ARMENIA KEY

Controlling the Pandemic: Public Health Focus

HIV/AIDS continues to be a global problem, especially in the world's low income countries. Various public health measures, including safe sex practices and needle sharing prevention, are effective ways to control the spread of the disease. Individuals infected with HIV use antiretroviral therapy to control the disease in their body. After watching the video discussing control measures for HIV/AIDS, you will 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 hired as part of a team 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 different countries and regions of the world, including 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!

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 by sharing needles, through semen and vaginal fluids during intercourse, and from mothers to children 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 control methods used to limit the spread of HIV (medical and public health related)?

Different control methods are:

a) Education and training about HIV (how HIV leads to AIDS, how HIV is spread and how to effectively prevent transmission, and how HIV can be treated);

b) specific and culturally relevant instructions on the use, and availability, of condoms and clean needles, targeted to high risk groups such as commercial sex workers and IV drug users (in places where HIV is concentrated in these populations);

c) ensuring safe, HIV-free blood products (for transfusion) supply;

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

e) diagnosis of HIV infection in pregnant women, and timely access to anti-HIV ART drugs by pregnant women to decrease mother to child transmission of HIV;

f) male circumcision;

g) possibly, treatment of other STDs;

h) and, possibly, 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. What risk does the limited availability of Antiretroviral Therapy (ART) medicine in low income countries pose to individuals with HIV/AIDS? What can happen to the virus?

The HIV virus mutates very quickly and therefore can develop resistance to medication if the use of medication is not continuous. ART medication is crucial in slowing down the progression from HIV to AIDS and limiting the spread of the virus in the body. ART leads to a decrease in 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 where it mandated condom use, lowering the transmission of HIV among the Thai Army.

In Uganda, where roughly 1/3 of the army was once HIV-positive, 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). 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 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 *Cambodia*

- 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 in Country	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 your country	0	9%
ART Coverage in your region		13%

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

1. Calculate the prevalence (percentage of sick individuals in an entire population) for children and adults with HIV combined for 2003 and the most recent year with data.

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 country to find the cause-specific mortality rates due to AIDS for 2003 and the most recent year with data. 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 are not absolute for 2003 and 2005. The numbers provided are inconclusive.
AIDS mortality in adults & kids 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 percentage of total deaths due to AIDS for people in your region.

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

4. Produce a graph for the following results for your country and region for 2003 and the most recent year with data:
   - HIV prevalence (%) for children and adults combined for your country and adults alone in your region
   - Cause-specific mortality rates (%) due to AIDS for adults and children combined in your country and region
   - ART coverage (%) for adults in your country and region

Please see attached graphs.

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

The total number of HIV cases have increased by 300 in Armenia from 2003-2005 in both adults and children. 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 respectively.

6. Has the total number of AIDS related deaths increased or decreased since 2003 in the country you are studying? How do the cause-specific mortality rates due to AIDS in your country compare to those of the region it is in? 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 the 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 people have turned to drug use out of desperation from the lack of jobs and the sex trade for the same reason. These factors, along with high migration rates to regions of the surrounding countries with high HIV prevalence are leading to increases in the numbers of infected individuals when people return 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 country?

Very few people are receiving appropriate treatment for HIV/AIDS. The coverage for ART in Armenia increased from 0% to 9% from 2003-2005. It is a positive sign that the number of individuals receiving treatment is increasing. There have been efforts within the country to establish availability of ART medication. Treatment prolongs the life of persons with HIV/AIDS, so as access to treatment increases, the number of people living with HIV (and therefore the HIV prevalence) increases, even in 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 number of individuals being screened for HIV. 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%. There have been measures in Armenia to test 100% of all blood samples that are collected for HIV. While this is an effective step in the right direction, it does not mean that everyone who needs to be tested is being tested. There are 138 HIV testing and counseling sites available in the country of Armenia. There is a total of *one* ART distribution center. This also indicates that there is most likely a large group of people who are not getting diagnosed since they may not have access to these clinics and facilities, and that there are an even larger number of individuals who need ART who are not receiving it.

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

The largest problems in the spreading of the disease are transmission amongst drug users injecting with needles and those involved with the sex trade. The large number of individuals emigrating has led to a drop in population size, which is concentrating the disease even more. Not only that, but the downtrend economic situation Armenia is facing pushed many people into the sex trade, which allows for even quicker spread of the disease. Armenia has severe problems with access to and distribution of ART, which basically does not exist in the country. In order to combat the spread of HIV/AIDS Armenia needs to focus major efforts on access and distribution of ART and training medical personnel. There are a variety of other public health concerns related to the socioeconomic situation in the country which 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 their income. This is a low percent, compared to the average expenditure of the U.S. (about 10%). The 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 availability to medications like methadone* to address drug addiction and ultimately decrease HIV infectious through needle sharing is 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, encourage more volunteers, use funding to build more facilities across the country, and many others. ***

Post-Class Discussion

11. How does your country compare to the rest of the 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 is the country with the third worst prevalence of HIV among those compared in the class. More importantly, it had the highest increase in prevalence of all of the countries over the two years studied. Armenia's deteriorating socio-economic situation is a major contributing factor to the situation. Other countries like Botswana and Costa Rica have implemented programs in their countries to distribute ART drugs to those who need them free of cost, 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 U.S. How does the country you studied compare to the U.S. in terms of prevalence and mortality rates? Does the data surprise you? Why or why not?

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

* Students answers will vary about being or not being surprised.