

Closing the Gap: Antiretroviral Therapy for the Developing World

Part I—Introduction

by

Robin Pals-Rylaarsdam

Biology Department, Trinity Christian College



In 1980, Magic Johnson was at the top of his basketball game, leading the Los Angeles Lakers to five NBA championships. Today, Magic is one of the most famous people living with HIV/AIDS (**PLHAs**). Like most Americans infected with the HIV virus, Magic is currently taking a combination of anti-viral drugs known as Highly Active AntiRetroviral Therapy, or **HAART**. These drugs target the virus at two different stages of its life cycle. Reverse transcriptase inhibitors, like AZT and 3TC, inhibit the production of DNA from the viral RNA that is released into the cell upon infection with the virus. Without production of DNA, the virus cannot make more copies of its genome, and thus cannot produce an active infection. Protease inhibitors, like Indinavir, work at the tail end of the viral life cycle. These drugs prevent the production of mature viral proteins and so prevent the assembly of new viruses that can infect other cells.

HAART is able to reduce the levels of HIV below detectable limits in patients who properly take the drugs and maintain these low levels of virus for years. Although these drugs are expensive, most Americans infected with HIV can find ways to purchase the drugs through assistance programs or their own health insurance, allowing the PLHA to live a productive life for many years after infection.

Unfortunately, the majority of **PLHAs** worldwide currently have little access to **HAART**. The therapy is too expensive for citizens in the countries most affected by the epidemic. In his 2003 State of the Union address, President George W. Bush asked Congress to commit \$15 billion over the next five years to an Emergency Plan for AIDS Relief in the countries most affected by HIV/AIDS—nations in Africa and the Caribbean. On May 27, 2003, the President signed the U.S. Leadership Against HIV/AIDS, Tuberculosis and Malaria Act of 2003, which authorized the funding.

This case study examines the HIV/AIDS crisis in sub-Saharan Africa. You will analyze possible ways to invest the \$15 billion allocated and develop a prioritized list of needs for a specific country in Africa—namely, Botswana. Before beginning, you should have already read the *Wall Street Journal* article on the crisis in Botswana as background for this project (“Botswana Sees Economic Rise Leveled by Raging AIDS Crisis,” *Wall Street Journal*, August 29, 2002).

Your Assignment

What facts are needed to develop a humane and effective foreign policy statement for U.S. aid to Botswana? For example, how is the AIDS crisis different in the developed world versus sub-Saharan Africa? As a group, list possible differences that must be considered when fighting AIDS in the two populations. Develop as many questions as you can in five minutes. Be as specific as you can. An issue of importance may be subdivided into several different questions. You may already know the answers to some of the biology-related questions.

The questions will be divided among the groups, who will return the next class period to report their answers to the entire class.

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Part II—Roles

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Each group will be assigned a personality from the list below:

- **Dr. Anthony Fauci**, Director of the National Institute of Allergy and Infectious Disease (NIAID).
- **Mpule Kwelagobe**, Botswana Goodwill Ambassador for the United Nations Population Fund (UNFP).
- **Dr. Russell Greig**, President, Pharmaceuticals International at GlaxoSmithKline.
- **Dr. Alison Boerma**, Christian Reformed World Relief Committee (CRWRC) public health worker stationed in Botswana.
- **Peter Piot**, Executive Director of Joint United Nations Programme on HIV/AIDS (UNAIDS).
- **Chris Solomon**, person living with HIV/AIDS (PLHA) from Atlanta, Georgia.
- **Congressman Henry Hyde**, Chair of the House Committee on International Relations.
- **Mitch Matthews**, a clinical pharmacist at UCLA Medical Center who specializes in the treatment of patients with HIV/AIDS.

Read the sheet for your person. From the point of view of your person, answer the following questions about AIDS and the most appropriate U.S. response to the crisis in Botswana.

1. What are the priority issues surrounding HIV/AIDS? What aspects of the HIV/AIDS situation in Botswana and the U.S. response to the situation are most interesting or most important to you, as your personality?
2. Why do you prioritize these and not other issues?
3. What policy recommendations are you likely to make to the President? How do you think U.S. foreign aid can best be used to address the issues you most care about?

It is important to contrast your recommendations with those of the other people on the panel. Demonstrating your understanding of other expert recommendations can strengthen your argument as you help the President formulate an effective foreign policy. Write a two-page recommendation to the President. In this document, you should describe the issues, your reasons for prioritizing them, and your reasons for choosing the solutions to these issues. Your group's paper will be graded on (1) its choice of issues appropriate to the group personality and (2) the quality of your arguments—do you back them up with data, do you contrast the importance of your issues with other ones and explain why your choices are more important than others, etc. Please come to class with a copy for *each* member of your group, as well as a copy for the instructor to grade.

Dr. Anthony Fauci

Director of the National Institute of Allergy and Infectious Disease (NIAID)



Dr. Fauci directs the NIAID, which conducts and supports research that strives to understand, treat, and ultimately prevent the myriad infectious, immunologic, and allergic diseases that threaten hundreds of millions of people worldwide. NIAID research centers on immune-mediated diseases (and immune tolerance), HIV/AIDS, emerging infectious diseases, and vaccines (<http://www.niaid.nih.gov>).

Information about Dr. Fauci:

<http://www.niaid.nih.gov/director/director.htm>.

An overview of the NIAID's purpose:

<http://www.niaid.nih.gov/facts/overview.htm>.

Questions to answer from Dr. Fauci's perspective:

1. What are the priority issues surrounding HIV/AIDS?
2. Why does Dr. Fauci prioritize these and not other issues?
3. What policy recommendations is Dr. Fauci likely to make to the President?

Mpule Kwelagobe

Representative of the Botswanan Government



The former Miss Universe, a native of Botswana, serves as a Goodwill Ambassador for the United Nations Population Fund (<http://www.unfpa.org/news/news.cfm?ID=264&Language=1>).

Links to general information about Botswana:

- CIA World Factbook: <http://www.cia.gov/cia/publications/factbook/geos/bc.html>
- Government: <http://www.gov.bw/home.html>
- Tourism: http://www.gov.bw/tourism/index_f.html

Questions to answer from Ms. Kwelagobe's perspective:

1. What are the priority issues surrounding HIV/AIDS?
2. Why does Ms. Kwelagobe prioritize these and not other issues?
3. What policy recommendations is Ms. Kwelagobe likely to make to the President?

Image Credit: UN Photo by Ron DaSilva.

Dr. Russell Greig

President, Pharmaceuticals International, GlaxoSmithKline



Dr. Greig's large pharmaceutical company has patented and manufactures several anti-HIV drugs, including AZT, 3TC, abacavir, and amprenavir (**Cohen 2002**).

The company created a program of community service related to HIV/AIDS, which is described at: **<http://www.gsk.com/positiveaction/index.htm>**

GSK is part of the Pharmaceutical Research and Manufacturers Association, a group of pharmaceutical companies in America. The group's website may give you more insight into the workings of large drug companies: **<http://www.phrma.org/>**.

Questions to answer from Dr. Greig's perspective:

1. What are the priority issues surrounding HIV/AIDS?
2. Why does Dr. Greig prioritize these and not other issues?
3. What policy recommendations is Dr. Greig likely to make to the President?

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Dr. Alison Boerma

CRWRC Public Health Worker Stationed in Botswana



Dr. Boerma received her M.D. from Michigan State University and completed a residency in internal medicine and a fellowship in infectious disease. She also earned a M.P.H. (Master's in Public Health) from Loyola University Medical School in Maywood, IL. Dr. Boerma's job includes not only treating PLHAs in Botswana, but also contributing to community development to aid in the fight against the epidemic.

Christian Reformed World Relief Committee: <http://www.crwrc.org/>.

(Note that the CRWRC does not actually have stations in Botswana, but the Eastern/Southern Africa links describe this organization's efforts related to PHLA extensively.)

Questions to answer from Dr. Boerma's perspective:

1. What are the priority issues surrounding HIV/AIDS?
2. Why does Dr. Boerma prioritize these and not other issues?
3. What policy recommendations is Dr. Boerma likely to make to the President?

Dr. Peter Piot

Executive Director of UNAIDS (Joint United Nations Programme on HIV/AIDS)



Author of a dozen books and hundreds of scientific articles, this Belgian born scientist was a co-discoverer of the Ebola virus in Zaire in 1976. He later made important contributions to research of the epidemiology, virology and prevention of HIV infection, reproductive health of women, and tuberculosis. Dr. Piot has been Executive Director of UNAIDS since its creation in 1995 and Under Secretary-General of the United Nations. Further biographical details:

http://www.unaids.org/about/staff/profiles/Piotbio_en.html.

UNAIDS website: <http://www.unaids.org>.

UNAIDS Mission Statement: As the main advocate for global action on HIV/AIDS, UNAIDS leads, strengthens and supports an expanded response aimed at preventing the transmission of HIV, providing care and support, reducing the vulnerability of individuals and communities to HIV/AIDS, and alleviating the impact of the epidemic.

Dr. Piot's speech to the XIV International AIDS Conference, Barcelona, 7-12 July 2002:

<http://www.unaids.org/whatsnew/speeches/eng/2002/Piot070702Barcelona.htm>

Dr. Piot's Testimony at the hearing of the Committee on Foreign Relations of the United States Senate on Halting the Global Spread of HIV/AIDS: the Future of Bilateral and Multilateral Responses:

http://www.unaids.org/whatsnew/speeches/eng/2002/PiotSenate_130202.htm

Questions to answer from Dr. Piot's perspective:

1. What are the priority issues surrounding HIV/AIDS?
2. Why does Dr. Piot prioritize these and not other issues?
3. What policy recommendations is Dr. Piot likely to make to the President?

Image Credit: Photo courtesy of UNAIDS.

Chris Solomon

Person living with HIV/AIDS (PLHA), Atlanta, Georgia



Chris has been infected with HIV since 1992 or earlier. He is currently treated with highly active anti-retroviral therapy (HAART) and his HIV blood levels are undetectable. Chris runs his own insurance business and coaches his daughter's club soccer team in his spare time.

Questions to answer from Mr. Solomon's perspective:

1. What are the priority issues surrounding HIV/AIDS?
2. Why does Mr. Solomon prioritize these and not other issues?
3. What policy recommendations is Mr. Solomon likely to make to the President?

Congressman Henry Hyde

Chairperson of the House Committee on International Relations



Representative Hyde is a Republican from Illinois, representing a suburban Chicago district (District 6). He has served in the House since 1974.

<http://www.house.gov/hyde/>.

The International Relations Committee is Representative Hyde's most visible assignment. Mr. Hyde has served as its chairperson since 2001.

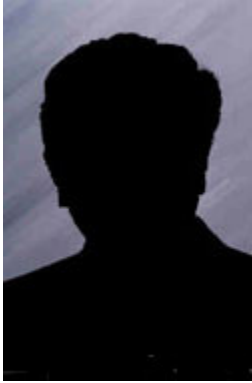
http://www.house.gov/international_relations/.

Questions to answer from Mr. Hyde's perspective:

1. What are the priority issues surrounding HIV/AIDS?
2. Why does Mr. Hyde prioritize these and not other issues?
3. What policy recommendations is Mr. Hyde likely to make to the President?

Mitch Matthews

Clinical Pharmacist at UCLA Medical Center



Mr. Matthews is a pharmacist who specializes in the treatment of people living with HIV/AIDS (PLHA). He has been working at the UCLA Medical Center for 15 years, and so has seen the development of antiretroviral drugs from the early stages of the AIDS crisis through our current combination of drugs. Mr. Matthews researches the psychosocial aspects of patient compliance with antiretroviral therapy, studying factors that help patients stick with the daily complicated schedule of drugs, even in the face of unpleasant side effects.

Questions to answer from Mr. Matthews' perspective:

1. What are the priority issues surrounding HIV/AIDS?
2. Why does Mr. Matthews prioritize these and not other issues?
3. What policy recommendations is Mr. Matthews likely to make to the President?



The Committee Worksheet

Fill out this worksheet to help organize your committee's recommendation to the President later in the class period.

Action, specific guidelines

How the action will help the crisis

Rationale for the action's ranking

Each student must write a formal advisory document from their copy of this worksheet. This document will take the form of a press release announcing the President's acceptance of the committee's recommendations. The document should be 3 to 4 pages long, use well-constructed formal English, and include the rationale for your recommendations that the President accepted. You may take into consideration any suggestions the President or your classmates made during your group's presentation.



References

General HIV and AIDS Resources

- Centers for Disease Control, Division of HIV/AIDS Prevention:
<http://www.cdc.gov/hiv/dhap.htm>.
- Coffin, John M., Stephen H. Hughes, and Harold E. Varmus. 1997. *Retroviruses*. Plainview, NY: Cold Spring Harbor Laboratory Press. Available and searchable online at:
<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi> (PubMed).
- National Institute of Allergy and Infectious Disease, Division of Acquired Immunodeficiency Syndrome: <http://www.niaid.nih.gov/daids/>.
- Prescott, L.M., J.P. Harley, and D.A. Klein. 2002. *Microbiology*, 5th ed. Boston: McGraw-Hill (or other microbiology textbooks).
- University of South Carolina School of Medicine, Microbiology and Immunology On-line:
<http://www.med.sc.edu:85/lecture/hiv2000.htm>.

Epidemiology Resources

- Stine, Gerald J. 2002. *AIDS Update 2002: An annual overview of acquired immune deficiency syndrome*. Upper Saddle River, NJ: Prentice Hall.
- WHO/UNAIDS: Adults and children estimated to be living with HIV/AIDS as of end of 2002.
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Antiretroviral Therapy Resources

- National Institute of Allergy and Infectious Disease. “Treatment of HIV Infection.” Available at:
<http://www.niaid.nih.gov/factsheets/treat-hiv.htm>.
- Project Inform’s Standard Dosing Chart for Anti-HIV Drugs:
<http://projinf.org/fs/dosingchart.html>. Accessed June 2003.
- World Health Organization Initiative on HIV/AIDS and Sexually Transmitted Infections (HSI), Guidance Modules on Antiretroviral Treatments Module 4: Safe and Effective Use of Antiretrovirals. UNAIDS/98.7 1998. Order from unaids@unaids.org.
- United States Department of Health and Human Services. 2002. “HIV and its Treatment: What You Should Know.” Available at: <http://aidsinfo.nih.gov/other/hivtr.pdf>.
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- Joint United Nations Programme on HIV/AIDS website: <http://www.unaids.org>.

- Piot, Peter, Michael Bartos, Peter D.Ghys, Neff Walker, and Bernhard Schwartländer. 2002. The global impact of HIV/AIDS. *Nature* 410:968-873 (April 19, 2002).
- Piot, Peter. 1998. The science of AIDS: A tale of two worlds. *Science* 280:1884 (June 19, 1998).
- Thurow, Roger. 2002. "Botswana Sees Economic Rise Leveled by Raging AIDS Crisis," *Wall Street Journal*, August 29, 2002.



Glossary of Terms

- *CDC*
United States Centers for Disease Control and Prevention, Atlanta, GA
- *CRWRC*
Christian Reformed World Relief Committee, a Christian relief agency sponsored by the Christian Reformed Church in North America
- *HAART*
Highly Active Anti-Retroviral Therapy, sometimes abbreviated ARV (antiretroviral) therapy
- *NIAID*
National Institute for Allergy and Infectious Disease, Bethesda, MD
- *NIH*
National Institutes for Health, Bethesda, MD
- *PLHAs*
People living with HIV/AIDS
- *UNAIDS*
Joint United Nations Programme on HIV/AIDS, part of the WHO
- *WHO*
World Health Organization, an arm of the United Nations

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