

HIV/AIDS Reporting Manual



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Dear Journalist,

We are pleased to present you with this reporting manual on HIV/AIDS, which we hope will be of value as you cover this important issue now and in the years ahead. The manual has been designed for journalists who are covering the global epidemic for the first time and for those who have covered it previously. The Kaiser Family Foundation undertook this project as part of its continuing commitment to supporting good journalism and to combating HIV/AIDS through public education and awareness.

The material in this edition covers a broad range of subjects including the unique challenges of reporting on HIV/AIDS, treatment and prevention strategies and global efforts to finance the campaign against HIV/AIDS. The global epidemic is not only a battle against a virus. It can also be a battle about ideas, cultural taboos, stigma and discrimination. For that reason, we have included information about the political and social aspects of the epidemic to provide journalists with guidance about navigating these issues effectively. Additionally, there is information about malaria and tuberculosis.

Much of this material has been written by experts on HIV/AIDS and communications on the staff of the Kaiser Family Foundation. Some elements have been provided by outside organizations and we are grateful to them. The reporting manual, which is frequently updated online, should be viewed as a general reference guide. Additional sources of information and data on HIV/AIDS can be found at <http://globalhealth.kff.org/> and www.kff.org/hivaids/index.cfm. Material specifically developed for journalists can be found at <http://globalhealth.kff.org/Journalists.aspx>

Kaiser has always believed that journalists have a significant role to play in informing the public and public policy officials. We hope this reporting guide will contribute to that process.

Sincerely,

A handwritten signature in black ink, appearing to read "Drew Altman".

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HIV/AIDS REPORTING BASICS: Who, What, When, Where, Why and How

This essay was written by Renata Simone, who began reporting on HIV/AIDS in 1985. Most recently she directed, produced and wrote “ENDGAME: AIDS in Black America.” Prior to this film, she served as producer, reporter and writer on the award-winning documentary series, “The Age of AIDS.” Both films were produced for the FRONTLINE series, the flagship current affairs series shown on PBS. “The Age of AIDS” is streamed, at www.pbs.org/wgbh/pages/frontline/aids/. We are grateful to FRONTLINE for allowing us to publish this essay.

As the AIDS epidemic enters its fourth decade, reporting on the story has become a greater challenge than ever. Today, more than 34 million people live with HIV/AIDS around the world, 1.1 million people in the U.S. alone. At the same time, the success of treatment in prolonging the lives of people infected with HIV, means our editors, readers and audiences think the emergency is over—no story. Not true. The story has changed, but it is no less urgent.

There have always been what many call, “two worlds of AIDS”—those who have access to good prevention, care and treatment and those who do not. That divide persists but now the stakes are higher, because if you get the drugs, you are likely to live relatively well, for a long time. If you do not, you are at a high risk for fatal illness. Around the world, many of the most vulnerable people remain without access to prevention, care and treatment.

Similarly, stigma has become an even greater problem. According to the U.S. Centers for Disease Control and Prevention (CDC) stigma has become a major contributor to the spread of HIV. Stigma keeps people from seeking information, speaking openly, using protection and getting tested. The CDC estimates one in five of those who is positive in the U.S. does not know it. If someone does not know they are infected, they will not seek treatment or take other crucial actions to protect themselves and may expose others to the risk of transmission of the virus. The situation is urgent.

The other change is a dangerous spread of complacency among people who are at risk for HIV. In the U.S., recently, there have been shocking increases in some groups of people at risk for HIV exposure. The attitude we often hear expressed is that HIV infection is “No big deal. It’s like diabetes.” But it is not. The complex balance of drugs that controls HIV is not like insulin. The virus can and does outsmart the medicines and the drug regimens can have terrible side effects.

These are just a few developments in the complex global story of HIV/AIDS. As we go forward, our reporting follows these and other new dimensions of the story—but as always, it rests on the solid basics in this essay.

AIDS IS DIFFERENT FROM OTHER STORIES

Think of the major interdisciplinary, complex stories of our time; stories that are worldwide, ongoing and urgent. Perhaps you think of climate change, famine or nuclear proliferation. None of these is like the HIV/AIDS pandemic.

AIDS is a story of great breadth and sharp contrasts; covering it requires knowledge and sensitivity around personal issues such as sexuality, addiction and social vulnerability. At the same time, it is a global story requiring a broad understanding of international politics, economics and diverse cultural traditions. Interwoven with these strands of the AIDS story are the scientific, medical and health care stories, which you as a reporter must be able to “translate” for the general public. That’s what makes it complicated.

Our reporting is crucial. Ever since the first cases of a mysterious, new disease were noticed by doctors in 1981, public awareness and education have been a crucial part of the battle against the spread of HIV and its effects. As journalists, we have an opportunity—and a responsibility—to provide the public with clear, accurate, respectful reporting on the pandemic and the larger social forces that drive it forward. In the absence of a cure or preventive vaccine, information is still one of the best weapons available. With the numbers of people infected rising each day, the need today for thorough, ethical reporting is more urgent than ever.

Of course HIV/AIDS is similar to many stories but none brings so many disparate parts together. As reporters, we find ourselves challenged by the subject and inspired by the people we meet along the way. If inspiration wins, our coverage will be there for the long-term, to help our readers, listeners and viewers fight the spread of the virus.

■ **Avoid Stigma and Respect Confidentiality**

Unfortunately, in many communities the response to HIV is stigma and discrimination. And for too many, the cost of that stigma is literally life-threatening.

In such situations, people who are HIV-positive are unlikely to speak to you unless you assure them of confidentiality. It would be best to discuss what confidentiality means with your interview subject, as you may have very different ideas about what it is.

You may have to explain the difference between “on background and not for attribution”, “deep background” and “for guidance” on the other.

In extreme situations, he or she may expect you to keep confidential the fact that you spoke with them at all (“off the record”). Talk with your interviewee. Again, the consequences of a breach of confidentiality could be personally disastrous for your interviewee and may jeopardize your future access to that person and those around him or her.

If you plan to take photographs, film, video or plan to use your interviewees’ likenesses in any way, you must secure their permission. Make sure he or she understands where and how your work is distributed. Think of it as your responsibility to secure informed consent from your interview subjects.

Remember, many individuals at risk of HIV are women and children living in poverty; they are among the world’s most vulnerable populations. It is essential that all AIDS journalism is sensitive to the circumstances of people’s lives and to the impact of our reporting on our subjects.

■ **Achieving Fairness and “Balance” When Myths Are Rampant**

In the early years of the epidemic, myths were widely circulated and in some cases, the media helped spread misinformation. Because some of these early myths persist, our reporting must continuously reinforce the basic facts. For example, HIV cannot be spread by mosquitoes, through donating blood or casual social contact.

One of the most damaging and persistent myths is, “HIV does not cause AIDS.” This is incorrect; HIV does cause AIDS. Despite overwhelming scientific evidence, a few “denialist” scientists question this fact, claiming a legitimate controversy exists. But this is an example of a myth masquerading as a discussion and unless handled with careful skepticism, can be very misleading.

Some journalists and editors feel obligated to cover both sides of a controversy. However, our job as journalists is to be fair and accurate. Our job is not to give equal time to all who have opinions, but to weigh the evidence based on the facts and to report the truth in our best judgment.

■ **Use Language Responsibly**

In general it is essential to exercise caution with your words. We know that scientific language is difficult to follow and can be easily misunderstood. We are prepared to insure the accuracy and clarity of our statements.

But in AIDS reporting there is an additional burden on our language. We must avoid stereotypes. Regardless of how someone encountered the virus, he or she is an individual. The words we use to characterize social and personal information can have strongly negative connotations.

Many HIV/AIDS education and service groups have created reference lists of words and phrases for reporters. We urge you to consult them before you begin. The experts, activists and positive people you approach will discern the depth of your understanding not from your questions but from the language you use to express them.

REPORTING ON HIV/AIDS USING THE SIX BASIC QUESTIONS OF JOURNALISM

Since the subject of AIDS is so complex, one way to start is to go back to basics; to look at HIV/AIDS through the lens of the first questions we are taught to ask as reporters, “Who? What? When? Where? Why? and How?”

THE FIRST QUESTION: Who?

Who Should I Think About When I Start an AIDS Story?

The short answer is “everyone.” The virus does not discriminate. Since HIV/AIDS affects people from all socioeconomic groups and countries, “Who?” can be anyone. Increasingly, the most vulnerable people are young women. The best source of current global epidemiological data is the UNAIDS website (www.unaids.org).

As you begin reporting, you might want to contact grassroots organizations, and the health care workers they recommend. Many of these groups are listed on the Age of AIDS website (www.pbs.org/wgbh/pages/frontline/aids) and in this reporting manual.

Then as you move forward with your reporting, you’ll need to speak directly with people involved in the epidemic. Some of those interviewees will be HIV-positive. Here are a few of the most important ideas to consider as you move forward:

■ Your Relationship to Your Interviewees

Aside from the importance of confidentiality and sensitivity as mentioned earlier, your relationship with your interviewee will be shaped by several other factors.

In order to establish and maintain a good reporting relationship the first rule is to do your homework. Your goal is to establish trust between you and your interviewees. In covering AIDS, you will interview people in many roles; from people with AIDS and the loved ones around them, to political leaders and community activists, caregivers and medical researchers. No matter whom you interview, you will have to earn his or her trust by showing your seriousness, professionalism, and respect.

■ Your Editor: The Story Pitch—“Why Should I Care?”

When there is breaking news, your pitch to your editor is clear. But if not, the question you’ll have to answer is “Why should I care?” There could be as many answers to that question as stories about AIDS, but for discussion, we can identify three reasons to urge your editor to support your coverage of AIDS:

A commonly heard response from editors is, “This isn’t a problem for my readers/audience.” But that is not true.

First, HIV/AIDS is a problem, visible or not, in your community. Your media outlet has a chance to be part of the solution. AIDS is a preventable pandemic and information is key to prevention.

Second, HIV/AIDS is costing your community scarce financial resources for treatment and care, while education and prevention are far less expensive.

Third, you might remind your editor that AIDS affects young people more dramatically than other groups, which is the very audience most media organizations want to capture.

Another reason to cover HIV/AIDS is pure human interest. This seemingly sad subject takes us to inspirational stories of friends and families triumphing over the worst times of their lives, of heroes, of ordinary people doing extraordinary things.

When preparing to talk with your editor you may find it useful to think of story angles beyond the health beat. For example; this is a story about religion and the role of churches; it includes topics of immigration and the workplace; basic needs such as water and food; pharmaceutical industry prices and patents; sporting events and sport celebrities; tourism; entertainment and the arts including street theater. Think laterally across disciplines and find the “pitch” that will interest him or her.

THE SECOND QUESTION: What?**What Are the Stories?**

Most people think first of HIV/AIDS as a health story, but there are a myriad of AIDS stories embedded in specific reporting beats outside health and medicine. HIV/AIDS is a story that can be told from the perspective of business, international news and analysis, politics, law, the arts, and culture.

Here's one way to think of the range of stories about HIV/AIDS.

- **Reporting on the Three Main Strands of the AIDS Story: Science, Society, People**

The broad tapestry of the global AIDS story is woven from many separate threads. But we can conceptualize three main strands to help organize our thoughts, our research and our reporting.

The first strand is Science. This includes medicine, research and health care. The second strand, Society, encompasses economics, cultural norms and traditions, law, politics and government and other institutions of education and social welfare.

The third strand, People, is perhaps the most important. The experiences and insights of individuals help ground your reporting and make the issues and information relevant to your readers or viewers. Part of our task is to locate the human story within the abstract ideas and crises of HIV/AIDS. One of our challenges is to imagine specific stories about people that serve to illuminate issues around economics, science, geopolitics and law.

- **Integrating the Layers of the Story**

In the real world, science, society and the experiences of people influence each other. For example, the debate over manufacturing generic drugs for HIV involves medicine, science, economics, politics and people. Each influences the other in ways that we can describe in our reporting. The interconnections make the story interesting and sometimes surprising.

- **The Local and Global Stories Complement Each Other**

In covering HIV/AIDS you will notice how the local and global stories reflect each other. When you're working on a local story, you can enrich your reporting with information about the same issue on the national or international level.

The reverse is true too. When you're covering a global issue, such as the high cost of treatment for HIV/AIDS, a local story can provide just the right illustration. Reporting on someone local who is struggling to pay for drugs, can lead your readers or viewers to a deeper understanding of the issue at the global level.

Other examples of local/global stories are: the role of local medical researchers and/or doctors, who set examples for care that serve as models around the world; the link between academic or medical institutions here and abroad; and the role of local churches in supporting programs, people and villages overseas.

THE THIRD QUESTION: When?**When Should We Report on HIV/AIDS?**

- **Pegging the Story to Recurring Events**

You might consider proposing and writing or producing pieces around the milestone years in the epidemic, or the yearly events around HIV/AIDS. A few of those annual events include World AIDS Day—December 1st, and in the U.S., National HIV Testing Day—June 27th, National Black HIV Awareness Day—February 7th. Aside from these national and international days of observance, there may be local milestones or events that you might use as pegs for your reporting.

■ Timely News and Information

Every ongoing story has occasional news hooks, which provide clear rationales for your reporting. Stay apprised of upcoming developments by staying in touch with your sources and monitoring primary research documents. Your primary research should include the major peer-reviewed scientific journals and online proceedings from medical and social science meetings.

■ Ongoing Reporting: AIDS is Not Over

Between the moments of news, there are long stretches when HIV and AIDS disappear from the public spotlight. But of course the epidemic continues. Complacency is very dangerous as it can lead to a false sense of security among people at risk, who may then place themselves at even greater risk.

At times when there is no news, you might suggest a straightforward prevention piece—What are the HIV/AIDS prevention programs in your area that have proven most effective? In the U.S.? In the world?

Or you might propose an investigative piece—How many people with AIDS are on waiting lists for treatment? Where are the funds earmarked for HIV/AIDS being spent and is the spending cost-effective?

Other story angles you might consider are: talking with your parents or with your children about HIV; living with HIV/AIDS and the drug regimen; taking an HIV test—what is involved, what are the costs; pre-and post-counseling programs in HIV testing sites, what advice and support should be provided.

THE FOURTH QUESTION: Where?

Where Are the Stories?

The short answer, you can guess, is “Everywhere.” According to genetic studies published in the Spring of 2006, HIV emerged in southeast Cameroon between 1920 and 1935. Since then, as transportation and globalization served as “vectors” for the virus, HIV and its subtypes have been carried to every continent on earth.

Often, people are unaware of how HIV is spreading. Migration of people from place to place for work continues to play a central role in the pandemic. You might consider an investigative piece following major transport roads and routes.

As discussed earlier, finding stories may be made more difficult by the heightened issues of confidentiality and trust. But if your approach is informed and respectful, contacting your local AIDS service providers and activist groups should provide a good start.

Wherever you search for stories, on the local or global level, don’t forget to keep your curiosity alive and stay curious and open to surprises. Not only will your work be more alive, but someone seeking to prove a preconceived idea or story is not a journalist but an essayist or polemicist.

THE FIFTH QUESTION: Why?

Why Report on HIV/AIDS?

■ Preventable Suffering

Unfortunately, we all know or have experienced times of unpreventable suffering. But HIV and AIDS are preventable. By helping increase awareness of HIV, how it is transmitted and how to avoid it, your reporting will be part of the solution. Your work will help prevent some of the needless suffering of people at risk of HIV, their families and loved ones, and their communities.

■ The Information Imperative

AIDS awareness is not a one-time goal. This is true for every demographic target audience, particularly for young people. Every day, new teens and young adults are coming of age and may find themselves unknowingly at risk for HIV. So the need for reporting on basic information is constant and ongoing.

■ The High Cost of HIV/AIDS

Medical care and treatment of people with HIV disease is highly costly in terms of finances and human resources. Who pays for AIDS in your city or community? Are the expenditures cost-effective?

And HIV disease strikes young people in the prime of their working lives. Part of the cost of AIDS is the loss of the professional contributions of so many to the societies in which they lived.

THE SIXTH QUESTION: How?

How Can the Lessons Learned During the History of HIV/AIDS Inform Our Reporting?

Since 1981 when the first cases were diagnosed, experts have fought many battles on all fronts and learned three broad lessons. As journalists, we can use these lessons to locate stories, and then to make our reporting better.

■ Positive Leadership is Crucial

How we shape our coverage can be informed by the lessons of the past. We can see clearly in the history of AIDS, in country after country around the world, that the key to the course of the epidemic is the actions, or inaction of leaders.

For example in the United States in the early 1980's and South Africa in the early 1990's, the nations' top leaders did not take aggressive action against the epidemic, and the virus spread at alarming rates. In contrast, leaders in Thailand and Uganda took aggressive action early in their countries' epidemics and were able to lower transmission rates significantly. And the recent rise in cases in Thailand and Uganda further illustrates the importance of positive leadership.

Focusing on leadership is a powerful tool in illuminating the story. Leaders in Brazil, for example, set global precedents in the fight for cheaper drugs and in the assertive prevention programs the country has in place. How and why were they able to achieve these goals is a riveting narrative about leaders who listened to their constituents and acted decisively.

Bear in mind non-governmental leaders also have a role to play. Throughout the decades of the battle against AIDS, many of the true leaders have been ordinary people who found themselves in terrible circumstances but summoned the strength to survive and the courage to lead.

■ Denial, Stigma and Discrimination Are HIV's Best Friends

The long history of HIV/AIDS has shown that all around the world, when the social environment around HIV is filled with denial and silence, stigma, discrimination and fear, people at risk of HIV are not likely to get tested. If someone knows he or she is HIV-positive, they are likely to keep it hidden. This creates a tremendous risk to others.

If your reporting provides your audience with accurate, clear and thorough information about the virus and its transmission, it will help allay the fears that lead to stigma and discrimination and have a true positive impact.

■ Prevention Works

The transmission of HIV can be prevented by not having sex, not using contaminated syringes and not getting transfusions of tainted blood or blood products. Experts have pointed out these absolute measures work for some, but not all people at risk.

Failing total abstinence, definitive scientific studies have shown that the risk of transmission can be greatly lessened by other preventive measures such as using condoms, clean syringes and screened blood products. Other successful prevention strategies include reducing other STDs, TB and malaria. Recently, studies have demonstrated the effectiveness of male circumcision in reducing transmission.

These measures of prevention and “harm reduction” continue to be politically charged and need to be reported clearly and factually. Since medical science has not yet created a cure or a vaccine for HIV disease, the best weapon is prevention.

LAST BUT NOT LEAST—THE QUESTION PEOPLE ASK REPORTERS: Isn't Covering AIDS Depressing?

In many ways, AIDS is a sad story. Many lives have been lost and more are still at risk. There are unjust inequities and impossible choices.

But ultimately, AIDS is an inspirational story. Throughout the epidemic, there have been heroes whose actions made a difference in the lives around them. As journalists, we have the privilege and responsibility of meeting and giving voice to these people.

AIDS is not the kind of story you can “parachute” into. As one of the most complex problems humanity has ever faced, it is worth specializing to ensure you gain a deep and thorough understanding of the subject. AIDS crosses disciplines—from molecular virology, epidemiology and economics, to politics, sociology and psychology. The pandemic also crosses all geographic and socioeconomic boundaries, affecting rich and poor in developing and developed countries alike. So covering it takes time and understanding.

Another reason to specialize in AIDS reporting is the professional and personal rewards.

Our reporting does have a positive impact. Reporting on AIDS informs and inspires our readers, listeners and viewers to make positive choices in their own lives and to contribute to the ongoing battle against AIDS.

But perhaps most importantly, the people we meet along the way—from health care workers and political leaders to outreach workers, people with HIV and their loved ones—provide us and our audiences with long lasting inspiration and a deep sense of hope.

The opinions expressed here are those of the authors alone.

ADDITIONAL RESOURCES

Kaiser Family Foundation. Global Health Facts website, www.globalhealthfacts.org

UNAIDS. Terminology Guidelines, www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/JC2118_terminology-guidelines_en.pdf

Pan American Health Organization. HIV-related Language: PAHO 2006 Update, www.ops-oms.org/English/AD/FCH/AI/HIVLANGUAGE.PDF

ETHICS GUIDELINES

This material was developed for and endorsed by the Southern African Editors' Forum; more information can be found at www.journaids.org. We are grateful for permission to reprint this material.

HIV and AIDS is a story of critical importance that should be covered by journalists with imagination, initiative and sensitivity to gender and the larger social forces driving the epidemic.

The story requires reporting of the highest ethical standards. The Southern African Editors' Forum (SAEF) and the Media Institute of Southern Africa (MISA) endorsed these principles to provide guidance to media councils, training institutions and media companies, as well as individual editors and journalists. The principles are not cast in stone but should be revised over time and in response to the unfolding epidemic.

- Accuracy is critical, since important personal and policy decisions may be influenced by media reports. Journalists should be particularly careful to get scientific and statistical information right. Facts should be painstakingly checked, using credible sources to interpret information, verify facts and make statistics and science accessible and relevant to wide audiences. Sources should be named as often as possible. Stories should be written in context.
- Misconceptions should be debunked, and any claims of cures or treatments should be reported with due care. Journalists should look at all stories critically.
- Clarity means being prepared to discuss sex, cultural practices and other sensitive issues respectfully but openly. Care should be taken to ensure language, cultural norms and traditional practices relating to, for example, inheritance and sex are understood and accurately reported taking into account universal human rights.
- Balance means giving due weight to the story, and covering all aspects, including medical, social, political, economic and other issues. Balance also means highlighting positive stories where appropriate, without underplaying the fact that HIV and AIDS is a serious crisis.
- Journalists should hold all decision-makers to account in their handling of the pandemic, from government to the pharmaceutical industry and advocacy groups. They should be engaged with, but not captive to, any interest group.
- Journalists should ensure that the voices and images of people living with and affected by HIV and AIDS are heard and seen. The human face of the pandemic should be shown. They should take care that the voices heard are diverse, and include those of women and men, vulnerable and marginalized people.
- Journalists should respect the rights of people with HIV and AIDS. Vulnerable people should be treated with particular care. Journalists should seek informed consent before intruding on anyone's privacy. They should seek to understand the possible consequences for individuals who participate in their report, and to ensure those individuals are clear about the consequences. Only in cases of overwhelming public interest can somebody's HIV status be reported against their wishes or should journalists hide their professional identity.
- Journalists should be aware of and seek out the gender dimensions of all aspects of the pandemic, from prevention to treatment and care, as this will add to the depth and context, as well as reveal new areas for reporting.

- Particular care should be taken in dealing with children. They experience the most extreme consequences of the epidemic, and their rights to privacy should be afforded even greater protection. They should only be identified if the public interest is overwhelming, and then only if no harm to them is foreseeable and they and any parents or guardians have given informed consent. Children have the right to participate in decisions affecting their lives. They also have the right to be heard, and journalists should ensure that the particular concerns they face are covered.
- Discrimination, prejudice and stigma are very harmful, and journalists should avoid fuelling them. Particular care should be taken not to use language, or images, that reinforce stereotypes.

FREQUENTLY ASKED QUESTIONS ABOUT COVERING HIV/AIDS

Is there really a difference between reporting that someone has AIDS or is HIV-positive?

Yes, there can be a difference. HIV-positive means someone is infected with HIV, the virus that causes AIDS, but it does not necessarily mean they have progressed to an AIDS diagnosis. It is possible an HIV-positive person will not be showing any symptoms. Someone who has an AIDS diagnosis has a severely weakened immune system and typically does show symptoms. Depending on your story, it may be important to be clear about this distinction.

Where do I turn for the most reliable numbers related to the epidemic?

There is a great deal of confusion, and sometimes controversy, about HIV/AIDS statistics. It can be difficult to find and interpret statistics, since there are so many challenges to conducting disease surveillance. One reason for that is most people with HIV do not know they are infected. Before using any statistics, be absolutely certain you understand what they mean, who collected them, how they were collected and over what period of time. If you find numbers that contradict each other, go back to your sources and ask them to explain the contradiction. UNAIDS is the best place to start for obtaining global and country-level HIV/AIDS data. You may also want to check directly with your country's health agency. There is more information on this in *Understanding and Reporting on HIV/AIDS Data*, and an explanation about how UNAIDS develops HIV/AIDS estimates at www.unaids.org/en/dataanalysis

How important is confidentiality in reporting on HIV/AIDS?

The identity of a person with HIV/AIDS should not be disclosed without the explicit permission of that person. In many countries a person publicly identified as being HIV-positive or as having AIDS will be shunned and stigmatized and may even face violence—in the home, the community and at work. If a person agrees to be identified, it is a reporter's responsibility to make sure he or she understands the potential consequences of that decision. There is more information on this in *HIV/AIDS Reporting Basics and Ethics Guidelines*.

What are the common stereotypes that slip into HIV/AIDS reporting?

People with HIV/AIDS are a diverse population and your reporting should reflect that. The goal, of course, is to be objective and factual. Stay away from making value judgments and from reinforcing the stigma that many people with HIV already face. A common stereotype involves what types of people become infected including the confusion between "risk group" and "risk behavior"—that is, assuming someone who is in a certain group engages in risky behavior. For example, many men who have sex with men practice safer sex and have a single partner. So, they are not at a significantly greater risk than the general population.

What words do I want to be cautious about using in the context of HIV/AIDS?

It is important to not use words that incorrectly stereotype or stigmatize people with HIV, perpetuate myths about the disease or carry value judgments. Two useful guides on suggested language are: http://data.unaids.org/pub/Manual/2008/jc1336_unaids_terminology_guide_en.pdf (revised 10/2011) and http://aidsinfo.nih.gov/contentfiles/GlossaryHIVrelatedTerms_English.pdf (revised 10/2011).

Do not use terminology that general audiences cannot easily understand. This is especially important when reporting on medical stories. The goal is to be precise without being so dense your audience will not understand what you are reporting.

What are the pitfalls when reporting on treatments for HIV/AIDS?

HIV/AIDS treatment is a complex area and there are many different treatments available for HIV/AIDS—some treat the virus itself, others treat the symptoms and illnesses caused by the virus. However, none is a cure for HIV or AIDS. It is important to be clear about the distinction between a treatment that may cure or prevent an illness related to HIV infection with a cure for HIV (or AIDS) itself. It also is important not to describe drugs used to slow the growth of the virus as cures. Again, there is no cure for HIV.

Is it accurate to say that someone died of AIDS?

AIDS is a syndrome that can be defined by any number of diseases and cancers. There is no singular disease that is called AIDS. When someone who had been diagnosed with AIDS does die, it is technically more accurate to report that he or she died of an AIDS-related illness, of HIV-related causes or due to HIV disease.

UNDERSTANDING AND REPORTING ON HIV/AIDS DATA

Reporting on HIV/AIDS is complex and sorting through the epidemiological data can be challenging. Whether using data to support a story or reporting on the data itself, the specific data chosen and how they are used, will play a large role in determining what story you tell. In addition, the data are often so complex that there is a risk of misinterpretation. For example, some reporters may use “incidence” and “prevalence” interchangeably even though they represent two different ways of measuring the epidemic (for definitions, see below). It is also important to be aware that enhancements in methodology, greater availability of data, and increasing knowledge of HIV disease have led to improved and updated estimates over time and while these provide a clearer picture of the epidemic, they often mean that current estimates may not be comparable to estimates published in prior years. Therefore, it is important to be familiar with the types and sources of HIV/AIDS data available, how they are used to characterize the epidemic, how they change over time, and their limitations in order to avoid hitting pitfalls when reporting. Included below is a brief discussion of some of these issues and suggested resources.

Where Do HIV/AIDS Data Come From?

HIV/AIDS data come from a variety of sources, including:

- Population-based household surveys
- Surveys of pregnant women attending antenatal clinics (ANCs)
- Other “sentinel” surveillance of populations at higher risk such as sex workers or injecting drug users. Sentinel surveillance is the collection and analysis of disease data from designated institutions, providers, or facilities, such as STD or ANC clinics. Such data, however, may not be representative of the general population
- Official case reports (e.g., from health departments tracking disease)
- Vital registration systems (the official recording of births and deaths)

None of these sources, however, provides a total or exact number of people living with HIV/AIDS, people newly infected, and deaths due to AIDS. This is the case for several reasons: the data cannot be obtained from direct counts since most people do not know their status, stigma surrounding HIV disease often leads to denial and underreporting, and the current reach of HIV testing services throughout the world is still relatively low. Thus, for example, the number of AIDS cases officially registered by a country will always be less than the actual size of the HIV-infected population. Despite these challenges, methods have been developed and refined over time to produce reasonable estimates at the country, regional, and global levels. These efforts are led by UNAIDS, which has a technical advisory group to help develop estimates and regularly consults with countries.

The source of HIV/AIDS data used to develop estimates depends on the level or type of HIV/AIDS epidemic within a country:

- In countries with **generalized epidemics** (countries where HIV prevalence among the general adult population is at least 1%), estimates are primarily based on blood samples from pregnant women in antenatal clinics. Surveillance of pregnant women in antenatal clinics often provide the best available data upon which to base estimates of HIV prevalence in the general population, in countries with generalized epidemics, although adjustments have to be made for doing so. Where available, population-based surveys are also used to enhance these estimates, but conducting population-based surveys is generally not feasible, at least not on a regular basis.
- In countries with **concentrated epidemics** (prevalence in the general population is less than 1% but some groups at high risk have prevalence greater than 5%), estimates are based on studies of populations at higher risk of exposure—injecting drug users, sex workers and men who have sex with men.

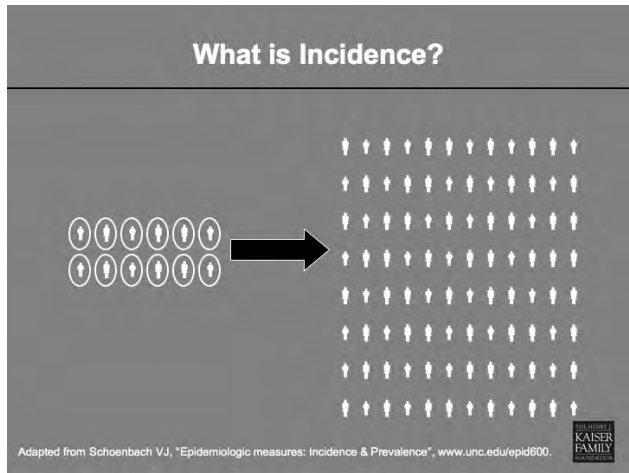
What are Key Data Issues to Consider?

Among the many issues to think about as you get ready to report on HIV/AIDS using data are the following:

- There are many sources and types of data, each telling a different story about the epidemic
- HIV/AIDS surveillance methods evolve over time, so data from the same source may not be directly comparable year to year
- The type of data available, and the lag-time in availability, may pose challenges to assessing recent impact
- There are gaps in the data
- Epidemiological measures of HIV/AIDS are numerous and each has important and distinct definitions
- Much of the data you may use are estimates only. For example, HIV incidence (new infections) is an estimate. This is true globally and in all countries, even the United States, due to the lag-time between HIV infection and the development of AIDS, the fact that many do not know their status, stigma which leads to underreporting, and surveillance systems that may not be complete
- Pay attention to ranges given around any estimate, as well as any notes that may accompany data, since these may provide important information that can help in your interpretation
- Rates/percents, not just numbers, are important—rates are standardized measures, allowing for comparison of impact or concentration of HIV/AIDS across different population groups, time periods and areas
- The story is often local and complex, so global, regional, and country averages may mask localized epidemics and trends including the impact on marginalized populations

Remember to:

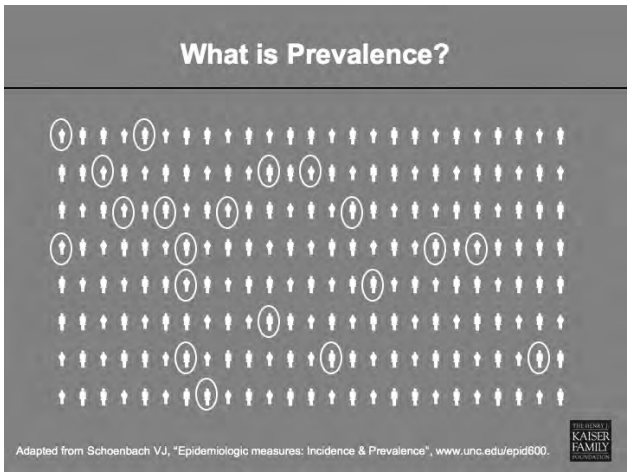
- Consult multiple types of data, compare and contrast
- Consult UNAIDS and www.globalhealthfacts.org for the latest global and country-level data
- Consult regional organizations and/or country ministries of health for surveillance reports as they may have country-specific or local data
- Indicate which type of data is being used (e.g., prevalence, incidence, rates, HIV infections or AIDS cases)
- Be clear about whether data are estimates, actual reports, representative or just a small sample from an individual study



INCIDENCE: The number of new events (e.g., of a disease or condition) occurring in a given population during a particular point in time. In this example, there are 12 people newly infected with HIV who are moving into the population. The incidence of new events, or new infections = 12.

What does it tell us: The most recent occurrence of a disease or condition; how many are newly infected with HIV.

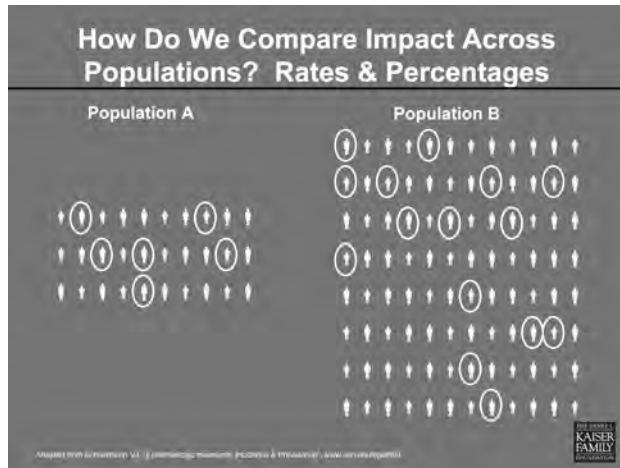
Qualification: For a disease like HIV, it is very difficult to know this number since many people do not know their HIV status and standard HIV tests used to diagnose HIV infection cannot detect when someone became infected. Therefore, HIV incidence is usually estimated. You may sometimes see "new HIV diagnosis." This is not necessarily the same thing as a new infection since people may be diagnosed with HIV at different times after they are infected, including several years after.



PREVALENCE: The number of events (e.g., of a disease or condition) in a given population at a particular point in time. In this example, there are 200 people and 20 of them have HIV. The prevalence = 20. Prevalence may also be expressed as a rate (or percent), which is the number of events (e.g., of a disease or condition) in a given population at a particular point in time divided by the population. In this example, the prevalence rate = 20/200 = 10%.

What does it tell us: The current burden of a disease in a population. It is a snapshot at a particular point in time. The prevalence rate is useful for comparing across populations or over time.

Qualification: It is important to remember that this does not tell us when someone became infected with the disease, just how many, or what share of a population has the disease at the specified time. Also, a high prevalence rate does not always signal a worsening epidemic. In fact, a high prevalence rate may occur even when incidence rates are low because people with HIV are living longer due to greater access to treatment.



RATES: In this example, there are two populations, A and B. Population A has 30 people and 6 are infected. Population B has 96 people and 15 are infected. In which population is the disease more highly concentrated?
Answer: A

$$\text{Population A: } 6/30 = 20\%$$

$$\text{Population B: } 15/96 = 15.6\%$$

What does it tell us: A rate allows for comparison across populations or over time by standardizing for differences in population size. For example, in the case of Black Americans who make up only about 12% of the U.S. population, a rate can help us understand if HIV is more highly concentrated in this community compared to other groups.

Qualification: Whether or not you use a rate will somewhat depend on the question you are asking. If you want to know where the greatest number of people infected is located, a rate would probably not be the measure you are looking for. If, however, you want to compare across different countries or communities, or over time, a rate is very informative.

REFERENCES AND RESOURCES

www.unaids.org/en/resources/presscentre/pressreleaseandstatementarchive/2011/november/20111121wad2011report/
(Web page, with link to pdf of latest UNAIDS report)

www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/JC2216_WorldAIDSday_report_2011_en.pdf
(pdf of latest UNAIDS report)

www.unaids.org/en/media/unaids/contentassets/documents/document/2011/20111117_methodology_en.pdf (Report methodology)

HIV/AIDS GLOSSARY

A

1. ABC

The ABC approach to behavior change promotes the adoption of the following three behaviors as central to HIV prevention efforts:

- A – Abstaining from sexual activity or delaying the age of the first sexual experience
- B – Being faithful or practicing mutual monogamy with an uninfected partner
- C – Correct and consistent condom use.

2. Abstinence

Refraining from sexual activity. In the context of HIV/AIDS, this term also refers to delaying the age of first sexual experience or sexual debut.

3. Accidental Exposure or Accidental Transmission

This usually refers to HIV exposure or transmission that occurs in the health care setting. Transmission can occur from patient to provider or vice-versa.

4. Acute HIV Infection

This is the period immediately following infection with HIV. HIV multiplies rapidly and can be transmitted to others during this time, which can last anywhere from a few days to several weeks. Acute HIV infection is also known as *primary HIV infection (PHI)*.

5. ADAP – AIDS Drug Assistance Program(s)

Programs that operate in the U.S., funded by the U.S. government and administered by the states. ADAPs provide HIV-related medications to people with HIV/AIDS with limited or no health insurance coverage. The programs vary widely across the country, as eligibility for ADAP is determined on a state-by-state basis, as are the drugs that are covered.

6. Affected Community

Persons living with HIV/AIDS, and other related individuals including their families and friends, whose lives are directly influenced by HIV infection and its physical, social and emotional effects.

7. AIDS

Acquired Immunodeficiency Syndrome (AIDS) is the most advanced stage of HIV infection, at which HIV weakens an individual's immune system to the point where they develop any number of diseases or cancers. People who haven't had one of these diseases or cancers, but whose immune system is shown by a laboratory test to be severely damaged, are also considered to have progressed to an AIDS diagnosis.

8. AIDS-Defining Illness

Can be a variety of conditions that occur at late stages of HIV disease and that signal progression to AIDS. According to UNAIDS, many individuals first become aware of their infection at this stage.

A (continued)**9. AIDS Dementia Complex (ADC)**

Also known as HIV-associated dementia (HAD), this is a condition caused by HIV that affects the brain and causes a person to lose their mental ability. Symptoms include loss of coordination and interest in one's surroundings, mood swings, and mental dysfunction. Memory loss and limited mobility can also develop. ADC usually occurs after a person has developed serious opportunistic infections, but can also occur at an earlier stage. ADC can be prevented and treated with antiretroviral therapy. A less severe form, called minor cognitive motor disorder (MCMD) is more common than ADC among people on therapy.

10. Antenatal

Occurring before birth (as in HIV exposure or transmission from mother to infant during pregnancy).

11. Antibodies

Molecules in the body that identify and destroy foreign (unfamiliar) substances such as bacteria and viruses. Standard HIV tests identify whether antibodies to HIV (HIV antibodies) are present in the blood. A positive HIV test signals that antibodies are present.

12. Antiretroviral (ARV)

Drugs that are used in the treatment of HIV, a retrovirus, and are designed to interfere with the virus' ability to replicate itself, therefore slowing the progression of the disease.

13. Antiretroviral Therapy (ART)

Refers to the combination of *antiretroviral (ARV)* drugs to help suppress HIV and slow the progression of the virus. ART has helped reduce the rates of death and illness among people with HIV infection, especially when initiated in the early stages of the disease.

14. Asymptomatic

A person with HIV is asymptomatic if they do not show signs and symptoms of the disease. This is also the first stage of HIV disease progression and can last for many years after infection. The virus can be transmitted during this stage.

B**15. Burden of Disease**

A comprehensive demographic and epidemiological framework used to assess the comparative importance of diseases, injuries, and risk factors in causing premature death, loss of health, and disability. The World Health Organization (WHO) and other partners carry out the Global Burden of Disease (GBD) Project to develop global estimates of burden.

C**16. Care, Treatment and Support**

A range of interventions necessary to take care of people living with HIV/AIDS, including antiretroviral therapy, treatment and prevention of opportunistic infections, nutritional support, psychological and community and home support. Care, treatment and support are increasingly seen as being inextricably linked to each other.

C

(continued)

17. CD4 (T4) Cell Count

These cells control the body's immune response against infections and are the primary targets for HIV. HIV multiplies within these cells and eventually destroys them. As a result, the immune system becomes progressively weaker. A CD4 cell count is used as one measure of HIV disease progression. The lower a person's CD4 cell count, the more advanced the HIV disease and deterioration of the immune system.

18. U.S. Centers for Disease Control and Prevention (CDC)

The U.S. federal agency responsible for protecting individuals' health and safety. The CDC's activities emphasize disease prevention, control, health education and health promotion. The CDC also conducts international prevention activities for HIV, TB, malaria and other diseases.

19. Circumcision

This procedure, in which the foreskin of the penis is removed, has been shown in randomized controlled trials to reduce the risk of HIV transmission from women to men. The World Health Organization and UNAIDS recommend that circumcision be considered as one part of a comprehensive prevention program. In November 2011, the agencies issued a joint strategic action framework to accelerate the scale-up of voluntary medical male circumcision (VMMC) for HIV prevention in Eastern and Southern Africa. Research is ongoing to develop a non-surgical device for VMMC that requires no anesthesia in a method called rapid male circumcision (RMC).

20. Clinical Trial

A scientific study designed to evaluate the safety, efficacy and medical effects of a treatment (e.g., antiretroviral therapy, vaccine). A treatment must successfully proceed through several phases of clinical trials before it is approved for use in humans.

21. Co-Infection

Refers to the condition of an organism or individual cell infected by two pathogens, or infectious agents, simultaneously, such as HIV and tuberculosis.

22. Combination (Antiretroviral) Therapy

The use of two or more antiretroviral drugs in combination to treat HIV infection. The use of three or more antiretroviral drugs is often referred to as HAART or Highly Active Antiretroviral Therapy.

23. Complementary and Alternative Therapies

Treatments that are outside the scope of Western medicine. The effectiveness of these therapies in combating HIV infection has not been proven.

24. Concurrent Sexual Partnerships

Having more than one sexual partner during the same time period. The practice raises the risk of contracting HIV and is increasingly recognized as a significant factor in the high prevalence rate of HIV in Africa.

25. Cross Resistance

The phenomenon where HIV resistance to one drug (see *drug resistance*) prompts resistance to other drugs in the same drug class. An example of this is nevirapine resistance resulting in resistance to efavirenz.

D

26. Discordant Couples

A term referring to a pair of sexual partners in which one individual has HIV infection and the other does not.

27. Down Low

A term that has been used to refer to men who have sex with men but do not necessarily identify as gay or bisexual and may not disclose this information to others. They may also be having sexual relations with women.

28. Drug-Drug Interaction

A situation where a drug changes the way another drug works in the body, also known as a synergistic effect. This can result in increased or decreased effectiveness of either drug. Drug-drug interactions can also lead to unintended side effects.

29. Drug Resistance

The ability of HIV to reproduce despite the presence of antiretroviral drugs. Drug resistance results from mutations that arise during HIV replication.

30. Dry Sex

Refers to the practice of women using various agents to “dry out” the vagina before sexual intercourse. This practice is often based on cultural beliefs, but inadvertently can increase the risk of HIV transmission because condoms break more easily from the friction and a dry vaginal wall can lead to tears and lacerations during intercourse.

E

31. Efficacy

In medicine, the measurement of a drug's or intervention's ability to reproduce a desired effect under ideal circumstances. For example, the efficacy of an antiretroviral drug is the most benefit that the drug can cause without considering how much of the drug is taken.

32. Endemic

The constant presence of a disease or infectious agent within a given geographic area or population group; can also refer to the usual prevalence of a given disease within such area or group.

33. Epidemic (types – low, concentrated, generalized, hyperendemic)

The occurrence of more cases of disease than expected in a given area or among a specific group of people over a particular period of time.

There are different ways to describe the distribution of an HIV epidemic in an area:

- Low-level – HIV prevalence is low across the general population and is still low among higher-risk sub-populations
- Concentrated – HIV prevalence does not exceed 1% of the general population but does exceed 5% of some sub-populations (e.g., among sex workers, IDU, MSM)
- Generalized – HIV prevalence exceeds 1% of the general population
- Hyperendemic – HIV prevalence exceeds 15% of the general population

E

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34. Extensively Drug-Resistant Tuberculosis (XDR-TB)See *XDR-TB***F****35. Feminization**

The word used to describe the increasing impact the HIV/AIDS pandemic is having on women. In South Africa, for example, far more women than men are HIV-positive. Globally, approximately half of those living with HIV are women.

36. First-Line Drugs

Therapeutic agents that are the immediate drug of choice used to treat a particular condition (as opposed to second-line drugs). See also *second-line drugs*.

37. Fixed Dose Combination (FDC)

Fixed dose combination treatment refers to a combination of two or more drug products, such as antiretrovirals, in a single pill. An example of an FDC antiretroviral is the single-pill combination of stavudine, lamivudine and nevirapine.

G**38. Gender Inequality**

A phrase typically used to describe the second-class status women hold in many societies affected by the AIDS epidemic. This is important to consider in the context of the AIDS epidemic because the inequality often leaves them unable to negotiate sexual situations, which increases their risk of contracting HIV. Gender inequality is increasingly seen as a major driver of the AIDS epidemic.

39. Generic

A drug that is identical, or bioequivalent, to a brand name drug in dosage, safety, strength, how it is taken, quality, performance, and intended use. The generic name of a drug is the common name of a drug, which is not protected under any manufacturer's copyright. It is the more commonly used format when referring to a drug in medical literature. In addition, generic sometimes refers to less expensive, but chemically identical, medications manufactured by companies that did not invent the drug. In some countries, generic drugs come on the market after a patent on the drug has expired. In other countries, generic drugs are manufactured and sold before a patent expires.

40. GIPA (Greater Involvement of People Living with HIV/AIDS)

The phrase reflects the recognition that people who are HIV-positive must be involved in every aspect of responding to the epidemic ranging from HIV prevention, testing, and counseling to participating in policy forums. The principle was adopted at the Paris AIDS summit in 1994, establishing that GIPA is, in the words of UNAIDS, "critical to ethical and effective national responses to the epidemic."

G

(continued)

41. Global Fund

The Global Fund to Fight AIDS, Tuberculosis and Malaria was created in 2001 at the urging of then-UN Secretary General Kofi Annan. The Global Fund is a partnership among governments, the private sector and affected communities. It is an independent grant-making organization whose purpose is to raise and provide funding to developing countries to fight AIDS, tuberculosis and malaria.

42. Global Health Initiative (GHI) (U.S.)

Proposed as a six-year (FY 2009–FY 2014), \$63 billion initiative to develop a comprehensive U.S. government strategy for global health. GHI builds on the President's Emergency Plan for AIDS Relief (PEPFAR) to combat HIV as well as U.S. efforts to address tuberculosis (TB) and malaria, while increasing attention to other areas, including maternal and child health, family planning and reproductive health, nutrition, neglected tropical diseases and the strengthening of underlying health systems.

H**43. Harm Reduction**

Programs designed to reduce the negative consequences of drug use, by helping injecting drug users (*IDUs*) use clean needles and syringes, access drug-replacement therapies such as methadone, and provide support, care and education.

44. Highly Active Antiretroviral Treatment (HAART)

The use of three or more antiretroviral drugs in combination to treat HIV infection. HAART is also known as *combination therapy*.

45. HIV Test

The standard HIV diagnostic test looks for the presence of HIV *antibodies* in the blood or in oral fluid. HIV antibodies are molecules produced by the body once it detects the presence of HIV. The production of HIV antibodies does not happen immediately after exposure to the virus. The period after infection, but before production of antibodies, is called the window period. During the window period, an HIV test may be negative. It is possible to test negative despite the presence of HIV in the body. There are several different kinds of HIV tests used to screen for the presence of antibodies.

46. Human Immunodeficiency Virus (HIV)

The virus that causes AIDS. HIV can be transmitted through infected blood, semen, vaginal secretions, breast milk, and during pregnancy or delivery. There are two types of HIV: HIV-1 and HIV-2. Both are transmitted through the same methods/manners and result in progression to AIDS. HIV-1 is responsible for the overwhelming majority of global infections, whereas HIV-2 is less widespread and primarily found in West Africa.

47. Human Rights-Based Approach (HRBA) to HIV

The general recognition that human rights must be promoted and protected in the context of dealing with the AIDS epidemic. The UN's International Guidelines on HIV/AIDS and Human Rights underscore the links between the protection of human rights—such as gender equality and non-discrimination—and providing an effective response to the epidemic.

I**48. IDU**

An acronym for Injecting Drug User(s), IDU refers to individuals who use needles/syringes to inject drugs. This is a major risk for HIV infection in many parts of the world.

49. Immune System

The body's system of defense against foreign organisms such as bacteria, viruses or fungi.

50. Immunodeficiency

A state where the immune system cannot defend itself against infection. HIV progressively weakens the immune system and causes immunodeficiency.

51. Immunosuppression

A state where the immune system cannot function normally because it has been weakened. This can arise from drugs and medical treatments (chemotherapy) or diseases (HIV). An immune system that is immunosuppressed may also be referred to as immunocompromised.

52. Incidence

The number of new cases of a disease in a population over a specific period of time (e.g., annual number of new HIV cases in a country).

53. Incubation Period

The period of time between HIV infection and the onset of symptoms.

M**54. Malaria**

Malaria is a disease caused by parasites that are transmitted to humans via mosquito bites. Symptoms of infection may include fever, chills, headache, muscle pain, fatigue, nausea and vomiting. These symptoms usually appear between 9 and 14 days after an infected mosquito bites a person who then contracts the disease. In severe cases, the disease can be life threatening.

55. MDR-TB

The acronym for Multidrug-Resistant Tuberculosis refers to strains of tuberculosis that are resistant to two or more anti-TB drugs. MDR-TB usually arises when people take only enough medication to feel better, but not the full amount prescribed by a physician. The weaker bacteria are killed, but the stronger bacteria survive and reproduce. These stronger bacteria, when fully grown and causing sickness again, cannot be killed with the same treatment and require larger doses of the drug or an entirely new, stronger drug(s). MDR-TB is a large problem in developing countries, where continual supervision of treatment and access to health care are not always possible.

56. Microbicides

Microbicides are products designed to reduce the transmission of microbes. Research is underway to determine whether microbicides can be developed to successfully reduce the transmission of sexually transmitted diseases, including HIV. Microbicides would be applied topically, either in the vagina or anus, and could be produced in many forms, including films, creams, gels, suppositories or as a ring or sponge that releases the active ingredient over time.

M (continued)**57. Mother-To-Child Transmission (MTCT)**

Transmission of HIV from an HIV-positive mother to her child during pregnancy, labor and delivery, or breastfeeding. MTCT is also referred to as perinatal transmission and vertical transmission.

58. MSM

Acronym for “men who have sex with men.” For assessing disease risk, use of the term “MSM” is often used instead of “gay,” “homosexual” or “bisexual” because it refers to a risk behavior, rather than an identity that may or may not be tied to a behavior. In many countries and cultures, men who have sex with other men may not perceive themselves as gay or bisexual.

59. MTCT

See *Mother-To-Child Transmission*.

60. Multidrug Resistant Tuberculosis (MDR-TB)

See *MDR-TB*.

61. Mutation

A change in an organism’s genetic structure that arises during the process of multiplication. In the body, HIV multiplies quickly and changes form during the process. These changes allow for the formation of drug-resistant strains of the virus.

N**62. Needle-Exchange Program (NEP)**

Programs that aim to help *injecting drug users* (IDUs) not share needles or syringes and are a primary component of *harm reduction* initiatives that help curb the spread of bloodborne viruses such as HIV and hepatitis C among IDUs. NEPs typically provide clean syringes and needles in exchange for used ones and often other services, such as HIV testing or counseling on HIV prevention or drug cessation.

O**63. Opportunistic Infection (OI)**

Diseases that rarely occur in healthy people but cause infections in individuals whose immune systems are compromised, including by HIV infection. These disease organisms are frequently present in the body but are generally kept under control by a healthy immune system. When a person infected with HIV develops an OI, they are considered to have progressed to an AIDS diagnosis.

64. Orphans

In the context of HIV/AIDS, a child who has lost a parent to the disease. UNAIDS estimates that more than 15 million children under the age of 18 have lost one or both parents to HIV/AIDS. Use of the phrase “AIDS orphans” is discouraged as it stigmatizes these children and also suggests they are HIV-positive when that may not be the case.

P

65. Pandemic

A worldwide epidemic; occurring over a wide geographic area and affecting an exceptionally high proportion of the population.

66. Pathogen

An organism or virus that causes disease.

67. PEPFAR

The President's Emergency Plan for AIDS Relief was authorized in 2003 as a 5-year, \$15 billion initiative to combat global HIV/AIDS, tuberculosis, and malaria primarily for 15 hard-hit "focus countries," and provide multilateral contributions to the Global Fund to Fight AIDS, Tuberculosis, and Malaria (The Global Fund) as well as UNAIDS. Appropriations during PEPFAR's first five years totaled \$18.8 billion. The program was reauthorized in 2008 for an additional 5 years (FY 2009–FY 2013) at up to \$48 billion, including \$39 billion for HIV and the Global Fund, \$4 billion for TB, and \$5 billion for malaria. PEPFAR is a central component of the U.S. *Global Health Initiative*.

68. Perinatal Transmission

See *Mother-To-Child Transmission*.

69. Placebo

A substance that resembles a real medication but has no medical effect.

70. PMTCT

PMTCT stands for "prevention of mother-to-child transmission." UNAIDS outlines a three-part strategy to prevent HIV transmission from an HIV-positive mother to her child.

- a. Protect females of child-bearing age against HIV infection.
- b. Avoid unwanted pregnancies among HIV-positive women.
- c. Prevent transmission during pregnancy, delivery and breastfeeding by providing voluntary counseling and testing, antiretroviral therapy, safe delivery practices and breast milk substitutes when appropriate.

71. PMTCT Plus

PMTCT is an acronym for the *prevention of mother-to-child transmission* of HIV, while the "plus" refers to providing antiretroviral treatment to the mother even after the recommended course of therapy for prevention of transmission to the child has ended.

72. Post-Exposure Prophylaxis (PEP)

Refers to a short-term course of antiretroviral drugs taken to lower the risk of HIV infection following possible exposure to the virus through occupational or sexual means. PEP is provided to health care workers as part of *universal precautions* to help minimize their risk of occupational exposure.

73. Pre-Exposure Prophylaxis (PrEP)

Refers to HIV-negative people who are at risk of infection taking daily antiretroviral therapy (ART) to lower their risk of becoming infected with HIV if they are exposed to the virus. PrEP can be included as part of a comprehensive HIV prevention program.

P

(continued)

74. Prevalence

Prevalence is a measure of the proportion of the population that has a disease at a specific period in time (e.g., number of people living with HIV).

75. Prevention (primary, secondary)

In the context of HIV, prevention activities are designed to reduce the risk of becoming infected with HIV (primary prevention) and the risk of transmitting the disease to others (secondary prevention). Prevention services include voluntary counseling and testing, condom distribution, disease surveillance, outreach and education, blood safety, and harm reduction programs for *injecting drug users* (IDUs).

76. Primary HIV Infection (PHI)

This is the period immediately following infection with HIV. HIV multiplies rapidly and can be transmitted to others during this time, which can last anywhere from a few days to several weeks. PHI is also known as *acute HIV infection*.

77. Prophylaxis

Prophylaxis refers to the prevention or protective treatment of disease. Primary prophylaxis refers to the medical treatment that is given to prevent onset of an infection. Secondary prophylaxis refers to medications given to prevent recurrent symptoms in an existing infection.

78. PLHIV / PWA / PLWA / PLWHA

Acronyms for “People living with HIV,” “People with AIDS,” “People living with AIDS,” and “People living with HIV/AIDS. PLHIV is the preferred description, according to UNAIDS, because it reflects the fact that a person with HIV infection may continue to live well and productively for many years.

R**79. Rapid Male Circumcision (RMC)**

See *Circumcision*

80. Risky Behavior

This refers to any behavior or action that increases an individual’s probability of acquiring or transmitting HIV. Some examples of risky behaviors are having unprotected sex, having unprotected sex with multiple partners, or injecting drugs with contaminated equipment. Alcohol use has also been linked to risky behavior because of its effect on an individual’s ability to make decisions and negotiate safer sex.

S**81. Scale Up**

Refers to the concept of achieving a sufficient level of coverage, uptake, intensity, and duration of an HIV intervention to enable the intended effect.

S

(continued)

82. Second-Line Drugs

Therapeutic agents that are not the first drug of choice (called first-line) used to treat a particular condition, but are generally used to treat those who have developed resistance to *first-line drugs*.

83. Sexually Transmitted Disease/Infection (STD/STI)

Any disease or infection that is spread through sexual contact.

84. Social Marketing

An approach or technique that refers to the adaptation of commercial marketing techniques to achieve social goals and encourage the adoption of healthier behavior. Social marketing has been used to promote a range of HIV-related prevention techniques including condom use.

85. Stigma and Discrimination

Stigma and discrimination toward HIV-positive people, and those perceived to be HIV-positive, are recognized as obstacles to achieving full access to prevention, care, treatment and support services. The stigma and discrimination that those at risk, and those living with HIV, may face from governments, communities and families make it less likely those individuals will seek out care and information.

86. Syringe-Exchange Program (SEP)

See *Needle-Exchange Program (NEP)*.

T

87. Treatment as Prevention (TasP)

A term increasingly used to describe HIV prevention methods that use *antiretroviral therapy (ART)* to reduce the risk of HIV transmission. The May 2011 HPTN 052 trial results showed that when ART reduces HIV levels, HIV-positive individuals are less infectious, and therefore that treatment can be used as a method of prevention. The role of TasP is still being debated and more research is required. Also sometimes referred to as Treatment for Prevention, or T4P.

88. Tuberculosis (TB)

Tuberculosis is a bacterial infection caused by *Mycobacterium tuberculosis*. The disease usually affects the lungs but can spread to other parts of the body in serious cases. An individual can become infected with TB when they are exposed to another person who has active TB and who coughs, sneezes, or spits. Not all people who become infected with TB develop symptoms. Those who do not become ill are referred to as having latent TB and cannot spread the disease to others but should still seek treatment.

U

89. UNAIDS

Acronym that refers to the Joint United Nations Programme on HIV/AIDS. It is a part of the UN and was established to coordinate its response to HIV/AIDS. Currently, UNAIDS comprises 10 UN organizations and a Secretariat.

U

(continued)

90. Universal Access

The ability of all people to have equal opportunity and access to prevention, care, treatment, and support interventions from which they can benefit, regardless of their social class, ethnicity, background or physical disabilities. One example in the field of global health is universal access to HIV treatment, a belief that all individuals living with HIV/AIDS should have access to HIV treatment.

91. Universal Precautions

Infection control measures used in health care settings aimed at preventing the transmission of HIV (and other bloodborne pathogens). These measures include the use of gloves and other protective gear, and the safe disposal of needles to prevent exposure to blood and other body fluids.

V

92. Vaccine

A substance that contains a deactivated whole or part of an infectious organism designed to stimulate the immune system to protect against subsequent infection from the active organism. A preventive vaccine preempts infection from that organism. A therapeutic vaccine improves the ability of the immune system of a person already infected with the organism to defend itself.

93. VCT

“Voluntary Counseling and Testing” programs are a critical component of both HIV prevention and treatment activities. VCT is an internationally accepted intervention designed to enable people to learn their HIV status and receive counseling about risk reduction and referral to care if they are HIV-positive. Voluntary HIV testing approaches have relied on both client-initiated or opt-in testing (where the client asks to be tested) and provider-initiated or opt-out testing (where a provider offers testing to a client). Recently, there has been a move to provider-initiated testing to encourage more people to get tested and to make testing a more routine procedure in the health care environment.

94. Vertical Transmission

See *Mother-To-Child Transmission*.

95. Viral Load

The amount or concentration of HIV in the blood. There is a correlation between the amount of virus in the blood and the severity of disease and the risk of transmission—the higher the viral load, the more progressive the HIV disease and the higher the risk of transmission. A viral load test is an important tool for doctors in monitoring illness and determining treatment decisions.

96. Voluntary Medical Male Circumcision (VMMC)

See *Circumcision*.

97. Vulnerable Populations

Populations that are at increased risk of exposure to HIV due to socioeconomic, cultural or behavioral factors. Vulnerable populations include racial and ethnic minorities, refugees, poor people, men who have sex with men, injecting drug users, sex workers, and women where gender inequality is pronounced.

W

98. World Bank

The World Bank is a development bank that provides loans, policy advice, technical assistance and knowledge sharing services to low- and middle-income countries to reduce poverty. The World Bank is a co-sponsor of UNAIDS and a significant donor to international HIV/AIDS efforts.

99. World Health Organization (WHO)

The WHO is the UN agency for health. It is governed by 194 member states and aims to help all individuals achieve the highest possible level of health. It is internationally recognized as one of the leading organizations dedicated to global health, including the prevention and treatment of HIV.

X

100. XDR-TB (Extensively Drug-Resistant Tuberculosis)

XDR-TB refers to strains of tuberculosis that are resistant to at least four of the most effective drugs used to fight the bacteria. XDR-TB takes longer to treat than non-drug-resistant TB and requires the use of second-line drugs, which are more expensive and have more side effects than first-line therapies. Also see *MDR-TB (Multidrug Resistant Tuberculosis)*.

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COMMONLY USED ACRONYMS

Acronym	Description
ABC	Abstinence, Be faithful, Condom use
ADAP	AIDS Drug Assistance Program(s) (U.S.)
ADC	AIDS Dementia Complex
AIDS	Acquired Immunodeficiency Syndrome
ART, ARV	Antiretroviral Therapy, Antiretroviral(s)
AZT	Zidovudine (also called ZDV)
U.S. CDC	Centers for Disease Control and Prevention (U.S.)
CNN	Condoms, Needles, Negotiation
DOTS	Directly Observed Treatment or Therapy Short-Course
ELISA	Enzyme-Linked Immunosorbent Assay
EMEA	European Medicines Agency (EU)
FDA	Food & Drug Administration (U.S.)
FDC	Fixed-Dose Combination
FI	Fusion Inhibitor
GHI	Global Health Initiative (U.S.)
GIPA	Greater Involvement of People Living with HIV/AIDS
Global Fund	The Global Fund to Fight AIDS, Tuberculosis and Malaria
GMAI	Global Media AIDS Initiative
GNP+	Global Network of People Living with HIV/AIDS
HAART	Highly Active Antiretroviral Therapy
HAD	HIV-Associated Dementia
HIV	Human Immunodeficiency Virus
HPTN	HIV Prevention Trials Network
HRBA	Human Rights-Based Approach (to HIV)
IAS	International AIDS Society
IAVI	International AIDS Vaccine Initiative
IDU	Injecting Drug User
MAP	Multi-Country HIV/AIDS Program (World Bank)
MDR-TB	Multi-Drug Resistant Tuberculosis
MSM	Men Who Have Sex With Men
MTCT	Mother-to-Child Transmission
NAPWA	National Association of People With AIDS (U.S.)
NEP	Needle Exchange Program
NIH	National Institutes of Health (U.S.)

Acronym	Description
NNRTI	Non-Nucleoside Reverse Transcriptase Inhibitor
NRTI	Nucleoside Reverse Transcriptase Inhibitor, or Nucleotide Reverse Transcriptase Inhibitor
OGAC	Office of the Global AIDS Coordinator (U.S.)
OI	Opportunistic Infection
PAHO	Pan American Health Organization
PEP	Post Exposure Prophylaxis
PEPFAR	President's Emergency Plan for AIDS Relief (U.S.)
PHI	Primary HIV Infection
PI	Protease Inhibitor
PLHIV	People Living with HIV
PLWHA	People Living With HIV/AIDS
PMI	President's Malaria Initiative (U.S.)
PMTCT	Prevention of Mother-to-Child Transmission
PrEP	Pre-Exposure Prophylaxis
RBM	Roll Back Malaria
SEP	Syringe Exchange Program
STD / STI	Sexually Transmitted Disease, Sexually Transmitted Infection
TAC	Treatment Action Campaign (South Africa)
TasP	Treatment as Prevention
TB	Tuberculosis
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNGASS	United Nations General Assembly Special Session on HIV/AIDS
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VCT	Voluntary Counseling and Testing
VMMC	Voluntary Medical Male Circumcision
WFP	World Food Programme
WHO	World Health Organization
WTO	World Trade Organization
ZDV	See AZT

HIV/AIDS TIMELINE

Pre-1981

EARLY SIGNS. While 1981 is referred to as the beginning of the HIV/AIDS epidemic, several recent reports indicate HIV was present years earlier.

1981

AIDS DETECTED. On June 5, United States Centers for Disease Control and Prevention (CDC) reports first cases of rare pneumonia in young gay men.

1982

THE DISEASE IS NAMED. The CDC formally establishes the term Acquired Immune Deficiency Syndrome, AIDS. CDC initially identifies four “risk factors”: male homosexuality, injection drug use, Haitian origin and hemophilia A.

AIDS IN AFRICA. The journal *The Lancet* reports an African disease known as “slim” is actually AIDS.

1983

NEW RISK GROUP. The CDC adds female sexual partners of men with AIDS as a fifth risk group.

ORGANIZING EFFORTS. In the United States, the National Association of People with AIDS (NAPWA), National AIDS Network (NAN) and Federation of AIDS Related Organizations form.

THE VIRUS IS DISCOVERED. The virus that causes AIDS is first detected and named Lymphadenopathy-Associated Virus or LAV.

1984

THE VIRUS IS ISOLATED. Scientists Luc Montagnier of the Pasteur Institute in France and Robert Gallo of the National Cancer Institute in the United States isolate the human retrovirus that causes AIDS. It is renamed the Human Immunodeficiency Virus (HIV).

PREVENTIVE MEASURES. World’s first needle exchange program (NEP) begins in the Netherlands. It is designed, initially, to address Hepatitis-B among injecting drug users (IDUs). Later expanded to address HIV transmission.

1985

FIRST INTERNATIONAL AIDS CONFERENCE. It is sponsored by the World Health Organization (WHO) and the United States Department of Health and Human Services (HHS) and held in Atlanta, Georgia.

DETECTING THE VIRUS. The United States Food and Drug Administration (FDA) approves the first HIV antibody test. Blood products begin to be tested in the U.S. and Japan.

MOTHER TO CHILD. The United States Public Health Service issues first recommendations for preventing transmission of HIV from mother to child.

AIDS AND U.S. MILITARY. The United States Department of Defense announces it will begin testing all new recruits for HIV infection and will reject those who are positive.

1985 (continued)

GLOBAL HIV. At least one case of HIV/AIDS is reported in every region of the world. One and a half million people worldwide are living with HIV, according to estimates by the Joint United Nations Programme on AIDS (UNAIDS).

1986

CALL TO ACTION. The United States Institute of Medicine calls for a national education campaign and creation of National Commission on AIDS.

ORGANIZING GLOBALLY. International Steering Committee for People with HIV/AIDS (ISC) is created. (In 1992, name changed to Global Network of People Living with HIV/AIDS, or GNP+.)

1987

FIRST DRUG TREATMENT. The FDA approves the first antiretroviral agent for the treatment of AIDS. It is called Zidovudine or AZT.

VACCINE TESTING. The FDA sanctions first human testing of candidate vaccine against HIV.

REAGAN AND AIDS. United States President Ronald Reagan makes first public speech about AIDS and establishes Presidential Commission on HIV.

MANDATED TESTING. The United States adds HIV as a “dangerous contagious disease” to its immigration exclusion list. It mandates HIV testing of all immigration applicants.

GLOBAL EFFORTS BROADEN. WHO launches the Global Program on AIDS (GPA).

1988

INTERNATIONAL RECOGNITION. WHO declares first World AIDS day on December 1st.

ORGANIZING AROUND AIDS. The United States National Institutes of Health (NIH) establish the Office of AIDS Research and the AIDS Clinical Trials Group (ACTG). The International AIDS Society, made up of professionals working on HIV/AIDS, is founded.

NEEDLE EXCHANGE. First comprehensive needle exchange program established in North America in Tacoma, Washington.

1990

CONFERENCE BOYCOTT. To protest U.S. immigration policy, domestic and international non-governmental groups boycott the VI Annual International AIDS conference in San Francisco, California.

TREATING CHILDREN. The FDA approves use of AZT for pediatric AIDS.

GLOBAL HIV. About eight million people are living with HIV worldwide, according to UNAIDS estimates.

1991

AIDS SYMBOL. Red ribbon is introduced as the international symbol of AIDS awareness and solidarity.

1992

AIDS DEATHS. AIDS becomes the number one cause of death among American men 25 to 44 years old and remains so through 1995.

1995

TREATMENTS ADVANCE. FDA approves first protease inhibitor—saquinavir—for use in combination with other HIV drugs. This ushers in a new era of highly active antiretroviral therapy (HAART).

UNAIDS CREATED. The Joint United Nations Programme on HIV/AIDS established to coordinate efforts of six different UN programs devoted to AIDS. It is known as UNAIDS and becomes operational in 1996.

RUSSIAN ACTIVISM. Russia enacts a federal AIDS law, guaranteeing free access to treatment for HIV-positive citizens.

GLOBAL HIV. About 18 million people worldwide are living with HIV, according to UNAIDS estimates.

1996

VACCINE DEVELOPMENT. A non-governmental organization forms to eliminate barriers to development of an HIV vaccine. It is called the International AIDS Vaccine Initiative, IAVI.

BRAZILIAN ACTIVISM. Brazil manufactures generic antiretroviral drugs in a challenge to international patent laws. The drugs are free for those in need. Brazil becomes the first developing country to begin national ARV distribution.

1997

U.S. PROGRESS. AIDS-related deaths in the U.S. decline by more than 40% compared to the prior year, largely due to HAART.

1998

VACCINE TRIALS. The first large scale human trial of an HIV vaccine begins in North America.

AFRICAN AMERICAN ACTIVISM. African American leaders declare a “state of emergency” in the African American community due to HIV/AIDS.

SOUTH AFRICAN ACTIVISM. Treatment Action Campaign (TAC) is formed in South Africa. The grassroots movement pushes for access to treatment.

1999

NEW U.S. FUNDING. The U.S. announces new funding for the global pandemic. It is administered through LIFE, the Leadership and Investment in Fighting Epidemic Initiative.

VACCINE TRIALS. The first human vaccine trial in a developing country begins in Thailand.

MBEKI ON AIDS. South African President Thabo Mbeki stirs worldwide controversy by questioning the link between HIV and AIDS.

2000

GLOBAL ATTENTION. U.S. and UN Security Council declare HIV/AIDS a security threat.

CONFERENCE LANDMARK. Under the slogan, “Breaking the Silence,” the XIII International AIDS conference is held in a developing nation—South Africa. It heightens awareness of the global pandemic and its impact in hard-hit regions.

CHEAPER DRUGS. UNAIDS, WHO and other global health groups announce initiative with five major drug makers to negotiate lower prices for AIDS drugs in developing countries.

2000 (continued)

KAUNDA ON AIDS. Former Zambian President Kenneth Kaunda announces his son's death in 1986 was from an AIDS-related illness. Pledges commitment to fight AIDS.

AFRICAN TEENS. UNAIDS predicts up to half of teens in the most severely affected nations of southern Africa will die prematurely because of AIDS.

GLOBAL HIV. More than 27 million people worldwide are living with HIV, according to UNAIDS estimates.

2001

GLOBAL ATTENTION. UN General Assembly convenes first-ever special session on HIV/AIDS.

GLOBAL ACTIVISM. UN Secretary General Kofi Annan calls for creation of a Global Fund at the African summit on HIV/AIDS in Abuja. U.S. offers first pledge to support The Global Fund.

CHEAPER DRUGS. The World Trade Organization (WTO) meeting in Doha, Qatar, agrees that despite patent laws, developing countries can buy or manufacture cheaper generic drugs to meet public health crises, such as HIV/AIDS.

DRUG MAKERS RESPOND. Generic drug manufacturers offer to produce discounted, generic forms of HIV/AIDS drugs. Several brand name drug makers agree to offer further reduced drug prices in developing world.

AIDS IN SOUTH AFRICA. The government's Department of Health reports 4.74 million South Africans are HIV-positive.

DEATH IN AFRICA. AIDS is the leading cause of death in sub-Saharan Africa, according to UNAIDS and WHO.

2002

GLOBAL FUND. The Global Fund to Fight AIDS, Tuberculosis and Malaria becomes operational and awards its first round of grants.

SOUTH AFRICAN GOVERNMENT ACTS. The government commits to intensifying campaign to prevent HIV infection. Campaign rests on premise that HIV causes AIDS.

DRUG ACCESS. U.S. President George W. Bush issues Executive Order to help developing countries import or produce less expensive generic forms of HIV drugs. UNAIDS, WHO and other global health groups announce initiative with five major drug manufacturers to negotiate reduced prices for AIDS drugs in developing countries.

DEATHS WORLDWIDE. HIV becomes leading cause of death worldwide among those 15 to 59 years of age.

WOMEN AND HIV. UNAIDS reports that women comprise half of all adults living with HIV worldwide.

2003

WHO CAMPAIGN. WHO launches the 3x5 Initiative, the campaign to provide antiretroviral treatment to 3 million people by 2005.

VACCINE TRIAL IN SOUTH AFRICA. Phase I of a human vaccine trial launched in South Africa in partnership with U.S.

PUTIN SPEAKS. Russian President Vladimir Putin, in his Annual Address to the Federal Assembly, describes declining life expectancy as a serious threat to Russia's future. He says "AIDS is making it worse."

2003 (continued)

BUSH PLAN. United States President George W. Bush announces PEPFAR, the President's Emergency Plan for AIDS Relief, a five-year, US\$15 billion initiative to address HIV/AIDS, tuberculosis and malaria primarily in hard-hit countries.

DRUG ACCESS. The William J. Clinton Presidential Foundation secures price reductions for AIDS drugs from generic manufacturers. Thirteen developing nations will benefit.

2004

CONFERENCE LANDMARK. The XV International Conference on AIDS is held in Bangkok, Thailand. First conference held in Southeast Asia.

GMAI CREATED. Global media leaders meet at the United Nations and form the Global Media AIDS Initiative. The GMAI leverages the power of media to prevent the spread of HIV.

BUSH PLAN BEGINS. PEPFAR, President Bush's Emergency Plan for AIDS Relief, begins first round of funding.

WOMEN AND AIDS. UNAIDS launches The Global Coalition on Women and AIDS to raise the visibility of the epidemic's impact on women and girls around the world.

2005

ECONOMIC PRIORITY. At World Economic Forum's Annual Meeting in Davos, Switzerland, priorities include a focus on addressing HIV/AIDS in Africa and other hard-hit regions of the world.

HISTORIC ANNOUNCEMENT. At an historic and unprecedented joint press conference, the World Health Organization, UNAIDS, the United States Government and the Global Fund to Fight AIDS, Tuberculosis and Malaria announce results of joint efforts to increase the availability of antiretroviral drugs in developing countries.

GLOBAL HIV. More than 32 million people worldwide are living with HIV, according to UNAIDS estimates.

2006

GLOBAL ATTENTION. The United Nations convenes a follow-up meeting to assess progress related to the historic 2001 Declaration of Commitment on HIV/AIDS.

EURASIA MEETING. The first Eastern European and Central Asian AIDS conference (EECAAC) is held in Moscow.

AIDS CONFERENCE. The XVI International AIDS Conference is held in Toronto, Canada. The conference's theme, "Time to Deliver," underscores the continued threat of HIV/AIDS and the need for nations to honor financial, programmatic and political commitments to prevention and treatment of HIV/AIDS.

AIDS MILESTONE. June 5, 2006, marks a quarter-century since the U.S. government issued its first warning about a disease that would become known as AIDS.

2007

MALE CIRCUMCISION. The WHO and UNAIDS recommend male circumcision "always be considered as part of a comprehensive HIV prevention package."

HIV TESTING. The WHO and UNAIDS issue guidance that health care providers recommend HIV testing and counseling to all patients in countries with generalized epidemics.

GLOBAL HIV. More than 33 million people worldwide are living with HIV, according to UNAIDS estimates.

2008

AIDS CONFERENCE. The XVII International AIDS Conference is held in Mexico City, Mexico. The conference theme is “Universal Action Now.”

2009

NEW HIV SOURCE. Researchers find a new strain of HIV-1 that originated with gorillas. The new strain was found in a Cameroonian woman.

TRAVEL. U.S. President Obama announces the removal of the travel ban that prevents people who are HIV-positive from entering the United States.

2010

AIDS CONFERENCE. The XVIII International AIDS Conference is held in Vienna, Austria. The conference theme is “Rights Here, Right Now.”

RESEARCH BREAKTHROUGH. South African researchers announce results of a microbicide trial (CAPRISA 004) showing that use of the gel significantly reduces the risk of HIV acquisition in sexually active women.

RESEARCH BREAKTHROUGH. Large international clinical study (iPrEx) shows a daily dose of HIV-drug reduces risk of acquiring HIV among men who have sex with men.

NEW BLUEPRINT. President Barack Obama releases first comprehensive National HIV/AIDS Strategy for the United States.

GLOBAL HIV. About 34 million people are living with HIV worldwide, according to UNAIDS estimates.

2011

MILESTONE. June marks 30 years since the first case of AIDS is reported.

RESEARCH BREAKTHROUGH. Large multinational study (HPTN 052) of mostly heterosexual couples, one of whom is HIV-positive, shows early treatment of infected person greatly reduces transmission to negative partner.

2012

AIDS CONFERENCE. The XIX International AIDS Conference is held in Washington, DC. The theme is “Turning the Tide Together.”

ADDITIONAL RESOURCES

A more extensive version of the HIV/AIDS timeline can be found on The Kaiser Family Foundation website: www.kff.org/hivaids/timeline/index.cfm.

UNAIDS. *25 Years of AIDS: A Timeline*, www.un.org/Pubs/chronicle/2006/issue2/0206p06.htm

AVERT. *History of AIDS*, www.avert.org/historyi.htm

Incidence Methodology Timeline compiled by the U.S. Centers for Disease Control, www.cdc.gov/hiv/topics/surveillance/resources/other/timeline.htm

FREQUENTLY ASKED QUESTIONS ABOUT HIV/AIDS

What is HIV?

HIV stands for Human Immunodeficiency Virus. HIV destroys certain blood cells called CD4 or T cells. These cells are crucial to the normal function of the immune system, which defends the body against illness. When HIV has compromised the immune system, a person can develop a variety of cancers and viral, bacterial, parasitic and fungal infections more easily than a person who does not have HIV. Researchers have identified two types of HIV. HIV-1 is more virulent, more easily transmitted, and causes the majority of HIV infections worldwide. HIV-2 is less common and not as easily transmitted.

What is AIDS?

AIDS stands for Acquired Immunodeficiency Syndrome. It occurs when HIV weakens the immune system to the point where a person develops any number of diseases or cancers. A person who is infected with HIV but who does not have these diseases or cancers can still be diagnosed with AIDS if a laboratory test shows a severely damaged immune system.

Where did HIV come from?

In 1999, scientists reported that they had discovered the origin of HIV-1. They identified a subspecies of chimpanzees native to West Equatorial Africa as the original source of the virus. The virus most likely was introduced into the human population when hunters were exposed to the infected blood of non-human primates. HIV-2 likely originated in West African monkeys.

How is HIV detected?

It is impossible to look at someone and know whether he or she is HIV-positive. The only sure way to determine this is through an HIV test. A blood or oral fluid sample can reveal the presence of the virus. If the sample contains HIV antibodies—proteins the body produces to fight off the infection—the person is HIV-positive.

How is HIV transmitted?

HIV is primarily transmitted through unprotected sex, including vaginal, anal and oral sex. Certain bodily fluids including blood, semen, vaginal secretions and breast milk transmit HIV. The virus can also be transmitted through infected blood contained in needles used to inject drugs. An HIV-positive woman can pass the virus to her infant during pregnancy, delivery or breastfeeding. HIV also can be transmitted through contaminated, unscreened blood supplies or donor organs.

How is HIV not transmitted?

HIV is not an easy virus to pass from one person to another. The virus does not survive well outside the body. So, it cannot be transmitted through casual or everyday contact such as shaking hands or hugging. Sweat, tears, vomit, feces and urine do contain small amounts of HIV, but they have not been reported to transmit the disease. Mosquitoes and other insects do not transmit HIV.

How can HIV transmission be prevented?

There is no single intervention to prevent the spread of HIV. HIV prevention encompasses numerous types of interventions and programs such as using latex condoms during sex and not sharing needles/syringes. Pregnant women who are HIV-positive can reduce the likelihood of transmitting the virus to their infants by using antiretroviral treatment during pregnancy and delivery. Research is being conducted on a range of new interventions and technologies that have important implications for HIV prevention, including

microbicides, pre-exposure prophylaxis with antiretroviral drugs (taking medication before possible exposure to HIV to reduce the likelihood of infection if exposed) and vaccines. Additionally, recent research findings showed that the early use of antiretroviral treatment by HIV-positive individuals can significantly reduce transmission of HIV to their partners. More information can be found in the section on HIV Prevention.

How long does it take for HIV to become AIDS?

The length of time varies from person to person and depends a great deal on whether a person has access to treatment, their health status and their health-related behaviors. UNAIDS estimates that in countries where there is little or no access to treatment, most people will develop AIDS about 10–15 years after becoming infected with HIV. Antiretroviral therapy can slow the progression of HIV to AIDS by decreasing the amount of virus in a person's body. As with other diseases, early detection of HIV infection allows for more options for treatment and preventive health care.

What is the link between HIV and tuberculosis (TB)?

The HIV epidemic is largely responsible for the growing number of TB cases in many parts of the world. HIV weakens the cells in the immune system that are needed to fight TB; up to half of all people living with HIV/AIDS eventually develop TB. Worldwide, TB is the leading cause of death among HIV-positive people.

What is the link between HIV and sexually transmitted diseases/infections (STDS/STIS)?

People with sexually transmitted diseases or infections are far more vulnerable to becoming infected with HIV. For example, genital ulcers caused by herpes create an entry point for HIV. STDs create concentrations of cells in the genital area that become targets for HIV. Also, HIV-positive people are far more vulnerable to acquiring additional sexually transmitted diseases/infections than other people. Their immune systems are compromised, which means the body has a more difficult time fighting off infection. Additionally, if an HIV-positive person is infected with another STD, that person is three to five times more likely than other HIV-positive people to transmit HIV through sexual contact.

Is there a cure for HIV/AIDS?

There is no known cure for HIV/AIDS. There are medical treatments that can slow down the rate at which HIV weakens the immune system. There are other treatments that can prevent or cure some of the illnesses associated with AIDS. Researchers are testing a variety of vaccine candidates, but it is likely that a successful vaccine is years away. The International AIDS Vaccine Initiative (www.iavi.org) and the AIDS Vaccine Advocacy Coalition (www.avac.org) are the main clearinghouses of information about vaccine research. There is more information in the Vaccine section in this manual.

How many people have HIV/AIDS?

The United Nations Joint Programme on HIV/AIDS (UNAIDS) estimates that in 2011 there were 34 million people worldwide living with HIV/AIDS, up from 29.4 million in 2001. The increase is the result of continuing new infections, people living longer with HIV and general population growth. Despite the growth in the number of people living with the disease, the HIV prevalence rate (the share of the population infected with HIV) has leveled over the last decade.

What HIV/AIDS statistics are the most reliable?

UNAIDS provides the most extensive set of statistics related to the global epidemic at www.unaids.org. The statistics are compiled in consultation with country-level experts and international epidemiologists. Every country keeps count in its own way and some have more complete data than others. There is more information on this in the Frequently Asked Questions about Covering HIV/AIDS and Understanding and Reporting on HIV/AIDS Data sections of this manual.

What do endemic, epidemic, pandemic, and hyperendemic mean?

Endemic is the constant presence of a disease or infectious agent in a certain geographic area. Epidemic is the rapid spread of a disease in a certain area or among a certain population group. Pandemic is a worldwide epidemic; an epidemic occurring over a wide geographic area and affecting an exceptionally high proportion of the population. Hyperendemic means HIV prevalence exceeds 15% of the general population.

What are ARV and ART?

ARV stands for antiretroviral and ART stands for antiretroviral therapy or treatment. ARVs are a class of drugs designed to slow the reproduction of HIV in the body. If antiretroviral treatment is effective, the onset of AIDS can be delayed for years. It is recommended that ARV drugs be used in combination. There is more information on this in the Drugs Used in the Treatment of HIV (FDA-Approved) section of this manual.

What is HAART?

HAART stands for highly active antiretroviral therapy. It is the combination of at least three ARV drugs that attack different parts of HIV or stop the virus from entering blood cells. Even among people who respond well to HAART, the treatment does not eradicate HIV. The virus continues to reproduce but at a slower pace.

How many people have access to antiretroviral (ARV) treatment?

Access to ARV treatment has increased dramatically in the past several years. At the end of 2011, more than 8.0 million people—or 54% of those in need in low- and middle- income countries—had access to ARV treatment. Despite this success, more than 6.8 million adults and children are still in need of ARV treatment. More than 2.5 million deaths are estimated to have been averted in low- and middle-income countries due to increased access to HIV treatment since 1995.

What is “treatment as prevention” (TasP)?

Treatment as prevention is a term used to describe HIV prevention methods that use ARV treatment to reduce the risk of HIV transmission. For instance, in May 2011, researchers from the HIV Prevention Trials Network (HPTN) announced the results of the HPTN 052 clinical trial, which showed that early use of ARVs reduced the risk of HIV transmission among serodiscordant couples by 96%. The trial results showed that when ARV therapy reduces HIV levels, HIV-positive individuals are less infectious, and therefore the treatment can be used as a method of prevention. More information can be found in the section on HIV Prevention.

What is drug resistance?

Drug resistance is the ability of an organism (e.g., a virus, bacterium, parasite or fungus) to adapt, grow and multiply even in the presence of drugs that usually kill it. Drug resistance is a challenge for ARV treatment. The consequences of drug resistance include treatment failure, increased direct and indirect health costs associated with more expensive second-line drugs, the potential for spread of drug-resistant strains of HIV and the need to develop new ARV drugs.

What is ABC?

ABC stands for abstinence, being faithful to a single partner, and condom use. It is an approach to prevention that certain organizations and governments promote as a means to stop the spread of HIV.

What is the Global Fund?

The Global Fund to Fight AIDS, Tuberculosis and Malaria was created in 2001 at the urging of then-UN Secretary General Kofi Annan. The Global Fund is a partnership among governments, the private sector and affected communities. It is an independent grant-making organization whose purpose is to mobilize and provide funding to developing countries to respond to AIDS, tuberculosis and malaria.

What is PEPFAR?

The President's Emergency Plan for AIDS Relief was launched in 2004 by then-U.S. President George W. Bush and represents the largest single commitment by a government to address the global pandemic. PEPFAR is a multi-year multi-billion dollar plan to assist countries with implementing prevention, treatment and care programs. PEPFAR was reauthorized in 2008 for an additional five years (FY2009-FY2013). It currently operates in more than 60 countries, with most funding concentrated in a subset of about 30 countries, including the 15 "focus countries" targeted in PEPFAR's first phase.

What is absorptive capacity?

Absorptive capacity in the context of the global HIV epidemic is used to refer to the ability of developing countries to efficiently spend foreign aid money. Given the limitations of health systems in developing countries, it is a challenge to process, disperse and manage outside assistance especially because many developing countries receive aid from numerous donors, each with their own preferences and requirements.

What regions of the world have a health care worker shortage and what is its impact?

More than one billion people around the world lack access to basic health care due to a deficiency of training and recruiting of health care workers. Fifty-seven countries, 36 of them in sub-Saharan Africa, are in urgent need of health care workers. The shortage, of some four million workers, serves as an obstacle to the provision of essential, life-saving interventions such as immunizations, safe pregnancy and delivery services for mothers, and treatment for HIV/AIDS, malaria and tuberculosis.

ADDITIONAL RESOURCES

UNAIDS, Fast Facts about HIV/AIDS, www.unaids.org/en/Resources/PressCentre/FastfactsaboutHIV

UNAIDS, 2011 World AIDS Day Report, www.unaids.org/en/resources/presscentre/pressreleaseandstatementarchive/2011/november/20111121wad2011report/

U.S. Department of Health and Human Services. Centers for Disease Control and Prevention, www.cdc.gov/hiv/resources/qa/index.htm

HIV PREVENTION

HIV is preventable, so prevention is a critical component of the response to HIV/AIDS. HIV prevention includes both:

- **Primary Prevention:** to reduce the risk of becoming infected with HIV
- **Secondary Prevention:** to reduce the risk that a person infected with HIV will transmit HIV to others and to keep that person as healthy as possible

There are many success stories of prevention programs around the world that have helped bring about a leveling or even decrease in new HIV infections. Additionally, recent findings from research examining new HIV prevention tools have been promising. This includes results that show that treating people with HIV with antiretrovirals can significantly reduce the likelihood of sexual transmission of the virus. However, according to UNAIDS, there is a significant gap between current prevention spending and funding needs, and there are many obstacles facing prevention efforts. Globally, it is estimated that most people at risk for HIV do not yet have access to needed HIV prevention services, and that eight in ten of those already infected with HIV do not know their status.

Challenges to HIV Prevention Include:

- Human behavior is difficult to change, as is sustaining behavior change over time; indeed, HIV prevention is for life, much like antiretroviral treatment for those who are living with HIV.
- There is strong stigma surrounding the disease, which may discourage those at risk from seeking information about HIV from getting tested, or from disclosing their HIV status to potential partners.
- Given the role that sex and drug use play in HIV transmission, there are often political and other sensitivities to addressing HIV prevention and a lack of consensus about approach.
- Most people with HIV do not know they are infected.
- Levels of knowledge of HIV and how it is transmitted are low in many countries.
- It is challenging to show the impact of prevention efforts because it is difficult to measure “what did not happen” (e.g., HIV infections averted) versus, for example, measuring the number of people receiving antiretroviral therapy.
- Prevention efforts need to be scaled up, at sufficient intensity, and for a sufficient amount of time to show impact, since it can take many years for declines in HIV incidence to manifest.
- Gender and cultural factors, severe poverty, other diseases and health threats, underdeveloped health infrastructures, and political instability existing in many of the countries hardest hit by the disease further complicate prevention efforts.

Types of Prevention Efforts:

There is no single intervention to prevent the spread of HIV. Multifaceted, integrated, long-term strategies have been shown to have the greatest impact. Effective prevention efforts reflect a wide range of factors related to the epidemiology of the disease, as well as the specific socioeconomic and cultural norms and structures of specific populations. These factors are important to consider when targeting and designing prevention programs as, even within a country, the epidemic can be very diverse in terms of the extent of its impact, transmission patterns and the populations most affected. Further, it is important that prevention efforts address the underlying social factors that have been linked to contributing to greater risk for HIV infection, including poverty, gender inequalities, and stigma and discrimination. It is also important for programs to be culturally appropriate and to take into account the role of media, schools, parents, youth and leaders in a given area, engaging these groups in prevention efforts where appropriate. Finally, it has also been shown that HIV prevention efforts are most effective when integrated with HIV treatment.

Currently, research is being conducted on a range of new interventions and technologies that may have important implications for HIV prevention, including microbicides, pre-exposure prophylaxis with antiretroviral drugs (taking medication before possible exposure to HIV to reduce the likelihood of infection if exposed) and vaccines. There have been a number of promising results emerging from these studies:

- **CAPRISA:** In July 2010, research findings showed that use of a vaginal gel reduced women's risk of HIV infection.
- **iPrEx:** In November 2010, findings from research examining pre-exposure prophylaxis (PrEP) showed that a daily dose of combination antiretroviral treatment reduced risk of HIV infection overall in men who have sex with men and transgendered women.
- **HPTN 052:** In May 2011, research findings showed that the early use of antiretroviral therapy by predominantly heterosexual, HIV-positive individuals significantly reduced transmission of HIV to their partners (by 96%).

An effective vaccine to prevent HIV transmission, which would offer the greatest promise for HIV prevention, is unfortunately many years away from being discovered. In 2009, results from a large vaccine trial found that recipients of an HIV vaccine were less likely to become infected than trial participants who did not receive the vaccine, demonstrating for the first time that an HIV vaccine is feasible. Even if an effective vaccine is developed, it will not prevent HIV transmission 100% of the time which means that the broader HIV prevention strategies we use today will still be critical.

HIV prevention encompasses numerous types of interventions and programs and it is critical that prevention efforts be tailored to the target population(s) at risk and specific to the type of epidemic faced (low-level, concentrated, generalized, hyperendemic). As UNAIDS has stated, it is most important to "Know Your Epidemic" in order to respond effectively.

HIV Prevention Interventions Include:

- Mass media efforts
- Community mobilization
- Voluntary counseling and testing
- Partner notification and referral
- Programs for youth in school
- Programs for youth out of school
- Programs focused on sex workers and their clients
- Programs focused on men who have sex with men
- Harm-reduction programs for injecting drug users
- Workplace interventions
- Programs for people already living with HIV to prevent them from transmitting the disease to others
- Programs targeting special populations
- Condom social marketing
- Public and commercial sector condom provision
- Improving management of sexually transmitted infections
- Prevention of mother-to-child transmission
- Blood safety
- Post-exposure prophylaxis
- Safe medical injections
- Universal precautions
- Male circumcision

REFERENCES AND RESOURCES

amfAR, Accelerating an HIV Prevention Revolution: A Roadmap, www.amfar.org/uploadedFiles/In_the_Community/Publications/IB%20HIV%20Prevention%200311.pdf?n=3836

Global HIV Prevention Working Group Reports, www.kff.org/hiv/aids/hivghpwpwpackage.cfm

HIV Vaccines & Microbicides Resource Tracking Group, Capitalizing on Success: Funding for HIV Prevention Research in 2010, www.hivresourcetracking.org/

UNAIDS, Various References on Prevention, Reducing Sexual Transmission: www.unaids.org/en/targetsandcommitments/reducingsexualtransmission/

Eliminating New HIV Infection Among Children: www.unaids.org/en/targetsandcommitments/eliminatingnewhivinfectionamongchildren/

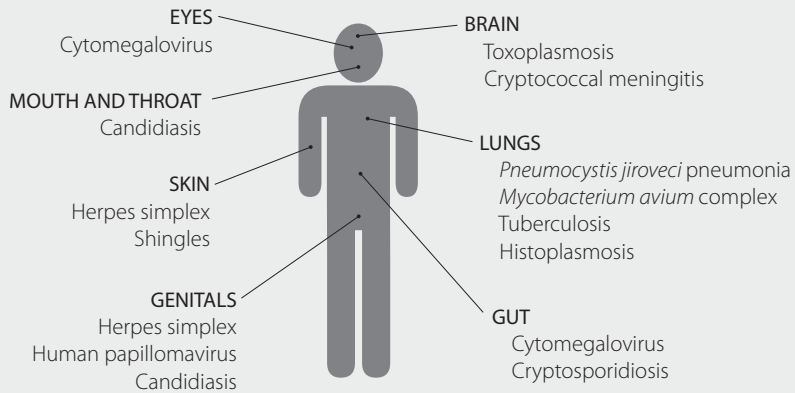
Preventing HIV Among Drug Users: www.unaids.org/en/targetsandcommitments/preventinghivamongdrugusers/

UNAIDS, World AIDS Day Report, 2011, www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/JC2216_WorldAIDSday_report_2011_en.pdf

UNAIDS, A New Investment Framework for the Global HIV Response, 2011, www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/JC2244_InvestmentFramework_en.pdf

OPPORTUNISTIC INFECTIONS

ORGAN-SPECIFIC OPPORTUNISTIC INFECTIONS IN HIV-INFECTED INDIVIDUALS



Fauci, A.S. (2004, March 20) *HIV Therapies and Vaccines: Progress and Priorities*. Kaiser Family Foundation: *AIDS in America: A Forgotten Epidemic? A Conference for News Leaders*. Barbara Jordan Conference Center, Washington, D.C.

General Notes

- **Opportunistic Infections (OI)** are diseases that rarely occur in healthy people but cause infections in individuals whose immune systems are compromised, including by HIV infection. Organisms that cause OIs are frequently present in the body but are generally kept under control by a healthy immune system. HIV gradually weakens a person's immune system and leads to the development of one or more opportunistic infections, which signals the progression to AIDS. These illnesses are generally the eventual cause of death due to HIV infection.
- **Prophylaxis** refers to the prevention or protective treatment of disease. Primary prophylaxis refers to the medical treatment that is given to prevent onset of an infection. Secondary prophylaxis refers to medications given to prevent recurrent symptoms in an existing infection.
- **Antiretroviral therapy** refers to any of a range of treatments that include antiretroviral medications. These drugs are designed to destroy retroviruses such as HIV, or interfere with their ability to replicate. HAART (Highly Active Antiretroviral Treatment) refers to a course of treatment that involves the use of three or more antiretroviral drugs. HAART strengthens the immune system and therefore helps protect against opportunistic infections.

BRAIN

Cryptococcal Meningitis [krip-toe-KOK-kull men-in-JY-tiss] is caused by *Cryptococcus*, a fungus commonly found in soil contaminated by bird droppings. People become infected with *Cryptococcus* by breathing in dust that is contaminated with the fungus. Although most people have been exposed to this fungus, it does not usually cause disease in healthy individuals. Among people with HIV, infection most often results in meningitis. Symptoms may include fever, headache, nausea, vomiting, stiff neck, mental confusion, vision problems and coma. *Cryptococcal* meningitis does not spread from one person to another. Primary

prophylaxis (treatment to prevent disease) and secondary prophylaxis (treatment to prevent disease recurrence) are available. The disease can be treated with anti-fungal medications. Without treatment, death can occur quite rapidly.

Toxoplasmosis [tock-so-plaz-MO-sis] (also referred to as Toxo) is an infection caused by a parasite found in cat feces, raw meat, raw vegetables, and soil. Infection can result from eating contaminated food or contact with cat droppings. Toxo can infect many parts of the body but most commonly causes encephalitis, an infection of the brain. It cannot be spread from one person to another and does not cause infection among people with healthy immune systems. Symptoms may include fever, confusion, headache, personality changes, tremors and seizures and can result in coma and death. Primary and secondary prophylaxes are available. Toxo can be treated with a combination of anti-toxo drugs.

EYES

Cytomegalovirus [sigh-TOE-meg-a-low-VY-rus] (also referred to as **CMV**) is a virus that typically causes an eye disease called **retinitis** [ret-tin-EYE-tis]. Retinitis is the most common type of CMV infection among people with HIV. CMV can be passed from person to person through saliva, semen, vaginal secretions, urine, breast milk and transfusions of infected blood. While anyone can be infected with CMV, illness occurs only among people with weakened immune systems. Symptoms may include blind spots and blurred, distorted or decreased vision that can progress to complete blindness. Primary prophylaxis may be recommended in certain cases. Forms of treatment for retinitis include intravenous medications, pills and injection of drugs directly into the eye. Secondary prophylaxis is also available. If left untreated the disease will cause blindness.

MOUTH

Candidiasis [can-did-EYE-a-sis] is the most common fungal infection in people with HIV. It usually affects the mouth, throat, lungs and vagina (see *Genitals*). The fungi that cause Candidiasis are naturally present in the human body and are responsible for most cases of the disease, but rare cases of person-to-person transmission have been recorded. Although anyone can develop the disease, it is more common among people with HIV. Infection in the mouth is called *thrush* and can cause pain when swallowing, nausea and loss of appetite. Symptoms of throat infection may include chest pain and difficulty swallowing. Primary prophylaxis is not recommended and use of secondary prophylaxis may be recommended in certain cases. There are a variety of treatments available to control infection.

SKIN

Herpes simplex [HER-peeZ SIM-plex] is a disease caused by the Herpes simplex virus. There are two types of Herpes simplex virus (HSV): HSV1, which causes cold sores or blisters around the mouth and the eyes; and HSV2, which causes genital or anal herpes. The viruses are spread from one person to another by contact with an infected area such as the mouth and genitals. Symptoms appear in outbreaks of rash, which may involve itching, tingling and the appearance of painful blisters or sores. HSV can affect anyone but outbreaks are more frequent and more serious in people with HIV. Although there is no prevention or cure for HSV, there are treatments that shorten the length and severity of the outbreaks.

Herpes zoster [HER-peeZ ZOS-tur], also known as **shingles**, is caused by the virus responsible for the chickenpox, Herpes Varicella-zoster virus. Although it can also affect HIV-negative individuals it is most common among people with HIV because of their weakened immune systems. It results in very painful rashes and blisters on the chest, back and face. The rash typically affects one side of the body and lasts for a few weeks. There are no primary or secondary prophylaxes available for shingles. Treatments include anti-herpes drugs and pain medications.

INTESTINES / GUT

Cryptosporidiosis [krip-toe-spor-rid-ee-O-sis] (also referred to as Crypto) is an intestinal infection that is easily spread through contact with water, feces or food that have been contaminated with a common parasite called *Cryptosporidium*. Symptoms may include diarrhea, nausea, vomiting, weight loss and stomach cramps. Infection usually lasts one to two weeks in HIV-negative individuals, but can last much longer and be life-threatening in people with HIV. While there are no medications that prevent or treat crypto, there are a variety of treatments to control the diarrhea caused by infection.

Cytomegalovirus [sigh-TOE-meg-a-low-VY-rus] (also referred to as CMV) is a virus that most commonly affects the eyes (see *Eyes*), but among people with HIV it can also cause colitis [ko-LY-tis], which is an infection of the colon. CMV can be passed from person to person through saliva, semen, vaginal secretions, urine, breast milk and transfusions of infected blood. While anyone can be infected with CMV, illness occurs only among people with weakened immune systems. Symptoms of CMV colitis may include abdominal pain, diarrhea, cramps, weight loss and blood loss. Primary and secondary prophylaxes, and treatments are available.

GENITALS

Candidiasis [can-did-EYE-a-sis] is the most common fungal infection in people with HIV. It usually affects the vagina, mouth (see *Mouth*), throat and lungs. The fungi that cause Candidiasis are naturally present in the human body and are responsible for most cases of the disease, but rare cases of person-to-person transmission have been recorded. Although anyone can develop the disease it is more common among people with HIV. Symptoms of vaginal infection may include white discharge, itching, and pain during urination or sexual activity. Primary prophylaxis is not recommended and secondary prophylaxis may be recommended in certain cases. Anti-fungal treatments help control the fungus but recurrence of the infection is common.

Herpes simplex [HER-peeZ SIM-plex] is a disease caused by the Herpes simplex virus. There are two types of Herpes simplex virus (HSV): HSV1, which causes cold sores or blisters around the mouth and the eyes; and HSV2, which causes genital or anal herpes. The viruses are spread from one person to another by contact with an infected area such as the mouth and genitals. Symptoms appear in outbreaks of rash, which may involve itching, tingling and the appearance of painful blisters or sores. HSV can affect anyone but outbreaks are more frequent and more serious in people with HIV. Although there is no prevention or cure for HSV, there are treatments that shorten the length and severity of the outbreaks.

Human papillomavirus [pa-pill-LOW-muh-VY-rus] (also referred to as HPV) is a commonly occurring genital infection that is caused by a group of viruses called human papillomavirus. HPV is easily passed from person to person through direct contact with infected areas, for example during sexual activity. It can cause genital warts, which look like bumps on the penis, vagina and anus. Certain types of HPV are also linked to cervical cancer. The virus can be passed from one person to another even when a person is asymptomatic. Anyone can be infected with HPV but infection is usually short in healthy people. Among people with HIV, HPV infection is more serious, can recur frequently and last for long periods of time. These persistent infections are associated with higher risks of cervical cancer. In June 2006, the first HPV vaccine, Gardasil, produced by Merck, was approved by the U.S. Food and Drug Administration (FDA) for use in females between the ages of 9 and 26. The vaccine is nearly 100% effective against four types of HPV. There are numerous ways to remove warts and dysplasias.

LUNGS

Histoplasmosis [hiss-toe-plaz-MO-sis] is caused by a fungus found in soil contaminated with bird droppings or other organic matter. People get infected by breathing in dust that is contaminated with the fungus. Anyone can be infected with the fungus but people with HIV are more likely to develop the disease. Symptoms may include fever, weight loss, fatigue, difficulty breathing and swollen lymph nodes. Histoplasmosis typically affects the lungs, but among people with weakened immune systems, the disease can spread to the rest of the body. That is a serious complication that can be fatal if left untreated. Histoplasmosis is not transmitted through person-to-person contact. Primary prophylaxis is not currently recommended. Anti-fungal medications are available for treatment of histoplasmosis and secondary prophylaxis is available to prevent disease recurrence.

Mycobacterium avium Complex [MY-ko-back-TEER-ree-um A-vee-um] (also referred to as MAC) is an illness caused by *Mycobacterium avium* and *Mycobacterium intracellulare*. These two similar types of bacteria are commonly found in water, soil, dust and food. Anyone can be infected with the bacteria but HIV-infected individuals are at higher risk of developing serious disease. Disease symptoms may include fever, weight loss, night sweats and weakness. Infection can occur at one site in the body or can spread throughout the body. A variety of drugs are available to treat and prevent MAC.

Pneumocystis jiroveci pneumonia [NEW-mo-SIS-tis yee-row-vet-zee new-MO-knee-yuh], formerly known as *pneumocystis carinii* pneumonia, is caused by a fungus and usually appears as a lung infection. The fungus is believed to be spread through the air. Although it can be present in the lungs of any individual, it causes serious disease only when an infected individual's immune system becomes weakened. It is the most common opportunistic infection among people with HIV. Symptoms may include dry cough, chest tightness, fever and difficulty breathing. Although PJP is entirely preventable and treatable, it is a serious disease that can be fatal if untreated. There are a variety of drugs available for primary and secondary prophylaxis and treatment of PJP.

Tuberculosis [too-burr-kyu-LOW-sis] (also referred to as TB) is a common bacterial infection among people with HIV. An individual can become infected with TB when another person who has active TB coughs, sneezes or talks. Although TB also affects HIV-negative individuals, people with HIV are at higher risk of infection. While not all infected people become ill, TB infection speeds up HIV progression and is the leading cause of death among people with HIV worldwide. Symptoms may include fever, cough, night sweats, weight loss, fatigue, swollen lymph nodes and coughing up blood. Primary prophylaxis is available but secondary prophylaxis is not considered to be necessary. A variety of antibiotics are used in treatment of TB. Depending on the severity of infection, treatment can last for many months or even years.

GUIDE TO DRUG DEVELOPMENT AND APPROVAL

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Before a new drug can be prescribed for patient use, it must first be approved by the U.S. Food and Drug Administration (FDA) Center for Drug Evaluation and Research (CDER). CDER is responsible for overseeing the testing and development of new drugs and new drug uses, and for ensuring that the methods used in drug development are both safe and effective.

CDER does not actually test new drugs. That responsibility falls to the company or institution developing the drug, also known as the “sponsor.” Before a new treatment can be approved by the FDA, a sponsor must extensively test the new drug and submit the data collected to CDER for review.

Throughout the development and testing process, CDER scrutinizes everything from the design of the drug’s clinical trials to the nature of side effects to the manufacturing conditions under which it will be produced and packaged.

Preclinical Testing

Before approaching the FDA for permission to test a new drug in humans, the sponsor must first analyze the drug in the lab and thoroughly test it in animals to make an initial determination about its safety and effectiveness. These preclinical trials are the first step in the development and approval of a new treatment.

Preclinical trials mark the end of the road for the vast majority of experimental drugs. According to industry research, only one out of every 1,000 potential new drugs proceeds from preclinical to clinical trials.

Investigational New Drug Applications (IND)

If preclinical trials are successful, the sponsor can submit an Investigational New Drug Application (IND) to the FDA. This document includes the results of the preclinical testing and proposes a “protocol” for clinical trials—a detailed plan of how the sponsor will test the drug in humans.

Each protocol is reviewed both by CDER and a local Institutional Review Board (IRB), an independent panel of scientists and other experts that has the authority to approve, change or reject research designs.

Before the clinical trial can proceed, both CDER and IRB must determine that the research protocol is sound and that the sponsors will take appropriate steps to inform trial participants of any risks and make every effort to protect participants from harm.

Clinical Trials

There are four stages or “phases” of clinical studies, the human trials required for a drug to be considered for approval.

Phase I

The primary goal for Phase I trials is to evaluate the safety of the drug and determine how the drug behaves in the body (also known as pharmacokinetics). These initial clinical tests help to identify a drug’s most frequent side effects when used for relatively short periods of time (days to weeks). Phase I trials often investigate the drug’s effects at several dose levels and typically involve a relatively small number of participants (generally between 20 and 100). Roughly 70% of the drugs that make it this far successfully navigate Phase I trials.

Phase II

Phase II trials are designed to provide evidence for effectiveness—whether the drug provides a benefit against a certain disease or condition. Safety continues to be evaluated, and short-term side effects are also studied. Phase II studies generally last from several months to two years and involve anywhere from a few dozen to several hundred subjects. About one-third of drugs that enter Phase II trials proceed to the next phase.

Phase III

These large-scale studies involve larger groups of participants and generally last from one to five years. Phase III trials gather additional information about safety and effectiveness by studying how the drug affects different populations in different dosages and examining how it interacts with other drugs. Roughly 30% of drugs that enter Phase III trials go on to seek FDA approval.

Phase IV

These “post-marketing” studies take place only after the drug being tested has been approved by the FDA. Phase IV trials may be used to evaluate long-term safety and efficacy of the drug, to explore alternate uses for a treatment or its effects on other patient populations.

New Drug Application (NDA)

Before the FDA will consider approving a new drug for marketing in the United States, the sponsor must file a New Drug Application (NDA), a document that tells the entire “life story” of a drug’s development. The NDA includes detailed analyses of the results of each preclinical and clinical trial, information about how the drug works and behaves in the body, as well as information about how the drug will be manufactured.

Once a sponsor files an NDA, the FDA has 10 months (six, if the drug is a new compound for the treatment of a very serious illness) to review the application. The FDA may then reject the application outright, return it to the sponsor as incomplete or approve the drug as a treatment for a specific condition.

Sources: FDA, PhRMA, WebMD.com, AIDSmeds.com, AIDS Infonet and AIDSinfo.nih.gov

IMPORTANT TERMS IN ANTIRETROVIRAL THERAPY

Term	Description
Antiretroviral Therapy (ART)	ART refers to any of a range of treatments that include antiretroviral (ARV) medications. These drugs are designed to destroy retroviruses or interfere with their ability to replicate. ART suppresses the ability of HIV to multiply, slowing the progression of the disease. The six classes of antiretroviral drugs currently available are nucleoside reverse transcriptase inhibitors (NRTI), non-nucleoside reverse transcriptase inhibitors (NNRTI), protease inhibitors (PI), fusion inhibitors, entry inhibitors and HIV integrase strand transfer inhibitors. The drugs on the following pages are all antiretrovirals.
Combination Therapy	The use of two or more antiretrovirals in combination.
Entry Inhibitors – CCR5 Co-receptor Antagonist	Entry Inhibitors constitute a new class of antiretrovirals designed to combat infections that are increasingly resistant to older therapies. They are designed to disrupt the ability of HIV to enter a host cell through the cell's surface and they target the CCR5 receptor.
Food and Drug Administration (FDA)	The U.S. Department of Health and Human Services' agency responsible for ensuring the safety and effectiveness of all drugs, biologics, vaccines and medical devices, including those used in the diagnosis, treatment and prevention of HIV infection, AIDS and AIDS-related opportunistic infections. The FDA also works with the blood-banking industry to safeguard the nation's blood supply.
Fusion Inhibitor	Fusion Inhibitors are a class of ART that work by blocking HIV from entering target cells and preventing it from multiplying, since HIV needs to be inside the cells to make copies of itself.
Generic Drug	A drug that is identical or bioequivalent to a brand name drug in dosage, safety, strength, how it is taken, quality, performance and intended use. The generic name of a drug is the common name of the drug and not protected under any manufacturer's copyright. It is the more commonly used format when referring to a drug in medical literature or the media. Generic sometimes refers to less expensive but chemically identical medications manufactured by companies that did not invent the drug. In some countries, generic drugs come on the market after a patent on the drug has expired. In other countries, generic drugs are manufactured and sold even before a patent expires.
HAART (Highly Active Antiretroviral Therapy)	Refers to ARV treatment regimens that act aggressively to suppress the replication of HIV and progression of HIV disease. The usual HAART regimen involves the use of three or more antiretrovirals.
HIV Integrase Strand Transfer Inhibitors	HIV Integrase Inhibitors are a relatively new class of antiretrovirals. They are designed to interfere with a part of the replication process by preventing the HIV integrase protein from inserting HIV's genetic information into an infected cell's own DNA.
Multi-class Combination Products	Multi-class combination products combine various classes of HIV antiretroviral drugs to increase the efficacy of treatment and the ease of staying on the prescribed medication. The only multi-class combination product available (Atripla, as of Spring, 2008) is taken once a day and combines three known and proven HIV treatments.
Nucleoside Reverse Transcriptase Inhibitor (NRTI)	Nucleoside Reverse Transcriptase Inhibitors are a class of ART that block the replication of HIV by interfering with Reverse Transcriptase (RT), a protein that HIV needs to make more copies of itself.

Term	Description
Non-Nucleoside Reverse Transcriptase Inhibitor (NNRTI)	Non-Nucleoside Reverse Transcriptase Inhibitors are a class of ART that block the replication of HIV by interfering with Reverse Transcriptase, a protein that HIV needs to make more copies of itself. NNRTIs work in a slightly different way than NRTIs.
Protease Inhibitor (PI)	Protease Inhibitors are a class of ART that act by blocking the function of protease, a protein that HIV needs to make more copies of itself.
Single Tablet Regimen (STR)	A single, daily pill that contains multiple antiretroviral drugs. The treatment can greatly simplify combination therapy, which can require patients to take as many as 30 or more pills a day.
Trade/Brand Name	The trade name is the name designated by the drug manufacturer. The first letter of the trade name is capitalized.

DRUGS USED IN THE TREATMENT OF HIV INFECTION (FDA-Approved)

The U.S. Food and Drug Administration oversees the drug approval process which is described in detail in the “Guide to Drug Development and Approval.” The FDA chart below of approved AIDS drugs is current as of Spring, 2012. We recommend you check online periodically for updates at www.fda.gov/ForConsumers/byAudience/ForPatientAdvocates/HIVandAIDSActivities/ucm118915.htm.

While most antiretrovirals remain under patent protection in the U.S., the FDA has given “tentative” approval to several dozen generic AIDS drugs—most of them fixed-dose combination drugs. This enables PEPFAR, the President’s Emergency Program for AIDS Relief, to purchase these drugs and distribute them outside of the U.S. When this plan was announced in 2004 by the Bush Administration the *New York Times* reported that “the quicker (approval) process is intended to encourage manufacturers to produce the fixed-dose combinations to ease delivery of drugs in remote areas in severely affected countries and to make their use safer.”

The World Health Organization also operates a prequalification process for medications, including generic antiretrovirals. This is done in partnership with the FDA and other national regulatory agencies. The “Prequalification Programme” develops and maintains a list of drug products for HIV/AIDS, malaria, tuberculosis and for reproductive health which is primarily used by United Nations agencies—including UNAIDS and UNICEF—to guide their procurement decisions. The list is also used by many national governments and by the Global Fund to Fight AIDS, Tuberculosis and Malaria. The drug list can be found at <http://mednet3.who.int/prequal/>.

Brand Name	Generic Names	Manufacturer Name	Approval Date	Time to Approval
Multi-class Combination Products				
Atripla	efavirenz, emtricitabine and tenofovir disoproxil fumarate	Bristol-Myers Squibb and Gilead Sciences	12-Jul-06	2.5 months
Complera	emtricitabine, rilpivirine, and tenofovir disoproxil fumarate	Gilead Sciences	10-Aug-11	6 months
Nucleoside Reverse Transcriptase Inhibitors (NRTIs)				
Combivir	lamivudine and zidovudine	GlaxoSmithKline	27-Sep-97	3.9 months
Emtriva	emtricitabine, FTC	Gilead Sciences	02-Jul-03	10 months
Epivir	lamivudine, 3TC	GlaxoSmithKline	17-Nov-95	4.4 months
Epzicom	abacavir and lamivudine	GlaxoSmithKline	02-Aug-04	10 months
Hivid	zalcitabine, dideoxycytidine, ddC	Hoffmann-La Roche	19-Jun-92	7.6 months
Retrovir	zidovudine, azidothymidine, AZT, ZDV	GlaxoSmithKline	19-Mar-87	3.5 months
Trizivir	abacavir, zidovudine, and lamivudine	GlaxoSmithKline	14-Nov-00	10.9 months
Truvada	tenofovir disoproxil fumarate and emtricitabine	Gilead Sciences, Inc.	02-Aug-04	5 months
Videx EC	enteric coated didanosine, ddl EC	Bristol Myers-Squibb	31-Oct-00	9 months
Videx	didanosine, dideoxyinosine, ddl	Bristol Myers-Squibb	09-Oct-91	6 months

DRUGS USED IN THE TREATMENT OF HIV INFECTION (FDA-APPROVED)

Brand Name	Generic Names	Manufacturer Name	Approval Date	Time to Approval
Nucleoside Reverse Transcriptase Inhibitors (NRTIs) (continued)				
Viread	tenofovir disoproxil fumarate, TDF	Gilead	26-Oct-01	5.9 months
Zerit	stavudine, d4T	Bristol Myers-Squibb	24-Jun-94	5.9 months
Ziagen	abacavir sulfate, ABC	GlaxoSmithKline	17-Dec-98	5.8 months
Nonnucleoside Reverse Transcriptase Inhibitors (NNRTIs)				
Edurant	rilpivirine	Tibotec Therapeutics	20-May-11	10 months
Intelence	etravirine	Tibotec Therapeutics	18-Jan-08	6 months
Rescriptor	delavirdine, DLV	Pfizer	04-Apr-97	8.7 months
Sustiva	efavirenz, EFV	Bristol Myers-Squibb	17-Sep-98	3.2 months
Viramune	nevirapine, NVP	Boehringer Ingelheim	21-Jun-96	3.9 months
Viramune XR	nevirapine, NVP	Boehringer Ingelheim	25-Mar-11	9.9 months
Protease Inhibitors (PIs)				
Agenerase	amprenavir, APV	GlaxoSmithKline	15-Apr-99	6 months
Aptivus	tipranavir, TPV	Boehringer Ingelheim	22-Jun-05	6 months
Crixivan	indinavir, IDV,	Merck & Co., Inc.	13-Mar-96	1.4 months
Fortovase	saquinavir (no longer marketed)	Hoffmann-La Roche	07-Nov-97	5.9 months
Invirase	saquinavir mesylate, SQV	Hoffmann-La Roche	06-Dec-95	3.2 months
Kaletra	lopinavir and ritonavir, LPV/RTV	Abbott Laboratories	15-Sep-00	3.5 months
Lexiva	fosamprenavir calcium, FOS-APV	GlaxoSmithKline	20-Oct-03	10 months
Norvir	ritonavir, RTV	Abbott Laboratories	01-Mar-96	2.3 months
Prezista	darunavir	Tibotec, Inc.	23-Jun-06	6 months
Reyataz	atazanavir sulfate, ATV	Bristol-Myers Squibb	20-Jun-03	6 months
Viracept	nelfinavir mesylate, NFV	Agouron Pharmaceuticals	14-Mar-97	2.6 months
Fusion Inhibitors				
Fuzeon	enfuvirtide, T-20	Hoffmann-La Roche & Trimeris	13-Mar-03	6 months
Entry Inhibitors - CCR5 Co-receptor Antagonist				
Selzentry	maraviroc	Pfizer	06-Aug-07	8 months
HIV Integrase Strand Transfer Inhibitors				
Isentress	raltegravir	Merck & Co., Inc.	12-Oct-07	6 months

ADDITIONAL RESOURCES

U.S. Food and Drug Administration. *Drugs Used to Treat Complications of HIV/AIDS*, www.fda.gov/ForConsumers/ByAudience/ForPatientAdvocates/HIVandAIDSActivities/ucm118949.htm

U.S. Food and Drug Administration. *Drugs Used in the Treatment of Pediatric HIV Infection*, www.fda.gov/ForConsumers/ByAudience/ForPatientAdvocates/HIVandAIDSActivities/ucm118951.htm

Pieperl, L. and S. Coffey. *Antiretroviral Drug Profiles*, <http://hivinsite.ucsf.edu/InSite?page=ar-drugs>

U.S. Department of Health and Human Services (DHHS) *AIDSinfo Drug Database*, www.aidsinfo.nih.gov/drugsnew/Default.aspx

AIDS VACCINE Q&A

This information was developed by the International AIDS Vaccine Initiative (IAVI); more information can be found at www.iavi.org. We are grateful for permission to reprint this material.

Today the world is facing one of the greatest public health threats in six centuries: HIV/AIDS. Thirty-four million individuals are currently living with HIV, and to date the disease has taken the lives of more than 30 million people. Scientists and public health experts believe that in order to end the pandemic, we must take a comprehensive approach that combines prevention, treatment and care plus broad global access to biomedical HIV-prevention tools, including, eventually, a preventive vaccine.

What is a vaccine?

A vaccine is a substance that teaches the body to recognize and defend itself against organisms that cause disease. A vaccine causes a response from the immune system, the body's defense system, that prepares it to fight, and leaves a memory of how to fight, in case of exposure to a specific infection. A vaccine is not a cure, but rather prevents infection or slows the progression of a disease in the event infection occurs.

Why are vaccines important?

Disease prevention through immunization is not a new concept; vaccines have been around for hundreds of years. The first modern vaccine was developed in 1796 by Edward Jenner to prevent smallpox. Every year, vaccines prevent up to 3 million deaths and save 750,000 children from disability. With the exception of clean drinking water, no other human health intervention has had the impact of vaccination on reducing infectious diseases. Through vaccination, smallpox, which once killed about a million people a year in Europe alone, has been eradicated globally. Polio is close to elimination, thanks to vaccines. Other vaccines—including those for rabies, tetanus, measles, mumps, and hepatitis A and B—when used as part of national immunization campaigns save millions of lives and millions of dollars in health care expenses. What's more, immunization has been documented as one of the most cost-effective means of improving public health.

Are vaccines 100% effective in preventing disease?

No vaccine is 100% effective. In fact, most vaccines protect between 70% and 95% of those vaccinated against the targeted disease. This is the concept of partial efficacy. A vaccine does not have to be 100% effective to have a large impact on public health in a community if a significant segment of the population receives the vaccine. Some statistical modeling suggests that, for example, an AIDS vaccine with 50% efficacy given to 30% of the population would avert 5.6 million new infections in low- and middle-income countries between 2015 and 2030.

Successful mass vaccination programs also create so-called herd immunity. If enough people in a community are vaccinated with an effective vaccine, there are statistically fewer chances for an infectious disease to be transmitted, thus lowering the risk of infection even for people who have not been vaccinated and for individuals for whom the vaccine is not effective.

What is the difference between a preventive and a therapeutic AIDS vaccine?

In common parlance, "vaccine" typically refers to a preventive vaccine. A preventive vaccine is designed for individuals who are not infected with the targeted pathogen, for example, HIV. The vaccine would either prevent the individual from becoming infected when exposed to the virus, or if infection occurs, the vaccine would slow the progression of disease. A therapeutic HIV vaccine would be designed to reduce the impact of HIV/AIDS in individuals already infected with the virus.

Why is there a need for a vaccine to prevent HIV/AIDS?

Data from countries with ongoing HIV/AIDS prevention and/or treatment and care programs demonstrate that these initiatives alone are not enough to end the global epidemic. Today less than half of those who need life-prolonging antiretroviral (ARV) drugs have access to them. And for every person who initiates antiretroviral therapy, two more become newly infected with HIV. History—particularly in the cases of smallpox and polio—suggests that only mass immunization programs with an effective vaccine can control major viral epidemics. Today's medicines against HIV/AIDS are not cures. They are highly expensive, in part because they must be taken every day for life. A vaccine should be seen as part of a comprehensive response to HIV/AIDS. In order to curb or stop the global epidemic, both short-term and long-term solutions must be used. Short-term solutions include scaling up of existing prevention campaigns such as education on safer sex, making male circumcision available and safe, ensuring treatment of the millions already infected, and mitigating the socio/economic impacts of the epidemic. The long-term solutions depend on developing new prevention methods including a preventive AIDS vaccine.

How would an AIDS vaccine work?

An effective AIDS vaccine would teach the body to recognize the human immunodeficiency virus (HIV) that causes AIDS and provoke an immune response that would defend against the virus if it entered the body. The information on how to defeat the virus would become part of the immune system's memory; the immune system would be prepared to fight back every time it encounters the virus.

Why do scientists believe a preventive AIDS vaccine is possible?

Data from a Phase III AIDS vaccine trial in Thailand in 2009 showed for the first time that a vaccine could prevent HIV (though modestly) in humans, proving that a preventive AIDS vaccine is possible. What's more, follow-up analysis of samples from that trial provided scientists with clues as to how the vaccine may have worked. These clues are known as "correlates of protection," and they will help guide the design of next-generation vaccine candidates. Previously, the field had only evidence of feasibility for an AIDS vaccine in animal models—but now we know that an AIDS vaccine candidate can also provide benefit in humans. The trial, known as RV144 and conducted by the U.S. Military HIV Research Program and the Thai Ministry of Public Health, demonstrated that a prime-boost combination of two AIDS vaccine candidates was about 30% effective at preventing infection with HIV.

In addition to what they learned from the Thai trial, researchers know that the immune systems of some individuals have a natural ability to prevent infection with HIV. In other individuals, the immune system appears to control the progression of the disease. And some HIV-infected individuals produce antibodies that are capable of neutralizing the majority of strains of HIV circulating in the world today; these antibodies, injected into non-human primates, work like an effective vaccine. Now scientists are working to engineer next-generation vaccines capable of inducing these antibodies in humans who receive the vaccine.

Why isn't an AIDS vaccine currently available?

Developing a vaccine is never easy; it took 47 years from the discovery of the polio virus to the development of a polio vaccine. With chicken pox it took 34 years. The vaccine for rotavirus, which causes diarrheal disease, took 25. HIV was discovered in 1983, and we've only had a serious AIDS vaccine effort for about a decade. To date, only three experimental AIDS vaccines have completed efficacy testing.

Developing a vaccine to prevent HIV/AIDS is particularly challenging given that HIV is one of the most complicated viruses ever identified. HIV targets and destroys the very immune system that a vaccine traditionally triggers. And the genetic instability of HIV is daunting: millions of viruses are constantly produced, and their mutation rates are spectacular. The immune system is presented with an endless stream of new forms of the virus that it is unable to recognize and control.

There are other scientific challenges to AIDS vaccine development, including the lack of a fully adequate model for early testing of candidates in animals. There are questions of what will be the most effective approach or combination of approaches to triggering an immune response to HIV: cellular, humoral or mucosal. And finally, it is yet unknown whether a single universal vaccine can create immunity against the different subtypes, or clades, of the HIV virus, or if a different vaccine must be developed against each clade.

For private-sector vaccine developers, a major disincentive for capital investment in AIDS vaccine research is the fact that the primary markets for a vaccine would be in the poorest countries in the world—those least likely to have the resources to ensure a reasonable return on investment.

Can an AIDS vaccine cause AIDS?

No. The preventive AIDS vaccines currently in human trials do not contain any live virus that could result in HIV infection, thus they cannot cause AIDS. These vaccine candidates contain only harmless particles or copies of particles of the HIV virus—enough to trigger the body's immune system, but not enough to cause disease. They are so-called recombinant vaccines that use genetically engineered components of HIV. These vaccines are something like a car with the engine removed. They are still recognizable as a car but can't drive.

How is an AIDS vaccine tested?

Vaccines and other pharmaceutical products are tested in stages, each taking a number of years. Initial laboratory work—to establish a scientific concept or platform for research—is followed by animal studies to establish overall safety. Only then can human clinical trials take place. During the human trials, the candidate vaccine is tested in volunteers to continue to evaluate safety and effectiveness.

There are three stages, or phases, of human clinical trials. For an AIDS vaccine specifically, Phase I typically involves a relatively small number of healthy, HIV-uninfected adult volunteers at low risk of HIV infection. Phase I trials focus on safety issues, but usually also look at whether the vaccine is immunogenic. Often several Phase I studies will be done in succession, to test different vaccine doses or immunization schedules. Phase II trials involve several hundred volunteers, often including some with a high infection risk. These trials are designed to gather both safety and immunogenicity data. Phase III (efficacy) trials enroll several thousand volunteers or even more, and statistically determine whether the vaccine candidate works—that is, does it protect some vaccinees from either HIV infection or AIDS? Very few of the vaccines tested in Phase I will go all the way to Phase III testing.

What is involved in obtaining approval to conduct a vaccine trial?

To obtain approval to study a vaccine candidate in humans, a comprehensive package of preclinical and manufacturing data must be submitted to the appropriate national regulatory agencies for review. In the United States, for example, the Food and Drug Administration must review and approve every investigational new drug (IND) application. Each participating institution or trial center also must obtain study approval from its institutional review board or ethics committee. Depending on the country, the review process can take several months or more. Often the vaccine developer will have to supply additional information or revise sections of the proposed trial protocol.

Who participates in AIDS vaccine trials?

Adult volunteers who meet the health and risk criteria outlined in the trial protocol and who give informed consent can participate.

How are the rights of volunteers in an AIDS vaccine trial protected?

There are established international guidelines for ethical treatment of all volunteers in pharmaceutical and vaccine trials. These guidelines are reinforced by an independent review system on a national and trial-site basis. All potential volunteers must be counseled on informed consent—a written agreement to participate in a trial based on the volunteer's complete understanding of all relevant information. Sponsors of clinical trials must demonstrate that they will employ only competent and highly trained research staff and will take all the steps needed to maximize the confidentiality of volunteers. Throughout the trial, volunteers in an AIDS vaccine trial receive extensive counseling on how to reduce their risk of exposure to HIV, as well as access to proven prevention methods such as condoms. A volunteer can decide to leave the study at any time without explanation.

Does every volunteer in a trial receive the vaccine candidate?

Usually, no. To test the effectiveness of the candidate vaccine, most trials are designed to include a control group. Volunteers in the control group receive a placebo, which is a substance that looks just like the vaccine but is inactive. Assignment to the vaccine or placebo group is done randomly and neither the volunteers nor the researchers know who has been given the placebo or the vaccine until the end of the trial; this is known as blinding. Blinding is done to minimize the chances that volunteers will alter their behavior because they've received the vaccine, for instance, or that researchers will make assumptions about how volunteers are faring based on whether they received the vaccine or placebo.

What sort of side effects might an AIDS vaccine trial volunteer experience?

Some volunteers may experience pain, tenderness, redness or swelling at the injection site, or mild flu-like symptoms such as headache and fever. Some volunteers may experience no side effects at all. Vaccine trials are carefully monitored to ensure the safety of the participants.

How many AIDS vaccine trials are ongoing today?

Today, there are approximately 30 AIDS vaccine candidates undergoing clinical testing in humans. For detailed information about ongoing and past AIDS vaccine trials, including the candidate's design, composition, and manufacturer, we encourage you to visit the IAVI Report trial database, available at www.iavireport.org/trials-db.

ADDITIONAL RESOURCES

AVAC: Global Advocacy for HIV Prevention. www.avac.org/

The Global Alliance for Vaccines and Immunization. www.gavialliance.org

The Global HIV Vaccine Enterprise. www.hivvaccineenterprise.org

World Health Organization. WHO – UNAIDS HIV Vaccine Initiative, www.who.int/vaccine_research/diseases/hiv/en/

U.S. Department of Health and Human Services. AIDSinfo Vaccines, <http://aidsinfo.nih.gov/Vaccines/Default.aspx?MenuItem=Vaccines>

GLOBAL GOALS AND FINANCIAL COMMITMENTS

The HIV/AIDS epidemic requires substantial funding to develop and sustain prevention, care and support, treatment and research programs. Funding from all sectors, including donor governments and other institutions, the private sector and governments whose countries have been affected by HIV/AIDS, has been critical to addressing the impact of HIV/AIDS. There have been a series of international HIV/AIDS commitments recognizing that the scale of the AIDS epidemic requires a global partnership to integrate efforts at all levels. This section provides a brief overview of these major commitments and discusses the key sectors that provide financial resources to combat HIV/AIDS.

Global Goals

The United Nations General Assembly adopted two major documents establishing significant goals in the global fight against HIV/AIDS. In 2000, as part of the UN Millennium Development Goals (MDGs), all UN member nations agreed to global HIV targets to halt and begin to reverse the spread of HIV by 2015. In 2001, nations attending the first-ever United Nations General Assembly Special Session on HIV/AIDS (UNGASS) adopted a blueprint for action in “The Declaration of Commitment on HIV/AIDS (DoC).” The UN describes this as a landmark document, which “identifies goals and targets based on human rights law and principles in four areas: prevention of new infections, provision of improved care, support and treatment for those infected with and affected by HIV/AIDS, reduction of vulnerability, and mitigation of the social and economic impact of HIV/AIDS.” In 2008, Secretary General Ban Ki-moon reported that while there have been “some important achievements” much remains to be done to reach the UNGASS goals.

Although global access to prevention, treatment, and care programs has significantly increased since that time, the goals outlined in the DoC were not completely met by the target date of 2010, and there is concern about the ability of the global community to meet the MDG goals. In recognition of the importance of continuing to combat the epidemic, the UN adopted the “Political Declaration on HIV/AIDS: Intensifying our Efforts to Eliminate HIV/AIDS” in 2011. This Declaration reaffirmed the 2001 DoC and laid out expanded, new goals to be met by 2015. Those goals include providing antiretroviral treatment to 15 million people, and reducing the sexual transmission of HIV, transmission among people who inject drugs, and reducing tuberculosis deaths in persons living with HIV by 50 percent. More information about the progress of individual countries can be found at www.unaids.org.

Funding The Response

Financing a sufficient and sustained response to the HIV/AIDS epidemic in low- and middle-income countries has emerged as one of the world’s greatest health and development challenges. To reach universal access goals towards HIV prevention, treatment, care and support, UNAIDS estimates that an investment of at least \$22 billion will be needed by 2015. Often, the countries most affected by HIV/AIDS have the fewest resources. Consequently, the role of international donor assistance in low- and middle-income countries is critical.

Financing for HIV/AIDS in low- and middle-income countries is provided by four major funding streams, which are described below:

Donor Governments: Donor governments provide virtually all of the world’s development assistance for HIV/AIDS. The funds are typically given through bilateral channels, either given directly by one government to a country through its government, a non-governmental organization (NGO), or another entity. Donor governments may also contribute funds through multilateral organizations, such as the Global Fund to Fight AIDS, Tuberculosis and Malaria. However, the bulk of donor government assistance comes bilaterally from countries in the G8: Canada, France, Germany Japan, the United Kingdom and the U.S., which provides the largest commitment of any donor.

Other donor governments, outside of the G8, that contribute significant amounts include the Netherlands, Denmark, Sweden, Norway and Australia.

Multilateral Organizations: Multilateral organizations provide significant resources to combating HIV/AIDS. They receive their funding primarily from governments but may also receive funding from private organizations and individuals. The main multilateral organizations in the fight against HIV/AIDS are: the Global Fund to Fight AIDS, Tuberculosis and Malaria, which was established in 2002 and is an independent, public-private partnership; the World Bank, which has been supporting AIDS efforts since 1986, including through its Multi-Country HIV/AIDS Program (MAP) for Africa and the Caribbean; and numerous entities within the United Nations whose activities are coordinated by UNAIDS.

Private Sector: The private sector includes foundations, corporations, international NGOs and individuals. Together they represent an important funding stream for HIV/AIDS, often acting to pilot new and innovative strategies, leveraging existing ones and developing partnerships within the private sector. The Bill & Melinda Gates Foundation has played a major role, committing more than \$2.0 billion for HIV to date. Support can also come in the form of non-cash commodities such as price reductions for AIDS drugs and in-kind support.

Domestic Resources: Spending by governments and individuals in affected countries represents a significant part of the response to HIV/AIDS. The extent of support by domestic governments varies greatly and depends upon income, debt, availability of external resources and political commitment. In addition to domestic government support, households and individuals within affected countries often shoulder at least some, if not much, of the financial burden.

REFERENCES AND ADDITIONAL RESOURCES

The Global Fund to Fight AIDS, Tuberculosis and Malaria. *Donors' Pledges and Contributions*, www.theglobalfund.org/en/about/donors/

Kaiser Family Foundation. *International Assistance for HIV/AIDS and Global Health in the Developing World*, www.kff.org/hivaids/internationalfinancing.cfm—see in particular, Kaiser Family Foundation and UNAIDS.

Kaiser Family Foundation. *Financing the response to AIDS in low- and middle-income countries: International assistance from the G8, European Commission and other donor governments in 2010*, www.kff.org/hivaids/7347.cfm

UNAIDS. *Universal Access to HIV treatment, prevention, care and support*, www.unaids.org/en/aboutunaids/universalaccesstohivtreatmentpreventioncareandsupport/

UNAIDS. *Report on the Global AIDS Epidemic (2010)*, www.unaids.org/globalreport/

UNAIDS. *Monitoring country progress*, www.unaids.org/en/dataanalysis/monitoringcountryprogress/

UNAIDS *Practical Guidelines for Intensifying HIV Prevention Towards Universal Access*, http://data.unaids.org/pub/Manual/2007/20070306_prevention_guidelines_towards_universal_access_en.pdf

United States Government, PEPFAR, www.pepfar.gov/

World Bank, Global HIV/AIDS Program, <http://go.worldbank.org/LCCCQ5S3X0>

World Bank, Act Africa, <http://go.worldbank.org/594U49VURO>

World Bank. *Approved and Active HIV/AIDS Projects and Disbursements*, <http://go.worldbank.org/GF367IDHD0>

United Nations Development Programme. *Millennium Development Goals*, www.un.org/millenniumgoals/

United Nations. *Declaration of Commitment on HIV/AIDS Adopted by the General Assembly (2001)*, www.un.org/ga/aids/coverage/FinalDeclarationHIVAIDS.html

United Nations, Office of the United Nations High Commissioner for Human Rights. *UNGASS Declaration of Commitment on HIV/AIDS*, (June 2001), www2.ohchr.org/english/issues/hiv/ungass.htm

United Nations. *Political Declaration on HIV/AIDS: Intensifying our Efforts to Eliminate HIV/AIDS*, (June 2011), www.unaids.org/en/media/unaids/contentassets/documents/document/2011/06/20110610_UN_A-RES-65-277_en.pdf

SELECT KEY ORGANIZATIONS

The list that follows provides you with a broad range of key resources and organizations involved in providing information and education about the HIV/AIDS epidemic. Additional information can be found using the website links provided.

AIDS-Free World: An international organization that promotes human rights and HIV prevention and care through education, research and communication.

www.aids-freeworld.org

AIDSinfo: A service of the U.S. Department of Health and Human Services (HHS), the website offers access to the latest, federally approved HIV/AIDS medical practice guidelines, HIV treatment and prevention clinical trials and other research information for health care providers, researchers, people affected by HIV/AIDS and the general public.

www.aidsinfo.nih.gov

AIDS.gov: The website, sponsored by a cross-agency U.S. government planning group, works to increase HIV testing and care among people most at-risk for, or living with, HIV, by using emerging communication strategies to provide access to federal HIV information, policies (such as the National HIV/AIDS Strategy), programs and resources.

www.aids.gov

AVAC, Global Advocacy for HIV Prevention: AVAC is a non-profit, community- and consumer-based organization that uses public education, policy analysis, advocacy and community mobilization to advocate for the development and global delivery of AIDS vaccines and other HIV prevention options.

www.avac.org

AVERT: An international HIV/AIDS non-profit organization based in the United Kingdom promoting HIV/AIDS prevention through education, treatment and care.

www.avert.org

Bill & Melinda Gates Foundation: A funding organization working to improve global health overall, especially in the fields of HIV/AIDS & TB, other infectious diseases, and reproductive and child health. It is committed to slowing the global spread of HIV, supports the development of vaccines and other preventive strategies, and funds comprehensive initiatives that include both prevention and treatment.

www.gatesfoundation.org

Centre for the AIDS Program of Research in South Africa (CAPRISA): A non-profit AIDS research organization examining HIV biology, epidemiology, treatment, and prevention. CAPRISA also focuses on the interaction between HIV and TB, as well as microbicide research.

www.caprisa.org

CARE: An international humanitarian organization focusing on poor women worldwide to promote community-based efforts to improve basic education, prevent the spread of disease including HIV, increase access to clean water and sanitation, expand economic opportunity, and protect natural resources. Through its programs, CARE works to prevent the spread of HIV, provide care and support to those affected by HIV, and reduce stigma and discrimination.

www.care.org

Clinton Health Access Initiative (CHAI): Operated by the William J. Clinton Foundation, CHAI is a global health organization aimed at strengthening integrated health systems in the developing world and expanding access to care and treatment for HIV/AIDS, malaria and tuberculosis.

www.clintonhealthaccess.org | www.clintonfoundation.org

The Foundation for AIDS Research (amfAR): A non-profit organization that supports AIDS research, prevention, treatment and the advocacy of AIDS-related public policy.

www.amfar.org

GBCHealth: An alliance comprising more than 200 international companies and organizations dedicated to combating HIV/AIDS, TB and malaria with private sector resources.

www.gbchealth.org/

The Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund): An international partnership between public and private organizations that finances programs to fight HIV/AIDS, tuberculosis and malaria.

www.theglobalfund.org

Global Youth Coalition on HIV/AIDS: An international network of young people, ages 15-30, working to assist youth leaders in scaling up HIV prevention activities and opportunities among their peers.

www.gyca.org

Global Network of People Living with AIDS (GNP+): An international organization with a broad agenda including access to treatment, empowerment of HIV-positive people and human rights. It describes itself as a “network of networks” because of its relationship to regional and national networks around the world.

<http://www.gnpplus.net>

HIV InSite: An online resource for information on HIV/AIDS treatment, prevention, policy and research developed by the Center for HIV Information (CHI) at the University of California San Francisco (UCSF).

www.hivinsite.org

International AIDS Society (IAS): A large independent association of HIV/AIDS professionals and organizer of the biennial International AIDS Conference.

www.iasociety.org

International AIDS Vaccine Initiative (IAVI): A global non-profit public-private partnership working to promote the development of a vaccine to prevent HIV/AIDS.

www.iavi.org

International Council of AIDS Service Organizations (ICASO): An international organization that promotes and supports community-driven efforts to fight HIV/AIDS and, in the process, build a more effective global response to the epidemic.

www.icaso.org

International HIV/AIDS Alliance: A global partnership of national organizations working to support community action on AIDS in developing countries.

www.aidsalliance.org

Kaiser Family Foundation: The Foundation's gateway on U.S. global health policy provides journalists and others with up-to-date information about global health issues and includes an interactive tool providing country-specific health and other data.

globalhealth.kff.org/

ONE: An advocacy organization promoting anti-poverty and disease prevention strategies, particularly in Africa, through education and lobbying. ONE produces the annual DATA Report, which monitors G8 and European commitments to help sub-Saharan Africa meet the Millennium Development Goals.

www.one.org | www.one.org/data

Partners In Health (PIH): A non-profit organization that provides direct health care services and conducts research and advocacy activities in poor communities, particularly those affected by HIV and tuberculosis.

www.pih.org

Roll Back Malaria (RBM): A global partnership, created by WHO, UNICEF, UNDP and the World Bank, that coordinates international malaria-control activities, bringing together public and private organizations, international agencies, malaria-endemic countries, and research and academic institutions.

www.rbm.who.int

Stop TB Partnership: An international collective of public and private organizations dedicated to the elimination of tuberculosis. It operates through a secretariat hosted by the World Health Organization (WHO).

www.stoptb.org

The AIDS Support Organization (TASO): A non-profit organization based in Uganda and founded in 1987 to provide care, support and prevention resources, with the aim of reducing stigma and discrimination.

www.tasouganda.org

Treatment Action Campaign (TAC): A South African-based organization advocating for access to comprehensive treatment and prevention for people living with HIV. TAC also works to raise public awareness and understanding about issues surrounding the availability, affordability and use of HIV treatments.

www.tac.org.za

UNAIDS (Joint United Nations Programme on HIV/AIDS): The joint venture of the United Nations family, UNAIDS brings together the efforts and resources of 10 UN organizations in the AIDS response to help the world prevent new HIV infections, care for people living with HIV and mitigate the impact of the epidemic.

www.unaids.org

United Nations Children's Fund (UNICEF): An agency of the United Nations committed to improving the quality of life of children worldwide, including children living with and affected by HIV.

www.unicef.org

United Nations Development Programme (UNDP): An agency of the United Nations for improving local infrastructure, poverty reduction and human rights. UNDP plays an important role in the fight against HIV/AIDS, as poverty and other related socio-economic problems contribute greatly to the spread of the epidemic.

www.undp.org

UNITAID: A partnership among UN agencies and other organizations that aims to improve access to treatment for HIV/AIDS, malaria and tuberculosis, primarily for people in low-income countries, by leveraging price reductions for quality diagnostics and medicines and accelerating the pace at which these are made available.

www.unitaid.eu

U.S. Centers for Disease Control and Prevention (CDC): The principle agency in the U.S. government for protection against infectious and chronic diseases. CDC is a major participant in bilateral and multilateral initiatives on HIV/AIDS and other diseases.

www.cdc.gov

U.S. Food and Drug Administration (FDA): An agency of the U.S. government regulating the development and application of food and medicinal products. FDA approval sets the international standard for accepted HIV/AIDS drugs and therapies.

www.fda.gov

U.S. Global Health Initiative (GHI): Proposed as a six-year (FY 2009–FY 2014), \$63 billion initiative to develop a comprehensive U.S. government strategy for global health. GHI builds on the President's Emergency Plan for AIDS Relief (PEPFAR) to combat HIV as well as U.S. efforts to address tuberculosis (TB) and malaria, while increasing attention to other areas, including maternal and child health, family planning and reproductive health, nutrition, neglected tropical diseases and the strengthening of underlying health systems.

www.ghi.gov

U.S. National Institute of Allergy and Infectious Diseases (NIAID): A division of the U.S. National Institutes of Health that conducts and supports basic and applied research to better understand, treat, and ultimately prevent infectious, immunologic and allergic diseases, including HIV.

www.niaid.nih.gov

U.S. President's Emergency Plan for AIDS Relief (PEPFAR): The largest component of the U.S. Global Health Initiative, PEPFAR is the U.S. government's HIV/AIDS initiative. The program is the largest by any nation to combat a single disease internationally.

www.pepfar.gov

U.S. State Department Office of the Global AIDS Coordinator: The office that leads and coordinates all international HIV/AIDS-related efforts of the United States government, including PEPFAR.

www.state.gov/s/gac

U.S. Agency for International Development (USAID): The international development agency of the U.S. government, facilitating economic, political, and public health–related initiatives in developing nations, including a major part of the U.S. international HIV response.

www.usaid.gov/our_work/global_health/aids/index.html

World Bank Global HIV/AIDS Program: A division of the World Bank dedicated to the prevention and mitigation of HIV's social, economic and strategic impact.

www.worldbank.org/aids

World Health Organization (WHO): The WHO is the directing and coordinating authority for the health efforts of the United Nations system, responsible for providing leadership on global health issues. The WHO HIV/AIDS Department provides evidence-based, technical support to WHO member states to help them scale up treatment, care and prevention services as well as drugs and diagnostics supply to ensure a comprehensive and sustainable response to HIV/AIDS.

www.who.int | www.who.int/hiv/en/

TUBERCULOSIS (TB) AROUND THE WORLD

Tuberculosis (TB) is an airborne, infectious disease caused by bacteria which primarily affect the lungs. While both preventable and curable, TB remains one of the world's major causes of illness and death. Approximately one-third of the world's population is currently infected with the bacterium that causes TB and 5%–10% of those infected will become sick at some point during their lifetime. The World Health Organization (WHO) estimates that there were 12 million people living with TB in 2010.

Tuberculosis is a bacterial infection caused by *Mycobacterium tuberculosis*. The disease usually affects the lungs (referred to as pulmonary TB), but can spread to other parts of the body (referred to as extra-pulmonary TB) in serious cases.

In most people who become infected with the TB bacterium, the pathogen remains dormant—this is called “latent TB” infection. People with latent TB infection have no symptoms, don't feel sick, and cannot spread TB to others. However, the TB bacteria can remain in the bodies of those with latent TB and can become “active TB” disease at a later point in time—usually due to a weakened immune system—if treatment is not received. People with active TB often exhibit symptoms such as coughing, fatigue, chills, and fever. TB is contagious only in its active form and can be passed onto others by coughing, sneezing, or spitting.

Although a health concern worldwide, TB is especially problematic in developing countries where poverty, overcrowding and other diseases and viruses—particularly HIV—help facilitate its spread. Eighty-five percent of all new TB cases are in Africa, Southeast Asia and the Western Pacific. While the greatest share of new TB cases occurs in Southeast Asia (40%), a significant number of cases are found in Africa (26%.) Additionally, Africa has the highest per capita incidence (new cases) of TB and TB death rates in the world.

TB and HIV are frequently referred to as co- or dual-epidemics due to their high rate of co-infection and since the 1980s, the HIV epidemic has been largely responsible for the resurgence of the TB epidemic. In 2010, approximately one in four TB deaths was estimated to be HIV-related. The highest rates of co-infection occurred in Africa, where 39% of new TB cases were in people who were HIV-positive. When someone is infected with HIV, his or her immune system becomes compromised, significantly increasing the likelihood of acquiring new TB infection. HIV also can facilitate both the progression of latent TB infection to active TB and the relapse of the disease in previously treated patients.

Although responsible for considerable morbidity and mortality worldwide, TB can be successfully prevented, treated and controlled, even if someone is HIV-positive. The internationally recommended approach for TB control is DOTS, or “directly observed treatment, short-course,” which aims to decrease TB-related morbidity, prevent TB deaths, and decrease TB transmission. Under DOTS, once patients are diagnosed with active TB, health workers or trained volunteers supervise them as they take the full course of medications. In 2009, WHO estimated that 86% of TB positive cases in DOTS programs were successfully treated.

Expanding access to DOTS and ensuring patient adherence to treatment are critical because if medications are not taken as prescribed, the bacteria responsible for TB can become drug resistant. TB that is resistant to two of the most effective “first-line” drug treatments is called multi-drug resistant TB (MDR-TB). Although MDR-TB can be treated by “second-line” drug treatments, it is significantly more expensive, takes much longer, (up to two years), and can cause severe side effects. In 2010, there were an estimated 650,000 people living with MDR-TB. In recent years, a new and much more virulent type of drug-resistant TB has emerged called extensively drug resistant TB or XDR-TB. In addition to not being responsive to first-line TB drugs, XDR-TB is also resistant to second-line TB drugs, making the condition extremely difficult, if not impossible, to treat. Although XDR-TB remains relatively rare as compared to non-drug-resistant TB or MDR-TB, it presents an increasing global threat to TB control efforts.

With the rise of HIV/TB co-infection and growth of drug-resistant strains of TB, international recognition of the seriousness of TB has grown, with various organizations and donor agencies attempting to curb the spread of the disease. Two institutions that have made important strides in alleviating the worldwide burden of TB are the Stop TB Partnership and The Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund). The Stop TB Partnership is a network of nearly 1,000 public and private organizations including international agencies, governmental and non-governmental organizations, research institutions, and donor organizations that aims to strengthen social and political support for stopping the spread of TB; the World Health Organization (WHO) is a lead agency in the partnership and serves as its Secretariat. The Stop TB Partnership focuses on DOTS expansion, reducing the impact of HIV/TB co-infection, the prevention of MDR-TB, and the development of new drugs, vaccines, and diagnostic procedures. The Global Fund is an independent, multilateral, grant-making organization and a major financier for TB prevention, control, and treatment programs in low- and middle- income countries, which to date has provided TB grants to more than 100 countries. Together the Global Fund and the Stop TB Partnership have helped coordinate global TB control efforts and ensure that they remain a priority in the international arena.

The United States also provides significant funding for global TB efforts directly to countries and through contributions to the Global Fund. The reauthorization of the President's Emergency Plan for AIDS Relief (PEPFAR) in 2008 authorized up to \$4 billion for TB efforts by the U.S. government between FY 2009 and FY 2013, and required the development of a U.S. global TB strategy; between FY 2009 and FY 2012, approximately \$900 million has been appropriated and the new TB strategy was released in March 2010. In 2009, President Barack Obama launched the U.S. Global Health Initiative (GHI), a six-year, FY 2009–2014 effort to develop a comprehensive U.S. government strategy for global health, which includes TB as one of its key areas. The Bill & Melinda Gates Foundation, a private, philanthropic organization, also has established major global TB initiatives, supporting efforts to develop rapid TB diagnostics, more effective TB treatments, TB vaccines and the acceleration of access to new TB tools.

ADDITIONAL RESOURCES

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TUBERCULOSIS (TB) GLOSSARY

Active TB Disease: An illness in which TB bacteria are multiplying and attacking different parts of the body. The symptoms of active TB disease include weakness, weight loss, fever, no appetite, chills, and sweating at night. Other symptoms of active TB disease depend on where in the body the bacteria are growing. If active TB disease is in the lungs (pulmonary TB), the symptoms may include a bad cough, pain in the chest, and coughing up blood. A person with active TB disease may be infectious and spread TB to others.

BCG: A vaccine for TB named after the French scientists who developed it, Calmette and Guérin. BCG is not widely used in the United States, but it is often given to infants and small children in other countries where TB is common.

Chest X-Ray: A picture of the inside of your chest. A chest x-ray is made by exposing a film to x-rays that pass through your chest. A doctor can look at this film to see whether TB bacteria have damaged your lungs.

***Co-infection:** A term used to describe infection with more than one disease, and often used to describe infection with both TB and HIV.

Contact: A person who has spent time with a person with infectious TB.

Culture: A test to see whether there are TB bacteria in your phlegm or other body fluids. This test can take 2 to 4 weeks in most laboratories.

Directly Observed Therapy Short-Course (DOTS): A way of helping patients take their medicine for TB. If you get DOTS, you will meet with a health care worker every day or several times a week. You will meet at a place you both agree on. This can be the TB clinic, your home or work, or any other convenient location. You will take your medicine while the health care worker watches.

***Endemic:** The constant presence of a disease or infectious agent within a given geographic area or population group; can also refer to the usual prevalence of a given disease within such area or group.

***Epidemic:** The occurrence of more cases of disease than expected in a given area or among a specific group of people over a particular period of time

Extensively drug-resistant TB (XDR-TB): XDR-TB is a rare type of TB disease that is resistant to nearly all medicines used to treat TB.

Extrapulmonary TB: Active TB disease in any part of the body other than the lungs (for example, the kidney, spine, brain, or lymph nodes).

HIV Infection: Infection with the human immunodeficiency virus, the virus that causes AIDS (acquired immunodeficiency syndrome). A person with both latent TB infection and HIV infection is at very high risk for active TB disease.

***High Burden Countries (HBCs), TB:** Twenty-two countries, most of which are in Africa and South-East Asia, that account for much of the world's TB burden (approximately 80% of new TB cases each year).

***Immune system:** The body's system of defense against foreign organisms such as bacteria, viruses or fungi.

INH or Isoniazid: A medicine used to prevent active TB disease in people who have latent TB infection. INH is also one of the four medicines often used to treat active TB disease.

Latent TB Infection: A condition in which TB bacteria are alive but inactive in the body. People with latent TB infection have no symptoms, don't feel sick, can't spread TB to others, and usually have a positive skin test reaction. But they may develop active TB disease if they do not receive treatment for latent TB infection.

***Multidrug-Resistant TB (MDR-TB):** A strain of tuberculosis that is resistant to two or more anti-TB drugs. MDR-TB usually arises when people take only enough medication to feel better, but not the full amount prescribed by a physician. The weaker bacteria are killed, but the stronger bacteria survive and reproduce. These stronger bacteria, when fully grown and causing sickness again, will not be curable with the same treatment and require larger doses of the drug or an entirely new, stronger drug. MDR-TB is a large problem in developing countries, where continual supervision of treatment is not always possible.

***Mycobacterium tuberculosis:** Tuberculosis is a bacterial infection caused by *Mycobacterium tuberculosis*. The disease usually affects the lungs but can spread to other parts of the body in serious cases. An individual can become infected with TB when another person who has active TB coughs, sneezes or spits. Not all people who become infected with TB develop symptoms. Those who do not become ill are referred to as having latent TB and cannot spread the disease to others.

Negative: Usually refers to a test result. If you have a negative TB skin test reaction, you probably do not have TB infection.

Positive: Usually refers to a test result. If you have a positive TB skin test reaction, you probably have TB infection.

Pulmonary TB: Active TB disease that occurs in the lungs, usually producing a cough that lasts 3 weeks or longer. Most active TB disease is pulmonary.

QuantiFERON-TB® Gold (QFT): A blood test used to find out if you are infected with TB bacteria. The QFT measures the response to TB proteins when they are mixed with a small amount of blood.

Resistant Bacteria: Bacteria that can no longer be killed by a certain medicine.

Smear: A test to see whether there are TB bacteria in your phlegm. To do this test, lab workers smear the phlegm on a glass slide, stain the slide with a special stain, and look for any TB bacteria on the slide. This test usually takes one day to get the results.

Sputum: Phlegm coughed up from deep inside the lungs. Sputum is examined for TB bacteria using a smear; part of the sputum can also be used to do a culture.

***TB-HIV Co-infection:** When a cell is co-infected by both HIV and tuberculosis (TB). TB-HIV co-infection is of particular concern because TB accelerates the progression of HIV-related immune suppression making it one of the leading causes of death among people living with HIV and AIDS.

TB Skin Test: A test that is often used to detect latent TB infection. A liquid called tuberculin is injected under the skin on the lower part of your arm. If you have a positive reaction to this test, you probably have latent TB infection.

Tuberculin or PPD: A liquid that is injected under the skin on the lower part of your arm during a TB skin test. If you have latent TB infection, you will probably have a positive reaction to the tuberculin.

***XDR-TB:** Acronym for “extensively drug-resistant tuberculosis,” which is an even stronger strain of TB bacteria that is resistant to both first-line and second-line drugs used to treat the disease. It is virtually untreatable. XDR-TB usually arises when people take only enough medication to feel better, but not the full amount prescribed by a physician. The weaker bacteria are killed, but the stronger bacteria survive and reproduce.

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**Definition provided by the Kaiser Family Foundation.*

MALARIA AROUND THE WORLD

Malaria, caused by parasites transmitted to humans by mosquitoes, is one of the world's most common and serious tropical diseases. A major cause of sickness and death worldwide, there were 216 million cases of malaria and 655,000 deaths in 2010. Approximately half of the world's population lives in areas where they are at risk of contracting malaria and it is "endemic" (where a constant, measurable number of new cases and natural transmission occurs over time) in more than 100 countries around the world. Caused by parasites called Plasmodium that are transmitted to humans via mosquito bites, malaria can render an individual extremely ill and, in some cases, may prove to be fatal. Symptoms of infection may include fever, chills, headache, muscle pain, fatigue, nausea and vomiting and usually appear between 10 to 15 days after a person is bitten by an infected mosquito.

Although the disease occurs in many parts of the world, including Asia, Latin America, the Middle East, and parts of Europe, it poses the greatest problem in sub-Saharan Africa, where 81% of malaria cases and 91% of deaths occurred in 2010, mostly in children under five years of age. This region of the world is particularly hard-hit by malaria due to several factors: sub-Saharan Africa is home to a species of mosquito that can transmit the malaria parasite very efficiently; most of the region's cases are caused by the Plasmodium falciparum parasite, which causes the most severe and life-threatening form of malaria; poverty and limited health infrastructure make the mounting of effective prevention and treatment efforts difficult; and drug-resistant strains of the parasite have also emerged in the region, acting as another barrier to malaria control.

In sub-Saharan Africa, the situation is also worsened by the presence of other diseases, especially HIV/AIDS. Both HIV/AIDS and malaria affect similar geographic areas and risk groups, causing dual public health crises. Increasing knowledge regarding the interactions between HIV/AIDS and malaria suggests that HIV-positive individuals may be more susceptible to malaria illness because of their weakened immune systems and may be less likely to respond to standard treatments for malaria. There is also evidence to suggest that severe malarial episodes can temporarily lead to an upsurge in HIV viral load, thereby leading to increased morbidity in individuals co-infected with HIV and malaria.

Certain populations are more vulnerable to malaria, particularly pregnant women and children. Women's immune systems are weaker during pregnancy, placing them at increased risk for contracting disease. Malaria during pregnancy is very serious and can lead to severe anemia, malarial infection of the placenta, and, in some cases, maternal death. Children born to women co-infected with malaria and HIV are much more likely to face complications such as having low birth-weight and often die during infancy. Children under five years of age are also at high risk of suffering from malaria-related illness and death because they have not had a chance to build up sufficient immunity to the disease. Approximately 86% of all malarial deaths in 2010 occurred in children under the age of five. According to the World Health Organization (WHO), a child dies of malaria every minute in Africa. Those who recover from the disease may still suffer from serious conditions as a result of the infection, such as anemia, recurrent fever, blindness and brain damage.

Although causing much morbidity and mortality around the world, illness and death from malaria are largely preventable. Control of mosquitoes is the main way in which malaria transmission can be prevented. Regional efforts to eradicate the mosquitoes that carry malaria began in the 1940s, followed with a WHO-led global effort in the 1950s and 1960s. DDT (dichlorodiphenyltrichloroethane) was the main insecticide used during this time. Through these efforts, malaria was successfully eradicated from North America, Europe and parts of Asia. Eventually, outdoor use of DDT for malaria control was discouraged by WHO because of the insecticide's harmful effects on the environment. Currently, WHO recommends use of DDT for malaria control through indoor spraying. The WHO also recommends the use of insecticide-treated bed nets. These nets have been shown to significantly reduce death and illness from malaria in endemic regions and are a very important malaria control strategy. Additionally, long-lasting insecticidal nets have been developed which can retain their insecticidal activity of the net for several years without needing to be re-treated.

Medications for prevention and treatment of malaria are also available. A number of anti-malarial drugs exist and are currently in use, including chloroquine, sulfadoxine-pyrimethamine (SP) and amodiaquine. They are known as monotherapies because each medication is generally used alone. Unfortunately, malaria parasites are developing resistance to many of the available monotherapies. This is true in many parts of Asia and South America, and is a growing problem in Africa as well. Due to concerns over drug-resistance, WHO now recommends that countries replace oral monotherapies with combination therapies, which combine two or more medications and are harder for parasites to develop resistance. As a result, since 2001, many countries have changed their treatment policy and have endorsed combination treatment in place of monotherapies. However, combination therapy is still not available in many countries where existing drugs are ineffective. The WHO, together with other international organizations is working to support initiatives to expand access to effective combination therapies. In 2004, WHO revised its malaria treatment recommendation to include artemisinin-based combination therapy (ACT) and currently recommends that countries with multi-drug resistant strains and the presence of *P. falciparum* implement ACTs as a first line of treatment. The compound, found naturally in a Chinese herb, has been used to treat malaria since the 1980s and is currently the most effective measure against the disease. However, evidence now suggests that drug resistance to ACTs may already be occurring in Asia.

In 1998, the Roll Back Malaria (RBM) Partnership was created by WHO, United Nations Children's Fund, United Nations Development Programme and the World Bank. The Partnership aims to coordinate international malaria-control activities by bringing together over 500 public and private organizations, international agencies, malaria-endemic countries and research and academic institutions. The goal of the Partnership is to reduce the global burden of malaria by helping malaria-endemic countries to expand and sustain malaria-control interventions over time. RBM has successfully raised awareness of the disease, mobilized social, political and financial support and coordinated international efforts to combat malaria.

The Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), an independent grant-making organization, which pools funding from countries to provide grants to low- and middle-income countries to combat malaria (as well as HIV and TB), is a significant source of funding for malaria-control interventions. Since its establishment in 2002, the Global Fund has become the largest financier of insecticide-treated bed nets and has committed to delivering and expanding access to hundreds of millions of ACT dosages to help reduce the impact of drug-resistant malaria. To date, nearly 80 countries worldwide have received support from the Global Fund to combat malaria.

In 2005, U.S. President George W. Bush announced the creation of a new President's Malaria Initiative (PMI) and pledged to increase funding for malaria prevention and treatment over five years (FY2006–FY2010) and reduce deaths due to malaria by 50% in 15 countries. The reauthorization of the President's Emergency Plan for AIDS Relief (PEPFAR) in 2008 expanded PMI, authorizing up to \$5 billion for malaria efforts by the U.S. government between FY 2009 and FY 2013 and requiring the development of a U.S. global malaria strategy; between FY 2009 and FY 2012, almost \$2.9 billion were appropriated, and the new malaria strategy was released in April 2010. In 2009, President Barack Obama launched the U.S. Global Health Initiative (GHI), a six-year, FY 2009–2014 effort to develop a comprehensive U.S. government strategy for global health, which includes malaria as one of its key areas. The private sector, particularly the Bill & Melinda Gates Foundation, a private, philanthropic organization, is also an important source of support. The Gates Foundation has established major global malaria initiatives, supporting the development of safe, effective, and affordable malaria vaccines, malaria control efforts, the search for new malaria treatments, and expanded access to existing malaria control tools and to new drugs and vaccines.

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Kaiser Family Foundation. *Global Health Interventions: A Review of the Evidence*: <http://globalhealth.kff.org/GHIR/Conditions/Malaria.aspx>

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MALARIA GLOSSARY

Anopheles: The genus of mosquito that transmits malaria.

***Antibody:** Molecules in the body that identify and destroy foreign substances such as bacteria and viruses.

Antigen: Any substance that provides an immune response when it is introduced into the body.

Artemisinin-Based Combination Therapies (ACTs): A group of malaria medications that produces a very fast response in people with malaria and are active against multi-drug resistant *Plasmodium falciparum* malaria, the deadliest strain of malaria caused by a parasite and transmitted to humans by a mosquito. ACTs are well tolerated by people who have malaria and have the potential to reduce malaria transmission by decreasing the presence of the parasite in the bloodstream.

Attenuated: Treated in such a way as to decrease the ability of the parasite to cause infection or disease.

Bed Nets: Bed nets are used to prevent malaria transmission by forming a protective barrier around persons using them and therefore limiting their exposure to mosquito bites. Bed nets have repeatedly been shown to reduce severe disease and mortality due to malaria in endemic regions.

Chloroquine: The mainstay of malaria treatment since 1945, but no longer effective against a growing number of strains of *P. falciparum* malaria.

DDT: DDT (dichlorodiphenyltrichloroethane) was the main insecticide used during the 1950s and 1960s in the World Health Organization's (WHO) global campaign to eradicate the mosquitoes that carry malaria. DDT has a history of being a highly controversial insecticide. It has been banned from agricultural use in almost all countries. Currently, WHO recommends use of DDT for malaria control through indoor spraying.

***Endemic:** The constant presence of a disease or infectious agent within a given geographic area or population group; can also refer to the usual prevalence of a given disease within such area or group.

***Epidemic:** The occurrence of more cases of disease than expected in a given area or among a specific group of people over a particular period of time.

Gametocytes: Precursors of the sexual forms of the malaria parasite, which release either male or female gametes within the stomach of the mosquito.

Genus: A category of organisms.

G6PD Deficiency: An inherited abnormality that causes loss of a red blood cell enzyme. It may give a person some protection against malaria, but it also means that person cannot take the antimalarial drug primaquine. G6PD deficiency is found most commonly in people of African, Mediterranean, and Asian descent.

Hemoglobin: The oxygen-carrying part of the red blood cell.

Hypnozoite: A form of the parasite that remains inactive within the liver and can produce relapses.

***Immune System:** The body's system of defense against foreign organisms such as bacteria, viruses or fungi.

Immunity: The protection generated by the body's immune system in response to invasion by "foreign" invaders, including bacteria and viruses as well as parasites.

Indoor Residual Spraying (IRS): The application of long-acting chemical insecticides on the walls and roofs of all houses and domestic animal shelters in a given area, in order to kill the *Anopheles* mosquitoes—the vector that can transmit the malaria parasite to humans. The primary goal of IRS in reducing malaria transmission is to reduce the life span of the *Anopheles* mosquitoes so that they can no longer transmit malaria parasites from one person to another, and to reduce the density of the mosquitoes in the area.

Larvae: Immature wingless forms of insects such as mosquitoes.

***Malaria:** A disease caused by parasites that are transmitted to humans via mosquito bites. Symptoms of infection may include fever, chills, headache, muscle pain, fatigue, nausea and vomiting. These symptoms usually appear between 9 and 14 days after a person is bitten by an infected mosquito. In severe cases, the disease can be life-threatening.

Merozoite: The form of the malaria parasite that invades human red blood cells.

Mucous Membrane: The lining of certain cavities, such as the nose and mouth and intestinal tract, that produces a protective layer of mucus.

Oocyst: A parasite stage within the mosquito, produced by the union of male and female gametes.

Parasite: An animal (or plant) that must live on or in an organism of another species, from which it draws its nourishment.

Paroxysm: An attack of a disease that is likely to recur at periodic intervals.

Plasmodium: The genus of the parasite that causes malaria. The genus includes four species that infect humans: *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium malariae*, and *Plasmodium ovale*.

President's Malaria Initiative (PMI): The U.S. government's initiative, launched in 2005, to fight malaria in the region most affected by the disease—Africa. The PMI is an interagency initiative led by USAID and implemented together with CDC. The initiative's goal is to reduce malaria-related deaths by 50 percent in 15 focus countries.

Primaquine: A drug that kills malaria parasites that lodge in the liver.

Quinine: A drug, originally extracted from tree bark, which was the only available antimalarial treatment for nearly 300 years.

Relapse: The recurrence of disease some time after it has been apparently cured.

***Resistance:** The ability of a pathogen to reproduce despite the presence of drugs designed to inhibit its reproduction or survival. The malaria parasite has developed strains that are resistant to drugs such as chloroquine. The *Anopheles* mosquito has developed strains that are resistant to DDT and other insecticides.

Roll Back Malaria: Launched in 1998 by the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP) and the World Bank, it aims to ensure that the Millennium Development Goal related to malaria—to halt and begin to reverse the incidence of malaria by 2015—is achieved.

Schizont: A developmental form of the parasite that contains many merozoites.

Species: Organisms in the same genus that have similar characteristics.

Sporozoite: The infectious form of the parasite, which is injected into people by a feeding mosquito.

Strain: A genetic variant within a species.

Vector: An organism such as a tick, a mosquito, or a person that carries a disease-causing microbe from one host to another. For example, the Anopheles mosquito is a vector for the malaria virus.

Virulent: Characterized by rapid course or severity.

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**Definition provided by the Kaiser Family Foundation*



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