

URGENT HEALTH ALERT: Japanese Encephalitis

Role: Finance Officer, Institute for Global Health

Location: London, England

Time: Present Day

Goal: Allocate funds to alleviate the effects of Japanese Encephalitis

Welcome to the annual meeting of the Institute for Global Health (IGH). The mission of the IGH is to assist in the alleviation of various diseases. This year the IGH is focusing on Japanese Encephalitis (en-sef-a-lich-tis). You are finance officers for the institute and it is your job to decide how to spend limited funds wisely.

Five strategies to help reduce the instance of the disease have been presented to your group. These strategies can be used in only one of three Asian countries where the occurrence of Japanese Encephalitis is alarmingly high: India, Vietnam and Cambodia. **Your group has 30 million dollars and you must invest in only one strategy, in only one country.** You must present and justify your recommendation to the Institute for Global Health board of directors (the judges).

Steps to follow in your decision-making process:

- ❖ Silently, read over all the information. As you read, mark the pros and cons that you think are most important for each strategy.
- ❖ As a group, discuss the options and complete the “Thinking Organizer”.
- ❖ Each person should offer his or her opinion, and the group should be prepared to agree.
- ❖ Decide which country your group will support and which of the five strategies your group will choose to implement in that country. Be prepared to explain why your group decided upon a specific country and proposal and why you eliminated the others. Your argument should include facts and examples from the readings and the process by which you reached an agreement.

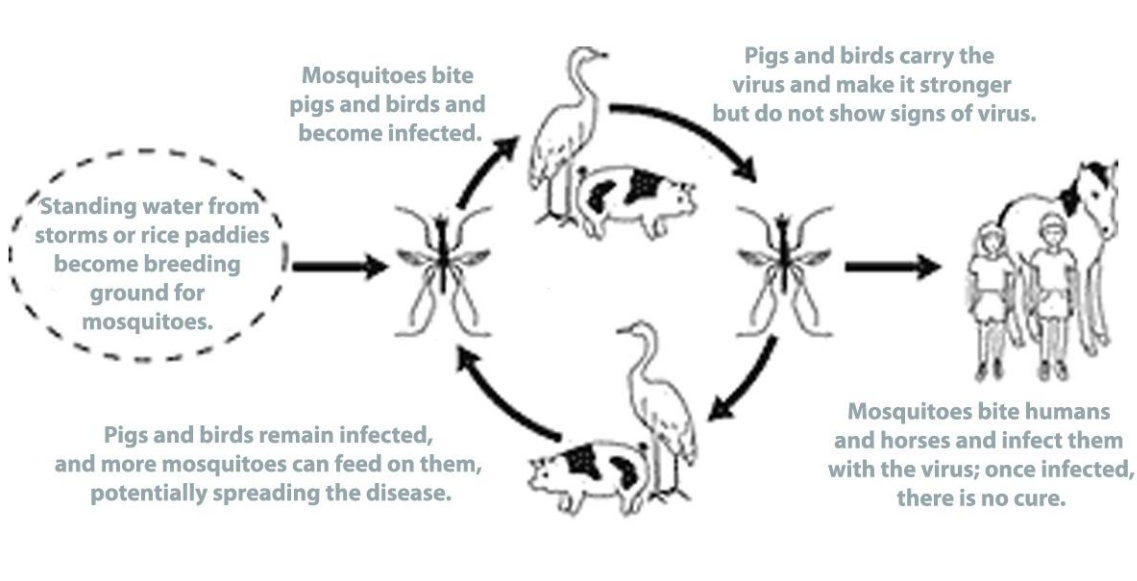
Overview and Background

Japanese Encephalitis (JE) is a viral disease that affects both animals and humans. The virus attacks the brain and can cause symptoms such as high fever, coma, seizure and paralysis, and can eventually lead to death. It has been a large problem in South and East Asia for the last 25 years. People think that the disease spreads in these regions due to an increase in rice production (paddies) and standing water (in/around rice paddies). Standing water is also increased by heavy rains and flooding during the monsoon season.

Standing water is an ideal breeding ground for mosquitoes, which are the main way in which the disease is transmitted.

Over 3 billion people, including 700 million children, are at risk of contracting this disease. It is common in rural and poor areas which traditionally have limited access to health care. Children are especially vulnerable. One third of all infected children die and one third are permanently handicapped. Because Japanese Encephalitis is a virus, there is no cure once a person is infected. **Over 10,000 people die annually from the disease.**

Japanese Encephalitis Transmission



Fast Facts:

Japanese Encephalitis:

- 30,000-50,000 cases reported annually, resulting in 10,000-15,000 deaths annually;
- 3 billion people, including 700 million children, are at risk of contraction;
- Children are the most vulnerable (highest mortality rates)
 - Over 10 million children have been infected, 3 million dead and 4 million permanently disabled from JE;
- JE affects the brain and is commonly mistaken for Meningitis and other brain related diseases;
- Occurs primarily in rural areas;
- Mosquitoes, pigs, birds, humans and horses are involved in the transmission and infection process;
- Vaccine for preventing infection is available but is very expensive;
- Once a person is infected, there is no treatment or cure;
- Incubation period of 5 to 15 days.

Examine the Country Profiles below to decide which country should receive the 30 million dollars and which of the 5 strategies you will invest in. You must choose only one country and only one strategy.

INDIA



India is a large country in South Asia, about 1/3 the size of the United States, with a population of 1,103,370,000. India's population accounts for 17% of the total world's population. Seventy-one percent of their over 1 billion person population lives in rural areas. India is one of the world's fastest growing economies and is an emerging leader in information technology, business process outsourcing, telecommunications and pharmaceuticals. Although India is growing economically, 25% of their population is still living below the poverty line.

In regards to health care, India practices both modern and traditional systems of medicine. Under the Constitution, health is mostly the responsibility of individual states throughout India. However, the national government does finance some national public health programs.

The biggest challenges facing India are:

- inequitable access to health care
- high maternal and child mortality rate
- low government expenditure on health care (\$91 US dollars per person per year)
- lack of public health education

India had an outbreak of Japanese Encephalitis in 2005, the biggest and longest outbreak in 30 years, lasting four months and killing over 1,300 people, most of them children. India is listed as High on the Degree of Risk for Major Infectious Diseases by the CIA World Factbook.

Population	1,103,370,000
Life Expectancy	62 years old
Under 5 Mortality	87 per 1,000 live births
Maternal Mortality	540 per 100,000
Gross National Income Per Capita	\$3,460 (US Dollars)
Rank on the Human Development Index – based on life expectancy, educational attainment and income – Numbers range from 1 (best) to 174 (worst)	#128
Type of Government	Federal Republic
Rank on the Corruption Scale – 1 (least corrupt) to 179 (most corrupt)	#72

CAMBODIA



Cambodia is a country in Southeast Asia, about the size of the state of Oklahoma. Its population is 14,071,000, with 85% of its population living in rural areas and 35% living below the poverty line. Much of Cambodia’s geography is made up of paddies and forests near the Mekong River and Tonle Sap. Cambodia endured 13 years of civil war and various governments, but is now stabilizing politically, and held two peaceful elections in 2003 and 2007. Because of the long period of war, Cambodia’s population is poverty-ridden, lacks education and productive skills and over 50% of the population is under 21 years old.

Cambodia’s health record is one of the worst in Asia. The country relies heavily on overseas development assistance to fund their system while much of the money is used corruptly. The health care system was destroyed by Civil War and is still being rebuilt. Much of their system relies on local health workers in rural areas that have little to no formal training. Cambodia spends \$140 US dollars per person on health care per year.

The biggest challenges facing Cambodia’s health are:

- access to health care limited by poor roads, especially during rainy season
- high maternal and child mortality rate
- high level of corruption within the health care system

Cambodia is listed as Very High on the Degree of Risk for Major Infectious Diseases by the CIA World Factbook.

Population	14,071,000
Life Expectancy	54 years old
Under 5 Mortality	143 per 1,000 live births
Maternal Mortality	450 per 100,000
Gross National Income Per Capita	\$2,490 (US Dollars)
Rank on the Human Development Index – based on life expectancy, educational attainment and income – Numbers range from 1 (best) to 174 (worst)	#131
Type of Government	Multiparty Democracy under a Constitutional Monarchy
Rank on the Corruption Scale – 1 (least corrupt) to 179 (most corrupt)	#162

VIETNAM



Vietnam is a country located in Southeast Asia, about the size of the state of New Mexico. Its population is 84,238,000 with 80.3% of the population living in rural areas and 19.5% living below the poverty line. Vietnam endured Civil War in the 1960s and 1970s. In order to rebuild the country from war, the Communist Government created a renovation policy in 1986 called “doi moi”. Since that time, Vietnam has undergone major social and economic changes, especially improvements in the health care sector. Even though Vietnam is one of the poorest countries in the world, their various health indicators are similar to those of middle income countries. They have a very strong health care delivery network, a large supply of health workers and well organized public health programs. Vietnam spends \$184 US dollars per person on health care per year.

However, private health companies and pharmaceutical companies have increased spending on health care resulting in a greater gap between the quality of care for the rich and poor, with health care expenditures as a major cause for poverty.

The biggest challenges facing Vietnam’s health are:

- High prevalence of malnutrition and low birth weight
- High maternal and child mortality rate
- Increase of various diseases like HIV/AIDS, Tuberculosis and Japanese Encephalitis
- Inequitable access to health care, especially in the Mekong River Delta, the Central Highlands and the Northern Uplands

Vietnam is listed as High on the Degree of Risk for Major Infectious Diseases by the CIA World Factbook.

Life Expectancy	71 years old
Under 5 Mortality	23 per 1,000 live births
Maternal Mortality	130 per 100,000
Gross National Income Per Capita	\$3,010 (US Dollars)
Rank on the Human Development Index – based on life expectancy, educational attainment and income – Numbers range from 1 (best) to 174 (worst)	#105
Type of Government	Communist
Rank on the Corruption Scale – 1 (least corrupt) to 179 (most corrupt)	#123

Strategies for Alleviating Japanese Encephalitis (JE):

Finance Officers: Your 30 million dollars can be applied to only ONE program in India, Cambodia or Vietnam.

1. Control and/or eliminate the Domestic Pig Population: This strategy aims to prevent the spread of JE by reducing contact between pigs and humans. This would be done in one of two ways: by either killing the domestic pig population, or by separating one population from the other. Pigs are an important resource and an integral part of many rural families. Separating populations could be problematic. Mosquitoes are able to fly up to 5 kilometers, so the separation between humans and pigs must be at least 5 kilometers. However, since domestic pigs are used to roaming freely, it could be hard to confine them to one area. In addition, this option would keep some mosquitoes from infecting a portion of humans, but other animals such as wild birds can also carry the virus. Wild birds can fly for thousands of miles, allowing mosquitoes in many places to bite them and strengthen the strain of the virus.

2. Insecticides and Pesticides: This strategy will institute widespread use of insecticide on mosquito breeding grounds (i.e. rice paddies and other areas with standing water). It will also allow people to spray their homes with a pesticide fog in order to kill the mosquitoes before they can enter their homes. Although this option is quick and easy to implement, it is difficult to wipe out the mosquito population and does not promise 100% effectiveness. Pesticides are also chemicals, and can cause human illness, particularly after prolonged exposure.

3. Education: This strategy is to fund educational programs to teach people about the danger of the disease, its symptoms and to explain methods to protect against contracting it. There are simple ways to prevent infection, such as knowing the times of day when mosquitoes are most present and feeding (dusk and dawn), using mosquito repellent and mosquito nets. JE is very hard to diagnose because many confuse it with other diseases like Meningitis. A delayed diagnosis reduces your chance of a full recovery. The education proposal is helpful in reducing the amount of human infections. Although people may more accurately diagnose the virus, a lack of medical treatment and health facilities is still an issue in rural communities.

4. Childhood Vaccination: This strategy funds the distribution of the JE vaccine to children. The vaccine prevents people from ever getting the virus, and therefore could eradicate all new infections of the virus. However, the vaccine is expensive, difficult to make, complicated to use and difficult to administer, especially in rural areas. The vaccination consists of several shots, one shot followed by many booster shots over a period of a year. There are also serious side effects from the vaccination.

5. Research and Development: Extensive funding will go into research to find a way to prevent the spread of JE. Research can lead to effective planning and control strategies. This proposal will work to find a vaccine that is cheaper, safer and easier to administer, solving the problems with the existing vaccine. The money will go to the Japanese Encephalitis Eradication Institute in London, England. This research will benefit future generations but it is a costly option. However, if successful, over time it will help prevent the spread of the virus in numerous countries.

**WORLD AFFAIRS CHALLENGE
THINKING ORGANIZER**

Discuss the pros and cons for each of the four countries and the five proposals and agree upon the one country and one proposal you will fund.

Strategy	Pros:	Cons:
Control and/or eliminate the Domestic Pig Population:		
Insecticides and Pesticides:		
Education:		
Childhood Vaccination:		
Research and Development:		

Which country and strategy would you choose if you wanted to have the greatest impact on children?

Which country and strategy would you choose if were worried about corruption preventing your strategy from being effective?

Which country and strategy would you choose if one of your secondary goals was to help improve the health care system in that country?

We decided to fund _____ (country) with _____ strategy (one of 5 presented) because.....

Be prepared to defend your decision.