ARMENIA KEY

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 (ART) 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 lesson, 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 identify factors contributing to the spread of HIV/AIDS around the world. You will compare the data from several 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 check your answers 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!

Pre-Viewing Questions

1. What is public health?

Public health is the study of how diseases spread in a population and the measures used to control them.

2. How is HIV spread between individuals?

HIV can be spread through needle sharing, through semen and vaginal fluids during intercourse, from a mother to a child in the uterus, and through breastfeeding and birth.

3. What regions of the world are most affected by the HIV pandemic?

Developing countries are most impacted, especially sub-Saharan Africa.

4. What are some different medical and public-health related control methods used to limit the spread of HIV?

Different control methods are:

a) Providing education and training about HIV, including how HIV develops into AIDS, how HIV is spread, how to prevent transmission, and how to treat HIV and AIDS;

b) Offering specific and culturally relevant instructions on how to obtain and use condoms and clean needles, which should be targeted to high-risk groups such as commercial sex workers and intravenous drug users (in places where HIV is concentrated in these populations);

c) Ensuring safe, HIV-free blood supplies for transfusion;

d) Providing access to HIV testing, with protection from discrimination;

e) Diagnosing HIV infections in pregnant women, and providing them with timely access to anti-HIVART drugs to decrease mother-to-child transmission of HIV;

f) Ensuring that males are circumcised;

g) Possibly, treating other STDs; and

h) Possibly, providing widespread anti-HIV ART treatment, which may decrease the infectiousness of persons living with HIV (as well as potentially decreasing stigma associated with HIV).

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?

The HIV virus mutates very quickly and therefore can develop resistance to medication if it is not used continuously. ART medication is crucial in slowing down the progression from HIV to AIDS and limiting the spread of the virus in the body. ART decreases the level of HIV in the blood, and it may decrease person-to-person transmission (although this is currently under study).

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.

Botswana established routine HIV testing in medical clinics as part of blood screening for all ailments. Intensive national campaigns to eliminate mother-to-child transmission have also been instituted.

Thailand incorporated a nation-wide campaign among sex-workers that mandated condom use, lowering the transmission of HIV among the Thai Army.

In Uganda, government distribution of 160 million condoms per year has virtually halted the sexual spread of HIV in many areas.

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 different 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 several 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: *Armenia*

- 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 previous databases. 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 (2005)
Estimated number of cases for adults and children	2600	2900
Estimated number of cases for adults (ages 15+ only)	2600	2900
Estimated number of cases for children (ages 0-14)	N/A	N/A
Estimated prevalence of HIV among adults and children **regionally**		53,000

Table 2: Country Specific (unless otherwise indicated)

	2003	Most Recent Year with Data (2005)
Estimated number of deaths from AIDS among adults and children	<100	<500
Estimated number of deaths from AIDS among adults and children **regionally**		37,000

Table 3: Country Specific (unless otherwise indicated)

	2003	Most Recent Year with Data (2005)
Total population	3,037,193	3,016,000
Per capita national income		$4270
Per capita total expenditure on health	$302	N/A
General government expenditure on health as a % of total expenditure on health	6%	N/A
Total number of adults needing ART	<500	<500
Total number of adults receiving ART	0	<200
ART coverage for adults in assigned country	0	9%
ART Coverage in assigned region		13%

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

1. Calculate the prevalence (percentage of sick individuals in an entire population), including both children and adults with HIV, for 2003 and the most recent year for which data is available.

2003 Adult & children prevalence: (110,000/3,037,193)*100 = 3.6%
2005 Adult & children prevalence: (170,000/3,016,000)*100 = 5.6%
2005 Adult & children prevalence Eastern Europe: 0.8%

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. Calculate the same for your region for the most recent year with data.

AIDS mortality rates in adults and children cannot be calculated for Armenia since the numbers provided are inconclusive for 2003 and 2005.
AIDS mortality in adults & children for 2005 in Eastern Europe and Central Asia: (53,000/472,900,000,000)*100=0.00001 %

3. Use your *Global Facts and Figures* sheet to determine the total percentage of deaths due to AIDS for people in your assigned region.

(53,000/2,800,000)*100 = 2%

4. Produce a graph of the following results for your assigned country and region for 2003 and the most recent year for which data are available:
   - Total HIV prevalence rate (%) (including children and adults) for your assigned country; and the HIV prevalence rate for adults only in your region
   - Cause-specific mortality rates (%) due to AIDS (including both adults and children) in your assigned country and region
   - ART coverage (%) for adults in your assigned country and region

Please see attached graphs.

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 country and in the region in which your country is located? Explain your response by providing data from your calculations and data tables.

In Armenia, the total number of HIV cases has increased by 300 in both adults and children between 2003 and 2005. Armenia has 6% prevalence, while Eastern Europe/Central Asia has a 0.8% prevalence. As shown by the numbers, Armenia has a much higher HIV prevalence than that of Eastern Europe/Central Asia as a whole. HIV seems to be a growing problem in the country as the prevalence increased from 3.6 % to 5.6% between 2003 and 2005.

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

Since the numbers provided for AIDS mortality rates offer inconclusive evidence, no conclusions can be drawn in the case of Armenia. But the increase in prevalence is indicative of a growing problem with HIV/AIDS in the country.

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

The largest groups of Armenia's population that are being impacted by the epidemic are injecting drug users and sex workers. The disease seems to be mostly contained within these two populations but is beginning to spread quickly. Much of the problem is socioeconomic, where many unemployed people have turned to drug use and the sex trade. In addition, many Armenians are migrating to surrounding countries that also have high HIV prevalence, becoming infected, and then spreading the disease when they return to Armenia to visit.

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

Very few Armenians are receiving appropriate treatment for HIV/AIDS. The coverage for ART in Armenia increased from 0% to 9% from 2003-2005, largely due to efforts within the country to increase availability of ART medication. Treatment prolongs the lives of people with HIV/AIDS. As a result, as more people are treated, the number of people living with HIV (and therefore the HIV prevalence rate) increases, even as the number of new cases (incidence) stays the same.

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

The prevalence of HIV in Armenia as calculated above is about 6%. Armenia is making efforts to test for HIV in 100% of all blood samples that are collected for whatever reason. While this is an effective step in the right direction, there are others at risk who still need to be tested. There are 138 HIV testing and counseling sites available in the country of Armenia, but only *one* ART distribution center. This also indicates that a large group of people is probably HIV positive and is not being diagnosed, since they may not have access to these clinics and facilities. An even larger number of individuals who need ART are not receiving it.

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 for establishing total prevention of the spread of HIV. Be detailed and specific, offering what you think are relevant, feasible suggestions.

The disease is being spread largely by intravenous drug users injecting with needles and those involved with the sex trade. In addition, as more people emigrate and the population drops, the disease is being concentrated even more. Not only that, but the weak economic condition in Armenia is pushing many people into the sex trade, which is leading to an even quicker spread of the disease. Armenia has severe problems with access to and distribution of ART. To combat the spread of HIV/AIDS, Armenia needs to focus major efforts on providing access to ART and training medical personnel. There are a variety of other public health concerns related to the socioeconomic situation in the country that need to be dealt with as well. Armenia is an upper-middle income country with an average annual per capita income of about $4,270. Of that, $302 is typically spent per year on health related costs, which is about 7% of a family's income. This is a low percentage compared to the average expenditure of the United States (about 10%). The Armenian government covers about 6% of total national health expenditure. Although the most affected population is that of intravenous drug users, Armenia has not made substantive efforts to establish national needle exchange programs. The country does, however, recognize that increasing the availability to medications like methadone* to address drug addiction, and ultimately decreasing HIV infections through needle sharing, are important and is taking steps to establish such programs

* "Methadone is a rigorously well-tested medication that is safe and efficacious for the treatment of narcotic withdrawal and dependence."
http://www.whitehousedrugpolicy.gov/publications/factsht/methadone/index.html
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***Students can offer a number of suggestions here based on their understandings which include instituting programs encouraging people to join the medical profession, soliciting more volunteers, funding more facilities across the country, and many others. ***

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.

Armenia's HIV-prevalence rate is the third highest among those countries compared in class. More importantly, of all the countries included in the lesson, Armenia has seen the biggest increase in its HIV-prevalence rate over the two years studied. Armenia's deteriorating socioeconomic situation is a major contributing factor to the problem. Other countries like Botswana and Costa Rica have implemented programs in their countries to distribute ART drugs free-of-charge, which has helped decrease the number of people who are being affected by the disease.

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?

The United States has a very low prevalence and mortality rate due to AIDS compared to Armenia. This is due to the measures that the United States has taken to raise awareness about HIV/AIDS prevention and access to medical resources such as ART to treat the disease.