recognized, treatment can assist prevention in important ways (see below), but treatment alone will not bring the epidemic under control.

Effective prevention requires a combination of interventions, providing tools to block the various routes of infection as well as enabling those at risk to make use of these tools. Much has been learned about what works in prevention, and the Task Force endorses a standard list of interventions. These include:

- Population-wide communication campaigns conveying basic facts about HIV/AIDS and its transmission, promoting behavior change, and combating harmful myths and stigma
- Programs focused on key populations, including harm reduction for drug users and risk reduction for men who have sex with men and sex workers
- Legal and other measures to fight discrimination against people living with HIV/AIDS and against vulnerable populations
- Distribution of the technical means of prevention: male and female condoms, disposable needles and syringes
- Access to voluntary testing and counseling
- Control of sexually transmitted infections
- Prevention of mother-to-child transmission
- Precautions to prevent transmission in health care settings, blood screening

Research on new prevention technologies and strategies must be accelerated as well. Improved monitoring and evaluation is also essential: without better information on the epidemic and on the effectiveness of programs, decisions will continue to be made on the basis of potentially inaccurate assumptions.

#### **4) Focus on vulnerable populations**

Although all of these elements of prevention are important, clear priorities reflecting local circumstances are essential, even when resources are not immediately limiting. Failure to set appropriate prevention priorities can be a political choice: the most important programs are sometimes willfully neglected in the name of the rest. In particular, the Task Force reiterates the fundamental importance of focusing prevention efforts on high-risk populations, especially in concentrated epidemics. Few elements of HIV prevention doctrine rest on as solid an empirical and theoretical foundation. We believe that the single highest priority in Russia, Ukraine, China, and much of Southeast Asia, as well as in large parts of India and Latin America, should be needle exchange and opiate substitution services for injecting drug users, who bear the greatest burden of new infections in these areas. Similarly, education, condoms, and health services for sex workers and men who have sex with men must be a central priority where these groups are at particularly high risk.

Bringing effective prevention to drug users is not primarily a matter of resources and technical capacity, although these are of course important, but a question of policy and political will. Success requires adopting evidence-based public health approaches to drug use and its consequences instead of the failed criminal enforcement strategies employed today by almost all governments where injecting drug use is fueling the spread of HIV. The Task Force urges national governments to stop

exacerbating the epidemic by criminalizing and imprisoning drug users. To help achieve this end, moreover, the UN system must speak with a single voice against punitive approaches, affirming clearly that harm reduction is both good policy and fully consistent with international drug control treaties.

### **5) Integrate prevention and treatment**

The Task Force shares the growing enthusiasm for integrating prevention and treatment. We urge the urgent incorporation of concrete prevention elements into treatment plans now being developed in many countries. Much will have to be learned by experience, but the essential elements of integration should include:

- Rapid expansion of HIV testing, including both traditional VCT and routine offer of testing in appropriate clinical settings, with strong links to prevention services as well as treatment and care
- Incorporation of effective prevention counseling and other services into clinical settings
- Ensuring that diagnosis and treatment of sexually transmitted infections are available wherever HIV care is provided
- Harmonization of prevention and treatment messages, both in the community and through other channels, to ensure that treatment reinforces prevention rather than undermining it

The advent of treatment in the developing world represents an enormous opportunity for prevention, but fulfilling this promise will require influencing the design of treatment programs and devoting real resources to incorporating vigorous prevention elements. As the experience of the developed world shows, access to treatment will not reverse the epidemic by itself, and talk of integration will not be enough.

### **6) Address root causes; empower women and girls**

Prevention and care programs will fail if they ignore the underlying determinants of the epidemic: poverty, gender inequality, and social dislocation. At a minimum HIV/AIDS programs must take these sources of social vulnerability into account; in the longer run they must be tied to efforts to reduce them. The relative powerlessness of women and girls, together with pervasive gender attitudes and practices, contribute particularly strongly to the spread of HIV. There are many things that can be done now to ensure that AIDS programs recognize the special vulnerability of women and girls. But the most powerful answers to the problem of women's vulnerability will be those that transcend HIV/AIDS: promoting girls' primary and secondary education, guaranteeing equal property rights and economic opportunity, and combating violence against women. The Millennium Project offers an important opportunity to build mutually reinforcing strategies for reaching the various development goals. The HIV/AIDS Task Force will work over the next year with the Gender Task Force – and the groups on education, hunger, and poverty – to develop specific recommendations.

### **7) Plan for orphans and vulnerable children**

UNICEF estimates that 11 million children in sub-Saharan Africa have lost one or both parents to HIV/AIDS; this number is projected to grow to 20 million by 2010. This enormous tragedy, which threatens social stability and development, has received far too little attention. Countries must develop national strategies for assisting families and communities to care for orphans, ensuring that they are able to attend school, protecting them from exploitation, and enforcing their rights to property. Although such strategies were required by UNGASS, only 6 countries in sub-Saharan Africa have

adopted them. Donor nations and international organizations must provide greatly expanded resources and technical assistance.

### **8) Require more from the United Nations**

The United Nations, with its established presence in almost every country and its broad legitimacy, is uniquely placed to play a central role in the fight against the global epidemic. Through UNAIDS and its co-sponsors, the UN system has made important contributions at the global level, placing AIDS at the top of the international agenda and building international consensus around basic elements of a comprehensive response. The Task Force believes the UN could do more, particularly in two areas. First, it should be far bolder in holding member nations that have failed to honor their commitments to fighting AIDS accountable. In the nations which will fuel the next wave of the pandemic, the UN should draw attention to the failures in leadership, misguided policies, and gaps in financing that continue to stymie an effective response.

Second, the UN is not doing enough to help countries meet their objectives. It must focus on providing more useful and appropriate technical and management assistance; in many countries, its record in these areas has been poor. The fundamental problem has been insufficient, and in some cases, inadequate, personnel on the ground. In many of the hardest hit countries, UN staffing falls far short of what would be required to help countries do what is necessary. Remediating this shortcoming will require substantial new resources.

### **9) Expand international and domestic financing and remove barriers to its use**

International financing for AIDS, and more broadly, for building the health systems needed to combat the epidemic, is grievously insufficient. Although there is wide consensus that a comprehensive response to the epidemic would require at least \$10 billion per year, UNAIDS estimates that only \$4.7 billion was spent in 2003. The Global Fund to Fight AIDS, Tuberculosis and Malaria was created in 2001 to begin filling the gap between country needs and funds available from traditional bilateral and multilateral sources. Despite significant successes and widespread enthusiasm among its recipients, the Global Fund lacks the resources to fulfill its commitments. At least \$1.5 billion in additional funds will be needed in 2004 alone.

While the poorest countries cannot defeat HIV/AIDS without much greater help from the international community, they can demonstrate commitment by increasing national spending on AIDS and health systems, creating a true partnership with donors.

In many developing countries, restrictions on public sector spending and hiring imposed by the IMF, World Bank, and other international financial institutions (IFIs) are a major obstacle to making use of new resources in the fight against AIDS. The IFIs should work with national governments and donors to find creative ways to reconcile substantial increases in spending on health and other social services with macroeconomic stability.

### **10) Empower governments and hold them accountable**

An increasing number of national and international organizations – bilateral donors and their contractors, UN agencies, international and local NGOs, foundations, the for-profit private sector, government ministries, national AIDS coordinating bodies – are involved in delivering, funding, or overseeing HIV/AIDS services. Better coordination at all levels will be essential to a more effective response and will depend on establishing clear roles and responsibilities. It is particularly important

that Ministries of Health and National AIDS Councils or Commissions end confusion over the division of responsibilities between them. National ownership and control should be an overriding principle: international donors and NGOs must ensure that their work contributes to national priorities and national plans as defined by governments, working with other stakeholders. Furthermore, where well-developed government strategies are in place, donors should move toward broad and flexible financing of government programs, including capacity-building and salary support.

In many of the hardest hit countries as well as the countries where the next great epidemics are likely to occur – India, China, and Russia, and perhaps Nigeria and Ethiopia – HIV/AIDS still does not receive sufficient attention to bring the epidemic under control or avert a rapid rise in infections. The UN, as well as the Bretton Woods institutions, must demand that these countries take the threat of AIDS seriously and back words with budgetary commitments. National governments should be required to demonstrate how they plan to combat the epidemic, who will be responsible, and how progress will be measured.

### **Conclusion**

We now have a range of proven, effective ways to prolong life and control the spread of HIV. The Task Force believes that urgent scaling up of the interventions we have in hand could save millions of lives and bring the epidemic under control. Two of the highest priorities must be sustained investment in health systems, especially in human resources, and ensuring that treatment and prevention services reach the vulnerable populations who need them most. Success will require greatly increased resources from donor nations as well as stronger commitment from many governments in affected countries.

## 1. Introduction

In the little more than two decades since it was recognized as a distinct disease, HIV/AIDS has grown into one of the greatest epidemics in human history, spreading to every corner of the globe and wreaking enormous devastation. The overwhelming suffering already caused by AIDS and the threat it now poses to prospects for human and economic development were recognized by hundreds of national leaders at the Millennium Summit in 2000 in New York City, when they included “combating HIV/AIDS, malaria, and other diseases” among the Millennium Development Goals[2, 3]. The HIV/AIDS Task Force of the Millennium Project has been asked to outline how this goal and the accompanying target, “to have halted and begun to reverse the spread of HIV/AIDS by 2015”, can be met.

### 1.1 Overview of the epidemic

A comprehensive overview of the state of the epidemic can be found in recent reports from the Joint United Nations Program on HIV/AIDS (UNAIDS) and the World Health Organization (WHO) – no detailed survey will be attempted here[4-6]. AIDS took about 3 million lives in 2003, surpassing malaria and tuberculosis as the greatest killer among communicable diseases, while roughly 5 million more people became infected with HIV, the virus that causes AIDS[6]. The number of people living with HIV or AIDS is now estimated at 40 million. Incidence – the rate of new infections – may have leveled off in a few countries already devastated by the epidemic, but has begun to explode in Russia and the former Soviet states, and appears to be growing in India and China. As a result, mortality from AIDS and the total population carrying the virus continue to grow.

#### 1.1.1 Regional variation

The notion of a global HIV/AIDS epidemic conceals enormous diversity in prevalence rates, modes of transmission, affected populations, and in the underlying cultural and economic context that influences the spread of the disease and constrains efforts to control it.

The geographic distribution of infection and death remains highly uneven: 70% of deaths so far have occurred in sub-Saharan Africa[4]. HIV prevalence rates among adults may reach 30% and higher in some countries in southern Africa. In east Africa, where the epidemic first exploded, rates of infection remain high but have begun to decline in some places. Elsewhere on the continent, seroprevalence varies considerably, from below 1% and apparently stable in Senegal to 12% and rising in Cameroon. Nigeria and Ethiopia, with large populations and prevalence rates above 5%, are facing potentially catastrophic epidemics. Response to the epidemic has been just as varied. A few nations, benefiting from visionary leadership and involved communities, have mounted effective prevention campaigns[5, 7, 8]. But many others remain mired in denial and disorganization. Everywhere, poverty and crippled health systems pose enormous challenges to the battle against HIV/AIDS.

Outside Africa, parts of Southeast Asia, the Caribbean and Latin America are next hardest hit, while rates of infection in Western Europe and North America are generally below 1% and relatively stable. China, India, and the countries of the former Soviet Union, together home to a large share of the world’s population, are currently the focus of increasing concern[9]. Although in these regions prevalence in the general population is thought to be low, rates are increasing rapidly in vulnerable populations, prevention efforts and political leadership have been inadequate, and the stage is set for full-blown epidemics.

### 1.1.2 Types of epidemic

National epidemics vary greatly not only in their scale but in their nature[5, 6, 10]. In sub-Saharan Africa the epidemic is widely established in the general population and heterosexual transmission predominates. Elsewhere most epidemics are so far largely concentrated in vulnerable populations or high risk groups, with important consequences for prevention strategy, human rights, and political context. In Russia and Eastern Europe, for example, most infections have occurred among injecting drug users, while men who have sex with men and commercial sex workers are most affected in some other regions. Concentrated epidemics of this kind can be a stage on the path to a broader epidemic involving the general population, although the conditions that determine whether this transition will occur are not well understood. Finally, nations differ enormously in the financial and institutional resources they can bring to combating the epidemic.

These differences, which imply differing priorities for action and differing constraints, must inform any discussion of the AIDS crisis. This report will not attempt a comprehensive taxonomy of local conditions. But our discussion will often rely on two very basic distinctions:

- **Between countries with concentrated epidemics (high prevalence in vulnerable populations, low in the general population) and those with generalized epidemics (general population prevalence above 1%).** This distinction is particularly pertinent to prevention, where the two types of epidemics call for quite different approaches.
- **Between the poorest countries and those with greater resources and capacity.** This separation, which does not always correspond precisely to per capita income, is perhaps most relevant to treatment, since increasing access in the most impoverished settings will require not only much external assistance, but also creative new approaches. This distinction is greatly exacerbated by the fact that most of the countries where the need for treatment is the greatest are also among the poorest.

Since almost all of the hardest-hit countries are very poor while many of those with concentrated epidemics are somewhat better off, one can distinguish two critical classes of countries. On one hand are the high prevalence and very low income countries, including much of sub-Saharan Africa, Haiti, perhaps Cambodia and Myanmar. There the fundamental barriers to controlling the epidemic are lack of resources and capacity, making HIV/AIDS in important respects a *development* issue. Moreover, the devastation is already so great that mitigating the social and economic consequences of the epidemic must be as great a priority as controlling it. On the other hand is a class of countries with higher average incomes or substantially more developed institutional capacity and epidemics concentrated in marginalized populations. This category includes China, Russia, Vietnam, and much of Latin America. Here the greatest obstacle to success is often discrimination and an unwillingness of governments to provide services to despised populations. Thus in these countries HIV/AIDS must be seen as fundamentally a *human rights* issue.

In countries with concentrated epidemics, the growing importance of HIV spread among injecting drug users (IDUs) is worth particular attention[11, 12]. While this mode of transmission is responsible for about 10% of new cases worldwide, it is driving some of the world's fastest growing epidemics and may account for as many as a third of new infections outside Africa. The majority of cases in the well established epidemics in Russia, Ukraine, Malaysia, Vietnam, and China derive from injection; this route of transmission also plays an important or dominant role in India, Central Asia, Indonesia, Eastern Europe, South America, and much of the developed world. Injecting drug use – and HIV infection among users – is spreading rapidly, fueled by the growing international movement of goods

and workers as well as by economic dislocation. Epidemics among IDUs are characterized by explosive growth once the virus is introduced, and by the extreme social marginalization, even demonization, of those at risk. The urgent need to overcome the political and institutional barriers to bringing effective HIV prevention and treatment to this most vulnerable population will be a major theme of this report (see Sections 2.2 and 2.9).

### **1.1.3 Sources of variation**

Why has the impact of AIDS varied so dramatically? History offers a partial explanation, since the virus reached some regions before others. Yet other factors are clearly at work. Even within the African continent, where the virus first appeared, the epidemic has grown explosively in some places while remaining relatively stable in others. Many explanations, ranging from the biological to the cultural and the socioeconomic, have been offered for these striking differences in rate of spread. Epidemiological studies have added to our understanding of these issues without so far offering a persuasive explanation for variations in prevalence[13-15].

The Task Force's primary concern is with what must be done to control the epidemic, not with its history. Yet understanding the causes of its strikingly disparate impact can inform action by focusing attention on key underlying factors. Moreover, better understanding of the conditions for rapid growth of the epidemic might allow us to target prevention efforts to those areas and populations most at risk.

### **1.1.4 AIDS and poverty**

At a more fundamental level, any attempt to understand the root causes of HIV/AIDS must consider its striking association with poverty and social vulnerability, a central theme that transcends regional variation and differences in mode of transmission[16-20]. This relationship is perhaps most obvious when one looks across countries: almost all the hardest-hit countries are poor. Africa, the poorest of the continents, is the epicenter of the epidemic. Haiti, the poorest place in the Western Hemisphere, also suffers from the highest HIV prevalence, with other struggling Caribbean and Central American nations not far behind. In Asia too, HIV/AIDS is now striking hardest amidst poverty and social disruption. The same association holds within countries as well. The epidemic is often concentrated in marginalized populations and among people driven by economic need and despair to behaviors and professions that increase their risk of infection.

The correlation between AIDS and poverty is by no means perfect. Botswana and South Africa, Africa's wealthiest nations, are among the hardest hit. In the countries with generalized epidemics the virus has struck at rich and poor alike. Being better off can create its own risks, for example the wherewithal to purchase sex. Moreover, the causal links between poverty and HIV risk are complex. Lack of education and poor access to health care surely play an important role. Poor nutrition and exposure to other diseases increases susceptibility to HIV infection. Lack of economic opportunity fuels migrant labor, disrupting families, while economic need may drive women to take up sex work and to enter or remain in risky relationships. Barnett and Whiteside have argued that the notion of underlying socioeconomic risk should be broadened to include what they call "low social cohesion" – economic inequality and social disruption – as well as poverty itself[20, 21]. In fact, both low average income and high income inequality correlate with higher HIV prevalence[16].

One way that poverty increases vulnerability to AIDS is obvious: access lifesaving treatment for those who already carry the virus remains overwhelmingly inequitable. Most of those who need antiretroviral therapy in affluent countries are receiving it, compared to only 7% of those in the



developing world[22]. In most poor countries, only the few who can afford to pay for it have benefited so far from treatment (see Section 3.2).

Just as poverty fuels HIV/AIDS, the epidemic is deepening poverty and threatening economic development in the most affected countries, creating enormous financial hardship for families and communities and robbing nations of people in their most productive years[19, 23]. A recent World Bank study predicted that South Africa faced economic collapse unless it took vigorous action against the epidemic[24]. This interim report has very little to say about the impact of HIV/AIDS – the Task Force has chosen so far to concentrate on strategies for controlling the epidemic through prevention and treatment. But deeper consideration of the links between AIDS and other sectors will be a high priority in remaining year and a half of the Millennium Project.

### **Implications for the response**

- Why behavior change often fails to reach the poor
- Designing programs that reach the poor
- Attacking root causes

## **1.2 The response to the epidemic**

A comprehensive response to HIV/AIDS must include *prevention* of new infections, *treatment* and care for those who are already infected, and *mitigation* of the impact of the disease on families, communities, and societies. By any standard the global response has been far too small and has come far too late. Most of the world's population has no access to reliable information or prevention services, let alone treatment; in much of the world political commitment is still lacking; and resources in the developing world are woefully inadequate. Yet there has been important progress on several fronts.

First, we have learned a great deal about what works in fighting the epidemic. On the prevention side, we can now draw on a substantial list of proven interventions to combat the major modes of transmission, ranging from harm reduction for injecting drug users, to condom promotion among sex worker and their clients, to drugs for prevention of mother-to-child transmission[8]. These measures are imperfect, and critical gaps in the arsenal remain, most notably vaccines and microbicides and effective strategies for combating gender inequalities and stigma. But there is little doubt that much more widespread access to the interventions we have in hand would bring substantial gains[25].

In treatment, the great breakthrough was the development of effective combinations of antiretroviral drugs (ARVs), which have brought almost miraculous benefits in the developed world and in Brazil, cutting AIDS deaths dramatically and allowing many people with HIV to resume normal lives. Moreover, steady progress is being made in simplifying regimens, reducing side effects, developing new drugs to battle resistant strains, and, most important of all, in bringing down prices. There is every reason to believe these drugs could bring the same relief to the developing world, but access to antiretroviral therapy remains scandalously inequitable. Although at present these drugs reach only a tiny fraction of those who could benefit from them, there is now broad commitment on the part of affected countries, donors, and international organizations to the urgent expansion of treatment in the developing world. The WHO/UNAIDS initiative to provide antiretroviral therapy (ART) to 3 million people by 2005 ("3 by 5") has provided a great boost to these efforts. Section 3 of this report addresses the challenges of expanding treatment and considers some of the innovative solutions that are beginning to emerge.

Second, we can now learn from a number of successes on a local and even national level. Some countries – the Philippines and Senegal among them – appear to have succeeded in arresting the epidemic at an early stage, while others – Uganda, Thailand - have managed to reverse its growth after it has taken hold[4]. These examples demonstrate the importance of coherent strategy and committed leadership, the viability of specific approaches, and the possibility of progress on a far greater scale. The feasibility of ARV treatment in developing countries has been demonstrated by pilot projects such as those undertaken by Partners in Health in Haiti and by Medecins Sans Frontieres (MSF) in Africa and elsewhere, as well as by Brazil’s remarkably successful nationwide program and Botswana’s small but growing national initiative[26-28].

Third, the last few years have seen a number of encouraging signs of greater political engagement in the fight against HIV/AIDS at the national, regional, and international level. In sub-Saharan Africa there is now widespread recognition that HIV/AIDS threatens development and social stability and a growing number of national leaders have spoken out forcefully. International institutions ranging from the World Bank to UNICEF now list HIV/AIDS among their top priorities. A particularly important development is the growing commitment to scaling up treatment.

The most important international manifestation of this growing commitment was the 2001 United Nation General Assembly Special Session on HIV/AIDS (UNGASS). The resolution adopted by this assembly represented an unambiguous declaration of the importance of decisive action against the epidemic, affirmed a set of fundamental principles that should govern the response, and committed member states and the UN system to a number of concrete measures[1]. The declaration recognized the role of poverty, illiteracy, and conflict in exacerbating the spread of HIV, and warned of the impact of AIDS on development and stability. It asserted that while prevention must be the “mainstay” of the response, access to treatment must be expanded and integrated with prevention efforts. It acknowledged the importance of empowering women and girls; combating stigma and discrimination; effective collaboration between the international community, national governments, NGOs, and the private sector; and involvement of people living with HIV/AIDS. It committed governments to developing comprehensive national AIDS strategies and to establishing specific kinds of programs by specific dates. In addition, the declaration contains a small number of specific, quantitative targets (see below).

**Box 1: Selected UNGASS targets[1]**

- 47. Reduce prevalence among young people (15-24 year olds) by 25% in the most affected countries by 2005, globally by 2010. (This goal was established earlier but endorsed by UNGASS.)
- 52. Ensure that by 2005 90% of young people have access to information, education, and services necessary to avoid infection.
- 53. Reduce HIV infection among infants by 20% by 2005, by 50% by 2010.
- 80. Bring spending on combating the epidemic in low and middle income countries to \$7-10 billion

Although the UNGASS resolution is not in itself a plan, it is a coherent declaration of goals and principles, and continues to serve as the guiding framework for international action on HIV/AIDS, including that of the Millennium Project Task Force.

The UN Special Session was a milestone in international commitment to combating AIDS, but progress in implementing its resolutions has been disappointing (see below).

Finally, there has been a substantial increase in international resources available for fighting AIDS in the developing world. These new commitments have come from a variety of sources and through a variety of channels. Among the most significant developments have been the creation of the Global Fund for AIDS, Tuberculosis, and Malaria; the World Bank's Multi-Country HIV/AIDS Program (MAP); pioneering programs of the Gates Foundation, and substantial new bilateral assistance from OECD donors, including the large but still unfunded new US initiative. UNAIDS estimates that funding from international sources grew almost six-fold between 1996 and 2002 to \$1.8 billion, and is projected to reach \$2.5 billion in 2003[29].

Despite these important and encouraging advances, the world's response to the epidemic remains profoundly inadequate. The epidemic continues to rage out of control in much of the world, dooming new generations in already devastated regions and spreading to new populations elsewhere. The great majority of those who are infected face illness and death without help from modern medicine; fragile societies confront the economic and social impact of the epidemic without a clear plan or large-scale assistance. Richard Feachem, the Executive Director of the Global Fund, asserted recently: "If in 1982, when we became aware of the virus, we had decided to do nothing in order to observe its course without intervention, the world would be roughly where it is today." [30] While such a sweeping statement neglects the areas where we have made a difference, it may be distressingly close to the truth.

Another measure of how far our efforts have fallen short is how few people they reach. Beyond the handful of national success stories, most effective prevention and treatment initiatives remain at the project stage, rarely achieving national scale. Although data on coverage levels are poor, it is clear that only a small fraction of those in need have access to vital prevention and treatment services. For example, WHO estimated that in 2001 only 5% of those in need had access to prevention of mother-to-child services, 12% to voluntary counseling and testing, and 4% to antiretroviral therapy (ART coverage is now estimated at 7%)[22, 31].

Progress toward the specific UNGASS targets, monitored by UNAIDS using a set of agreed indicators, is similarly disappointing[29]. While some measures of political leadership and government policy show improvement – most countries in sub-Saharan Africa have adopted national HIV/AIDS strategies – indicators of basic knowledge, behavior, and access to services remain very low, even in countries which have voiced a strong commitment to addressing the epidemic. Perhaps most revealing of all is the fact that most countries have failed to report at all on most indicators, reflecting the pervasive lack of capacity that continues to plague national responses.

At the heart of these failings – still – is lack of funds. Although spending on HIV/AIDS in the developing world has risen in recent years, reaching an estimated \$4.7 billion in 2003, it remains less than a third of what will be required by 2007, according to UNAIDS[29].

## **1.3 The Millennium Project and HIV/AIDS**

### **1.3.1 The Millennium Project**

The Millennium Development Goals (MDGs), adopted by world leaders at the 2000 Millennium Summit as a statement of shared aims, have evolved into an organizing theme of UN development work as well as a common framework for both donor and developing nations. In 2002 the United Nations Secretary-General and UNDP launched the Millennium Project to recommend the best strategies for reaching the MDGs[32]. The Project consists of ten task forces composed of recognized

leaders and authorities from the developed and developing worlds and from within the UN system. The mandate of the task forces is to identify the best interventions for achieving each of the goals and the most appropriate institutional and financial mechanisms for implementing them. Task Force #5 is concerned with Millennium Development Goal #6: “combat HIV/AIDS, malaria, and other diseases”; it consists of four operationally independent subgroups focussing on HIV/AIDS, malaria, tuberculosis, and access to essential medicines. The task forces will present their final reports in December 2004.

A multisectoral perspective is a fundamental strength of the Millennium Project. In addition to the reports of the ten thematically oriented task forces, the Project as a whole will present a report to the Secretary-General in June 2005; a draft report will be ready by summer 2004. This synthesis report will be the result of collaboration among the task force coordinators and the Project’s director Jeffrey Sachs, working with the Project’s secretariat. This joint report offers an important opportunity to analyze the links and synergies between sectors, as well as to include areas of work that are essential to achieving the MDGs as a whole but do not fall within the sphere of any of the task forces.

### 1.3.2 Interpreting the MDG HIV/AIDS target

The Millennium Development Goal on AIDS and the corresponding target, “Have halted by 2015 and begun to reverse the spread of HIV/AIDS”, on which the Task Force’s mandate rests, are vague and set no specific benchmarks for success. What is meant by halting the spread of HIV/AIDS and how will we know when it has been achieved?

The most straightforward interpretations of the HIV/AIDS target are plainly unsatisfactory. A very literal reading of the target suggests bringing the number of new infections to zero – this is plainly not possible by 2015. A more realistic and natural interpretation, halting and beginning to reverse the growth in new infections or incidence, is also unsatisfactory for several reasons. First, it sets too low a standard. Stabilizing incidence at anywhere near current levels in the hardest hit countries cannot be considered success. The second major problem with defining the target in this way is that it would require us to do nothing for those who are already infected.

#### **Box 2: Official MDG Indicators for HIV/AIDS (as recently revised)[2]**

**Indicator 18.** HIV prevalence among 15-24-year-old pregnant women

**Indicator 19.** Condom use rate of the contraceptive prevalence rate

**19a.** Condom use at last high-risk sex

**19b.** Percentage of populations aged 15-24 with comprehensive correct knowledge of HIV/AIDS

The official indicators (see Box 2) are useful, if incomplete (none address access to treatment). But in the absence of quantitative targets they do not solve the problem of defining the goal in a way that informs action and allows progress to be monitored. Thus, there is no completely satisfactory interpretation of the MDG HIV/AIDS target, considered in isolation. To give the goal specificity – and to motivate our analysis of what will be required to meet it – we have chosen to supplement its wording with quantitative benchmarks derived from the MDG indicators and the other major internationally endorsed statements on HIV/AIDS, most importantly the UNGASS declaration. These targets take the form of benchmarks for the MDG indicators, extensions to 2015 of UNGASS targets for 2005, and coverage targets for key prevention or treatment interventions endorsed by UNGASS as essential elements of a comprehensive response. The proposed targets are listed in Box 3 and discussed in detail in the appropriate sections of the report.

**Box 3: Proposed prevention and treatment targets***Prevention: outcome targets*

A. Reduce prevalence among young people to 5% in the most affected countries and by 50% elsewhere by 2015.

B. Reduce prevalence within key vulnerable populations by 50% by 2015.

*Prevention: intervention coverage targets*

- Ensure that by 2015 affordable HIV testing and appropriate counseling are offered at all STI, TB, and antenatal clinics globally, and at all medical facilities in high prevalence countries.
- Ensure that 100% of patients receiving HIV treatment and care have access to effective “prevention for positives” by 2015.
- Ensure that 80% of injecting drug users have access to harm reduction services by 2015.
- Ensure that 80% of pregnant women have access to PMTCT services by 2015.
- Ensure that 100% of young people have access to reliable information about the epidemic and how to protect themselves by 2015.

*Treatment: basic target for antiretroviral therapy*

Ensure that antiretroviral therapy is available to all who need it by 2015.

*Treatment: additional targets*

- Ensure that by 2005 all graduating – and by 2010 all practicing – doctors, nurses, and medical officers in high prevalence countries are trained and certified to initiate and follow patients on antiretroviral therapy.
- Ensure that by 2015 75% of people living with HIV/AIDS have access not only to ART but to the broader spectrum of care services constituting the essential package recently defined by WHO/UNAIDS[100].
- Ensure that by 2015 75% of patients with sexually transmitted infections are appropriately diagnosed, counseled, and treated.
- Ensure that by 2005 countries have in place a system for monitoring the proportion of women, children under 10, and members of key vulnerable populations among those receiving antiretroviral therapy in both the public and private sectors.

**1.3.3 The role of the MDG Task Force**

The Millennium Project, although a UN initiative, is intended to enjoy substantial independence, as well as freedom from the political and institutional constraints that sometimes restrict UN introspection and action. In fact, recommendations for how the UN system could work more effectively toward the MDGs could be an important contribution of the Project. At the same time, the MDG process should not be construed as superceding other UN initiatives, but rather, as reinforcing and advancing them.

While the UN system itself is an important audience for the recommendations coming from the Millennium Project Task Forces, the Project's influence is potentially much broader. Clearly, if the Task Force on HIV/AIDS is to contribute to achieving the millennium target, it must strive to involve and address the entire spectrum of individuals and institutions concerned with the epidemic, from donor nations to developing country governments, NGOs, and activists.

The MDG mandate suggests that the Task Force's attention should be focused on identifying successful approaches and on overcoming obstacles to their implementation and expansion, rather than on devising new approaches or technical means. While improved prevention and treatment methods are of vital importance, there is a clear imperative to deploy more broadly and effectively those that we already possess. This will be the central focus of the Task Force. The UNGASS resolutions lay out the general principles of a global response to AIDS and commit member states to a series of steps. The Task Force's responsibility will be to complete the work of identifying the most effective measures and to consider the institutional and technical arrangements for implementing them. Since the Task Force's focus will be on ensuring that resolutions are translated into action, it must identify current and future obstacles and devise approaches to overcome them.

Two features of the Millennium Project that distinguish it to a considerable degree from many other initiatives are its multisectoral structure and its relatively long-term perspective. The Task Force has sought to emphasize the steps that will be required to reach ambitious goals for 2015, while recognizing the need for immediate progress. The links between HIV/AIDS and other sectors will be a major focus of our work in the coming year, as we deepen our own report through collaboration with other task forces and contribute to the Project's synthesis report.

In working to fulfill our broad mandate, we have relied in great part on the work of others. Our report is drawn from the vast body of existing research, as well as from our modest new analyses, some of which will be available as Task Force working papers, and the considerable experience and judgment of Task Force members. We have sought to draw new attention to neglected issues, to redress what seem to us imbalances in current dogma, and to begin translating the high aspirations and idealism of the Millennium Project into practical action.

## **1.4 Organization of the interim report and relationship to the final report**

This report will not attempt a general overview of the current status of the epidemic and its devastating consequences. Instead it will concentrate on the issues that must be resolved if the millennium target of bringing the global AIDS epidemic under control by 2015 is to be met. A general theme of the report will be that much is known about what works in combating HIV/AIDS. We have in hand effective, if imperfect, approaches to treating those who are living with the virus and to preventing its further spread. Thus the report will focus much of its attention on how to ensure that these measures reach far more of the population of developing world.

Chapters 2 and 3, which constitute the heart of this report, will consider prevention and treatment and the critical links between them. These chapters will review the essential interventions in each area and discuss some of the key issues involved in implementing them on a larger scale. The targets listed in the previous section will be discussed in greater detail.

The remaining chapters discuss aspects of the broader context in which a successful response to the epidemic must occur. Our treatment of these issues in this interim report is quite preliminary; in some cases we do no more than outline areas that we would like to cover in the final report. We have tried some of the major gaps our analysis. Chapter 4 introduces what we hope we will become in the next

year a much deeper consideration of health systems in the developing world, which in the poorest countries will pose a critical challenge to scaling up treatment and prevention. Some aspects of the implementation and financing of a comprehensive response are discussed in Chapter 5; here too our analysis of is very preliminary. Chapter 6 will discuss two of the major obstacles to success, gender inequality and stigma; while Chapter 7 will consider the cost of a comprehensive effort against AIDS. Since the Task Force has not done new work in this area, this section is little changed from what appeared in the background paper last year.

Our broadest recommendations are outlined in the Executive Summary. Additional recommendations are listed at the end of the prevention, treatment, and implementation sections.

The Task Force has had to make difficult choices in focusing its efforts. Inevitably we have been obliged to postpone or forego consideration of critical issues and accord others far less attention than they deserve. Our treatment of the crucial links between gender and HIV/AIDS is preliminary. On questions of pharmaceutical pricing, access, and intellectual property rights, we have largely deferred to the Access to Essential Medicines subgroup of our own Task Force 5. Most importantly, we have set aside altogether consideration of the impact of AIDS, on food production and other sectors, on economic and social stability, on the number of orphans, in order to focus exclusively on what will be required to combat the epidemic itself. By not covering these issues in detail, it is not our intent to diminish their importance. In the coming year we will turn our attention to some of these issues through collaborative work with the other task forces of the Millennium Project.

This interim report is intended to be a substantial statement of the Task Force's analysis and recommendations. It is not, however, our last word. In the year that remains before completion of our final report, we hope to deepen and extend our analysis in several ways. First, we intend to strengthen our treatment of several critical topics that receive inadequate consideration in this interim report. Among the most important of these are health systems and the relationship between gender and AIDS. We will work with the other health task forces and the Millennium Project secretariat to analyze how health systems can be strengthened in order to meet all the health MDGs. Similarly, we will collaborate with the Gender Task Force, as well as with the new Global Partnership on Women and AIDS, to develop a unified approach to gender and HIV/AIDS.

Second, we will hope to extend our scope to consider selected areas of HIV/AIDS impact, including the orphans crisis – included among our central priorities in the executive summary but not treated in the report itself – and the links between HIV/AIDS and hunger in the most affected regions.

Third, we will give our analysis and recommendations greater specificity by applying them to particular countries. The Millennium Project as a whole will soon choose a small group of countries for more intensive focus; the AIDS Task Force expects to participate actively in this exciting new phase of the Project.

Finally, we hope to greatly strengthen our report by soliciting and incorporating the comments of a wide variety of experts and leaders within the HIV/AIDS and development communities, both within the UN system and in the affected countries themselves. This process will be essential to producing a much improved final report and to building broad support for the Task Force's recommendations.

## 2. Prevention

### 2.1 Overview

Global HIV prevention efforts have reached a decisive stage. On one hand, we now have in hand a set of prevention interventions whose effectiveness has been proven by numerous successful programs[8]. On the other hand, success on a larger scale remains elusive: in only two repeatedly invoked cases, Uganda and Thailand, has a well established national epidemic been reversed<sup>2</sup>[4]. While the rate of new infections is stabilizing in some of the hardest-hit countries of sub-Saharan Africa, it remains far too high, and the extent to which prevention efforts have contributed to the leveling off is not clear[6]. Moreover, incidence continues to rise in the newer epidemics of the former Soviet Union and Asia, despite the experience gained in Africa and elsewhere[6]. Even in the rich world, once vigorous efforts to control the epidemic seem to have lost momentum, and risky behavior is on the rise in some populations[34]. Thus, on the global scale, prevention cannot be said to be working, despite scattered signs of progress.

Conventional wisdom argues that the problem is one of scale – of bringing a set of proven interventions to those who need them, of moving from projects to national programs – and that the primary obstacle is lack of resources. Indeed, most people in the developing world still do not have access to prevention services, and rapid scale-up of coverage must be the single highest priority[10, 31]. There is no doubt, moreover, that the gap between what comprehensive coverage would cost and the resources currently available to developing countries remains shamefully large[10, 35, 36].

Yet prevention efforts seem afflicted by a deeper malaise than can be explained by lack of resources alone. We know much about what works at a technical level: for example, condoms and partner reduction, clean needles and syringes, antiretrovirals and infant formula can together prevent most infections. But do we know how to persuade people to use condoms consistently, let alone how to change patterns of sexual behavior, destructive gender norms, stigma? At a deeper level, we know that political leadership and mobilized communities are essential, but do we understand why these keys to success are present in some places and absent elsewhere, let alone how to nurture or sustain either?

Decisive success in reversing the epidemic will require greatly increased resources for scaling up current efforts, but also new tools, new approaches, and a renewed focus and excitement. Two very significant developments will bring both great opportunities and important challenges. First, there is a real possibility of significant new resources for prevention. The U.S. government's Emergency Plan for AIDS Relief promises \$15 billion to fight AIDS over the next five years[37]. Although only perhaps \$10 billion of this would be new, a substantial percentage is being allocated for prevention. The Global Fund and the World Bank are potential sources of billions more. These new moneys should allow prevention services to be scaled up significantly. However, these sources will dry up, and the even greater resources that will be required for a comprehensive response will never become available, unless the next few years bring clear new evidence of success which dispels lingering doubts over the effectiveness of the existing approaches to prevention, especially those aimed at behavior modification.

The second, and more intriguing, opportunity for prevention is the prospect of greatly expanded access to treatment. There is widespread expectation – and some evidence – that the availability of treatment

---

<sup>2</sup> Prevalence may be beginning to fall in some other countries, for example Cambodia and Rwanda[6]. Others have apparently stabilized prevalence at low level: Senegal and Brazil are among the best-known examples[26]. .



will strongly benefit prevention, by providing incentive for testing, reducing stigma, offering opportunities for counseling and other prevention services, and perhaps by lowering viral load (see Section 2.6). The Task Force strongly endorses the new emphasis on integrating treatment and prevention and shares the sense of excitement that it has already brought to discussions of prevention. We caution, however, that treatment access is not a panacea, and that bringing antiretrovirals to those who need them will not by itself bring the epidemic under control. Many of the anticipated prevention benefits will not materialize on their own, even if the most ambitious treatment goals are met. They must be earned through deliberate planning and effort. It is worth remembering that nearly universal treatment access in the developed world has not eliminated new infections. The next few years will be critical in this regard, since it is now, when ambitious treatment programs are being designed, that effective prevention elements must be built in if the opportunity is not to be lost.

Moreover, prevention must remain a priority in its own right. While prevention and treatment can support each other in important ways, they often compete for scarce resources, including the time and attention of leaders, program managers, and staff. If politicians and managers in affected countries focus primarily on treatment, prevention programs will languish even if funds are available.

The importance of prevention is universally acknowledged. But for it to keep the attention of communities, governments, and donors, it must be infused with a new urgency and focus to match the current drive to scale up treatment. One way to bring this about would be to define clear, compelling, and ambitious goals for global HIV prevention, to set alongside the “3 by 5” goal that has so successfully energized treatment efforts. Such a target already exists: the UNGASS Declaration of Commitment affirmed the goal of reducing prevalence in young people (a proxy for incidence) by 25% in the most-affected countries by 2005 and globally by 2010[1]. This goal has received relatively little attention however, and neither the starting point nor the class of “most-affected” countries have been defined. We make specific suggestions on these points. We extend the UNGASS goal to 2015, moreover, proposing the target of reducing prevalence among young people by 50% or to 5%, whichever is more ambitious, by 2015. Finally, as a way of linking these outcome targets to concrete action, we propose a set of coverage targets for specific prevention interventions.

We begin the prevention section of the report by reviewing the prevention interventions that should be part of a comprehensive response. The list may seem long, but the biological and social complexity of HIV spread and the absence of a vaccine require that the epidemic be attacked on many fronts as once, with tools for blocking the several modes of transmission and measures designed to enable and encourage their use in various populations. Each of the interventions described here has been proven effective in some circumstances, although the strength of the evidence varies. Despite the gaps in our knowledge, there is considerable consensus that scaling up this set of prevention measures would avert millions of infections and decisively change the course of the epidemic.

After briefly reviewing the rather scarce – and sobering – data on coverage of prevention services, we present coverage targets, proposals for the levels of access that must be achieved by 2005 and 2015 if overall prevention goals are to be met. While targets for all essential interventions are necessary for costing purposes, we focus special attention on a few key targets, chosen either for their particular importance to controlling the epidemic or for their political value in mobilizing a more complete response.

While effective HIV prevention requires a multi-pronged approach, it is equally clear that some interventions are more important in certain circumstances than others and that failure (or unwillingness) to set appropriate priorities has contributed substantially to the failure of prevention

efforts in many areas. The best mix of measures depends on local circumstances, but one fundamental principle stands out: where epidemics are primarily concentrated in specific high-risk groups, prevention services targeted at these populations are of paramount importance. Section 2.5 reviews the principles that should govern prevention priority-setting and considers some of the reasons that these principles are often not followed.

We then turn to the integration of prevention and treatment, reviewing some of the ways in which treatment may affect prevention and laying out some of the concrete steps that should be taken to ensure that treatment and prevention work together as well as possible. We also propose some specific targets for integration and discuss how they could be monitored.

The list of essential interventions presented here represent the best prevention tools available now. These tools are far from ideal, however, and new ideas and research into new technologies are enormously important. Section 2.8 discusses some of the most promising new ideas in prevention and reviews the status of research into the two prevention technologies that could have the greatest impact on the epidemic, vaccines and microbicides. In section 2.9 we review some of the controversies currently raging in the prevention field, over the importance of nonsterile injections to the African epidemic, over campaigns based on promoting sexual abstinence outside of marriage, and over conflicting law enforcement and public health approaches to injecting drug users.

## 2.2 The essential interventions

There is now substantial if incomplete agreement on a set of prevention measures that can stem the spread of HIV infection when carried out as part of a comprehensive plan backed by committed leadership[4, 8]. Some national programs based on these approaches have achieved considerable success, and a recent modeling study estimated that making basic prevention measures available worldwide by 2005 would prevent 29 million new infections by 2010[25]. Although cultural, epidemiological and economic differences among regions and countries must be taken into account, the general principles of a successful response apply broadly. This broadly accepted approach was endorsed in some detail by UNGASS[8]. The necessary measures include:

- Population-wide communication campaigns conveying basic facts about HIV/AIDS and its transmission, promoting behavior change, and combating harmful myths and stigma
- Programs focused on vulnerable groups
- Legal and other measures to fight discrimination against people living with AIDS
- Access to the technical means of prevention: male and female condoms, sterile needles and syringes
- Access to voluntary testing and counseling
- Control of sexually transmitted infections (STIs)
- Prevention of mother-to-child transmission
- Precautions to prevent transmission in health care settings
- Blood screening and control

We will not review in detail the evidence for the effectiveness of each of these measures, as this has been done elsewhere[8, 38]. On balance we endorse these interventions as components of a

comprehensive response while noting that doubts remain and acknowledging that the evidence for some is stronger than for others. To some degree the uncertainties owe to the intrinsic difficulties in evaluating rigorously the impact of behavioral interventions. We believe that the evidence is strong enough – and the need urgent enough – to justify a concerted effort to scale up these known prevention approaches, while at the same time continuing to experiment and to gather rigorous data on effectiveness. This report is not a technical manual, and we will not enter into detail on the best ways to implement each intervention.

### **2.2.1 Population-wide information, education and behavior change campaigns**

The mass media – radio, television, print – are powerful tools for promoting behavior change. Media campaigns can impart information about HIV and its transmission, combat stigma and discrimination, and improve the milieu for more targeted efforts. Programs must be designed to reach all sectors of society, as many studies have shown great disparities in knowledge about HIV between men and women, between rural and urban areas, and across education levels.<sup>3</sup> Moreover, experience shows clearly that information alone is not enough: campaigns must also provide emotional and social motivation for change[39]. Successful programs have often conveyed AIDS messages through entertainment and exploited the techniques of advertising. These efforts ideally should involve a broad range of government institutions, community groups and the private sector.

What kind of behavior change should mass media and other campaigns promote? The answer of course depends on the mode of transmission that prevails in the target population, as well as on cultural and sometimes political considerations. Where transmission is primarily sexual, prevention campaigns can focus on making sex safer by promoting the use of condoms or on reducing the number of sexual contacts, or both. The debate between condom promotion and approaches stressing abstinence and fidelity has grown more heated in recent years. This controversy will be reviewed in Section 2.9. It is also clear that none of these messages will have any effect if circumstances do not allow people to change their behavior. In particular, if women are unable to require the use of condoms or refuse sex, the key to effective prevention may not be increasing knowledge or motivation but strengthening women's capacity to protect themselves (see Section 6.1).

The evidence that media campaigns can impart information is stronger than the evidence that they can change behavior, let alone reduce new infections. But this is not surprising, given the difficulty of attributing changes in behavior to particular influences. An example of apparent success in changing behavior is the Stop AIDS Love Life campaign in Ghana, which employs both mass media and community level interventions, including the involvement of people living with HIV/AIDS, traditional chiefs, and religious leaders, to promote safer behavior and reduce HIV stigma. It is too early to know if the program has reduced new infections, but awareness of the program is widespread and it has coincided with a substantial increase in condom use, which correlated strongly with exposure to the campaign[40].

### **2.2.2 Programs focused on populations at greater risk**

In much of the world, HIV epidemics are strongly concentrated in specific vulnerable populations, including injecting drug users, sex workers, men who have sex with men, and in some circumstances

---

<sup>3</sup> In India, for example, twice as many urban men as rural women recognized the protective value of condoms, according to a recent study[5].

migrant workers, truck drivers, and other mobile populations. Programs directed at these groups are among the most important prevention measures, and can have an especially powerful effect at early stages of the epidemic (see Section 2.5)[16, 41-43]. Mathematical models demonstrate that targeted interventions remain vital even in generalized epidemics, although they are clearly no longer sufficient and their value may be less intuitively obvious[44]. Two keys to success are good locally specific information on groups at risk, strong involvement of the affected groups themselves, and protection from discrimination and police harassment.

### **2.2.3 Harm reduction for injecting drug users**

Injecting drug users (IDU) share the burden of stigma and discrimination with other vulnerable populations, but require prevention services tailored to their unique mode of HIV transmission: sharing of blood-contaminated needles and syringes. Although reducing drug use itself would in theory be a way to cut HIV transmission, this has proven an elusive goal. The evidence supports instead a set of approaches, collectively known as harm reduction, that seek to minimize the harm caused by drug use while recognizing that complete abstinence may not always be possible[45]. Needle exchange programs have been shown to reduce incidence of HIV and other blood-borne diseases without increasing drug use[46, 47]. Long-term substitution therapy with methadone is also effective in reducing injection, and can give addicts access to other medical services and to voluntary testing and counseling[48]. Despite the proven effectiveness of these interventions, they are not available to the great majority of those who need them[10]. The main obstacle to harm reduction is not lack of resources or technical know-how, but national and international drug enforcement policies that drive users farther underground, increase stigma, and criminalize the prevention measures themselves[12, 49, 50]. Controlling the galloping AIDS epidemic among drug users in China, the former Soviet Union, South and Southeast Asia, and elsewhere, will require moving away from failed criminal enforcement policies towards an approach founded on evidence-based drug treatment and harm reduction. The issue of national drug policies, and the international conventions that support them, is discussed in Section 2.9.

### **2.2.4 Programs focused on youth**

Young people are especially vulnerable to HIV/AIDS infection for many reasons, and it is estimated that half of new infections are occurring among 15-24 year-olds[4]. In some regions, sexual relations between older men and younger women have been identified as an important driver of the epidemic (see Section 6.1)[4, 43, 51]. A comprehensive approach should involve school-based prevention programs offering practical training in relevant life skills as well as information; peer programs; condom distribution; community-based projects for young people not in school; and programs to reach young men in the army, in the workplace, and in prisons[52]. In Uganda, prevalence among young people has declined considerably, apparently as a result of delaying the start of sexual activity, reduction in the number of sexual partners, and greater use of condoms (see Section 2.9)[53]. It is difficult to know to what extent these promising changes can be attributed to specific programs, however, and we still know too little about what works in protecting young people.

### **2.2.5 Voluntary counseling and testing**

Voluntary testing and counseling (VCT) acts as a gateway to other AIDS services, providing access to psychological support, care and treatment (if available). Moreover, counseling brings people into contact with programs for harm reduction, for preventing mother-to-child transmission, and for diagnosing and treating tuberculosis and sexually transmitted infections. Finally, people who know

their HIV status are more likely to change their behavior and respond to counseling on preventive practices. A randomized trial in Kenya, Tanzania, and Trinidad, found VCT reduced unprotected sex significantly more than health information alone; the effect was greater among those who tested positive[54].

With the prospect of greater access to treatment, increasing testing is becoming a much higher priority. Affordable testing services should be far more widely available and should be more integrated into health care settings. There is growing support for moving away from some aspects of the traditional VCT model, in particular by having health care providers offer testing on a routine basis in a variety of clinical circumstances (see Section 2.9). Testing must always remain voluntary, however. Counseling, especially pretest counseling, may be shortened and in some cases be done in groups. It will be important to evaluate the prevention impact of these changes. Clinics that provide testing must also provide prevention services, including condoms and advice on their use.

### **2.2.6 Diagnosis and treatment of sexually transmitted infections**

Sexually transmitted infections can contribute significantly to the spread of HIV, enhancing transmission several-fold[55]. Rapid detection and treatment of these conditions, together with awareness campaigns, behavior change, and condom use, are crucial to reducing HIV incidence. Counseling, in conjunction with HIV testing, as well as broader communication campaigns, offers opportunities to promote STI awareness and prevention. The primary obstacles to better STI management are stigma and inadequate health systems. STI diagnosis and treatment should be available whenever possible and certainly wherever antiretroviral therapy is offered. STI programs are thus a critical aspect of integrating prevention and treatment. Diagnosis of STIs in the developing world relies primarily on syndromic management. Cheap and affordable diagnostic kits might substantially improve results and should be a research priority.

### **2.2.7 Prevention of mother-to-child transmission (PMTCT)**

In the absence of any intervention, babies born to HIV-positive mothers have a 15-35% chance of becoming infected in the womb, during birth, or through breastfeeding. WHO estimates that 800,000 infants became infected in 2001[56]. However, there are now simple and effective methods for preventing mother-to-child transmission. In the developing world it is possible to decrease transmission by 50% with a single dose of one antiretroviral drug administered to the mother at the onset of labor and another given to the infant within the first 3 days of life[57]. This intervention, which can be incorporated into routine antenatal care along with voluntary testing and counseling, is becoming more available in the developing world. In the developed world, transmission rates as low as 1-2% are achieved with a combination of antiretrovirals and substitution of formula for breastfeeding. Yet the great majority of HIV-positive women in the poorest countries do not have access to effective PMTCT[31]. The main barrier to providing this service in the poorest countries is shortage of trained personnel and the lack of laboratory testing. Stigma, which can deter pregnant women from being tested and treated, is an additional barrier in some areas. On the other hand, a survey of antenatal clinics offering PMTCT services in 11 African countries found that, on the average, 80% of women accepted voluntary testing and counseling.<sup>4</sup> PMTCT is also a promising entry point for ARV therapy, providing an opportunity for treatment of the family. The new MTCT-Plus Initiative uses PMTCT as

---

<sup>4</sup> C. Wilfert, personal communication to P. Wilson. This figure is derived from the experience of PMTCT programs supported by the Elizabeth Glaser Pediatric AIDS Foundation's Call to Action Project.

an entry point for providing life-long HIV primary care as well as life-long antiretroviral therapy when necessary to mothers, their children and other family members in eight African and Asian countries[58].

Transmission during breastfeeding is a continuing challenge to preventing MTCT[59]. Breastfeeding is the cheapest and safest way to ensure adequate nutrition and to protect against common respiratory gastrointestinal infections. Moreover formula feeding is highly stigmatized in some settings. At present no proven strategies exist, but studies of providing ARVs to either the mother or the infant throughout breastfeeding are under way[60].

Finally, improving reproductive health services can also reduce mother-to-child transmission by preventing unwanted pregnancies among HIV-positive women.

### **2.2.8 Health system precautions and blood safety**

Blood contamination, non-sterile injections, and other unsafe medical practices have not been considered major routes of HIV transmission in most countries. This conventional view has been challenged recently by a series of publications arguing that unsafe injections may play a major role in the epidemic in Africa. The World Health Organization acknowledges that unsafe injections are widespread but stands by its estimate that they account for no more than 2.5% of infections. This controversy is discussed in Section 2.9. The Task Force believes that the evidence at present does not warrant a major shift in prevention emphasis. What is clear is that transmission by unsound medical practices has caused several serious local outbreaks, such as the epidemic among children in Romania and the recent outbreak in China's Henan province resulting from unsafe practices during plasma collection and sales[61, 62]. Lack of health system capacity and proper control over blood banks are the major challenges to eliminating these sources of transmission, since the necessary technical steps are well understood[63, 64].

## **2.3 Current coverage of prevention services**

- Data from 2002 WHO report
- More recent data and data on other services

## **2.4 Prevention targets**

There are three reasons for the Task Force to endorse prevention targets and to propose new ones when necessary. The first is to give specificity to the MDG AIDS goal and its accompanying target, which are vague and lack meaningful benchmarks against which progress can be measured (see Section 1.3). A second reason is to infuse new vigor into global prevention efforts. In contrast to the international campaign to expand treatment, which has been energized by the "3 by 5" goal, global prevention lacks clear momentum. Compelling goals might help. The Task Force believes that simple but ambitious overall outcome targets supplemented by coverage targets for a few key interventions would be the most useful combination. Intervention coverage targets are also important for estimating resources requirements.

Ambitious targets for 2015 are important for pushing countries, donors, and the international community to aim high and to give substance to the Millennium Development Goal for HIV/AIDS. But targets for 12 years in the future are probably too distant to create the required sense of urgency. To motivate action now, we need interim targets. Since the most important UNGASS targets as well

as the 3 by 5 treatment goal are for 2005, we could set benchmarks for that year, referring to the existing UNGASS targets when available. The final Task Force report will not be made public before the beginning of 2005, however, making targets for that year essentially moot. The Task Force has not reached a final position on interim targets. This report endorses the overall 2005 UNGASS prevention target and the WHO/UNAIDS “3 by 5” treatment goal and sets some additional treatment-related targets for 2005, while omitting for now a fuller set of interim targets.

### **Overall outcome targets for 2015**

- Reduce prevalence among young people to 5% in the most affected countries and by 50% elsewhere by 2015.
- Reduce prevalence by 50% in key vulnerable populations by 2015.

### **UNGASS outcome target for 2005**

- Reduce prevalence among young people by 25% in the most affected countries by 2005 and globally by 2010.

### **Rationale**

We begin by reaffirming the UNGASS target of reducing prevalence among young people by 25% in the most affected countries by 2005[1]. Although this goal is not at the moment attracting sufficient attention, a first step toward reinvigorating it would be to define explicitly the starting point and the class of countries to which it refers. We suggest that reductions be measured from 2000 levels, unless another year has been agreed to as part of the UNGASS process, and that “most-affected” countries be defined as those with adult prevalence above 10% in 2000.

A distinct target for prevalence in vulnerable populations will help to focus prevention efforts where they are most needed and would do the most good. Clearly this parallel target is aimed especially at countries with concentrated epidemics. UNAIDS has already suggested that these countries track prevalence in vulnerable populations as part of their MDG monitoring[65]. Restricting the target formally to concentrated epidemics, however, would leave out an important class of countries with prevalence between 1 and 5%. For the sake of this target, vulnerable populations (or “high-risk groups”) would be defined explicitly as IDU, SW, and MSM; the target would only apply to the groups that are important to each country’s epidemic<sup>5</sup>.

As the MDG Task Force, we need a clear goal for 2015. Since the UNGASS target for prevalence among young people has been agreed to by the international community, it makes sense to use it as the starting point in choosing a target for 2015. Moreover, prevalence among young women is also one of the official MDG indicators. Thus our proposed 2015 target builds on UNGASS and at the same time uses one of the official indicators to give specificity to the MDG target.

The UNGASS target focuses on young people (aged 15-24) not only because they are critical to the epidemic, but because their prevalence rate is considered a good proxy for incidence, which is hard to measure. Restricting the target to prevalence among young people rather than all adults also lessens

---

<sup>5</sup> An unresolved question is whether we should attempt to focus attention on other kinds of vulnerable populations in high-prevalence countries, such as partners of men with multiple partners or women in general, etc. Although these populations are clearly at risk, they do not necessarily play the same role in the epidemic as the classically defined “core groups”.

the potential conflict with our treatment goals. Treatment will reduce mortality and thus may obscure the effect on prevalence of falling incidence. But this effect should be small among young people, whose infections are generally more recent and whose mortality rates should therefore be lower.

The examples of Uganda and Thailand demonstrate that a 50% reduction in youth prevalence is attainable in 15 years. In the highest prevalence countries it is not ambitious enough, as it would leave prevalence among young people much too high. For these countries the proposed target is 5%.

A target expressed in terms of infections averted would reflect more exactly the goal of prevention and might be more intuitively compelling, since it would make immediate the connection to lives saved. (This is part of the appeal of the “3 by 5” goal.) But it would be much more challenging to define and to monitor, since it would depend on projections of baseline incidence. Some of the benefits of an infections averted target can be captured by calculating and publicizing the estimated number of cases that would be prevented if the youth prevalence targets were met.

•

### **Intervention coverage targets**

1. Ensure that by 2015 affordable HIV testing and appropriate counseling are offered at all STI, TB, and antenatal clinics globally, and at all medical facilities in high prevalence countries.
2. Ensure that 100% of patients receiving HIV treatment and care have access to effective “prevention for positives” by 2015.
3. Ensure that 80% of injecting drug users have access to harm reduction services by 2015.
4. Ensure that 80% of pregnant women have access to PMTCT services by 2015.
5. Ensure that 100% of young people have access to reliable information about the epidemic and how to protect themselves by 2015.

### **Rationale**

Intervention coverage targets are a way to link outcome targets to concrete action. Moreover, access to essential services can be seen as a right in itself. The Millennium Project has set coverage targets for a longer list of prevention and treatment interventions for the purposes of cost estimation (see Millennium Project secretariat case studies[66]). These five targets have been chosen for their importance to the overall prevention objective or to highlight a key message of the Task Force.

**Target #1** Access to testing is critical for both prevention and treatment. It is clear that many people who would like to learn their status cannot, either because the service is not available or too expensive, or because confidentiality is not assured. UNAIDS set a target of 100% access to VCT by 2007 for its costing study[36]. A target formulated in terms of availability of testing at medical facilities avoids the difficulty of defining and measuring population.

Worded as above, the target would allow for testing outside the traditional VCT model. The WHO coverage estimate and the UNAIDS target consider only VCT and not testing for diagnostic purposes in clinical settings.

**Target #2** This target would serve to underscore the importance of integrating prevention and treatment. To give it substance will require defining what constitutes effective “prevention for positives” (see Section 2.6). One possibility is to monitor the percent of HIV patients who receive



counseling of some kind on reducing risky behavior within the clinical setting or as part of a community adherence monitoring program, or both.

**Target #3** Harm reduction could be defined explicitly as needle and syringe exchange or opiate substitution, along with adequate information. UNAIDS set a target of 60% coverage by 2007, but current coverage may be much lower than the estimate of 20% used in that study[36]<sup>6</sup>.

**Target #4** A more demanding form of the PMTCT target would define coverage by the number of women who actually agree to the intervention, thus taking into account the problems with uptake where the service is offered. On the other hand the target as worded is ambitious in that it is not restricted to women who have access to antenatal services. Thus the target can only be met by substantially expanding access to ANC or by developing ways to provide PMTCT outside conventional antenatal care.

UNGASS does not set a specific target for access to PMTCT interventions, but requires that information, counseling, and “other HIV services” be available to 80% of pregnant women accessing antenatal care by 2005. It also calls for the proportion of HIV-infected infants to be cut by 20% by 2005, and by 50% by 2010. Given the relatively low uptake and the unsolved problem of transmission by breastfeeding, meeting the 2005 goal would require a very high level of access.

**Target #5** This is an extension of a 90% target from UNGASS. Progress in this area could be measured using the suggested MDG indicators “comprehensive correct knowledge” and condom use at last risky sex.

It would be possible in principle to link intervention coverage targets to outcomes, using established methods[25]. Although this would provide a satisfying justification for the coverage targets, it would involve many quite arbitrary assumptions. Moreover, expanded coverage of basic prevention interventions is required on human rights as well as instrumental grounds. Thus we will not attempt a quantitative linkage of intervention coverage and outcome targets.

## 2.5 Setting priorities

No single prevention measure can stop the spread of AIDS; success will always require acting on several fronts at once. Yet it is clear that the right mix of interventions depends on local conditions and that some measures are especially important in some circumstances. There is a considerable literature on setting prevention priorities, much of it taking the form of cost-effectiveness analyses of prevention interventions, based in turn on simple epidemiological models[16, 38, 67-70]. This approach has a number of drawbacks and must be interpreted with care, but it can provide useful insights. One of the most robust conclusions, reached by numerous studies, is that prevention interventions focused on vulnerable, high-risk populations – condom promotion and peer education for sex workers and men who have sex with men, needle exchange for injecting drug users – are vitally important and very cost-effective. This is particularly clear in those countries where the epidemic remains largely concentrated in these populations. It is likely that these measures are also among the most important in generalized epidemics, but in those circumstances they are clearly not sufficient to bring the epidemic under control<sup>7</sup>.

---

<sup>6</sup> Kasia Malinowska, personal communication

<sup>7</sup> We could also discuss priority populations in high-prevalence countries here.

Unfortunately, the public health consensus on the importance of prevention programs targeted at high-risk populations is often not reflected in national plans, and more to the point, actual resource allocations. For example, a study of expenditures in 12 countries in Latin America and the Caribbean found that only 7% of prevention funds were spend on targeted programs, although all but one of the countries have concentrated epidemics (prevalence in the general population below 1%)[71]. This problem is particularly vivid in many places where HIV transmission is largely driven by injecting drug use. Governments spend their resources on prevention programs for the general public while ignoring (or actively impeding) proven harm reduction approaches to reducing transmission among addicts.

Why do programs for vulnerable populations receive less attention and resources than they should? Lack of information may play a role: governments may not fully appreciate the importance of these efforts to controlling the epidemic. But political and ideological considerations are surely the more important factors in many cases. In almost all cases, high-risk groups are already marginalized and highly stigmatized. Governments are often reluctant to admit that these populations exist at all, and may find providing services to them politically incompatible. To the extent that governments acknowledge AIDS as a problem, they often prefer to devote their efforts to campaigns aimed at the general public.

It is important to stress that government attention to HIV transmission among vulnerable populations is only a good thing if it translates into effective and humane services. A more common response is to crack down further on these already persecuted groups, “solving” the problem by imprisoning drug users and harassing commercial sex workers and men who have sex with men. These punitive approaches not only violate human rights, but worsen HIV transmission among the affected populations by driving them further underground (see Section 2.9). Even when central governments support appropriate prevention for vulnerable populations, these programs can be blocked by police harassment at the local level. A recent study by Human Rights Watch document the ways in which programs for sex workers in India and intravenous drug users in Kazakhstan are being undermined by widespread abuse of sex workers and drug users by police and local officials[72, 73]. Ultimately this is a human rights issue - governments are denying basic services, including treatment and care as well as prevention, to populations that desperately need them – and the solution will ultimately have to be political. But the problem can also be framed as a critical and terribly costly public health mistake, a missed opportunity to make decisive progress against the epidemic.

## **2.6 Integrating prevention with treatment**

The prospect of greatly expanded treatment in the developing world offers an enormously important opportunity for prevention, as well as significant risks. In the most affluent nations, where antiretroviral therapy is widely available, links to prevention have often been poorly developed. Prevention programs have focused on helping HIV negative people to protect themselves from infection, while prevention has not been systematically incorporated into clinical care for people living with the virus. It is now widely recognized, however, that prevention efforts targeted at HIV+ positive people should be strengthened and that this will require much stronger integration of prevention and treatment. This is the essential message of the CDC’s influential (and controversial) new prevention strategy for the US. In the developing world this is a critical moment, when ambitious new treatment programs are being planned, to ensure the integration of prevention from the outset.

This section will outline briefly the ways that treatment and prevention interact and sketch some preliminary recommendations for making the most of the opportunities opened by increased treatment.

These issues will be discussed in much greater detail in the forthcoming report of the Gates/Kaiser Global HIV Prevention Working Group.

### **2.6.1 How treatment affects prevention**

There are a number of ways that increasing the availability of effective treatment could help prevention. Although the evidence is mostly from small pilot programs, it is nonetheless encouraging.

#### ***Increased demand for testing***

Knowing that treatment is available provides a strong motivation for learning one's status. Testing is in turn an important opportunity for prevention counseling as well as a link to other prevention services, including prevention and treatment of STIs and prevention of vertical transmission. Several treatment programs in developing countries have reported large jumps in testing. For examples, MSF reports that VCT uptake has increased 12-fold since 1998 in the district surrounding the South African township of Khayelitsha, where it has operated a pioneering ART program since 1999[27]. Similarly, voluntary testing increased 3-fold in the first two years of Partners in Health's HIV care project in rural Haiti[28].

#### ***Decreased stigma***

It is often argued that increasing access to treatment can reduce stigma, by mitigating the fear that is one of the sources of stigma and by demonstrating that the lives of people living with HIV and AIDS are valued. This effect is hard to measure, but it makes intuitive sense, and there seems little doubt that stigma has decreased in the developed world since the advent of treatment. Decreasing stigma would help prevention in many ways.

#### ***Targeting of prevention programs to HIV-positive population***

There is much interest at the moment in developing stronger prevention programs aimed at HIV+ people. These measures, which could include various kinds of group and individual counseling as well as help with partner notification, would ideally be integrated into treatment and care but need not occur in clinical settings[74]. There is as yet little evidence on the effectiveness of these interventions[75]. Treatment can give this co-called "prevention for positives" an indirect boost as well by encouraging more people to know their status.

#### ***Community mobilization***

It may turn out that the most powerful benefits of treatment will come through mobilizing communities to take responsibility for fighting the epidemic. Strong community involvement in treatment programs, in decision-making as well as in important aspects of delivering care, could lead to a virtuous cycle of decreased stigma, open discussion, and changed behavior. This is what appears to be happening in Khayelitsha, according to MSF. But for these powerful forces to be unleashed, treatment programs must build strong ties to communities. Where this careful preparation has not happened, the benefits have not materialized.

#### ***Reduced transmission***

Infectivity – the likelihood that an infected person will pass the virus to an uninfected individual during sexual intercourse – is thought to depend in part on viral load, the concentration of viral particles in the blood or semen. Since antiretroviral treatment routinely decreases viral load by several orders of magnitude, it is plausible that widespread treatment could reduce transmission. This would be true only if this biological effect was not offset by increased risky behavior (see below). Moreover, the

issue is complicated by the fact that the period of highest infectivity may occur immediately after initial infection, when viral loads are very high. These newly infected individuals will in general not know that they carry the virus and will not be on treatment. A recent modeling study concluded that treatment could indeed significantly lower transmission, but that the effect could be negated by changes in behavior[76]. A clinical trial is being designed to test this hypothesis.

***Risks: increased risky behavior***

There is thus much reason to hope that expanded treatment will give prevention a powerful boost. But there are risks as well. The most important danger is that the introduction of treatment will cause people to behave in a more risky fashion. One way that this could happen is if some people come to believe that AIDS is no longer as grave an illness and therefore take fewer precautions to protect themselves or others. Another possibility is that people on antiretrovirals could believe that they are no longer able to transmit the virus to others, either because they feel healthy again or because they are aware of the possible effect of lower viral load[77]. There is some evidence that risky behavior has increased in vulnerable populations in Europe and North America since the advent of effective treatment, although it is not easy to know whether this has happened *as a result of* treatment.

There are many reasons why the impact of treatment on behavior may be very different in the very different social and cultural contexts of the developing world. But it would be foolhardy not to plan carefully for the possibility that risky behavior may increase. One important precaution would be to carefully monitor behavior and attitudes as treatment is introduced so that worrisome changes can be detected early. Prevention messages could then be quickly modified to respond to such new threats<sup>8</sup>.

Although prudence requires planning for the possibility that risky behavior may increase in response to treatment, this hypothetical danger must not be used to justify denying or delaying the expansion of treatment.[74, 75, 79]

**2.6.2 Opportunities for integration**

Some of the prevention benefits of treatment, such as reduced infectiousness, may occur more or less automatically. Most will come only with careful planning and concrete actions. Since integration of prevention into treatment has not until now been a high priority, relatively little is known about what works. It is clear in general terms, however, that making the most of the opportunities for prevention offered by treatment will require action in several areas.

***Testing***

In many ways, HIV testing is the key point at which prevention and treatment interact. Reaching far more of those who could benefit from treatment in the developing world, and reaching them when they can be helped most easily, will require a drastic increase in testing. This will require scaling up access to VCT and, at least in the high prevalence countries, changes in testing policy. As discussed earlier, broader knowledge of status could bring many benefits for prevention, including changes in risky sexual behavior and prevention of mother-to-child-transmission. But for these benefits to be realized, testing will have to be well linked to appropriate services.

---

<sup>8</sup> The behavioral implications of treatment are the subject of the Task Force Working paper by J.-P. Moatti and B. Spire, now available in draft form[78].

***Prevention in the clinical setting***

HIV care and especially antiretroviral therapy bring HIV positive patient into regular contact with health care providers, offering an important opportunity for prevention. This could take several forms. First, counseling on reducing risky behavior and protecting one's partners should be built into treatment protocols. This need not be the responsibility of doctors and nurses, but could be done by lay counselors, perhaps people living with HIV/AIDS. Second, clinical HIV care should ideally include diagnosis and treatment of sexually transmitted infections. Although the ability to provide this critical service should not be a prerequisite for beginning ART, the available of STI treatment at every facility providing ARVs should be an important goal[80]. Finally, condoms and education on how to use them should be readily available at every ART site.

***Integration in the community***

Community outreach will be critical to the success of ART programs in resource-poor settings. Community understanding and involvement in treatment should be tightly linked to understanding and participation in prevention. One way to reinforce these ties is through the community outreach mechanisms for monitoring adherence to ART.

***Harmonization of messages***

Finally, prevention and treatment programs will have to ensure that the messages they seek to communicate to target audiences serve to reinforce each other. Prevention messages should reaffirm the value and importance of treatment while combating possible increases in risky behavior resulting from the introduction of treatment, while treatment education should reinforce the importance of prevention.

**2.7 Structural interventions**

[This section would discuss approaches to changing the social and economic factors that influence vulnerability to HIV and limit the effectiveness of conventional prevention approaches.](#)

**2.8 New ideas and technologies****2.8.1 Vaccines**

Vaccines are responsible for some of the most spectacular successes of international public health, and they are often viewed as the ideal answer to the prevention of infectious disease. There is no doubt that an effective and affordable HIV vaccine would be an enormous advance, fundamentally transforming the battle against AIDS and perhaps even offering hope of eradication. But such a breakthrough is a long way off: under the best of circumstances a useful vaccine will not be available in fewer than ten years. Research continues on many fronts, and a number of candidate vaccines are in clinical trials, although only one has reached phase III efficacy trials[81].

Although many workers in the field believe an effective vaccine will eventually be developed, several considerations should be kept in mind.

- There is no guarantee that a vaccine is possible. There are many diseases for which no effective vaccine has been developed, ranging from malaria to the common cold.

- If vaccines are developed, it is likely that they will offer only partial protection. Although such a vaccine may be useful, the protection it offers would have to outweigh any increases in risky behavior. The value of a vaccine will also depend on how long the protection it confers lasts.
- It may prove difficult to develop a single vaccine that would protect against the many strains of HIV.
- The clinical trials necessary to prove both safety and effectiveness can be very expensive, since large numbers of people must be followed for long periods of time. These trials also pose complex ethical dilemmas.

Despite these challenges, there is no doubt that vaccines represent the greatest hope for a decisive victory over HIV/AIDS and thus must remain the single highest research priority.

### **2.8.2 Microbicides**

A microbicide is a substance that can kill or neutralize an infectious agent, in the case of HIV preventing infection in the vagina or rectum. An ideal vaginal microbicide would be undetectable, long-lasting, easy to use, and effective against other STIs, as well as safe and affordable. Moreover, there would be great value in having in hand both spermicidal microbicides and alternatives that allowed conception. One of the main attractions of microbicides is that they would in theory be under the control of women, who are often unable to demand that their partners use condoms. One study estimated that a 60% effective microbicide could avert 2.5 million infections over 3 years, based on fairly conservative assumptions[82].

Several microbicides are now in clinical trials. The Rockefeller Foundation has made microbicides a priority and the Gates Foundation has committed \$60 million to the International Partnership for Microbicides, a public-private partnership.

Microbicides are likely to be available well before effective vaccines, and could be a very important new prevention tool.

### **2.8.3 Antiretroviral drugs for prevention**

Antiretroviral drugs are currently used for post-exposure prophylaxis after needle-stick and, in some cases, after sexual exposure. Recently, however, the idea of using low, steady doses of ARVs for prevention in high-risk groups has been drawing attention. Studies in monkeys have shown that a single protease inhibitor, tenofovir, can block infection by a retrovirus closely related to HIV. Clinical trials are now planned in several countries[83].

### **2.8.4 Male circumcision**

Within sub-Saharan Africa there is a strong geographic correlation between high rates of male circumcision and lower HIV prevalence. Correlation does not prove causality – and Islam is an obvious confounding variable – but this observation is now supported by a considerable body of evidence from both longitudinal and cross-sectional studies that male circumcision lowers the risk of female to male HIV transmission[84]. In the four cities study mentioned in Section 1.1, for example, rate of circumcision emerges as one of the factors most clearly associated with lower HIV prevalence[14]. The biological basis for this effect has not been demonstrated, but the abundance in the foreskin of certain cell types susceptible to HIV entry offers a plausible explanation[85].

The evidence for the protective effect of circumcision has led to the idea of promoting circumcision as an additional prevention measure. Three trials are now underway in Uganda, Kenya, and South Africa to test the effectiveness of adult circumcision in reducing incidence. The obvious danger in promoting circumcision as a prevention tool is that it offers only very partial protection, reducing female-to-male transmission perhaps 2-3 fold[84]. Thus any benefits could easily be erased by increases in risky behavior if circumcised men or their partners believed that this modification provided greater protection than it does. Another concern is the risk of transmission during the surgery itself in areas where sterile procedures cannot be guaranteed.

The Task Force believes that adult circumcision could prove useful in some circumstances, but that it is unlikely to assume a central role in most prevention strategies.

## 2.9 Issues and controversies

### 2.9.1 Abstinence and condoms

Successful prevention campaigns among gay men in the developed world, among sex workers and their clients in Thailand, Cambodia and elsewhere, have had at their core promotion of safer sex, particularly use of condoms. There is thus abundant evidence that condoms can be a powerful prevention tool. Social marketing of condoms through the mass media and by other routes has been a mainstay of donor-funded prevention programs. More recently, however, there has been a shift, led by the US government, toward an approach to behavior change that emphasizes abstinence (or, more specifically, delayed sexual debut) and reducing the number of sexual partners (“being faithful”), as well as condoms. This approach, sometimes called “ABC” (Abstinence, Be faithful, Condoms when necessary) owes much of its momentum to an interpretation of Uganda’s striking success in lowering prevalence (and apparently, incidence) rates over the last 15 years. It is not easy to disentangle the relative contributions of the many elements of Uganda’s multifaceted AIDS strategy, but the bulk of the evidence indeed suggests that all three types of behavior change played a role, with decreases in the number of partners perhaps the single most important factor[53]. It has been noted that much of the decline in prevalence took place before condom use reached significant levels. It is also worth emphasizing that there has been a steep drop in prevalence among women 15-19 years old, implying that the overall decline in Uganda is not primarily the result of increasing mortality, or of a preferential dying-off of those at highest risk.

Thus, the case of Uganda demonstrate that delayed sexual debut and partner reduction, especially among young people, can contribute to slowing the epidemic, and campaigns to promote these changes can have an important place in prevention strategies. But the example of Uganda should not be used to promote a simplistic and potentially dangerous abstinence-only approach to prevention. This interpretation overlooks several crucial considerations:

- Condoms have been important to success in Uganda: rates of condom use have risen sharply, especially in the late 90’s, and have played a role in the continuing decline in prevalence.
- Condoms have been the central ingredient in many successful prevention efforts elsewhere, including on the national scale in Thailand. They are particularly vital to protecting high-risk groups, including sex workers and their clients and men who have sex with men.
- The idea of HIV prevention through abstinence is not new: It has been tried in many places, in Africa and elsewhere, without notable success.

- These points illustrate that the right mix of prevention messages will depend critically on local cultural as well as epidemiological circumstances. What may have been right for Uganda may not be right elsewhere.
- Success in Uganda may owe as much to other features of its overall campaign against HIV/AIDS as to its particular choice of behavior change message. The fight against AIDS in Uganda has been built on strong political leadership from the top and impressive community involvement. In the absence of either, the message may not have mattered.

The Task Force believes that campaigns to encourage delayed sexual debut and partner reduction can be effective in certain circumstances, although in much of the world, where the epidemic remains largely concentrated in high-risk populations, promoting condoms must remain the mainstay of behavior change programs. Moreover, the choice of strategy and emphasis should be based on the evidence, not on ideological considerations. Pressure to abandon condoms in favor of abstinence only must be vigorously resisted. Ear-marking a large share of prevention funds for abstinence campaigns is a bad idea, as it prevent managers from designing strategies on the basis of the best evidence and local knowledge.

### **2.9.2 Routine testing: challenging the VCT model**

Voluntary counseling and testing is often called the gateway to both prevention and treatment. If so, it is striking how few people are passing through the gate. It is a nearly universal feature of HIV epidemics that very few people know their status. In Botswana, for instance, it is estimated that of perhaps 300,000 HIV-positive people, only about 8% know that they are infected[86]. Not knowing their status keeps people from learning how to protect their partners and children and from accessing treatment. More widespread awareness of status would also almost certainly reduce stigma. Early knowledge of status will become even more important when treatment becomes more widely available, since it is far better (and cheaper) to begin antiretroviral therapy before patients are desperately ill.

At least three factors currently limit testing in much of the developing world. The first is lack of affordable treatment: without treatment there may be little incentive to know one's status. The second is a shortage of trained counselors to do the extensive pre- and post-test counseling mandated by the standard VCT model. The third is fear of stigma and discrimination, which inhibit people from coming forward to be tested. The first could be changed by scaling up access to treatment, while the second two could be alleviated by modified approaches to testing.

The current model of voluntary counseling and testing arose from the early experience of the epidemic in the developed world, out of concern over stigma and discrimination and the threat of coercive approaches to AIDS control. HIV/AIDS came to be treated differently from other infectious diseases – a phenomenon that has been called “AIDS exceptionalism”[87] – with testing limited by an unusual emphasis on informed consent and counseling, and little focus on partner notification or prevention services targeted at HIV-positive people.

It has recently been argued that these and other features of the response to the epidemic are not well suited to the African emergence, with its generalized, high prevalence epidemics, and should be revised in favor of a more traditional public health approach[88]. A central element of such a public health response would be greatly increased testing and a recognition that testing serves a variety of purposes, calling for a variety of approaches. Traditional VCT, initiated by people wanting to know their status, should be made far more available. WHO estimated access to VCT in 2001 at 12% globally, 6% for Africa[31]. In addition, however, testing should be offered routinely in clinical



settings to a variety of classes of patients, including pregnant women, TB patients, and people coming to STI clinics. “Routine” testing implies that patients are tested unless they specifically “opt out”; an alternative is the “routine offer” of testing. A shared feature of most proposals for increasing testing is a reduction in the amount of counseling, especially pretest counseling.

### **2.9.3 Policy and treaty barriers to harm reduction among injecting drug users**

Transmission among injecting drug users plays an increasingly important role globally, and is driving several of the fastest growing national epidemics (see Introduction). Harm reduction measures such as needle exchange and methadone substitution have been proven to reduce transmission among IDU, but are impeded almost everywhere by punitive government policies toward drug users[12]. Almost all the countries of the former Soviet Union and Asia where injecting drug use is driving the HIV epidemic criminalize possession of even tiny amounts of drug, carry out mass arrests of addicts, incarcerate users for long terms in prisons and forced treatment centers, and in many cases, execute even low level traffickers. These measures are often part of “wars on drugs” or “social evil” campaigns, featuring highly stigmatizing and dehumanizing media images. These harsh approaches drive users further underground, block their access to prevention and care, and encourage needle-sharing. Needle exchange and methadone maintenance programs are either illegal or blocked by police harassment and addicts’ fear of arrest. Moreover, mass incarceration of addicts contributes directly to the spread of HIV, since needle-sharing and unprotected sex continue in prisons and treatment camps.

Although social stigma, discrimination, police harassment, and imprisonment are also experienced by other groups vulnerable to HIV, such as sex workers and men who have sex with men, only in the case of drug users are punitive government policies encouraged and even required by international treaties. A series of international agreements known as the Vienna conventions require signatory nations to adopt aggressive measures to reduce demand and supply of illicit drugs. These conventions are often interpreted as mandating punitive, law enforcement-centered approaches to users, and as forbidding harm reduction measures such as methadone substitution and needle exchange. Others have argued, however, that the language of the treaties is consistent with harm reduction. The conventions are in any case often invoked by national governments in defense of harsh policies, although there are in most cases strong domestic pressures for these policies as well.

The conflicting imperatives of the fight against AIDS and the international war on drugs as currently conceived have led to a inconsistent response on the part of the United Nations system. On one hand UNAIDS and WHO, taking a public health perspective, have endorsed harm reduction as the best way to prevent HIV transmission among IDU. On the other hand, the International Narcotics Control Board (INCB), the United Nations Office on Drugs and Crime (UNODC) (a UNAIDS sponsor), and its United Nations International Drug Control Program (UNDCP) have consistently supported punitive approaches centered on criminal enforcement and have ignored or actively discouraged harm reduction. The UNODC director went as far as to praise Thailand’s drug control efforts after a recent campaign that may have resulted in more than 2000 extra-judicial executions[12]. There have been attempts to unify the UN’s approach to HIV prevention among drug users, but they have so far failed to reconcile the conflicting messages.

The Task Force believes that the evidence overwhelmingly supports needle exchange and other harm reduction approaches as the most effective way to prevent HIV infection among injecting drug users and urges both national governments and the UN system to remove obstacles to and rapidly increase access to these proven interventions. We propose a target of ensuring that 80% of injecting drug users have access to harm reduction services by 2015. In addition, we recommend that:

- 1 The UN drug control conventions be revised to explicitly support the full range of HIV prevention services for drug users, including needle exchange and substitution treatment. In the meantime, the drug control arms of the UN, the UNODC and the INCB should formally acknowledge that harm reduction is a necessary part of a comprehensive drug policy, and that these measures do not violate the existing treaties.
- 2 Methadone be reclassified to a less restrictive category under the drug conventions. In addition, methadone and other substitution therapies should be included on the WHO essential drugs list along with other critical HIV/AIDS medications.
- 3 At the national level, syringe and needle possession should be decriminalized and imprisonment for possession of small quantities of drugs should be ended.

#### **2.9.4 Unsafe injections and the African epidemic**

Although it clear that HIV can be transmitted by reuse of unsterilized needles and syringes as well as other by unsafe medical practices, the general view has been that this mode of transmission accounts for a relatively small fraction of cases in Africa, perhaps 2.5% according to a WHO model[89]. Gisselquist and his co-authors have recently challenged this view in a series of high-profile articles arguing that unsafe injections have played a central role in the African epidemic, perhaps even dwarfing that of sexual transmission[90]. The authors advance a series of arguments to support their claim, including high HIV prevalence among South African children in a recent study (higher than can be explained easily by vertical transmission), poor correlation between HIV and STI rates, and lack of strong correlation between reported risky sexual behavior and population HIV prevalence in several studies. Moreover, they reinterpret existing data from longitudinal studies to conclude that a relatively low fraction - 25-35% - of HIV incidence in these study populations can be attributed to sexual transmission[91]. In contrast, the same writers use an unusually high estimate of transmission probability from unsafe injection to infer that this form of transmission accounts for a large share of new cases in Africa[92]. These claims have received considerable media attention and have even been the subject of hearings in the US Congress. If substantiated, they would clearly have important implications for prevention strategies.

The mainstream public health community has not been swayed. WHO and UNAIDS have reiterated their position that sexual transmission accounts for the great majority of cases in Africa[89]. Each of the arguments of Gisselquist and his colleagues has been challenged on technical grounds. Defenders of the conventional view point out that there is little correlation between rates of HIV and Hepatitis C, a disease thought to be transmitted primarily by unsafe medical practice in Sub-Saharan Africa[93]. Moreover, the age- and sex-specific pattern of prevalence, with rates of infection rising several years earlier in women than men, fits with what one would expect from sexual but not from medical transmission.

The question is so important, and the doubts sufficient, that new research to resolve the issue of the significance of medical transmission should be a high priority. Possible approaches include gathering more data on prevalence among children and their mothers and measuring HIV abundance and survival in used syringes in the field. Nonetheless, the Task Force believes that the predominance of the evidence supports the conventional view that sexual transmission drives the epidemic in Africa and that prevention strategies should be based on this assumption until persuasive evidence to the contrary is available. Endorsing a new emphasis on unsafe injections as a major mode of transmission might

cause governments and individuals to relax their efforts to reduce sexual transmission, and might cause people to avoid useful injections such as childhood vaccinations.

While the number of HIV infections caused by medical injections may be relatively small, these infections can and should be prevented. The persistence of unsafe injections underscores the importance to HIV prevention of strengthening health systems.

## 2.10 Recommendations

- Global and national prevention efforts need to be reinvigorated by ambitious new goals. Countries and the UN system should commit to two parallel targets as part of the MDG process:
- Reducing prevalence among young people to 5% in the most affected countries and by 50% elsewhere by 2015.
- Reducing prevalence within key vulnerable populations by 50% by 2015.
- HIV testing must be made far more widely available and must be more integrated into routine clinical care. By 2015 affordable HIV testing and appropriate counseling should be offered at all STI, TB, and antenatal clinics globally, and at all medical facilities in high prevalence countries.
- Prevention must be strongly integrated into HIV treatment and care. All patients receiving HIV care should have access to effective “prevention for positives”, including counseling, condom provision, and management of sexually-transmitted infections.
- Prevention and treatment messages disseminated through the media and other channels must be carefully harmonized. Prevention messages should contribute to treatment awareness, while treatment literacy campaigns should reinforce prevention.
- The introduction of treatment on a large scale should be accompanied by increased behavioral monitoring, so that possible increases in risky behavior can be detected early.
- No single prevention message is appropriate for all settings: prevention strategies should be designed on the basis of accurate local information and evidence of effectiveness, not ideology. Donor funds should not be earmarked for abstinence-only campaigns.
- Harm reduction interventions such as needle and syringe exchange and methadone substitution have been shown to reduce HIV infection among injecting drug users. By 2015, at least 80% of injecting drug users should have access to harm reduction services.
- The drug control arms of the UN, the UNODC and the INCB, should declare formally that harm reduction is an essential part of a comprehensive drug policy, and that harm reduction measures do not violate existing drug control treaties.
- At the national level, syringe and needle possession should be decriminalized and imprisonment for possession of small quantities of drugs should be ended.

### 3. Treatment

Treatment must stand alongside prevention as a fundamental pillar of a comprehensive response to the epidemic. Only treatment can substantially prolong the lives of the 40 million people who already carry the HIV virus and allow them to return to productive work. In the highest prevalence countries, only urgent expansion of treatment will forestall continued catastrophic rates of illness and death and the attendant social and economic devastation. AIDS is already wrecking havoc on civil and economic infrastructure, precipitating famine, and leaving tens of millions of AIDS orphans in its wake[4, 24]. Without significant intervention, in the hardest hit countries GDP is expected to fall 8% by 2010 and 30-40% of all children will be orphans[94, 95]. Loss of health care workers and critical human resources in other sectors threaten the achievement of all the Millennium Development Goals[24, 95, 96]. Recent studies indicate that 19-53% of the mortality of African civil servants is currently attributable to HIV/AIDS and estimate that by 2005 28-41% of the health workforce in the hardest hit areas will be infected with the virus[95, 97]. Only treatment can prevent their deaths and avert such a multifaceted catastrophe.

Moreover, the current situation, in which access to life-saving treatment is primarily determined by ability to pay, is both fundamentally unjust and dangerous. Recent data indicate that lack of affordable access to ART creates an environment where resistance can flourish by encouraging dose skipping, sharing with family members, and the use of dual and mono-therapy[98]. This desperate situation also leads to the proliferation of “gray” markets selling vitamins and immune boosters to desperate people as ARVs[99].

Finally, as discussed in Section 2.6, the expansion of effective treatment in the developing world represents an important opportunity for prevention, if treatment and prevention programs are carefully designed to work together.

After years of contentious debate, a broad consensus has emerged that treatment can and should be rapidly expanded in the developing world. The WHO/UNAIDS initiative to bring antiretroviral therapy to 3 million people by 2005 (“3 by 5”) has done much to mobilize support for ambitious treatment goals. Even institutions such as the World Bank, which had long argued that antiretroviral therapy (ART) was neither feasible nor cost-effective in the poorest countries, are now in the forefront of this gathering effort. The challenges are great, but with a sustained sense of urgency, effective partnership, and greatly increased resources, they can be overcome.

This report will not dwell further on the case for treatment, which we consider to have been well made by others and largely accepted. Moreover, we will not focus on technical aspects of ART and HIV care in resource-poor settings except where they are relevant to the larger policy themes of this report. WHO and UNAIDS have issued and will continue to issue guidelines for ART and other aspects of HIV care in resource-poor settings that address these technical issues[100-103]. Our discussion will concentrate instead on the practical challenges to meeting the Task Force’s goal of universal access to antiretroviral treatment by 2015. After a review of the current status of treatment in the developing world, we propose a set of additional specific targets for the rapid expansion and equitable provision of treatment and care services. We then consider the major obstacles to scaling up and how they can be overcome by adopting flexible and innovative delivery models and adhering to a set of basic principles. Finally we consider treatment equity and propose some key steps for ensuring effective partnerships at the national and international levels.

WHO’s recently announced 3 by 5 strategy resulted from a broad consultative process. Our discussion draws on this process, as well as on the results of the Task Force’s own survey of existing treatment

programs in resource-poor settings (ATSAP: see Appendix), on Task Force commissioned papers and on the published literature.

### **3.1 Treatment and care interventions**

Comprehensive care services for people living with HIV and AIDS include diagnosis, prophylaxis and treatment of opportunistic infections (OIs), palliative care, and antiretroviral therapy (ART), as well as counseling and a variety of support services. This report will focus primarily on antiretroviral treatment, since this intervention has far more potential than other interventions to significantly decrease AIDS related morbidity and mortality and to substantially decrease the need for other services.

Effective treatment of HIV/AIDS with triple antiretroviral therapy (ART) became available in 1996, with the discovery that certain combinations of anti-AIDS drugs could effectively suppress the virus for sustained periods. Although not a cure, ART has been shown to significantly decrease mortality and increase the quality of life of people living with HIV/AIDS, in addition to easing the burden of their care on families and health systems[104-106]. ART reduces mortality by up to 90% and the risk of major opportunistic infections by 55-80%[107-109]. In Brazil, ART has been linked to savings of \$1 billion in averted infections and decreased hospital stays[110].

Drug toxicity and difficulty in adhering to complex drug regimens, long invoked as arguments against extending treatment to the developing world, have proven much less of a problem than many anticipated. Evidence so far suggests that first line drugs have been relatively well tolerated; if anything adherence problems have been less frequent in the developing world than in the rich countries[111-114].

As a result, there is a growing consensus that ART should be given priority as treatment and care is expanded. Yet other services remain vitally important. Even in the most optimistic scenarios ART will remain beyond the reach of some for years, and even when ART is available other services remain integral components of a comprehensive care package[100]. Treatment and prophylaxis of opportunistic infections are especially important as they reduce morbidity and mortality both among people clinically eligible for ART and among those living with HIV who have not progressed far enough in their illness to meet standard criteria for ART[173-174].

### **3.2 Current status of AIDS treatment**

Since its introduction, ART has been accessible mainly in industrialized countries, which account for only about 5% of the global burden of HIV/AIDS[6]. The initial barrier to the provision of ART in low and middle income countries, which are home to 38 of the 40 million people estimated to be infected with HIV, was cost. At over \$10,000 per person per year in the first years after its introduction, this therapy was far above the per capita GNP of these countries and well beyond the reach of national health services and the great majority of individuals.

Except in Brazil, where the government made universal access to ART an early priority, ART was long available in the developing world only to the tiny minority who could afford to pay for it and through a handful of mostly small initiatives. However, in the last few years, competition from generics, partial easing of intellectual property restrictions, and aggressive negotiation by the advocacy and development communities have caused the price of triple drug therapy to fall drastically, to less than \$0.55 - \$1 per person per day in some countries[115, 116]. Recently the Clinton Initiative has

negotiated even lower prices, about \$0.38 per person per day, for several African and Caribbean countries[117].

Dramatic price reductions and sustained advocacy have led to a change in attitude towards treatment and increased availability of ART in the developing world. The 2003 UNGASS progress report indicated that 80% of responding countries have strategies in place to provide ART and drugs for the prevention and treatment of opportunistic infections; 76% reported having national strategies to provide comprehensive care services[29].

As of 2003 the number of people on treatment in the developing world has grown to approximately 400,000, an increase of over 100,000 since last year[22, 118]. Over the past year alone, ART coverage in sub-Saharan Africa, Central Asia and Eastern Europe has doubled or nearly doubled[22, 118]. The Accelerating Access Initiative, a collaborative program run by the UN and five pharmaceutical companies, estimates that since its inception in 2000 the program has grown 8-fold in Africa and now provides drugs to an estimated 76,000 people in this region[119].

But, despite this growth and the proliferation of public sector strategic plans over the last few years, outside of Brazil most treatment is still provided only to those who can afford to pay for it and overall coverage remains abysmally low. As of December 2003, it is estimated that only about 7% of the estimated 5.9 million people in need have access to antiretroviral drugs. The situation is especially serious in Sub-Saharan Africa, where the estimated need is 4.3 million people and the coverage is about 2%[22]. The WHO estimates that without an emergency effort to scale up treatment, by 2005 only one million people in the developing world, approximately 14% of those in need, will have access to treatment, given current programming and resource allocation.

Still there is hope to be gained from those countries that are succeeding in scaling up treatment. The government of Brazil provides comprehensive treatment services under a universal access model to approximately 125,000 people, representing about 30% of the 400,000 people in developing countries with access to treatment. In 2002, Botswana launched Africa's first national, public sector program to provide antiretroviral therapy to all its citizens who need it. Although Botswana is still far from its goal of universal access, the national initiative now treats almost 10,000 people and remains the largest free public sector program in Africa. In addition, several countries including Costa Rica, Cuba, Nigeria, Senegal and Thailand have committed to expanding access to free ART. The Clinton Foundation has assisted the governments of Mozambique, Rwanda, Tanzania, and South Africa, as well as several Caribbean nations, to prepare ambitious treatment plans[118, 120].

### 3.3 Treatment targets

The UNGASS Declaration of Commitment recognized treatment and care as “fundamental elements of an effective response” and demanded that national strategies be developed to strengthen health care systems and address the factors impeding provision of antiretroviral drugs[1]. It set no numerical targets for ART, but called for urgent efforts to provide the “highest attainable standard of care” for HIV/AIDS, including treatment of opportunistic infections and ART where possible[1].

In April 2002, the WHO announced the “3 by 5” target of placing three million people on treatment by the end of 2005[121]. This number is now thought to represent approximately 42% of projected need in 2005<sup>9</sup>. In September 2003, WHO, UNAIDS and the Global Fund declared a treatment emergency,

---

<sup>9</sup> Personal communication. Ties Boerma, WHO/EIP (2003). Based on estimated need of approximately 7.0 million by 2005.

recognizing that under programs currently in place only about 1 million patients would be under treatment by 2005[22]. The 3 by 5 target was adopted by UNAIDS' cosponsors in November 2003. The WHO also proclaimed a long-term objective of universal access, but did not set a date for achieving this goal[22].

Although the target will be challenging to achieve, the 3 by 5 initiative and the accompanying WHO strategy are bold and important steps forward. If successfully implemented, 3 by 5 would be a dramatic advance toward the ultimate goal of universal access.

### **Overall target for 2015**

As discussed in the Introduction, the Millennium Development Goal for HIV/AIDS and its accompanying target lack specific benchmarks, and none of the official indicators cover access to treatment. The Task Force believes that only a comprehensive and ambitious response to the epidemic is consistent with the spirit of the MDGs. We therefore propose the goal of achieving universal access to ART by 2015 to set alongside the goal of reducing prevalence among young people by 50% or more.

- Ensure that antiretroviral therapy is available to all who need it by 2015.

### **Additional targets**

- Ensure that by 2005 all graduating – and by 2010 all practicing – doctors, nurses, and medical officers in high prevalence countries are trained and certified to initiate and follow patients on antiretroviral therapy.
- Ensure that by 2015 75% of people living with HIV/AIDS have access not only to ART but to the broader spectrum of care services constituting the essential package recently defined by WHO/UNAIDS[100].
- Ensure that by 2015 75% of patients with sexually transmitted infections are appropriately diagnosed, counseled, and treated.
- Ensure that by 2005 countries have in place a system for monitoring the proportion of women, children under 10, and members of key vulnerable populations among those receiving antiretroviral therapy in both the public and private sectors.

### **Rationale**

**Target #1** Training of both new and already practicing health care workers in delivering antiretroviral therapy will be one of the most critical requirements for meeting ambitious treatment goals. In the high prevalence countries (which could be defined here as those with adult prevalence above 5%), HIV care should be part of the basic curriculum for all health care workers. In order to make optimal use of personnel and to permit treatment to be delivered at the primary care level, nurses as well as doctors and medical officers should be certified to provide ART.

**Target #2** Although scaling up ART is now rightly considered the highest priority, other treatment and care services must not be neglected. WHO recommends an essential package of services, including palliative care and prophylaxis and treatment of opportunistic infections (see Section 3.4.4). Setting a target for access to this larger set of services would ensure that planning for a more comprehensive approach to HIV care begins alongside urgent expansion of ART. This and the following target can also serve as proxy indicators of health system capacity.

**Target #3** The diagnosis and treatment of STIs is part of the essential package of HIV care services, as well as an important prevention intervention and a component of comprehensive primary health care. Including this target in the treatment section thus serves to reinforce the importance of integrating prevention and treatment in the clinical setting and the need to strengthen health systems generally. Percentage of STI patients receiving appropriate care is already an UNGASS indicator, although the Declaration of Commitment did not set a specific target[1]. The 2015 target of 75% reflects results that have been achieved where specific efforts have been made[29]. Higher levels might be possible if syndromic management could be replaced by affordable and convenient diagnostic technologies.

**Target #4** There is considerable concern that certain populations, particularly women, children, and the marginalized populations who bear the brunt of the epidemic in many countries – injecting drug users, men who have sex with men, and sex workers – will not have equal access to treatment as it is introduced (see Section 3.5). One way to guard against this will be to put in place systems for collecting data on access among these groups. The resulting data would also be useful in planning prevention programs. Finally, requiring these data from private providers would be a first step toward stronger regulation of private sector ART provision.

### 3.4 Scaling up treatment

Now that pilot projects have demonstrated the feasibility – and the benefits – of providing antiretroviral therapy in the poorest reaches of the developing world, what remains is the great challenge of scaling up all the systems and services that will be required to deliver universal access by 2015. After a brief consideration of the possible magnitude of future need for ART, this section will outline the major challenges to scaling up and consider some possible solutions. We will delineate some basic principles that should govern efforts to scale up and then consider a few key areas in greater detail. Our discussion will focus primarily on the special challenges of scaling up treatment in high prevalence areas, although many of the main points will be relevant elsewhere in the developing world.

#### 3.4.1 Estimating future need for ART

Practical planning for universal access to ART in 2015 will require estimating the number of people who will need treatment, as this will determine the demand on health care facilities and personnel, as well as the cost. Projecting need this far in the future is obviously difficult. Very preliminary estimates from WHO and UNAIDS suggest that between 9 and 17 million people may require antiretroviral therapy in 2105, compared to about 6 million today and perhaps 7-8 million in 2005<sup>10</sup>. This increase primarily reflects population growth and accumulation of people beginning therapy in previous years. In general, three main factors will influence the future need for ART, not all of them considered in these preliminary projections.

#### *HIV incidence*

Since the great majority of those who will require treatment in 2015 have not yet acquired the virus, the course of the epidemic, which in turn depends on the success or failure of prevention efforts, will be a critical determinant of future need. Thus prevention is critical to reducing the future burden on health services. The 9-17 million estimate is built on the pessimistic assumption of constant baseline

---

<sup>10</sup> These numbers come from very simple simulations carried out by the joint WHO/UNAIDS Surveillance Working Group on behalf of the Millennium Project.



prevalence. It will be valuable to explore in subsequent projections the impact on 2015 need of various incidence scenarios, including one in which the Task Force's prevention target is met.

### ***Effectiveness of treatment***

Future need also depends on how effectively treatment prolongs life, since patients who begin ART each year join those who began in previous years. The WHO/UNAIDS projections assume 80% survival year-to-year; a more optimistic assumption would *increase* the number requiring treatment in 2015.

### ***Evolution of access to ART***

For the same reason, need in 2105 also depends on the path by which access to ART grows between now and then. A more rapid approach to universal access will mean more total patients on therapy in 2015. This effect accounts for the range in the WHO/UNAIDS estimates.

### **3.4.2 Challenges to scaling up**

The nearly universal conjunction of poverty, marginalization, and HIV make expansion of HIV/AIDS treatment especially challenging. The published literature, recent consultative processes, and surveys of existing treatment programs conducted by WHO and by the Millennium Project (see Appendix) point to weak underlying health infrastructure in high prevalence areas, particularly shortage of healthcare workers, lack of international and national coordination, lack of secure long-term funding, stigma, and low knowledge of serostatus as the most important obstacles[122-124]. The relative importance of these factors varies with the nature and scale of national epidemics and the state of health systems.

In most high prevalence areas, health system weakness – inadequate physical infrastructure, unreliable drug distribution systems, poor management, weak information systems, and, most importantly, lack of appropriately trained staff – will pose the greatest non-financial challenge to rapidly scaling up treatment. In the hardest hit countries, existing shortages of human and financial resources are compounded by the death toll and considerable financial impact of the epidemic itself[24, 95]. The proportion of health workers infected with HIV in Africa is especially alarming. A recent study estimated that 17-32 per cent of health care workers in Botswana and up to 40% in Zambia were infected[95].

The challenge of weak health systems can be overcome, however, by sustained investment in health systems (and human resources for health), coupled to innovative approaches to delivering ART. Some key features of these approaches, designed to make the most of existing facilities and personnel, are outlined in the following sections. In the meantime, the Task Force is working with the other health task forces and the Millennium Project secretariat to develop a comprehensive investment strategy for the health sector, which will be presented in our final report.

On the other hand, in countries with concentrated epidemics and somewhat stronger health infrastructure, the critical impediment to access to treatment is likely to be stigma and discrimination against those populations, particularly injecting drug users, men who have sex with men, and sex workers, who constitute a disproportionate share of those in need[125]. Furthermore, where healthcare is provided largely through the private sector or where public sector provision is on a fee-for-service basis, exclusion of the poor will be a major barrier to universal access.

The private sector presents other challenges, as well as opportunities. Outside Brazil, Botswana, Uganda, and a few countries in Latin America, most antiretroviral provision has been in the private

sector, much of it through for-profit providers. The recent growth in ART has been driven in large part by the increasing affordability of the drugs to private payers. Drug prices may be near their minimum even in generic formulations, however: the prices negotiated by the Clinton Foundation have already fallen below the \$0.50 per person per day once projected by MSF as the price floor. Thus the scope for further expansion of access through this channel may be limited. Private providers are also difficult to monitor and are currently not sufficiently accountable to quality standards in service provision and staff training[98].

Finally, lack of access to VCT (and in some cases lack of demand), resulting in very low knowledge of status, is also an important obstacle to scaling up treatment. When few people know their status, patients are only identified for treatment when their illness is already advanced, which greatly increases the cost and complexity of care. This has apparently been a major factor in the relatively slow growth of the Botswana national program<sup>11</sup>. Thus rapid expansion of testing is critical to treatment scale-up (see also Sections 2.6 and 2.9).

### 3.4.3 Basic principles of a restructured treatment response

These challenges are considerable but should not be viewed as insurmountable; instead, they warrant a re-examination of the global HIV/AIDS treatment response. Reaching the goal of universal access will require reconsideration of treatment services and priorities, innovative approaches to the delivery of care, and dramatically increased and more flexible international funding. Although there are many unknowns, key principles that could guide dramatic scaling up of ART treatment are emerging from the experience of the national programs in Brazil and Botswana and pilot projects in Haiti, South Africa and elsewhere, and through broad consultations with governments and field experts. The process of formulating WHO's 3 by 5 strategy has done much to clarify and consolidate this new thinking.

**Make the most of scarce resources now while strengthening health systems.** The already weak health infrastructure and the continuing loss of scarce health care workers to the epidemic in many high prevalence settings dictate an approach that maximizes patient coverage by optimizing use of scarce human and other resources. In particular, creative use must be made of doctors, nurses, and other skilled health care workers, as well as community members, in delivering care. At the same time, a long term investment in strengthening health systems must begin immediately: it is likely that even with the most innovative delivery models, all of those in need cannot be reached with existing staff and facilities. Moreover, ART is not a cure, and safe, effective mass provision of this therapy will require reinforcement and in some cases establishment of chronic care systems.

**Focus on equity and human rights.** In the high prevalence countries, limited and inequitable access to even basic health services will tend to ensure that the better-off receive preferential access to treatment. Thus strengthening health systems is the key to equity in the long run. In concentrated epidemics, official indifference or discrimination may exclude the most affected marginalized populations from treatment. In both settings, the cost of antiretrovirals blocks access for many, decreases adherence, and creates dangerous incentives to substitute ineffective mono-therapy for triple therapy. Treatment should be affordable, which in many settings means free. Since evidence shows that stigma reduces uptake of ART, attention should be paid to designing models of service delivery that reduce it.

---

<sup>11</sup> Ernest Darkoh, Botswana ART program manager, personal communication to Paul Wilson.

**Coordinate at national and international levels.** Scaling up from seven to even fifty percent coverage of ART in resource poor settings in the next few years will require a cohesive and efficient response across all sectors at the international, national, and local levels. To this end, countries should be encouraged to develop multisectoral treatment strategies. Donors and all stakeholders should respect the need for simplified, standardized treatment protocols and monitoring and evaluation requirements. Public-private partnerships and expansion of treatment in the private sector and workplace will be needed as well as public sector provision. Private sector and workplace treatment programs should coordinate their activities with the public sector and be held accountable for their contribution and adherence to national treatment strategies. International financial institutions should ensure the alignment of macroeconomic policy to AIDS treatment scale-up.

#### **3.4.4 Essential services package and minimum prerequisites for ART**

Until recently, ART was viewed as one of the last interventions to be added to a traditional comprehensive package of HIV/AIDS treatment and care services[126]. A broad range of services, including treatment of OIs and palliative care, were expected to be in place before ART could begin. However, in light of sharply lower drug prices and the drastic reduction of morbidity and mortality that ART confers, WHO/UNAIDS will soon issue a set of operational guidelines for high prevalence settings placing a higher priority on the introduction of ART and suggesting a phased approach to the more comprehensive “essential package”. These guidelines will be based on the recommendations developed during a consultative process on emergency ART scale-up held in Zambia in November of 2003[100].

According to the Zambia recommendations, in high prevalence areas ART should be initiated in facilities at all levels of the formal health system as soon as they meet certain minimum requirements. These prerequisites for ART include: the availability of HIV testing and counseling, personnel trained and certified to prescribe ART and follow up patients clinically, an uninterrupted ARV supply, and a secure and confidential patient record system. The Zambia recommendations also emphasize that adherence support, community mobilization and community ART education must be instituted with the initiation of ART. The phased introduction of other services, including treatment of opportunistic infections, palliative care and key prevention services, are also part of the Zambia recommendations.

Although this reordering of treatment priorities represents a considerable departure from previous thinking, it provides nations facing resource constraints with a strategy for phasing in services based the principle of maximizing lives saved. As discussed above, although treatment and prophylaxis of opportunistic infections have some effect on mortality and can significantly reduce morbidity – and palliative care is critical in the terminal stage of illness – only ART can substantially decrease mortality. ART can also reduce the burden of opportunistic infections and at least postpone the need for palliative care.

This re-prioritization should not be seen as reducing the standard of care. Most of the small minority of those in need who currently receive care at all are obtaining it through the private for-profit sector, which often fails to meet the Zambia prerequisites for ART, much less the recommended comprehensive essential services package[98].

#### **3.4.5 Models of service delivery**

While the essential services package defines which treatment services are appropriate at various stages of treatment scale-up, the way these services are actually delivered will be critical to maximizing ART coverage while ensuring equity and quality of care. The Zambia recommendations for service

delivery, based on lessons learned from a number of pilot programs and scale-up initiatives, emphasize the WHO's *public health approach* to scaling up ART [22, 100].

Key elements of this approach include (1) standardized treatment protocols and simplified clinical monitoring, (2) optimal use of existing physical infrastructure and human resources, (3) the involvement of communities and people living with HIV/AIDS in program design and implementation, (4) simplified record-keeping, and (5) cost minimization, including minimization of the costs of drugs and diagnostics[100]. Pilot programs operated by MSF and several other organizations reflect many of these principles.

However, current models of service delivery in resource-poor settings are extremely diverse. Lessons are still emerging as to how the many different aspects of service delivery affect efficiency, equity and quality of care. This topic is being explored further in the Task Force working paper on human resources. Some key variables include: (1) sector of provision (public, private for profit, NGO, workplace); (2) level at which services are provided (health center, district hospital, central/tertiary); (3) spectrum of services provided and extent of integration; (4) staffing models/healthcare worker roles; (5) treatment regimens and protocols; (6) adherence support; (7) cost to the patient; and (8) integration of prevention.

Most ART facilities currently serve fewer than 1,000 patients and are operated predominantly by private practitioners, NGOs, public-private partnerships and workplace ART programs. In the public sector, ART has been successfully integrated into primary care, district and central/tertiary level facilities in various contexts. Equity in treatment varies significantly across the public and private sectors and is often linked to patient eligibility and payment requirements. This subject is discussed further in Section 3.5.

Models of ART delivery can also be classified according to their degree of integration with other services. Three broad categories are: (1) ART only, (2) ART/other HIV only, and (3) full integration into primary care[127]. In the first model, provision of antiretroviral therapy is separated from that of other services in space or time. These programs provide services only to patients eligible to begin or already on therapy. All other HIV-related care is referred and HIV-negative persons are not treated by these programs. The Botswana national program is an example of this type of service delivery[127].

Under an ART/HIV model of care, ART and comprehensive primary HIV healthcare services are provided in the same facility, although some specialized services such as tuberculosis care are sometimes referred. However, these services are not integrated into a broader framework of care and HIV-negative people are not treated in these clinics. A model of this kind is used by the MSF sites. Under the third model, ART is integrated into an existing framework of care, usually either primary healthcare, antenatal care or tuberculosis care. The Rwanda national program has chosen this approach[127].

A model of ART integrated into primary care in the public sector has the potential to reach the most people; much of the population in high burden countries of sub-Saharan Africa is rural and has little access to higher levels of the health system[127]. This model of service delivery also provides opportunities to expand the competency of primary health center staff. It can also be considered pro-poor, as those with fewer means will encounter fewer barriers to accessing care at these facilities than in the private for-profit sector or at district or central hospitals. However, given the urgency of scaling up, it may make sense to begin providing treatment where significant infrastructure already exists and the prerequisites for ART can be most easily met, such as in TB clinics and district hospitals. More

vertical, less integrated programs also allow for greater specialization and could prove more efficient in high-density urban settings and at the district and tertiary levels of care.

Staffing models that optimize human resources allow delegation of some aspects of treatment and care from physicians to lower level healthcare workers and to community and family members. In many current models, the physician's role has been restricted to initiating therapy, managing more serious conditions, and supervising staff, while clinical officers and nurses follow up and provide counseling, diagnosis and treatment of certain opportunistic infections. Community health workers have been used successfully in counseling and testing, monitoring adherence and providing palliative care. In addition, involving communities, especially people living with HIV/AIDS, in the design of programs and certain aspects of care has proven critical to reducing stigma and to increasing the acceptability of antiretroviral therapy.

It may be necessary to go even further in delegating tasks than the more efficient current models of service delivery. The new WHO/UNAIDS operational guidelines are expected to recommend that nurses be trained and certified to initiate ART in less complex cases. Although this may appear a radical step, it may be the only logical way to reach the majority of the population in high prevalence areas in the midst of a human resources crisis. Nurses are often the only medically trained staff at primary health clinics. In addition, although in most cases nurses have not yet been trained to initiate ART, they have been successfully trained to diagnose and manage acute infections through initiatives such as the Integrated Management of Childhood Infections (IMCI)[140]. The WHO/UNAIDS guidelines will also encourage the use of trained and certified community health workers and PLWHAs in community education, testing and counseling, distribution of medications, and palliative care.

Optimal staffing ratios are still unclear. Millennium Project analyses of data from existing ART sites suggest provider-patient ratios ranging from less than 100/1 to 1,000/1. But these numbers come from sites at various stages of scaling up and thus may not reflect ratios at full capacity. An analysis by WHO, extrapolating from two clinic sites in Kenya, suggests that 9-10 health care workers are needed to treat 1,000 patients, including one doctor, one clinical officer, and two nurses[123]. This subject is analyzed in greater depth in the Task Force working paper on human resources, still in preparation.

The use of standardized treatment protocols and simplified clinical monitoring are especially important when important aspects of treatment and care are delegated to lower level cadres of health care workers. The new UNAIDS/WHO ART operational guidelines are expected to recommend standardized first and second line treatment regimens and the use of fixed dose combinations. The new recommendations are also expected to encourage the use of simple rapid tests for the diagnosis of HIV and clinical algorithms based on disease staging to initiate and monitor treatment where CD4 counts are not available. These approaches have been used successfully at several sites to simplify care[112-114, 128].

Adherence is critical to the lasting effectiveness of ART treatment. An adherence rate of 95% or above is necessary to achieve sustained suppression of viral load and to minimize the development of resistance and the need to switch regimens[129, 130]. Several factors have been identified that influence adherence to ART in all settings, including complexity of regimen, type and severity of side effects, and the provider-patient relationship[131]. In resource-poor settings, adherence is inversely linked to cost[132, 133]. Simplification of regimens, patient counseling, the assignment of treatment "buddies", pillboxes, and blister-packs have been used to increase adherence[101, 113, 114]. One program in Haiti uses a modified system of directed observed therapy (DOT), in which

“accompagneurs” monitor patient compliance and provide psychosocial support[134]. All sites surveyed by the Millennium Project that use one or more method of supporting adherence and provide free ART reported compliance rates above 90%, but more research is needed in resource-poor settings on the best and most efficient methods of adherence support.

Payment systems used in resource-poor settings include insurance schemes, especially in South Africa, sliding-scale schemes, and public and private single-payer systems. Affordability has been linked to both uptake and adherence[128, 132, 133]. Although some believe providing drugs for free reduces their perceived value, encourages waste, and decreases adherence, there is no evidence to support this in the case of ART in resource-limited settings. Furthermore, evidence from sub-Saharan Africa indicates that sliding scale user fees at public facilities have been plagued by implementation problems and rarely generate enough funds to significantly defray costs[51]. For these reasons, and because making ART free ensures more equitable access and reduces the threat of drug diversion, the Task Force believes that ART should be provided free of charge whenever possible and should always be free to those who cannot pay.

Another important aspect of treatment delivery models is the extent to which they integrate prevention services into clinical care (see Section 2.6). Prevention has been integrated into models of ART service delivery through the provision of services such as PMTCT and treatment of STIs, as well as through counseling[101, 135]. These services and others supporting prevention are expected to be recommended as a critical components of an essential services package in the UNAIDS/WHO operational guidelines derived from the Zambia consensus process[80].

### **3.4.6 Strengthening health systems**

The biggest challenge to scaling up ART in high prevalence settings – besides funding – will be poor health infrastructure, especially lack of skilled staff. Other important issues to consider in planning for the scale up of ART include physical and laboratory infrastructure needs, drug availability and commodity management, strategic information, and research and development priorities.

The WHO estimates that in the short term 100,000 staff will have to be trained to meet the goal of placing 3 million people on treatment by 2005[136]. The number of health care personnel who will be needed to achieve universal access to ART will depend in large part on staffing ratios and on models of service delivery. As mentioned above, patient- provider ratios may range from less than 100/1 to as many as 1,000/1[123, 127]. The number of staff needed to provide universal access by 2015 will of course also depend on the number of people who will need of treatment by this date (see Section 3.4.1). A very rough estimate based on the staffing ratios provided by the WHO study suggests that the equivalent of more than 4,000 doctors, 4,000 clinical officers and 8,000 nurses dedicated entirely to AIDS treatment would be required to meet the current need for ART in sub-Saharan Africa. These numbers are expected to grow as patients on therapy start living longer and require chronic care. On the other hand, expansion of ART can be expected to relieve some of the existing burden of HIV care on the health system: in high burden countries patients with AIDS-related illnesses may be occupying up to 75% of hospital beds[137].

Meeting this need for healthcare workers will be challenging. In many high prevalence areas the burden of other diseases is already very high and health care personnel are already scarce. While in the United States there is more than 1 doctor for every 500 people, in most African countries the ratio is 1 to 10,000 or higher and in several countries it is over 1/30,000 [138]. Nursing personnel and other health care workers as well as managerial and administrative staff are also often in short supply[139].

Several factors contribute to these shortages, including low salaries, recruitment to Western countries, and HIV/AIDS itself, which contributes to 19-53% of the mortality among African civil servants[97]. Brain drain has robbed Africa of many of its doctors and nurses. Zambia lost all but 50 of 600 doctors trained since independence; Zimbabwe lost approximately 70% of doctors trained in the 1990s, and in 1999 it was estimated that Ghana lost as many nurses to emigration as it trained every year[138]. Low salaries and poor working conditions have driven many remaining healthcare workers to moonlight or migrate to other vocations. For instance, Kenya is believed to have as many as 2,000 nurses who could be brought back into the health sector[123].

In the short term, hard hit countries must make the best use of the personnel they have (see above), as it takes 3-6 years to train higher-level health workers[138]. Training a cadre of workers in record-keeping and other administrative tasks might help to relieve the shortage of clinical staff by freeing medical personnel to care for patients. An international medical service corps might be a way to bring much needed help to the hardest hit countries, especially for training purposes. In the longer term, a concerted effort will be required to ramp up the recruitment and training of health professionals, especially doctors and nurses, not only to deliver ART and other HIV care, but to provide the full spectrum of basic health services. These efforts should commence immediately, as it takes several years to train higher-level medical staff.

Training of all personnel in ART should be modular in design, focus on the most critical training needs, and disrupt existing services as little as possible. In high prevalence settings, training should be integrated into all medical curricula as soon as possible. The task force calls for all graduating doctors, medical officers and nurses in these countries to be trained and certified to provide ART by 2005 (see Section 3.3). Relevant regulations should be revised to allow greater flexibility in staff roles and to expedite the training process. In some cases, declaring a public health emergency might make it easier to overcome bureaucratic obstacles such as restrictions on staff delegation or on civil service remuneration.

Physical infrastructure will also have to be expanded and improved as treatment is scaled up. More research is needed to determine how much space is needed to care for a certain number of patients on ART. As with human resources, space requirements will vary according to the range of services provided and the way they are delivered. Laboratory infrastructure, information systems, surveillance and operational research, and management capacity, including strategic planning, must also be strengthened. The Millennium Project health task forces are working with the Project secretariat to develop a more comprehensive assessment of the scope of these challenges.

In order to scale-up treatment, ARVs and other drugs must be readily available, appropriately managed, secure, and affordable. More research is required to facilitate the use of existing ART regimens in resource-poor settings, including the development of better packaging to support adherence (i.e. blister packs, standardized pediatric formulations), as well as the development of high-potency second-line therapies that do not require refrigeration[115, 122]. Medicine for the prophylaxis and treatment of opportunistic infections, including TB, should also be more widely available; in 2001 only 29% of all people living with AIDS in need of these drugs had access to them[31]. Studies show that morphine for palliative care is also poorly available in Africa[141].

Commodity management is problematic in many high prevalence countries and stock-outs common. Given the high level of adherence needed for viral suppression by ART, a guaranteed supply of ARVs at all treatment sites is vital. Capacity should be developed to monitor and forecast needs at all appropriate levels of the health system. Free provision of ART could help ensure the security of ARVs

by reducing the incentive for theft. Electronically linking individual patient data with information on drug dispensing might also help to secure drugs, as well as help with forecasting needs. This method of drug and patient monitoring is being tested at a pilot site in Kenya[124]. Strengthening the procurement system for ARVs should strengthen procurement of all essential medicines.

### **3.5 Equity and human rights in treatment**

In all resource poor environments, the cost of antiretrovirals is an important impediment to effective treatment. As discussed above, cost is directly linked to lack of adherence and creates dangerous incentives for mono-therapy and dual therapy[98, 99, 132, 133]. ART should be free when possible and programs should be designed to reduce the indirect costs of care, including laboratory and transport costs.

Women and children may have less access to ART because they may be less able to afford treatment through the for-profit private sector and have less access to workplace programs. Children are also more challenging and expensive to treat. However, it is worth noting that women currently make up more than 60% of the patient population in the MSF and Botswana programs, both of which provide free access to ART in most cases. In addition, treatment programs that preferentially enroll pregnant women and their families can counterbalance reduced access through other channels. But care should be taken that these types of programs are not the dominant providers of ART, as they may create incentives for pregnancy and unsafe sexual practices[123].

Until universal access is achieved, communities, treatment sites, and national programs face difficult choices in choosing whom to treat. In some situations when resources are highly constrained it may be acceptable to use non-clinical as well as clinical criteria in prioritizing people for ART. For example, the newly developed Rwandan guidelines on patient selection give priority to health care workers[170]. However, every effort should be made to optimize the efficiency of ART delivery before this type of decision is taken.

Attention should be paid to designing models of service delivery that reduce stigma. Stigma is known to reduce the uptake of VCT and ART in many high prevalence resource-poor settings[125]. This may bring patients to treatment at a later stage in their illness, thereby increasing the burden on the healthcare system. This has been a concern in Botswana, where as of May 2003 the average person presenting for testing had a CD4 count of 50, corresponding to end-stage AIDS<sup>12</sup>.

In concentrated epidemics, the marginalized populations who are most in need of treatment may be actively excluded by official or community discrimination or by fear of arrest or harassment. Thus in these settings, access to treatment may be more a human rights issue than an issue of health system capacity and lack of resources. Injecting drug users may also require somewhat specialized drug protocols[142].

In recognition of the importance of ensuring that women, children and vulnerable populations have fair access to treatment, we urge countries to monitor ART access for these populations in both the public and the private sectors (see Section 3.3).

### **3.6 Ensuring a well-coordinated mutisectoral response**

---

<sup>12</sup> Ernest Darkoh, Botswana ART program manager, personal communication to Paul Wilson.



Scaling up ART coverage in the developing world from seven to even fifty will require extraordinary effort, imagination, and a cohesive response across all sectors at the international, national, and local level.

Especially since that AIDS is a significant development problem, international financial institutions should work with national governments to align macroeconomic strategies with ambitious plans for scaling up AIDS treatment. The importance of AIDS treatment is not yet generally reflected in development planning. Although the 2003 UNGASS progress report indicated that 80% of responding countries have “comprehensive” strategies in place to provide ART, a recent analysis of 22 Poverty Reduction Strategy Papers (PRSPs) in high burden countries found that only 3 specifically included ART or AIDS treatment. Only Zambia and Guyana provided for ART in the accompanying budget[96]. There is also growing anecdotal evidence that macroeconomic policies and ceilings on salaries are impeding the scaling up public sector health systems in Zambia and in Kenya. For example, in Kenya, it is claimed that 2,000 extra healthcare workers could be recruited into the public sector by better salaries[123].

At the international level, each of UNAIDS’ cosponsors should clearly delineate its role in both the 3 by 5 and long-term treatment response. Donor countries should re-examine their own healthcare provision deficits, which act as the pull of “brain drain”.

Lack of donor coordination, a common development problem across all sectors, has been cited as an obstacle to scaling up in Millennium Project and WHO consultations and surveys[122-124]. Countries should be encouraged to develop a multisectoral treatment strategy and donors should respect the need for simplified, standardized treatment protocols and monitoring and evaluation. Ideally there should be one national plan, one AIDS coordinating committee, and one monitoring and evaluation framework, as Peter Piot has stressed[177]. To these “three ones” could be added a fourth: one financial mechanism. Donors should examine their funding structures to ensure that financing for HIV/AIDS, including for technical assistance, is untied and can be used effectively and efficiently.

Lessons learned from the private sector and from public sector provision of ART where it exists must be extrapolated to all levels of the public sector where ART is currently not available. Many countries are struggling in the implementation phase, as a result both of poor infrastructure and lack of experience.

Public-private partnerships between countries commencing scale-up and NGOs who have successfully managed pilot projects should be encouraged. This model, used by Partners in Health and the government of Haiti, is the conceptual basis for the World Bank Treatment Acceleration Program.

Treatment in the for-profit private sector and in the workplace will also have to be expanded if ambitious access goals are to be met. Private sector and workplace treatment programs should be documented, coordinate their activities with the public sector, and be held accountable.

### **3.7 Recommendations**

- Strategies for scaling up treatment should be designed to maximize lives saved by extending coverage as rapidly as possible, while ensuring equity and quality of care.
- Comprehensive packages of treatment and care services should be implemented in a phased manner that prioritizes live-saving ART.

- The Task Force endorses a public health approach to treatment delivery in the developing world, as defined by WHO. Key elements of this approach are (1) the use of standardized treatment protocols and simplified clinical monitoring, (2) optimal use of existing physical infrastructure and human resources, (3) the involvement of communities and people living with HIV/AIDS in program design and implementation, (4) simplified record-keeping, and (5) cost minimization, including minimization of the costs of drugs and diagnostics.
- The long-term goal should be to integrate ART into primary care. This approach has the potential to reach the most people, build capacity at this critical level of the health system, and support access for the poor.
- Whenever possible ART should be provided free of charge. Making ART free will increase uptake among the poor, improve adherence, and reduce the incentive for drug diversion.
- The shortage of health care workers must be addressed as a fundamental element of the AIDS treatment response. In the short term, responsibilities should be reassigned to make the best use of existing staff. By 2005 all graduating – and by 2010 all practicing – doctors, nurses, and medical officers in high prevalence countries should be trained and certified to provide antiretroviral therapy. In the long term, sustained efforts must be made to recruit and retain new staff at all levels.
- The expansion of treatment must strengthen health systems and support prevention. The management of sexually transmitted infections is part of a comprehensive package of HIV care services and a critical prevention intervention. By 2015 75% of patients with sexually transmitted infections should be appropriately diagnosed, counseled, and treated.
- The development of additional ARV combinations appropriate to resource-poor settings, affordable clinical monitoring tools, and simplified drug packaging should be a priority.
- To help ensure equitable access to antiretroviral therapy, countries should have in place by 2005 a system for monitoring the proportion of women, children under 10, and members of key vulnerable populations among those receiving ART in both the public and private sectors.

## 4. Health systems

The Task Force believes that weak health systems are the greatest obstacle to a comprehensive HIV/AIDS response, especially in Africa. Moreover, lack of health system capacity is often cited as a reason that poor countries cannot make good use of, or “absorb”, large amounts of external aid for HIV/AIDS and other health programs. Yet it is only by devoting resources to building stronger health systems now that this constraint can eventually be relieved. Thus finding ways to strengthen health systems is a central priority for our group.

The overall goal of our work is to define the key steps that will be required to build health systems capable of delivering the services required to meet the Millennium Development Goals. In keeping with the spirit of the Millennium Project, we will emphasize ways in which external resources can be used productively to accomplish this. We will sidestep for the most part the contentious issues of administrative structure and financing mechanism that have dominated recent discussion of health system reform in recent years. These questions are a central focus of the World Bank’s 2004 World Development Report[143].

Much of our work in this area is being done in collaboration with the other health task forces of the Millennium Projects: Task Force 4 on Maternal and Child Health and the Tuberculosis, Malaria, and Essential Medicines subgroups of our own Task Force 5 on Infectious Disease. A joint working group on health systems composed of representatives from each subgroup is overseeing this work. Much of our work on health systems is still in progress: building this section of our report will be an important focus of effort over the coming year. Our discussion here will do no more than outline the importance of health systems to a comprehensive AIDS response.

### 4.1 How health systems constrain HIV/AIDS prevention and care

Health systems are obviously essential to effective treatment and care, but they have a vital role in prevention too. To succeed, HIV prevention must involve communities, schools, workplaces, the media. Yet, many essential interventions depend on a functioning health system, including diagnosis and treatment of sexually transmitted infections, prevention of mother-to-child transmission, and of course prevention of transmission within the system itself by unsafe injections or transfusions. Much of HIV testing and counseling also takes place in clinical settings. Moreover, there is much reason to believe that the prospect of effective treatment and care, itself dependent on the health system, will boost prevention in important ways, as discussed in Section 2.6.

The WHO’s Commission on Macroeconomics and Health (CMH) developed a theoretical framework for understanding the ways that health systems can constrain the delivery of basic health interventions, ranging from inadequate demand or social barriers at the household and community level to problems of governance at the national level[144]. For the purposes of this section, the most important classes of constraint occur where services are actually delivered (shortages of trained staff, equipment, drugs, and other commodities; inadequate or badly located facilities), and at the level of management and systems for distributing and controlling information and commodities. At a higher level, policies on financing, decentralization of decision-making, roles for the private sector, coordination with donors, and so on can be enormously important as well, although a general discussion of these complex issues is beyond the scope of this report.

A more practical approach to determining the extent to which health system capacity might hinder a broader response to HIV/AIDS is to estimate what fraction of those who could benefit from a

particular service have access to a facility that would be able to provide it if funds were available. UNAIDS used this approach in its 2002 costing study[36]. For example, the study estimates that 70% of pregnant women in developing countries will have access to (and make use of) antenatal clinics by 2007, and that this sets an upper limit on the number who could benefit from PMTCT services. This approach allows the costs of providing particular services to be separated, at least in principle, from the costs of strengthening health systems so that more people can be reached. The UNAIDS study did not attempt to estimate these system costs. Filling this gap is an important priority of the Task Force, and of the Millennium Project health task forces more generally.

An important objection to this kind of reasoning is that it depends strongly on assumptions as to how services are and should be delivered. In the case of ART in particular, it is clear that most of those in need will not be reached if treatment is only provided from relatively advanced facilities such as district hospitals. Reaching the 3 by 5 goal or the Task Force's goal of universal access by 2015 will require developing ways to deliver effective treatment from much more modest facilities. Even with great creativity and flexibility in how treatment is delivered, the disastrous state of health systems in many of the hardest hit countries will remain a critical obstacle. The Task Force believes that strengthening health systems must proceed hand-in-hand with expanding treatment and other interventions as rapidly as current conditions will allow.

## 5. Issues in implementation

### 5.1 International financing

International financing for AIDS, and more broadly, for building the health systems needed to combat the epidemic, is grossly insufficient. UNAIDS estimated in 2002 that an expanded response to the epidemic would cost at least \$10 billion per year by 2005, \$15 billion by 2007. These figures, however, do not take into account the massive expansion in health infrastructure, training, and salaries that will be required to support increased coverage of prevention and care services. Total resources available this year are thought to amount only to roughly \$4.7 billion. Closing the funding gap will demand an unprecedented commitment from the international community.

There are several signs of hope, however. Substantial new resources are expected to come in through the Bush Administration's new Emergency Plan for AIDS Relief, the fund-raising efforts of the Clinton Foundation, and other sources. The World Bank continues to boost its contributions, and the Global Fund to Fight AIDS, Tuberculosis, and Malaria has committed \$600 to \$800 million more in each successive round of funding.

These new resources must be accompanied by improvements in two areas:

#### **1) Better coordination among governments, donors and other partners in the context of comprehensive national plans**

Current donor initiatives in health too often result in a patchwork of poorly coordinated programs, burdening health personnel and managers with multiple reporting requirements, discouraging integration of services, and impeding rational planning. The PRSP process has helped to provide a unified planning framework for considering the spectrum of country development needs, but its treatment of the health sector has often been inadequate. Rather than simply carving up regions and services, donors and UN country teams should assist governments to develop nationally owned, comprehensive health sector and HIV/AIDS plans, to which donor resources and programs should then contribute.

#### **2) Stronger partnerships, with countries demonstrating commitment by increasing national spending on health systems and AIDS as donor contributions rise**

The coupling of increased donor funds to increased domestic spending and commitment to AIDS programs continues to be a sore point within the international community. However, experience shows that when programs are financed by donors alone, country commitments of human and other resources are lower and long term sustainability may be compromised. Donor financing should be closely tied to measurable expansion of domestic expenditure. While domestic contributions may be dwarfed by international funding, they represent an essential manifestation of national buy-in and commitment.

While all financing channels have a role to play, the Task Force believes that it is vital to increase donor commitments to the Global Fund to Fight AIDS, Tuberculosis, and Malaria. The Global Fund is a new multilateral institution designed to rapidly provide money to country-owned and implemented initiatives against these three priority diseases. Over the past two years it has established an administrative infrastructure, created an innovative grant evaluation and funding process, approved 225 proposals from 121 countries requesting over \$2 billion, and disbursed more than \$172 million, fulfilling its targets while closely monitoring results. The Global Fund does not implement or oversee funded programs; it is by design a financing mechanism only. These features give the Global Fund the

potential to be an unusually agile financing vehicle, well suited to funding rapid scaling up of the AIDS response. It is too early to conclude that this potential has been realized, but the Task Force will closely monitor its progress over the coming year.

In country, the Global Fund works through a novel institution called the Country Coordinating Mechanism (CCM) that brings together donors, civil society and government. The CCMs endorse and harmonize all grant proposals and are responsible for overseeing implementation by recipients and ensuring transparency and accountability. CCMs include leaders of initiatives addressing HIV/AIDS, tuberculosis and malaria; representatives from the Ministry of Health and National AIDS Commissions or Councils; NGOs and civil society organizations, UN agencies and other key international and national stakeholders.

To oversee progress in the field and audit expenditures, the Global Fund has created a system of externally contracted Local Fund Agents. The LFAs serve as the Global Fund's eyes and ears, allowing it to retain its exceptionally lean structure. Less than 80 people work at the Global Fund to manage the growing portfolio of grants, work with partners, inform the public and mobilize resources. In less than two years, the Global Fund has developed into an effective tool for financing the fight against the three pandemics and has shown its ability to move large amounts of new money responsibly and quickly to those who need it.

During the coming years, the Global Fund faces a real danger of not having the resources to finance proposals that have been approved by its Technical Review Panel. The United States is currently the largest donor to the Global Fund, and Secretary of Health and Human Services Tommy Thompson chairs its board. Although President Bush had committed up to \$1 billion annually to the fund this pledge has so far not been fulfilled. Commitments from other donors in Europe and Asia have also remained too low to adequately finance the Global Fund. The Fund is at least \$1.5 billion dollars short for 2004 and will require a minimum of \$3.6 billion in new commitments for 2005. The Task Force strongly urges that commitments to the Fund be urgently scaled-up in time to permit complete funding of a large round of proposals in 2004 and two full rounds in 2005, taking into account additional needs stemming from UNAIDS and WHO's campaign to scale up access to AIDS treatment.

Such a rapid influx of aid will not produce the desired results unless the health systems of poor nations are also expanded and strengthened (see Section 4). This will require a wide range of interconnected investments - in physical plant and equipment, training, personnel, drug supply, logistics, management services, information technology, oversight and monitoring. Investments of this kind must be a major focus of the Global Fund (and of other international aid efforts) and low income countries should be strongly encouraged to emphasize these needs in their applications. Thus the central argument *against* aid - limited "absorptive capacity" - must be viewed as a fundamental argument *for* aid. Moreover, devising more effective strategies for using donor funds and technical assistance to build capacity should be a central priority of developing and donor nations alike.

## 5.2 Roles for the United Nations

The United Nations system has played a critical role in shaping a global AIDS agenda in the first two decades of the pandemic. Through UNAIDS and the programs of its co-sponsors, much progress has been made in formulating standards for care, treatment, and prevention. Furthermore, the UN has pushed hard - and successfully - to place AIDS at the top of the international agenda and UNAIDS has contributed in important ways to the mobilization of additional international resources for HIV/AIDS. Yet the UN could do more at the international level. Most importantly, the Task Force believes the

UN should be bolder in holding to account member nations, in the rich and developing worlds alike, which have failed to honor their commitments to fighting AIDS. Particularly in the nations threatened by the next wave of the pandemic, the UN can play a critical role in drawing attention to failures in leadership and gaps in financing that continue to stymie a comprehensive response.

The UN's response to the epidemic, however, has been weaker at the country level. The UN must begin to focus on providing far more useful and appropriate technical and management assistance. In part, the UN has been torn between the overwhelming needs it sees at the national level and its traditional normative role in defining global goals, standards, and needs. But the UN, with its established presence on the ground, its neutrality, its broad legitimacy, and its ties to civil society, is uniquely placed to assist national governments to plan and implement comprehensive responses to the epidemic, as well as to raise funds and coordinate donors and other partners. The UN should increase its efforts in the following areas:

- Aiding in the development of strategic plans, new initiatives, and funding proposals
- Advising on the most effective approaches to disease control
- Assisting Ministries of Health to prepare detailed budgets that more accurately reflect country needs
- Facilitating the mobilization of additional resources from international and national sources
- Helping national governments to coordinate donors, NGOs, and other partners and to create new institutional arrangements such as the Global Fund's Country Coordinating Mechanisms (CCMs)
- Providing technical and management assistance in implementing funded programs

The UN has already accepted many of these roles. The UN's record in providing these kinds of assistance has been mixed, however. The fundamental problem has been a shortage of personnel on the ground with the necessary skills to support countries in these areas

One of the most important challenges facing many of the most affected countries is insufficient management capacity, a lack of skilled staff at the central and regional level to design and implement new programs. While NGOs and donor partners have stepped in to fill in here and there, a more comprehensive effort must begin to build capacity to meet this increasing demand. The United Nations is well positioned to offer technical support to Ministries of Health, Planning and Finance in coordinating country plans. In many cases, however, the UN presence is simply too small even to help governments take these initial steps. WHO, UNICEF, UNDP, and the UNAIDS secretariat should rapidly expand the work force available for technical assistance in the strategic management of AIDS activities. Single representatives of the agencies, who can do little more than weigh in on key national issues, will not be enough to help countries move ahead. As countries are called on to scale up their initiatives, the UN must follow suit and scale up its own presence at the national level, by mobilizing additional resources or reallocating personnel.

Many of these broad findings were also the main conclusions of an extensive external evaluation of UNAIDS conducted in 2002. According to this report, UNAIDS has met many of its objectives at the global level, including collecting and disseminating technical expertise, monitoring the epidemic, and building international consensus for an expanded response. The evaluation found, however, that UNAIDS has been much less successful in strengthening the UN's work on HIV/AIDS at the country level. In part this is because of remaining problems in UNAIDS' structure: although the UNAIDS cosponsors have a unified budget for international work, each agency retains control of its budget at

country level. Thus the UNAIDS secretariat has little leverage to impose greater coordination. But the greater issue is probably quantity and quality of staff on the ground. Remedying this shortcoming will require more resources, and perhaps also changes in the categories of personnel provided at the country level. UNAIDS, as part of its response to the external evaluation, is working to address many of these issues.

### **5.3 Monitoring and evaluation**

Monitoring of the epidemic and of efforts to combat it is essential to a comprehensive assault on HIV/AIDS. First, good, detailed information about the epidemic, its sources and its evolution, are indispensable to setting priorities and designing prevention and treatment programs. Second, monitoring of national and international actions indicates whether programs are being carried out and whom they are reaching. Finally, monitoring is required to know whether programs are working.

UNAIDS has established a process for monitoring progress towards the goals set by the General Assembly, founded on a list of 18 core indicators, and has published a set of guidelines for measuring and interpreting these numbers[145]. The core indicators fall into several classes, illustrating the basic types of data required for comprehensive monitoring. Some are simple estimates of disease prevalence or incidence, for example the percentage of young people who are HIV-infected. Other indicators attempt to measure aspects of behavior relevant to disease transmission, for example use of condoms. A third set, such as the fraction of people with advanced infections receiving ARV treatment, address how many people are reached by particular services. Finally, the list includes measures of national or international commitment and action, including estimates of spending on HIV/AIDS and indices of policy or advocacy. The UNGASS monitoring plan calls for information on these variables to be assembled by national governments using standard procedures and submitted to UNAIDS, and for all countries to begin reporting by 2004. The first progress report based on these data was published in September, 2003[29].

The 18 UNGASS indicators are of course only a small subset of the kinds of information which would be useful to AIDS planning, and which are already available in many countries. Information on disease prevalence in particular high-risk populations and in particular regions is essential to well-targeted prevention campaigns. More detailed and sophisticated information on sexual behavior and injection drug use, as well as on the interests, beliefs, and concerns of particular groups, can contribute enormously to the design of more effective behavior change programs. The addition of behavioral data and the focus on key populations constitutes what has been called “second generation” HIV surveillance and reflects a departure from traditional epidemiological surveillance based on prevalence data and case reporting alone[43]. Both better coverage with standard indicators and innovative new types of data are needed. A promising approach, made possible by cheaper and simpler HIV tests, involves linking behavioral and demographic data to serostatus in large, representative samples such as the Demographic and Health Surveys already conducted in many countries. Surveys of this kind have been carried out in Mali and South Africa and are planned in the Dominican Republic, Zambia, and Zimbabwe[43, 146].

Reliable information on the epidemic is important not only to setting priorities and to planning interventions, but to deciding whether efforts to combat it are succeeding. This point was well illustrated by the recent controversy over the interpretation of Uganda’s reports of dramatic declines in HIV prevalence[147]. Although the course of the epidemic in a particular country will be influenced by many factors, comparisons in such gross measures as national prevalence rates will inevitably be used to evaluate the relative success or failure of national AIDS control programs. Such conclusions



will in turn influence the approaches taken by other countries. While there are risks in assessing the impact of national AIDS efforts taken as a whole, it is even more difficult to attribute changes in rates of transmission or underlying behavior to particular prevention programs. Nonetheless, methods exist for disentangling the roles of multiple factors, and should be employed whenever possible.

The obstacles to effective monitoring and evaluation in developing countries are similar to those impeding implementation of prevention and treatment programs: commitment, resources, and technical capacity. Lack of expertise is perhaps the more important obstacle, since data collection and interpretation are more labor-intensive and require less infrastructure and equipment than expansion of medical services. Technical assistance in monitoring and evaluation is available from UNAIDS and elsewhere[148, 149].

Finally, it is important to stress the importance of balancing the importance of good monitoring and the urgency of action. Monitoring requirements should not be so complex and burdensome that they seriously delay implementation of vital programs.

## **5.4 Recommendations**

- AIDS presents a significant development problem in many high burden countries. International financial institutions should work with national governments to align macroeconomic strategies with ambitious plans for scaling up AIDS treatment and prevention.
- Coordination at the international and national level is critical to efficient scaling-up. Whenever possible, there should be one national plan, one monitoring and evaluation framework, one AIDS coordinating body, and one financial mechanism in each country.
- The Global Fund has the potential to be an unusually agile and efficient financing vehicle for scaling up donor funding of AIDS prevention and treatment programs. Donors should rapidly provide the additional resources the Fund will require to close its funding gap, which are estimated at \$1.6 billion in 2004 and \$3.6 billion in 2005.

## 6. Obstacles

### 6.1 Gender and HIV/AIDS

The AIDS epidemic cannot be understood, nor can effective responses be developed, without taking into account the fundamental ways that gender influences the spread of the disease, its impact, and the success of prevention efforts. Women and girls bear a disproportionate and increasing share of the suffering caused by the epidemic. But in a broader sense gender differences, and particularly the subordinate position of women in most societies, drive the epidemic as it affects both men and women. At a minimum, the crucial links between gender and HIV/AIDS imply that prevention and treatment programs must take gender into account. Decisive success against the epidemic, however, will require attacking gender inequities themselves.

The relative powerlessness of women and girls in most societies, together with socially constructed gender roles and attitudes, render women more vulnerable to the epidemic in a variety of ways[150-152]. First, lower levels of education, coupled with cultural attitudes surrounding women and sex, make it more difficult for women to obtain information about HIV. Second, subordination to men in marriage and elsewhere, reinforced by fear of violence (see below) can make it difficult or impossible for women to refuse sex or to demand the use of condoms. Third, lack of economic opportunity can oblige women and girls to enter into and remain in dangerous relationships. Biology plays a role as well, as the virus may be more easily transmitted from men to women during intercourse. As a result of these factors, the proportion of people living with HIV/AIDS who are women is rising steadily, from 41% in 1997 to 50% at the end of 2002[5, 153]. The share of women is highest where heterosexual transmission predominates, reaching 58% in sub-Saharan Africa<sup>13</sup>.

Young women are at particular risk: in sub-Saharan Africa, rates of HIV infection are twice as high among girls aged 15-19 than among boys of the same age[5]. In parts of Eastern and Southern Africa, HIV-infected girls outnumber boys five or six to one in this age group[52]. These dramatic figures suggest that intergenerational sex, between girls and older men, is playing an important role in driving the epidemic in these countries[154, 155]. Although motivations for these relationships are varied, they are often rooted in disparities in economic opportunity[155, 156].

Women also suffer more than men from the economic and social consequences of the disease. Women are often blamed for the spread of HIV and for its introduction into families. Unequal inheritance rights can leave women widowed by AIDS destitute. Moreover, women shoulder a disproportionate share of the burden of caring for sick and dying family members.

Violence underpins the vulnerability of women and girls to HIV/AIDS. Surveys show that around the world one woman in three has been beaten, coerced into sex or otherwise abused[157]. The direct role of sexual violence, including coerced sex in marriage, in HIV transmission is difficult to estimate, but it is likely to be considerable[158, 159]. In conflict situations, mass rape may be a major force fueling the epidemic. In Rwanda, organized rape was systematically used as an instrument of terror and is widely believed to have contributed to jump-starting the epidemic[160]. An organization of widows of the genocide found that two thirds of surveyed victims of sexual assault during the genocide were HIV-positive[161]. But it is likely that violence and the threat of violence contribute to the epidemic

---

<sup>13</sup> Globally, the greater number of women with HIV in Africa is balanced by male majorities in regions where injecting drug use and sex among men play larger roles in transmission.

even more powerfully by restricting the freedom of women and girls to enter into and leave relationships, to choose when and how to have sex, to use condoms, and to benefit from prevention and treatment services[162, 163]. Violence against women, especially within marriage, is condoned by many cultures; even where laws against the abuse of women exist, they are often not enforced. The practice of female genital mutilation, widespread in Africa as well as in parts of the Middle East and Asia, represents another form of socially sanctioned violence against girls that may contribute to HIV transmission[171,172].

While gender roles and expectations increase women's vulnerability to HIV/AIDS, they put men at risk as well, for example by sanctioning promiscuity and encouraging risk-taking[151]. In the broadest sense, attitudes toward gender and sexuality shape the entire realm of behavior through which sexual transmission of HIV occurs.

What does gender inequality mean for the fight against HIV/AIDS? At a minimum, prevention and treatment programs should avoid reinforcing harmful attitudes[164]. For example, Rao Gupta has expressed concern that a common approach to condom promotion, in which condom use is associated with sexual prowess, may do more harm than good[151]. Beyond this, programs must take into account the constraints that women and girls face. Thus developing an affordable and effective microbicide would address the difficulty women face in using condoms by giving them an option more under their control. The way the HIV/AIDS services are delivered can have important implications for women's access, and could even contribute to lessening discrimination and stigma. The MTCT-Plus initiative, by structuring ARV treatment around women, may serve as an important test of this concept.

More gender-sensitive HIV/AIDS services can reduce women's vulnerability and make HIV prevention more effective. But ultimately the most powerful solutions will be those that address root cause of the problem: gender inequality itself. Thus, promotion of equal access to education, economic opportunity, and political power; enforcement of equal property rights; and aggressive prosecution of domestic and sexual violence may be among the most important ways to fight AIDS. These issues are largely beyond the scope of the HIV/AIDS Task Force, but the broad perspective of the Millennium Project affords an unusual opportunity to analyze the links between development objectives. In the coming year we will work with the Gender Task Force to deepen our analysis of gender and AIDS and to develop specific recommendations for how these problems can be addressed. Much of this work will be carried out through a new, independently funded Millennium Project initiative on Sexuality and Reproductive Health, as well as under the umbrella of the virtual working group on gender. Among possible areas of focus are

**Women's access to antiretroviral therapy.** How have women fared in existing ART programs in the developing world? How can equal access best be assured as ART is scaled up in Africa and elsewhere?

**Women's access to voluntary counseling and testing.** Women face special obstacles to learning their status, including stigma and the threat of violence from partners. A study of how women's use of VCT services is affected by the way they are provided might be useful.

**Violence against women and HIV/AIDS.** WHO has recently completed a large, multi-country study of violence against women. It might be possible to use this data to learn more about the role of domestic and sexual violence in the epidemic.

An important United Nations initiative in this area is the new Global Coalition on Women and AIDS, convened by UNAIDS[165]. This informal partnership has identified seven priorities:

- Prevent HIV infection among girls and young women
- Reduce violence against women (promote “zero tolerance”)
- Protect the property and inheritance rights of women and girls
- Ensure equal access by women and girls to care and treatment
- Support improved community-based care, with a special focus on women and girls
- Promote access to new prevention options for women, including microbicides
- Support on-going efforts toward universal education for girls

## 6.2 Stigma and discrimination

Stigma and discrimination against people living with HIV or AIDS is pervasive; numerous studies have documented both negative attitudes and active discrimination, ranging from social ostracism to employment discrimination to violence, in the developed as well as the developing world. HIV/AIDS stigma is increasingly recognized not only as an important human rights issue but also as a central impediment to prevention and treatment. Stigma and discrimination not only hamper specific interventions, but also threaten the social solidarity and mobilization essential to an inclusive and sustainable response[166]. Thus measures to combat stigma and discrimination must be a central component of AIDS programs. Unfortunately, too little is known about the causes of stigma and the best ways to combat it.

### 6.2.1 Sources of stigma

In the broadest terms, stigma has three sources. First, fear of contagion through casual contact can lead people to avoid those thought to carry the virus; this can lead in turn to discrimination in employment and schooling and social ostracism. Although this cause of stigma would appear to rest on misconceptions about HIV transmission, studies have shown that fear of contagion can persist in spite of accurate information[49, 167]. Second, stigma can result from association with already stigmatized social groups or with behaviors considered immoral. In particular, where the disease is strongly associated with prostitutes, IV drug users, or men who have sex with men, people with AIDS can inherit the strong burden of stigma often borne by these populations. Association with AIDS can then in turn reinforce the despised status of these groups. Similarly, people are sometimes assumed to have acquired HIV through promiscuity or extramarital sex, resulting in stigma where these behaviors are considered immoral. These beliefs can result in the notion that people with AIDS “deserve” their fate, or that the disease is a punishment for sinful behavior. Sexual double standards common to many cultures mean that women suffer disproportionately from these assumptions, and are often blamed for the deaths of their partners from AIDS.

Finally, AIDS, as an incurable, fatal disease, evokes fear and shame through association with illness, incapacity and imminent death. This source of stigma is exacerbated by the misconception that HIV infection inevitably progresses rapidly to AIDS and death.

HIV/AIDS is not of course the first or only disease to be strongly stigmatized: people suffering from leprosy, TB, and mental illness, among other conditions, have long been feared, shunned, and denied equal treatment. However, the taboos and gender inequalities surrounding sex add powerful new stigmatizing forces in the case of sexually transmitted diseases such as HIV/AIDS.

### 6.2.2 Consequences of stigma

Stigma can greatly increase the suffering of people with HIV or AIDS, resulting in rejection by family or community, loss of employment or access to education and social services, and violence. Moreover, children and other family members can also be discriminated against, suffering what is sometimes called secondary stigma. At the same time, AIDS stigma impedes prevention and treatment in several important ways. Fear of discrimination makes people reluctant to be tested, receive counseling, accept treatment, and reveal their status to their partners or others. This is particularly true where confidentiality cannot be effectively guaranteed.<sup>14</sup> Moreover, a mistaken belief that only certain social groups are vulnerable to HIV can lead people to believe they are not at risk and thus engage in risky behavior.

### 6.2.3 Measures to combat stigma

Several approaches have been taken to reducing stigma and its impact. Most concretely, some but not all countries have taken steps to outlaw discrimination against people with HIV or AIDS in employment, housing, education, access to medical care and elsewhere. Although the existence of statutes does not guarantee enforcement and cannot eliminate discrimination in private life, creating the right legal climate is an indispensable first step and an important indication of political commitment. The UNGASS resolution specifically calls for the enactment of laws against discrimination by 2003. Serious consideration should also be given to revising or eliminating laws criminalizing IV drug use and prostitution. Other interventions against stigma can be divided into those that aim to change stigmatizing attitudes and behaviors and those that aim to help the potential targets of stigma cope with and combat discrimination. Among the former are HIV/AIDS education campaigns that seek to dispel harmful myths and misinformation and urge tolerance and compassion toward people living with the disease. A recurring theme in studies of stigma, however, is that information alone is generally not sufficient to alter discriminatory or stigmatizing behavior. Among interventions targeted at victims of stigma are programs teaching coping skills and efforts to encouraging organization and activism among people living with HIV/AIDS. Very little is known about the effectiveness of measures to fight stigma and discrimination, and some studies suggest that stigmatizing attitudes can persist in spite of significant efforts to combat them.

Finally, one of the most effective ways to combat stigma may actually be to provide the services that HIV-positive people need, such as prevention of mother-to-child transmission, care and treatment. Not only do such programs send the message that people living with HIV/AIDS are valued, but they provide a concrete incentive for PLWHA to come forward, breaking down the culture of silence.

---

<sup>14</sup> Some members of the task force have argued that the impact of stigma should not be overrated, and that when prevention and treatment services become available, people will use them. Members also warned against the invocation of stigma as an excuse to delay expanding access to services.

## 7. Estimating the cost

Estimating the cost of meeting the Millennium Development Goals is an important part of the Millennium Project's mandate. The AIDS Task Force is fortunate to be able to draw on a quite substantial body of work on the cost of an expanded response to the epidemic. It is likely that the AIDS field is farther along in this respect than many other sectors.

There have been only two major attempts to estimate how much a comprehensive effort to combat HIV/AIDS might cost[168]. First, a team commissioned by UNAIDS, building on an earlier and quite influential analysis[169], concluded in late 2002 that about \$10.5 billion would be required in low- and middle-income countries in 2005; the amount rises to \$15 billion by 2007. About 40% of this amount would be spent on prevention and about 25% for ART[36]. Second, the WHO's Commission on Macroeconomics and Health (CMH) estimated that expenditures on AIDS in a smaller number of mostly low-income countries would have to rise to \$14 billion per year *over current levels* by 2007, and to \$22 billion annually by 2015[35]. In this case, antiretroviral treatment was assumed to consume \$5 billion in 2007, \$8 billion in 2015. To put these numbers in perspective, current expenditures from all sources are thought to be about \$4.7 billion[29].

Calculations of this kind involve enormous uncertainties. Both the cost of each prevention or treatment service and the number of people requiring it must be estimated. The latter figure relies on complex and uncertain epidemiological projections, which in turn depend on the scale and effectiveness of the interventions themselves. Moreover, both teams had to make assumptions about the rate at which access to these services could be increased, given that weak health systems and other aspects of capacity would constrain the ability to reach all of those in need immediately. In this sense the final figures are not precisely estimates of need, but of how much developing countries will be able to absorb. An important difference between the two studies is that the CMH estimate explicitly included the cost of building health system capacity. Given the highly speculative nature of some of these assumptions, it is quite surprising that the two groups arrived at such similar conclusions.

In the area of antiretroviral treatment, these estimates almost certainly require significant revision. Prices for ARV drugs, which are a major determinant of total treatment costs, have fallen substantially even since the UNAIDS study. Moreover, thinking about how ART can be delivered in resource-poor settings has evolved considerably, which both directly affects the price of providing it and allows coverage targets to be expanded.

WHO and UNAIDS have recently revised their costing figures to account for the new coverage target of placing 3 million people on treatment by 2005 and the model of care delineated at the WHO/UNAIDS consensus meeting on operational procedures for treatment in resource-limited settings held in Zambia in November 2003[175]. They conclude, on the basis of country-specific estimates as to how well the target would be reached (91% in aggregate), that meeting the 3 by 5 goal would cost 4.9-5.4 billion dollars. This estimate includes a broad range of patient care and program-level costs, but not the cost of major investments in infrastructure or prevention activities not included in the model of care decided upon in Zambia<sup>15</sup>.

---

<sup>15</sup> *Patient costs* included in the costing were: (1) HIV testing and counseling, (2) condom distribution, (3) antiretrovirals (first and second line drugs for WHO Stage 3 and 4), (4) PMTCT (for those testing positive in antenatal care clinics treatment and are WHO Stage 1 or 2), (5) treatment and prophylaxis of

The Task Force has not so far undertaken its own costing analysis. The Millennium Project secretariat has, however, led an effort that estimates the cost of a comprehensive response in a number of countries as part of its case study work, using the UNAIDS methodology[176]. This analysis will probably be extended in the coming year, as the Project turns increasingly to country-level work. In addition, the health task forces intend to work with the secretariat to develop an approach to analyzing and costing the critical steps that will be required to build (or in some cases, rebuild) health systems to meet the health MDGs generally. This work will be a high priority for the HIV/AIDS Task Force.

---

OIs, (6) palliative care, and (7) laboratory tests for toxicity for those presenting with evidence of toxicity.

*Program costs* included were training for doctors, nurses, community health workers and lay volunteers in ART-related services. In addition, costs were estimated for supervision and monitoring, increasing the capacity of the drug distribution system, recruiting community health workers, universal precautions, and post exposure prophylaxis. The cost of CD4 machines in low income countries in 2005 was also included in this estimate.

## Literature Cited

1. UNGASS (2001). *Declaration of Commitment on HIV/AIDS*. United Nations General Assembly. [http://www.unaids.org/UNGASS/docs/AIDSDeclaration\\_en.pdf](http://www.unaids.org/UNGASS/docs/AIDSDeclaration_en.pdf).
2. UN Statistics Division, *Millennium Indicators Database*. 2003.
3. UN General Assembly (2000). *United Nations Millennium Declaration*.
4. UNAIDS (2002). *Report on the global HIV/AIDS epidemic*. UNAIDS.
5. UNAIDS/WHO (2002). *AIDS epidemic update, December 2002*.
6. UNAIDS/WHO (2003). *AIDS epidemic update, December 2003*. <http://www.unaids.org>.
7. UNAIDS (2001). *HIV prevention needs and successes: a tale of three countries. An update on HIV prevention success in Senegal, Thailand and Uganda*. Best practices collection. <http://www.unaids.org/publications/documents/epidemiology/determinants/Jc535-hi.pdf>.
8. Global HIV Prevention Working Group (2002). *Global Mobilization for HIV Prevention: A Blueprint for Action*. Gates Foundation/Kaiser Family Foundation. <http://www.gatesfoundation.org/GlobalHealth/HIVAIDSTB/>.
9. National Intelligence Council (2002). *The Next Wave of HIV/AIDS: Nigeria, Ethiopia, Russia, India, and China*.
10. Global HIV Prevention Working Group (2003). *Access to HIV Prevention: Closing the Gap*. Gates Foundation/Kaiser Family Foundation. <http://www.gatesfoundation.org/GlobalHealth/HIVAIDSTB/>.
11. Deany, P. (2000). *HIV and injecting drug use: A new challenge to sustainable human development*. UNDP HIV and Development Programme. <http://www.undp.org/hiv/publications/deany.htm>.
12. Wolfe, D. & K. Malinowska-Sempruch (2003). *Illicit Drug Policies and the Global HIV Epidemic: Effects of UN and National Government Approaches*. Millennium Project. Working Paper for the HIV/AIDS Task Force.
13. Buve, A. (2002). HIV epidemics in Africa: What explains variations in HIV prevalence. *IUBMB Life*. **53**: 193-195.
14. Buve, A. et al. (2001). The multicentre study on factors determining the differential spread of HIV in four African cities: summary and conclusions. *AIDS*. **15 (suppl 4)**: S127-S131.
15. Boerma, J.T., C. Nyamukapa, M. Urassa & S. Gregson (2002). *Understanding the uneven spread of HIV within Africa: Comparative study of biological, behavioral and contextual factors in rural populations in Tanzania and Zimbabwe*. Measure Evaluation Project, Carolina Population Center, University of North Carolina at Chapel Hill. [www.cpc.unc.edu/measure](http://www.cpc.unc.edu/measure).
16. World Bank (1999). *Confronting AIDS: Public Priorities in a Global Epidemic*: World Bank.
17. Stillwagon, E. (2000). HIV transmission in Latin America: Comparison with Africa and policy implications. *South African Journal of Economics*. **68(5)**: 985-1011.
18. Farmer, P. (1999). *Infections and Inequalities*. Berkeley: University of California Press.
19. Cohen, D. (?). *Poverty and HIV/AIDS in Sub-Saharan Africa*. UNDP. SEPED Conference Paper Series. [http://www.undp.org/seped/publications/conf\\_pub.htm](http://www.undp.org/seped/publications/conf_pub.htm).
20. Barnett, T. & A. Whiteside (2002). *Aids in the Twenty-First Century*: Pargrave Macmillan.



21. Barnett, T., A. Whiteside & J. Decosas (2000). The Jaipur paradigm--a conceptual framework for understanding social susceptibility and vulnerability to HIV. *S Afr Med J.* **90**(11): 1098-101.
22. WHO (2003). *Treating 3 million by 2005: Making it happen: The WHO strategy.* <http://www.who.int/3by5/publications/documents/isbn9241591129/en/>.
23. Barnett, T. & A. Whiteside (2002). *Poverty and HIV/AIDS: Impact, Coping and Mitigation.* UNICEF. <http://www.unicef-icdc.org/research/ESP/aids/>.
24. Bell, C., S. Devarajan & H. Gersbach (2003). *The long-run economic costs of AIDS: Theory and an application to South Africa.* World Bank. <http://econ.worldbank.org/view.php?type=5&id=30343>.
25. Stover, J. et al. (2002). Can we reverse the HIV/AIDS pandemic with an expanded response? *Lancet.* **360**(9326): 73-7.
26. Levi, G.C. & M.A.A. Vitoria (2002). Fighting against AIDS: the Brazilian experience. *AIDS 2002.* **16**: 2372-2383.
27. MSF South Africa, Department of Public Health of the University of Cape Town & Provincial Administration of the Western Cape (2003). *Antiretroviral Therapy in Primary Health Care: South African Experience.* WHO. Perspectives and Practice in Antiretroviral Treatment: Case Study.
28. Mukherjee, J. et al. (2003). *Access to Treatment and Care: Haiti Experience.* WHO. Perspectives and Practice in Antiretroviral Treatment: Case Study.
29. UNAIDS (2003). *Progress Report on the Global Response to the HIV/AIDS Epidemic.*
30. Feachem, R. 2003, Quoted in Kaiser Daily HIV/AIDS Report 9/22/03.
31. WHO (2002). *Coverage of selected health services for HIV/AIDS prevention and care in less developed countries in 2001.*
32. Millennium Project, *About the Millennium Project.* 2002.
33. Pisani, E. (1999). *Acting early to prevent AIDS: The case of Senegal.*
34. Stolte, I.G. & R.A. Coutinho (2002). Risk behavior and sexually transmitted diseases are on the rise in gay men, but what is happening with HIV? *Current Opinion in Infectious Diseases.* **15**: 37-41.
35. Commission on Macroeconomics and Health (2001). *Macroeconomics and health: Investing in health for economic development.* WHO. <http://www.cmhealth.org/index.html>.
36. UNAIDS (2002). *Financial resources for HIV/AIDS programmes in low- and middle-income countries over the next five years.*
37. US Dept. of State, *The President's Emergency Plan for AIDS Relief.* 2003.
38. Jha, P. et al. (2001). *The evidence base of interventions to prevent HIV infection in low and middle-income countries.* WHO: Commission for Macroeconomics and Health. Working paper for Working Group 5.
39. Family Health International (2002). *Behavior Change Communication (BCC) for HIV/AIDS: A Strategic Framework.* <http://www.fhi.org/en/topics/listings/bcclist.html>.
40. Center for Communications Programs at the John Hopkins Bloomberg School of Public Health (2003). Stop AIDS Love Life in Ghana "Shatters the Silence". *Communications Impact.* (15).
41. Garnett, G.P. & R.M. Anderson (1995). Strategies for limiting the spread of HIV in developing countries: conclusions based on studies of the transmission dynamics of the virus. *J Acquir Immun Defic Syndr Retrovirol.* **9**: 500-13.

42. Van Vliet, C., K.K. Holmes, B. Singer & D.F. Habbema, *The effectiveness of HIV prevention strategies under alternative scenarios: evaluation with the STDSIM model*, in *Confronting AIDS: Evidence from the developing world*, Ainsworth, M., L. Fransen & M. Over, Editors. 1998, European Commission: Brussels.
43. MAP (2002). *The Status and Trends of the HIV/AIDS Epidemics in the World*. Monitoring the AIDS Pandemic. <http://www.mapnetwork.org/docs/barcreport.doc>.
44. Boily, M.-C., C. Lowndes & M. Alary (2002). The impact of HIV epidemic phases on the effectiveness of core group interventions: insights from mathematical models. *Sex Transm Infect.* **78(Suppl I)**: i78-i90.
45. Open Society Institute (2001). *Drugs, AIDS, and Harm Reduction: How to Slow the HIV Epidemic in Eastern Europe and the Former Soviet Union*. <http://www.soros.org/harm-reduction/>.
46. Normand, J., D. Vlahov & L. Moses (1995). *Preventing HIV transmission: The role of sterile needles and bleach*. National Research Council and Institute of Medicine. <http://www.nap.edu/html/needle/>.
47. Hurley, S.F., D.J. Jolley & J.M. Kaldor (1997). Effectiveness of needle-exchange programmes for prevention of HIV infection. *Lancet.* **349**: 1797-1800.
48. Ball, A.L., *Overview: policies and interventions to stem HIV-1 epidemics associated with injecting drug use*, in *Drug Injecting and HIV Injection: Global Dimensions and Local Responses*, Stimson, G.V., Editor. 1998, UCL Press Limited: London. p. 201-233.
49. ICRW (2003). *Understanding HIV-Related Stigma and Resulting Discrimination in Sub-Saharan Africa: Emerging themes from early data collection in Ethiopia, Tanzania and Zambia*. International Center for Research on Women. Research update. <http://www.icrw.org/projects/hivrelatedstigma/hivrelatedstigma.htm>.
50. Reid, G. & G. Costigan (2002). *Revisiting 'The Hidden Epidemic': A Situation Assessment of Drug Use in Asia in the context of HIV/AIDS*. The Centre for Harm Reduction at The Burnet Institute.
51. van der Staten, A.e.a. *Early age of coital debut and intergenerational sex are risk factors for HIV among Zimbabwean women*. 2002. Barcelona.
52. UNICEF, UNAIDS & WHO (2002). *Young people and HIV/AIDS: Opportunity in crisis*. www.unaids.org.
53. Bessinger, R., P. Akwara & e. al (2002?). *Sexual behavior, HIV and fertility trends: A comparative analysis of six countries. Phase I of the ABC study*. Measure Evaluation Project, Carolina Population Center, University of North Carolina at Chapel Hill. [http://www.cpc.unc.edu/measure/publications/hiv\\_aids.html](http://www.cpc.unc.edu/measure/publications/hiv_aids.html).
54. The Voluntary HIV-1 Counseling and Testing Efficacy Study Group (2000). Efficacy of voluntary HIV-1 counselling and testing in individuals and couples in Kenya, Tanzania, and Trinidad: a randomized trial. *Lancet.* **356**: 103-12.
55. Population Council (2001). *Sexually-transmitted infections and HIV/AIDS*. Fact sheet. [http://www.popcouncil.org/rhfp/rti\\_fact\\_sheets/stiandaids.html](http://www.popcouncil.org/rhfp/rti_fact_sheets/stiandaids.html).
56. WHO (2002). *Preventing HIV Infection in Infants and Young Children*. <http://www.who.int/hiv/topics/mtct/en/>.
57. Guay, L.A. et al. (1999). Intrapartum and neonatal single-dose nevirapine compared with zidovudine for prevention of mother-to-child transmission of HIV-1 in Kampala, Uganda: HIVNET 012 randomized trial. *Lancet.* **354**: 795-802.
58. Mailman School of Public Health *MTCT-Plus makes HIV treatment a reality for poor countries*. Columbia University. Press release, July 10, 2002.

59. Mbori-Ngacha, D. et al. (2001). Morbidity and mortality in breastfed and formula-fed infants of HIV-1-infected women: A randomized clinical trial. *JAMA*. **21**: 2413-20.
60. Fowler, M.G. & N.M. L (2002). Breast-Feeding and HIV-1 Transmission in Resource-Limited Settings. *Journal of Acquired Immune Deficiency Syndromes*. **30**: 230-239.
61. Hersh, B. et al. (1991). Acquired immunodeficiency syndrome in Romania. *Lancet*. **338**: 645-9.
62. Kaufman, J. & J. Jing (2002). China and AIDS - The Time to Act is Now. *Science*. **296**: 2339-2340.
63. CDC (1999). *Preventing occupational HIV transmission to health care workers*. Centers for Disease Control and Prevention: National Center for HIV, STD and TB Prevention/Division of HIV/Aids Prevention.
64. WHO, UNAIDS & I.C.o. Nurses (2000). *HIV and workplace and universal precautions*.
65. UNDG (2003). *Indicators for monitoring the Millennium Development Goals*. United Nations Development Group.
66. Secretariat, M.P. (2003). *Country Case Studies*.
67. Creese, A., K. Floyd, A. Alban & L. Guinness (2002). Cost-effectiveness of HIV/AIDS interventions in Africa: a systematic review of the evidence. *Lancet*. **359**(9318): 1635-43.
68. Ainsworth, M. (2000). Breaking the silence: setting realistic priorities for AIDS control in less-developed countries. *Lancet*. **356**: 55-60.
69. Walker, D. (2003). Cost and cost-effectiveness of HIV/AIDS prevention strategies in developing countries: is there an evidence base? *Health Policy and Planning*. **18**: 4-7.
70. Kumaranayake, L. (2002). *Cost-effectiveness and economic evaluation of HIV/AIDS-related interventions: the state of the art*. International AIDS Economics network. <http://www.iaen.org/conferences/stateofepidemic.php>.
71. Opuni, M., S. Bertozzi, J.-A. Izazola, J.-P. Gutierrez & W. McGreevey (2002). *Resources for HIV/AIDS prevention and care*. *The Future Group*. The Futures Group.
72. Human Rights Watch (2003). *Fanning the Flames: How Human Rights Abuses are Fueling the Aids Epidemic in Kazakhstan*.
73. Human Rights Watch (2002). *Epidemic of abuse: Police harassment of HIV/AIDS outreach workers in India*.
74. International HIV/AIDS Alliance (2003). *Positive Prevention: Prevention Strategies for People with HIV/AIDS*. Draft Background Paper.
75. CDC (2003). *Advancing HIV Prevention: The Science Behind the New Initiative*. Centers for Disease Control, National Center for HIV, STD and TB Prevention.
76. Blower, S., L. Ma, P. Farmer & S. Koenig (2003). Predicting the Impact of Antiretrovirals in Resource-Poor Settings: Preventing HIV Infections whilst Controlling Drug Resistance. *Current Drug Targets - Infectious Disorders*. **3**.
77. Ostrow, D.E. et al. (2002). Attitudes towards highly active antiretroviral therapy are associated with sexual risk taking among HIV-infected and uninfected homosexual men. *AIDS*. **16**: 775-780.
78. Moatti, J.-P. & B. Spire (2003). *Access to antiretroviral treatment in developing countries: how it may impact the future of HIV prevention?* Working paper for the Millennium Project HIV/AIDS Task Force.
79. CDC (2003). *Advancing HIV Prevention: New Strategies for a Changing Epidemic*.

80. WHO/UNAIDS (2003). *Emergency scale-up of antiretroviral therapy in resource-limited settings: Technical and operational recommendations to achieve 3 by 5. Draft report from the WHO/UNAIDS Zambia consultation.* <http://www.who.int/3by5/publications/documents/zambia/en/index.html>.
81. International AIDS Vaccine Initiative, *Preventative AIDS vaccine approaches currently in human testing.* 2003.
82. Watts, C., L. Kumaranayake, P. Vickerman & F. Terris-Prestholt (2002). *The Public Health Benefits of Microbicides in Lower-Income Countries: Model Projections.* Rockefeller Foundation. Working Paper for the Microbicide Initiative. <http://www.rockfound.org/>.
83. Cohen, J. (2003). Can a drug provide some protection? *Science.* **301**: 1660-1.
84. Weiss, H.A., M. Quigley & R.J. Hayes (2000). Male circumcision and risk of HIV infection in sub-Saharan Africa: a systematic review and meta-analysis. *AIDS.* **14**: 2361-2370.
85. USAID Bureau of Global Health (2003). *Male Circumcision and HIV Prevention.* United States Agency for International Development. Fact Sheet. [http://www.usaid.gov/pop\\_health/aids/TechAreas/research/mcfactsheet.html](http://www.usaid.gov/pop_health/aids/TechAreas/research/mcfactsheet.html).
86. Kaiser daily HIV/AIDS report, *Routine HIV Testing Initiative in Botswana Aims To Get More People Into Treatment Program.* 2003, Kaiser Family Foundation.
87. Bayer, R. (1991). Public health policy and the AIDS epidemic: an end to HIV exceptionalism? *N Engl J Med.* **324**: 1500-04.
88. De Cock, K.M., D. Mbori-Ngacha & E. Marum (2002). Shadow on the continent: public health and HIV/AIDS in Africa in the 21st century. *The Lancet.* **360**: 67-72.
89. UNAIDS & WHO (2003). *Position Paper on modes of transmission of HIV, with particular reference to sub-Saharan Africa and unsafe injections.*
90. Brewer, D.D. et al. (2003). Mounting anomalies in the epidemiology of HIV in Africa: Cry the beloved paradigm. *International Journal of STD & AIDS.* **14**: 144-7.
91. Gisselquist, D.P. & J.J. Potterat (2003). Heterosexual transmission of HIV in Africa: an empiric estimate. *International Journal of STD & AIDS.* **14**: 162-73.
92. Gisselquist, D.P. (2003). Estimating HIV-1 transmission efficiency through unsafe medical injections. *International Journal of STD & AIDS.* **14**: 152-9.
93. Walker, P.R., M. Worobey, A. Rambaut, E.C. Holmes & O.G. Pybus (2003). Sexual transmission of HIV in Africa. *Nature.* **422**: 679.
94. World Bank, *Turning the Tide Against HIV/AIDS.* 2003.
95. Cohen, D. (2002). *Human capital and the HIV epidemic in sub-Saharan Africa (Working Paper 2).* ILO.
96. WHO (2003). *The "3x5" Initiative as a Response to the Development Threat of HIV/AIDS.* World Health Organization. [http://www.who.int/3by5/publications/documents/en/3by5\\_response\\_to\\_development\\_threat.pdf](http://www.who.int/3by5/publications/documents/en/3by5_response_to_development_threat.pdf).
97. Tawfik, L.a.K., Stephen (2001). *The Impact of HIV/AIDS on the Health Sector in Sub-Saharan Africa: The Issue of Human Resources.* USAID/SARA. [http://www.dec.org/pdf\\_docs/PNACP346.pdf](http://www.dec.org/pdf_docs/PNACP346.pdf).
98. Brugha, R. (2003). Antiretroviral treatment in developing countries: the peril of neglecting private providers. *British Medical Journal.* **326**: 1382-1384.
99. Plusnews, *Malawi: Demand for ARVs gives rise to grey market.* 2003.

100. WHO/UNAIDS (2003). *Emergency Scale-Up of ART in Resource Limited Settings: Technical and Operational Recommendations to Achieve "3x5"*.  
<http://www.who.int/medicines/organization/par/edl/zamb.doc>.
101. WHO, *A public health approach to antiretroviral treatment: overcoming constraints*. 2003.
102. UNAIDS/WHO/International HIV/AIDS Alliance (2003). *Handbook on access to HIV/AIDS-related treatment*. UNAIDS, World Health Organization, International HIV/AIDS Alliance.  
[http://www.who.int/hiv/pub/prev\\_care/HandbookAccess\\_en.pdf](http://www.who.int/hiv/pub/prev_care/HandbookAccess_en.pdf).
103. WHO (2002). *Scaling up Antiretroviral Therapy in Resource-Limited Settings: Guidelines for a Public Health Approach*. [http://www.who.int/HIV\\_AIDS/CARE/ScalingUp\\_Guidelines\\_Final021002.pdf](http://www.who.int/HIV_AIDS/CARE/ScalingUp_Guidelines_Final021002.pdf).
104. Beck, E.J. et al. (1999). Decreased morbidity and use of hospital services in English HIV-infected individuals with increased uptake of anti-retroviral therapy 1996-1997. National Prospective Monitoring System Steering Group. *Aids*. **13**(15): 2157-64.
105. Dore, G.J., Y. Li, A. McDonald, H. Ree, J.M. Kaldor & J.M. Kaldo (2002). Impact of highly active antiretroviral therapy on individual AIDS-defining illness incidence and survival in Australia. *J Acquir Immune Defic Syndr*. **29**(4): 388-95.
106. Egger, M. et al. (2002). Prognosis of HIV-1-infected patients starting highly active antiretroviral therapy: a collaborative analysis of prospective studies. *Lancet*. **360**(9327): 119-29.
107. Jones, J.L., D.L. Hanson, M.S. Dworkin, D.L. Alderton, P.L. Fleming, J.E. Kaplan & J. Ward (1999). Surveillance for AIDS-defining opportunistic illnesses, 1992-1997. *MMWR CDC Surveill Summ*. **48**(2): 1-22.
108. Dorrucci, M., M. Balducci, P. Pezzotti, A. Sinicco, F. Alberici & G. Rezza (1999). Temporal changes in the rate of progression to death among Italians with known date of HIV seroconversion: estimates of the population effect of treatment. Italian HIV Seroconversion Study (ISS). *J Acquir Immune Defic Syndr*. **22**(1): 65-70.
109. Palella, F.J., Jr. et al. (1998). Declining morbidity and mortality among patients with advanced human immunodeficiency virus infection. HIV Outpatient Study Investigators. *N Engl J Med*. **338**(13): 853-60.
110. Gadelha, A.e.a. (2002). Morbidity and survival in Advanced AIDS in Rio de Janeiro, Brazil. *Revista do Instituto de Medicina Tropical de Sao Paulo*. **44**(4): 179-186.
111. McNeil, D., *Africans Outdo Americans In Following AIDS Therapy*, in *New York Times*. 2003: New York. p. 1.
112. Farmer, P. et al. (2001). Community-based approaches to HIV treatment in resource-poor settings. *Lancet*. **358**(9279): 404-9.
113. AHF Global Immunity, *Uganda Cares First Year Progress Report July 2003*. 2003.
114. AHF Global Immunity, *Ithembalabantu "People's Hope" Clinic Kwazulu-Natal, South Africa First Year Progress Report July 2003*. 2003.
115. MSF (2003). *ARV Simplification Off the Beaten Track for High Prevalence Countries: A workshop Organized by MSF's Campaign for Access to Essential Medicines*.
116. WHO/UNAIDS/UNICEF/MSF (2003). *Sources and Prices of selected medicines and diagnostics for people living with HIV/AIDS*. <http://www.who.int/medicines/organization/par/ipc/sources-prices.pdf>.
117. Altman, L. (2003). Clinton Group Gets Discount For AIDS Drugs. *The New York Times*. Section A, page 8.

118. International HIV Treatment Access Coalition, *A commitment to Action for Expanded Access to HIV/AIDS Treatment*. 2002.
119. Axios International (2003). *Patient's on AAI Companies'ARVs in Africa: Analysis report on three years supply*. <http://www.axios-group.com>.
120. Clinton Foundation, *Clinton Foundation HIV/AIDS Institute*. 2003.
121. WHO, *WHO takes major steps to make treatment accessible*. 2002.
122. Chang, H. *Treating 3 Million People in the Developing World by 2005: Consensus Recommendations from the International Workshop on Strategies for Scaling-Up Treatment in Resource Poor Settings*. in *International Workshop on Strategies for Scaling-Up Treatment in Resource Poor Settings*. 2003. Amsterdam, The Netherlands: AHF Global Immunity.
123. WHO (2003). *Workshop on human resources and service delivery aspects of scaling up ARV treatment in resource-limited settings preliminary discussion paper*. World Health Organization, Department of Health Services Provision.
124. WHO. *Report on the WHO/UNAIDS Workshop on Strategic Information for Anti-Retroviral Therapy Programmes*. in *WHO/UNAIDS Workshop on Strategic Information for Anti-Retroviral Therapy Programmes*. 2003. Geneva, Switzerland: World Health Organization, Department of HIV/AIDS.
125. Aggleton, P. (2002). *Comparative analysis: Research studies from India and Uganda HIV and AIDS-related Discrimination, Stigmatization and Denial*. UNAIDS. [http://www.unaids.org/publications/documents/human/law/HR\\_indiauganda.pdf](http://www.unaids.org/publications/documents/human/law/HR_indiauganda.pdf).
126. UNAIDS (2000). *Key elements in HIV/AIDS Care and Support*. [http://www.who.int/hiv/pub/prev\\_care/HandbookAccess\\_en.pdf](http://www.who.int/hiv/pub/prev_care/HandbookAccess_en.pdf).
127. Hirschhorn, L. (2003). Working paper on human resource requirements for providing antiretroviral therapy in resource-poor settings (draft). Millennium Project. Working paper for the HIV/AIDS Task Force.
128. WHO, *Scaling up Antiretroviral Therapy: Experience in Uganda*. 2003.
129. Bangsberg, D.R. et al. (2000). Adherence to protease inhibitors, HIV-1 viral load, and development of drug resistance in an indigent population. *Aids*. **14**(4): 357-66.
130. Montaner, J.S. et al. (1998). A randomized, double-blind trial comparing combinations of nevirapine, didanosine, and zidovudine for HIV-infected patients: the INCAS Trial. Italy, The Netherlands, Canada and Australia Study. *Jama*. **279**(12): 930-7.
131. WHO (2003). *Adherence to long-term therapies: Chapter XII HIV/AIDS*.
132. Laniece, I. et al. (2003). Adherence to HAART and its principal determinants in a cohort of Senegalese adults. *Aids*. **17 Suppl 3**: S103-8.
133. Weiser. *Barriers to ART Adherence in Botswana*. in *XIV International AIDS Conference*. 2002. Barcelona, Spain.
134. Leandre, F. *Maximizing adherence and prevention of resistance through directly observed therapy: DOT-HAART*. in *XIV International AIDS Conference*. 2002. Barcelona, Spain.
135. Mukherjee, J.S., P.E. Farmer, D. Niyizonkiza, L. McCorkle, C. Vanderwarker, P. Teixeira & J.Y. Kim (2003). Tackling HIV in resource poor countries. *Bmj*. **327**(7423): 1104-6.
136. WHO, *Human capacity-building plan*. 2003.
137. Nachega, J., *HIV/AIDS Care in Africa: Achievements and Challenges*. 2003, Johns Hopkins University.

138. USAID/SARA (2003). *The Health Sector Human Resource Crisis in Africa: An Issues Paper*.
139. Simms, C., M. Rowson & S. Peattie (2001). *The Bitterest Pill of All: The Collapse of Africa's Health Systems*. Save the Children UK.
140. WHO (1997). Integrated Management of Childhood Illness. *Bulletin of the World Health Organization (Supplement)*. **75**(Suppl1).
141. Wisconsin, U.o. (2002). *Availability of Opioid Analgesics in Africa and the World*. Pain and Policies Study Group. <http://www.medsch.wisc.edu/painpolicy/publicat/monograp/afmono02.pdf>.
142. Dasgupta, A. & P.C. Okhuysen (2001). Pharmacokinetic and other drug interactions in patients with AIDS. *Ther Drug Monit.* **23**(6): 591-605.
143. World Bank (2003). *Making services work for poor people. World Development Report 2004*.
144. Hanson, K., K. Ranson, -C. Oliveira, V & A. Mills (2001). *Constraints to scaling up health interventions: A conceptual framework and empirical analysis*. Working paper for Working Group 5 of the Commission on Macroeconomics and Health, WHO.
145. UNAIDS, *Monitoring the Declaration of Commitment on AIDS: Guidelines on the Construction Core Indicators*. 2002.
146. Shisana, O., L. Simbayi & F. Bezuidenhout (2002). *Nelson Mandela/Human Sciences Research Council study of HIV/AIDS: South African national HIV prevalence, behavioral risks and mass media: Household survey*. <http://www.cadre.org.za>.
147. Parkhurst, J.O. (2002). The Ugandan success story? Evidence and claims of HIV-1 prevention. *Lancet*. **360**(9326): 78-80.
148. Rehle, T., T. Saidel, S. Mills, R. Magnani & (editors) (2000). *Evaluating Programs for HIV/AIDS Prevention and Care in Developing Countries*. Family Health International. <http://www.fhi.org/en/aids/impact/impactpdfs/evaluationhandbook.pdf>.
149. UNAIDS (2002). *National AIDS Programs: A Guide to Monitoring and Evaluation*.
150. Weiss, E. & G. Rao Gupta (1998). *Bridging the gap: Addressing gender and sexuality in HIV prevention*. International Center for Research on Women (ICRW).
151. Rao Gupta, G. *Gender, Sexuality, and HIV/AIDS: The What, the Why, and the How*. in *Speech to the XIII International AIDS Conference in Durban, South Africa*. 2000.
152. WHO Department of Gender and Women's Health (2003). *Gender and HIV/AIDS*.
153. UNAIDS *Gender and AIDS Fact Sheet: Patterns of HIV/AIDS*. <http://www.unaids.org/gender/docs/Gender%20Package/PatternsofHIVAIDS.pdf>.
154. Gregson, S. et al. (2002). Sexual mixing patterns and sex-differentials in teenage exposure to HIV infection in rural Zimbabwe. *Lancet*. **359**: 1901.
155. Luke, N. & K.M. Kurz (2002). *Cross-generational and transactional sexual relations in sub-Saharan Africa: Prevalence of behavior and implications for negotiating safer sexual practices*. International Center for Research on Women. [http://www.icrw.org/publications\\_hiv aids.htm](http://www.icrw.org/publications_hiv aids.htm).
156. Rao Gupta, G. *Cross-generational and transactional sex: a public health crisis and a moral dilemma*. in *Innovations for Adolescent Girls and HIV/AIDS: Addressing Cross-Generational and Transactional Sexual Relations*. 2002. Washington, D.C.
157. Heise, L., M. Ellsberg & M. Gottemoeller (1999). Ending violence against women. *Populations Reports*. **XXVII**(4).

158. Maman, S., J. Campbell, M.D. Sweat & A.C. Gielen (2000). The intersections of HIV and violence: directions for future research and interventions. *Social Science & Medicine*. **50**: 459-478.
159. Gordon, P. & K. Crehan (?). *Dying of Sadness: Gender, Sexual Violence and the HIV Epidemic*. UNDP. SEPED Conference Paper Series. [http://www.undp.org/seped/publications/conf\\_pub.htm](http://www.undp.org/seped/publications/conf_pub.htm).
160. Donovan, P. (2002). Rape and HIV/AIDS in Rwanda. *Lancet*. **360 Suppl.**: s17-8.
161. AVEGA, *HIV/AIDS*. ?, Association of Genocide Widows - AGAHOZO.
162. Fleishman, J. (2002). *Suffering in silence: The links between human rights abuses and HIV transmission to girls in Zambia*. Human Rights Watch. <http://hrw.org/reports/2003/zambia/>.
163. Karanja, L. (2003). *Just die quietly: Domestic violence and women's vulnerability to HIV in Uganda*. Human Rights Watch. <http://www.hrw.org/reports/2003/uganda0803/>.
164. Rao Gupta, G., D. Whelan & K. Allendorf (2003). *Integrating gender into HIV/AIDS programmes*. WHO. [http://www.who.int/gender/hiv\\_aids/en/](http://www.who.int/gender/hiv_aids/en/).
165. UNAIDS (2003). *The Global Coalition on Women and AIDS*. <http://www.genderandaids.org/modules.php?name=News&file=article&sid=248>.
166. Parker, R.G. & P. Aggleton (2001). *Stigma, discrimination and AIDS*. Brazilian Interdisciplinary AIDS Association. ABIA Collection-Human rights and citizenship No. 1.
167. Monica, S.M., E.O. Tanga & A. Nuwagaba (2001). *Uganda: HIV and AIDS-related Discrimination, Stigmatization and Denial*. UNAIDS. UNAIDS Best Practice Collection. [www.unaids.org/publications/documents/human/law/HR\\_Uganda.pdf](http://www.unaids.org/publications/documents/human/law/HR_Uganda.pdf).
168. Aligari, P., T. Summers & J. Kates (2002). *Global Spending on HIV/AIDS in Resource-Poor Settings*. Kaiser Family Foundation/FoundationA. [http://www.kff.org/content/2002/6051/Global\\_Spending.pdf](http://www.kff.org/content/2002/6051/Global_Spending.pdf).
169. Schwartlander, B. et al. (2001). AIDS: Resource Needs for HIV/AIDS. *Science*. **292**(5526): 2434-2436.
170. Government of Rwanda, *Ministerial Instruction determining the conditions and modalities for health care delivery to persons living with HIV/AIDS*. 2003.
171. WHO (2000). *Female genital mutilation*. Fact Sheet. <http://www.who.int/inf-fs/en/fact241.html>.
172. Brady, M. (1999). Female genital mutilation: Complications and risk of HIV transmission. *AIDS Patient Care and STDs*. **13**: 709-716.
173. McNaghten, A.D., H. DL, J. JL, D. MS & W. JW. (1999). Effects of Antiretroviral therapy and opportunistic illnesses primary chemoprophylaxis after AIDS diagnosis. *AIDS*. **13**(13): 1687-95.
174. Grimwade, K. & C. Gilks (2001). Cotrimoxazole prophylaxis in adults infected with HIV in low-income countries.[Review]. *Current Opinion in Infectious Diseases*. **14**(5): 507-512.
175. WHO/UNAIDS (2003). *Estimated cost to reach the target of 3 million with access to antiretroviral therapy by 2005*. [http://www.who.int/3by5/publications/documents/en/cost\\_of\\_3by5.pdf](http://www.who.int/3by5/publications/documents/en/cost_of_3by5.pdf).
176. Millennium Project secretariat (2004). Millennium Development Goals Need Assessments: Country case studies. Millennium Project. <http://www.unmillenniumproject.org>.
177. Piot, P. (2003). AIDS: The need for an exceptional response to an unprecedented crisis. Presidential Fellows Lecture to the World Bank, 20 November 2003.



## **Appendix: Task Force projects and working papers**

### **1. Antiretroviral Treatment Site and Affiliated Programs Survey (ATSAP)**

Millennium Project Task Force members and staff with Lisa Hirschhorn and Andrew Fullem of John Snow International in Boston (JSI)

This survey, now a collaboration between the Task Force and WHO, is designed to investigate models of service delivery and obstacles to initiating and scaling up ART in resource poor settings. Approximately 20 ART sites in resource limited settings have completed or partially completed the survey. Analysis is ongoing and the results will feed into the Task Force commissioned paper on human resources for treatment (see below) and perhaps others. A shorter survey focusing on human resources was completed by approximately 10 additional sites.

Work largely completed

### **2. Human resource requirements for providing antiretroviral therapy in resource-poor settings**

Lisa Hirschhorn, Andrew Fullem (JSI)

This study reviews existing assessments of human resource needs for ART, especially in Africa, including the country-scale assessments done in Botswana, Rwanda, Mozambique, and Tanzania, if available. It also makes use of data on staffing patterns already in use in resource-limited settings, collected through the Task Force's ATSAP survey and other surveys conducted by WHO and ITAC. If sufficient data becomes available, the study will begin to develop preliminary estimates of the number of personnel of various functions who would be required to bring antiretroviral therapy to specific populations in various settings. Several possible delivery models will be considered. Finally the study will identify the kinds of additional information that would be most useful to better planning. This work will be done in close collaboration with the team on human resources for health at WHO.

Draft available

### **3. Behavioral aspects of ART scale-up: Prevention strategies and the introduction of treatment in developing countries**

Jean Paul Moatti and Bruno Spire

This paper reviews the theoretical and empirical literature on the impact of introducing effective AIDS treatment on behavior, in developed and developing countries, and discusses the implications for prevention strategies. It makes recommendations for the kinds of behavioral monitoring which should accompany the scale-up of treatment in the developing world in order to allow prevention programs to adapt quickly to any changes in community norms or individual behaviors.

Draft available

### **4. The Impact of Illicit Drug Policies on the Global HIV/AIDS Epidemic**

Daniel Wolfe and Kasia Malinowska-Sempruch

HIV transmission among injecting drug users helps to fuel the epidemic in many parts of the world, playing a critical role in much of Eastern Europe and the former Soviet Union as well as in parts of India, China, and Southeast Asia. This paper will analyze the relationship between policies on illicit drugs and the HIV epidemic among injecting drug users. Among the issues to be considered are the

effect of punitive drug policies on harm reduction strategies such as needle exchange and methadone substitution and the impact of widespread imprisonment of drug users on the epidemic. Both national drug policies and international treaties will be considered, and attention will be paid to police practices as well as to the laws themselves. The analysis will include both a general overview and one or more case studies.

Draft available

### **5. Harnessing the New Global Health Resources to Build Sustainable Health Systems\***

Centre for International Health, Burnet Institute, Melbourne, Australia

This paper reviews the evidence on the impact of vertically administered health programs on the performance of health systems. It notes that there has been significant growth in global health funding by the development banks, private sector organizations, such as the Gates Foundation, and the Global Fund to Fight HIV/AIDS, Tuberculosis, and Malaria. The objectives of these new funds are often the control of specific diseases, creating the possibility that they will further boost vertical programs to the detriment of overall health system strengthening, including decentralization processes. The paper offers a number of suggestions to ensure that these new global health resources actually strengthen rather than undermine health systems.

Draft available

### **6. MOH Capacity Constraints and Opportunities to Scale Up Health Interventions in Low Income Countries\***

Freddie Ssenooba and Valeria Oliveira Cruz

Institute of Public Health, Makerere University and London School of Hygiene and Tropical Medicine

This paper reviews the importance of management capacity in Ministries of Health to scaling up health services in developing countries and considers some recent experiences, with a focus on Uganda.

Draft available

### **7. The Expansion of PMTCT Services in the Developing World: Lessons for ARV Scale-up**

Megan Valentine

This paper review the experience so far in establishing sustainable PMTCT services in sub-Saharan Africa and other resource-poor settings and to extract lessons for scaling up of other HIV/AIDS services, particularly antiretroviral treatment. Two main areas of focus will be the institutional aspects of translating pilot projects into sustainable national programs and strategies for coping with health system deficiencies.

\*These papers are jointly commissioned with the other Millennium Project task forces.