

CASE TEACHING NOTES for “Closing the Gap: Antiretroviral Therapy for the Developing World”

by

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INTRODUCTION / BACKGROUND

Synopsis

In this case study, students who have mastered the biological background of HIV/AIDS and antiretroviral therapy apply their knowledge in a problem-based-learning approach to developing good foreign aid policy for the HIV/AIDS crisis in sub-Saharan Africa.

Use

This case was used for a non-majors biology course, “Human Biology.” Most students are juniors or seniors majoring in fields other than science. No freshmen were enrolled in the class, although younger students could probably benefit from this case if they are part of a group with more experienced students. The case was taught during the fifth week of the semester to a class of permanent groups of four or five students who had been involved in team learning and case studies for the previous four weeks. This case was also used in a microbiology course for pre-nursing students and in an upper-level microbiology course for biology majors. Future plans include linking this case study to a social work class on “Human Behavior and the Social Environment” by expanding the topics in this case in a manner useful for social work students.

Student Preparation

Prior to using this case, the following concepts and information should be reviewed:

1. The life cycle of HIV.
2. The clinical diagnosis and progression from HIV infection to AIDS.
3. Antiretroviral therapy and the difficulties in patient compliance.
4. Antiretroviral resistance.

Note: The case study **“[Abracadabra: Magic Johnson and Anti-HIV Treatments](#)”** can be used as an effective learning guide to these topics.

Objectives

In this case study, students will:

- Apply their knowledge of the transmission and progression of HIV/AIDS (gained through previous lectures and readings) to the analysis of an international political-social situation.

- Compare and contrast the status of the HIV/AIDS epidemic in the USA/Europe versus sub-Saharan Africa.
- Propose and analyze solutions to HIV/AIDS in the developing world.

CLASSROOM MANAGEMENT

1. Set up case
 1. Pre-class reading assignment: “Botswana Sees Economic Rise Leveled by Raging AIDS Crisis,” *Wall Street Journal*, August 29, 2002.
 2. Mini-lecture on HIV/AIDS epidemiology and social costs in sub-Saharan Africa. Accompanying these notes is a sample PowerPoint **slide show** from UNAIDS, © Joint United Nations Programme on HIV/AIDS (UNAIDS) 2003, all rights reserved.
 3. Introduce the situation: A Presidential advisory committee convenes to present the best U.S. response to the HIV/AIDS crisis in Botswana to the President.
2. **K-W-L** process: define information needed to draft a good policy statement. K-W-L techniques ask the students to define what they **Know**, what they **Want** to learn, and after a period for researching the topics, what they have **Learned**. After introducing the advisory committee situation, the students are divided into groups and given 10-15 minutes to identify any issues that might be important in formulating good policy. When the class reconvenes as a whole, the instructor writes student entries on the board or overhead either in the category of **K** or **W**. The instructor may need to lead students to various topics if they do not come up on their own. For example, drug resistance in HIV strains was a topic that didn’t arise from student ideas either time this case was taught to lower-level undergraduates. Once the issues are complete on the board, assign groups to fill in each **L** entry.

Examples of issues include:

- Anti-HIV drug action
- Anti-HIV drug resistance mechanisms
- Process of anti-HIV therapy (HAART)
- Other health issues besides compliance with drug therapy
- Social aspects of HIV prevention measures, HAART compliance in Botswanan culture
- Implications for HIV resistance if HAART is used in Botswana
- Cost of anti-HIV therapy in different countries
- Current pharmaceutical company policies on supplying HAART to Africa
- Cost of ignoring HIV epidemic in Botswana (to Botswana, to USA)
- HIV epidemic history in Botswana and USA
- History of U.S. aid to Botswana and other African countries
- History of U.S. contributions to UNAIDS and other World Health Organization projects

This is a good time to remind students about taking care in choosing the quality of online resources. Directing students to well-maintained websites constructed by respected organizations (NIH, United Nations, CDC, etc.) will help them find reliable information.

3. Dismiss students to work in groups to answer assigned questions. A few days is probably optimal for this assignment.

4. Report back next class period with answers. Each group orally reports on what they have learned. This step may take 30 minutes or more, depending on the number of **W** questions defined in step 3. One efficient way to share the information with the entire class for later use is to ask the students to email their answers to the instructor, who either forwards the documents to the entire class or posts them on a website. If the instructor is confident in the ability of the students to gather and appropriately evaluate information, the material could be directly posted to the website. When used with an upper-division class, individual students were assigned **W** questions in step 3 and individually assigned personalities in step 5 due to the small numbers of students enrolled in the course. Not all personalities need be assigned for the case to run successfully.
5. Introduce members of the policy committee. Each group of students is assigned a personality (5-10 minutes)

- Possible members

- **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.

- Goal: U.S. policy on foreign aid to Botswana

- Assignment: As a group, write a 2-3 page statement on what are the priority issues surrounding HIV/AIDS from your personality's perspective. Why do you prioritize these and not other issues? What specific policy recommendations will you make to the President? It is important at this time to help students understand what you mean by "priority." You might take one of the personalities as an example (or one that you're not using if you choose to have less than 8 personalities) and lead the students through a 5-minute discussion of what is important to that person. For example, Dr. Fauci will be an expert on, and thus likely to focus on, the biology of HIV/AIDS and the potential for developing drug resistance if HAART is administered incorrectly. Mpule Kwelagobe may focus on geographical and social issues that are particular to Botswana.

This assignment is due during the next laboratory or recitation session. *Each group member must arrive with a copy of their group's document.*

6. In the next session, assemble new groups using a jigsaw format. Each new group is comprised of one representative of each personality and constitutes an advisory committee. The committee groups assemble a summary of arguments and then each formulate and write an advisory document for the President in the form of a worksheet table. This session takes about 30 minutes to summarize the arguments and to outline an advisory document. Each group selects a spokesperson to deliver the basics of their plan in a 3-minute presentation to the “President” (the instructor) and the other advisory committees. If time allows, question/answer sessions may be used to allow other groups to critique the committees’ recommendations.
7. Each student writes a formal advisory document from the committee worksheet, which is due the next class period or later. This document takes the form of a press release announcing the President’s acceptance of the committee’s recommendations. Alternatively, it may simply be a recommendation document from the committee that lists funding priorities and the reasoning behind their rankings.

BLOCKS OF ANALYSIS

Detailed case analysis is provided in a separate file that is password-protected. To access this information, go to the [detailed case analysis](#). You will be prompted for a username and password. For the username and password, contact the National Center for Case Study Teaching in Science administrator at answerkey@sciencecases.org.

REFERENCES

In addition to the [glossary](#) and [references](#) made available to students, instructors will want to be aware of the following resource:

- Fact Sheet: The President’s Emergency Plan for AIDS Relief (accessed June 9, 2003)
<http://www.whitehouse.gov/news/releases/2003/01/print/20030129-1.html>.

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