



Controlling the Pandemic: Public Health Focus

Just 25 years since it was first reported, HIV/AIDS has become one of the world's greatest public health crises. More than 39 million people worldwide are estimated to be living with HIV/AIDS, mostly in developing countries. Although a variety of public health measures such as safe sex practices and needle exchange programs for intravenous drug users have proven effective in controlling the spread of the disease, they are often surrounded by controversy. Effective antiretroviral therapy exists to treat individuals with HIV/AIDS and control the disease in their bodies, but the treatments are costly and not readily available in some parts of the world.

In this exercise, you will first watch a video that examines the facts about HIV/AIDS and methods for controlling the spread of the disease. You will then evaluate epidemiological information to determine factors contributing to the spread of HIV/AIDS around the world. You will compare the data for different countries to answer the following question:

If you were a member of a team of experts convened to control the spread of HIV/AIDS in a certain country, how would you use statistical data to help determine the most effective regional public health plan?

After gathering information about the state of the HIV/AIDS epidemic in your assigned country, you will share the results with your classmates. You will have an opportunity to compare the situation in several countries and regions of the world, as well as in the United States. Be sure to study your results carefully and closely to ensure that you make appropriate correlations between the numbers. Keep in mind that statistics are not always as clean cut and easy to compare as you may think!

Answer These Questions Before Viewing the Video

1. What is public health?
2. How is HIV spread between individuals?
3. What regions of the world are most affected by the HIV pandemic?
4. What are some different medical and public-health related control methods used to limit the spread of HIV?



View the video at:

http://koshlandscience.org/exhib_infectious/hiv_antivirals_01.jsp

After Viewing the Video

Revisit the questions above and add any details that you may have missed before, then answer the questions below.

5. How does the limited availability of ART medicine in low income countries affect individuals with HIV/AIDS? What can happen to the virus?
6. Pick one of the countries highlighted in the video and describe a specific program established there that has helped reduce the spread of HIV/AIDS.

Evaluating the Data

In small groups, you will be evaluating data provided by the World Health Organization (WHO), the authority for global health issues within the United Nations system. From this data, you will determine the extent of the HIV/AIDS threat in several countries and regions, as well as possible ways to control the spread of the disease. You will present your results to the class and compare data from different countries to understand regional and international risk factors and variations. First, complete the following questions and data tables by doing some research as a team.

Assigned Country _____

- Go to <http://www.who.int/globalatlas/predefinedReports/default.asp>. Follow the link to the *Epidemiological Fact Sheets* and print the copy of the report relevant to your country.
- Go to <http://www.who.int/hiv/epiupdates/en/index.html>. Follow the link to the most recent *Report on Global AIDS Epidemic* and print the report for global information to use in your evaluation.
- Go to <http://www.who.int/hiv/countries/en/index.html> and print the relevant *Profile on HIV/AIDS treatment scale-up* sheet for your country.

Complete the data tables below by using relevant information from the sources listed above. If the information is not available, indicate that with an N/A in the appropriate box. Blackened cells indicate that there is no data available for the majority of the countries or regions for that year.



Data Table 1: Country Specific (unless otherwise indicated)

	2003	Most Recent Year with Data ()
Estimated number of cases for adults and children		
Estimated number of cases for adults (ages 15+ only)		
Estimated number of cases for children (ages 0-14)		
Estimated prevalence of HIV among adults regionally		

Prevalence is the percentage of the total population infected with HIV.

Incidence Rate is the percentage of people who are uninfected at the beginning of the year who became infected over the following 12 months.

Table 2: Country Specific (unless otherwise indicated)

	2003	Most Recent Year with Data ()
Estimated number of deaths from AIDS among adults and children		
Estimated number of deaths from AIDS among adults and children regionally		

Table 3: Country Specific (unless otherwise indicated)

	2003	Most Recent Year with Data ()
Total population		
Per capita national income		
Per capita total expenditure on health		
General government expenditure on health as a % of total expenditure on health		
Total number of adults needing ART		
Total number of adults receiving ART		
ART coverage* for adults in your assigned country		
ART coverage* in your assigned region		

*ART coverage is the number of individuals receiving ART as a proportion of those who are in need of treatment.

In 2006, the World Bank divided countries into the following categories based on average annual household incomes:

- *low income*: \$875 or less per year
- *lower middle income*: \$876 - \$3,465 per year
- *upper middle income*: \$3,466 - \$10,725 per year
- *high income*: \$10,726 or more per year



Respond to the following questions based on the data you have collected above.

1. Calculate the prevalence (percentage of sick individuals in an entire population) of children and adults with HIV, for 2003 and for the most recent year for which data are available.
2. The cause-specific mortality rate is the percentage of deaths in a country due to a specific cause or disease. Calculate the percentage of deaths due to AIDS in your assigned country to find the cause-specific mortality rates due to AIDS in 2003 and in the most recent year for which data are available.
3. Use your *Global Facts and Figures* sheet to determine the total percentage of deaths due to AIDS for people in your region.
4. Produce a graph of following results for your country and region for 2003 and for the most recent year for which data are available:
 - Total HIV prevalence rate (%)(including children and adults) for your assigned country, and for adults only in your region
 - Cause-specific mortality rates (%) due to AIDS (including adults and children) in your assigned country and region
 - ART coverage (%) for adults in your assigned country and region



5. In the country you are studying, has the total number of HIV cases increased or decreased since 2003? How does the prevalence of HIV differ in your assigned country and the region in which it is located? Explain your response by providing data from your calculations and data tables.

6. Has the total number of AIDS-related deaths increased or decreased in your assigned country since 2003? How do the country's cause-specific mortality rates due to AIDS compare to those of the region in which it is located? Explain your response by providing data from your calculations and data tables.

7. What are some of the possible factors that are contributing to changes in HIV prevalence and AIDS-related deaths?

8. Compare the ART coverage in your assigned country and region. How do you think this is impacting the spread of HIV in your assigned country?

9. Providing national access to HIV testing and screening centers, as well as ART distribution centers, may have an impact on how the disease is managed. In your opinion, how effectively is your country addressing this issue? (*Hint: Look at the method of HIV screening and the number of people being screened.*) Do you think there are sufficient ART distribution centers and testing and screening centers available?

10. Read through the profile on HIV Prevention/Treatment Scale-up for your assigned country. Given your understanding of how HIV spreads, discuss some of the obstacles faced in that country in establishing total prevention of the spread of HIV. Be detailed and specific, offering what you think are relevant, feasible suggestions.



Post-Class Discussion

11. How does your country compare to the other countries being evaluated in terms of HIV prevalence and prevention measures? What social, economic, and political factors in these countries have led to these different variations? Refer to the graphs containing class data and your classmates' presentations to help you answer this question.

12. Look at the data your teacher provided about HIV/AIDS in the United States. How does the country you studied compare in terms of prevalence and mortality rates? Do the data surprise you? Why or why not?