

ACADEMY MODEL UNITED NATIONS 2010
BERGEN COUNTY ACADEMIES



WORLD HEALTH ORGANIZATION

APRIL CHOI
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Dear Delegates,

Welcome to the 11th annual Academy Model United Nations (AMUN) at Bergen County Academies. For many, this may be your first year participating in MUN, while for others this may be their fourth or fifth year.

My name is Kavisha Khanuja and I will be chairing the committee, along with April Choi. I am currently a senior in the Academy for Medical Science Technology. I have been involved with Model UN since I was in ninth grade and have participated in every AMUN conference since my freshman year. My first collegiate conference was WAMUNC 2007 and I have attended additional conferences at GWU and Yale. I served as a delegates my freshman and sophomore year and in my junior year as a staff member for the WHO committee.

Although I am interested in international relations/affairs, I am interested in pursuing a career in medicine. In addition to the Model UN club, I am an active member of Health Occupation Students of America (HOSA) and the school literary magazine. I have also been involved with Girl Scouts for the past 9 years and am currently interning at the Bergen County Medical Examiner's Office.

April and I have been working hard to prepare the topics in hope of having stimulating debates during committee session. We hope this background guide serves as wealth of information. Make sure you do research based on your own country. If you need any help, feel free to email April at aprcho@bergen.org or me at kavkha@bergen.org. We look forward to seeing you all in January.

Sincerely,
April Choi
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TOPIC 2: MALARIA

Background

Malaria is one of the oldest known diseases to have such a profound effect on humans. The history of malaria parasites can be traced back 30 million years. Hippocrates, the ancient Greek physician, was the first to describe the appearance of the disease and relate it to the time and location, and by the fifteenth century, Europeans and West Africans had introduced malaria to the New World. Over the course of the next 300 years, malaria spread throughout North America. By the 19th century, malaria reached its global high point with over half the population of the world at risk and one in ten of those at risk were expected to die.

Poor living conditions, poverty, and famine all contributed to the high rate of mortality of this disease. The effects of malaria accounted for nearly two to five percent of all deaths during the past 100 years. By the mid 20th century, the mortality rate declined due to improved living conditions and vector control measures and the disease had nearly been eradicated from North America and all of Europe. However, malaria is still a problem in areas of the tropics, including parts of Africa, South America, and Asia, as it can spread from continent to continent through its vectors – mosquitoes- and through their hosts by of public transmission.

Malaria has been responsible for the decline of a country's power and attributing to a country's military defeats. This is because majority of casualties in war have been the result of this disease, decreasing the number of people in the military. For years, malaria had prevented any economic and social development in areas of the world. Even today, it continues to be a major health issue, particularly in tropical nations.



http://blog.bioethics.net/images/malaria_mosquito.jpg

Malaria is a vector-borne infectious disease. In other words, the disease uses an intermediate host that is not only required for the development of the parasitic disease, but also helps deliver it directly to the next host. It is caused by the protozoan parasites and in humans is called *P. falciparum*, *P.malariae*, *P.ovale*, *P.vivax*, and *P.knowlesi*. *P.falciparum* is the most common cause of malaria, responsible for almost 90 percent of the deaths from malaria. In humans, the parasites multiply in the liver and then infect red blood cells. Infection with the malaria parasite results in a wide array of symptoms, which can range from anywhere between no to mild symptoms to complicated disease to death. The disease is curable if diagnosed and treated properly. The clinical course of this disease begins with a seven to thirty day incubation period and is followed by a malaria attack of between six to ten hours. This includes a cold, shivering, fever, headache, seizures, vomiting, sweating, and

lethargy and can result in organ failures and abnormalities. Treatment for this disease includes drugs such as chloroquine, mefloquine, primaquine, quinine, pyrimethamine-sulfadoxine (Fansidar), and doxycycline. The cost of treatment is between \$0.08USD and \$5.30USD according to specific drug prescribed, which is determined by drug resistance. In 1987, the total cost of malaria (which includes health care, treatment, lost production) was estimated to be \$800 million USD for tropical Africa and this figure is currently estimated to be more than \$1.8 billion USD. Chloroquine is very cheap and, until recently, was very effective until the malaria disease began to develop resistance to the drug. However, these effective anti-malarial drugs are on the market and available for access. Access to pharmacies and health facilities, as well as drug costs, prove to be major obstacles in treating this disease.

Relation to Poverty

While this disease is treatable, it is a large concern of the World Health Organization (WHO). In many parts of the world, the parasites have started to develop a resistance of some sorts to the number of malaria medicines. WHO, along with other committees of the United Nation, has sponsored many research projects to find an alternate means of curing the disease, such as the Roll Back Malaria project. In addition, the committee has initiated a number of policies and strategies for malaria control including providing insecticidal nets and treatment with artemisinin-based combination therapy (ACT). Even with these policies, there are still between 350 – 500 million cases of malaria, killing between one and three million people each year. Malaria continues to be one of the most common infectious diseases and an enormous public health problem associated

primarily with poverty. The majority of the deaths from malaria are children under the age of five. There has been little change in decreasing the cases of malaria in certain areas at risk since 1992, despite efforts to increase treatment and reduce transmission. As the majority of cases, especially in rural areas, are undocumented precise statistics are unknown. This disease, however, is common in Sub-Saharan Africa, and present in South Asia, Central and South America, and the Western specific.

According to research done by Gallup and Sachs, there is a correlation between the disease and poverty. In 1995, the GDP (gross domestic product) of countries in which malaria was prevalent was five times less than those countries in which malaria was not an issue. Malaria is not only known as a disease associated with poverty but also known to cause poverty. The tropical zones are most affected by the disease, which has been associated with major negative economic effects in regions where it has spread. Malaria contributed to the slow economic development of the United States southern most states. The costs of malaria include a combination of personal and public expenditures. The personal expenditures include doctor's fee, medicine, transportation, and family support, while the public expenditures include spending by the government on maintaining health facilities and health care infrastructure. The time spent in the hospital results in a loss of productivity and income associated with illness or death. Specifically in Africa, it is seen how malaria negatively impacts children schooling and social development and their neurological development. As those living in poverty do not have the money needed to pay for the prevention and treatment of the disease, malaria spreads in area where poverty is the highest. The lowest income group has the tendency to

carry the financial burden of treating this disease. Due to the prevalence of this disease, it costs Africa 12 billion USD every year in order to pay for the costs of health care, working days lost to sickness, days lost in education, and loss of investment and tourism. In some countries, the disease accounts for about forty percent of the public health expenditure.

Prevalence

With the prevalence of this disease around the world, countries have taken different measurements to combat malaria. These measurements include vector control, prophylactic drugs, indoor residual spraying, mosquito nets and bed clothes, and vaccination. Initially, these methods helped decrease and control the spread of malaria throughout the world. However, in the 21st century, drug resistance has posed a growing problem in the treatment of malaria. This is because there is now resistance common against all classes of antimalarial drugs, with the exception of ACTS.

As a result, much of the world has become dependent on ACTS as a means of treatment. These drugs are very expensive, thus limiting their use in third-world nations and the developing world.

Concern over malaria has further increased as scientific research has shown an emerging strain of malaria on the Cambodia-Thailand border that is now resistant to combination therapies, which includes ACTS. This raises the issue that all the malaria strains may

have evolved and are now untreatable with currently-available drugs.

Treatment Options

As the cost of these drugs remains a major issue, WHO developed a system of financing malaria control through partnerships with private sectors, NGOs, partners in malaria control, fund-raising, and financial resource management. The African region, according to the National Malaria Control Programme (NMCP) data for 2006, has been provided with more funds for malaria control. However, the amount of money available per malaria case in the 26 reporting countries is not adequate to meet targets for prevention and cure. According to WHO reports for 2008, the impact of aggressive malaria control policies has shown a reduction in morbidity and mortality.



<http://footprintsglasgow.co.uk/images/SoloNet-Single-Mosquito-Net-L2.jpeg>

Vector control of malaria has been highly recommended by WHO as a means of controlling the disease itself. Vector control included removing or poisoning the breeding

grounds of mosquitoes or the aquatic habitats of the larva stages. Though these efforts have so far failed to eradicate malaria in the developing world, a sterile insect technique is emerging as a potential mosquito control method. Creating an insect that is genetically modified to not carry the plasmodium can play a role in making a wild mosquito population malaria resistant. Another dominant method of vector control, recommended by WHO, is the use of indoor residual spraying (IRS). The application of

IRS, long-acting chemical insecticides, on walls and roofs of all houses has been known to reduce the life span and the density of vector mosquitoes. The use of IRS as part of the Malaria Eradication Program contributed to significantly reducing the malaria burden across the globe, specially in Asia, Latin America, and Southern Africa. About 700 million people, who were previously exposed to the disease, are no longer at risk. With the decline in the usage of IRS, due to lack of government commitment and financing to sustain these efforts, the burden of malaria continues to grow in most of the African continent. When IRS is used in combination with DDT, it has been proven to be effective in controlling malaria. In IRS operations it is recommended by the WHO to use 12 different insecticides. These include DDT and alternative insecticides as a means of combating malaria in areas where mosquitoes are DDT-resistant and to slow the evolution of this resistance.

Mosquito nets and bedclothes are another means of the prevention recommended by the WHO. Most countries in the WHO African region adopted the policy of providing these nets free of charge to children and pregnant women. These nets have been known to help keep mosquitoes away from people and reduce the infection and transmission of the malaria parasite. When treated with insecticides, making them insecticide-treated nets (ITN), they are known to be twice as effective as untreated nets. Though their use has been statistically proven to be very effective in combating malaria, less than two percent of children in urban areas of Sub-Saharan Africa are protected by these nets. In addition, the distribution of these nets have been shown to be one of the most cost-effective methods of prevention and thus are part of the WHO's Millennium Development Goals

(MDGs). These nets can be obtained by WHO at the price of 2.50 USD, this price which is subsidized by WHO. However, for maximum effectiveness, these nets must be sprayed with the insecticide every six months. This issues provides WHO with a problem logistically in rural areas. With the invention of long-lasting insecticidal mosquito nets (LLINs), which last for about 5 years, the logistic problems may be solved. The price of these nets are is higher at 5.50 USD. It is the cost and distribution of the mosquito nets that truly poses as a problem of malaria prevention. Most governments are unable to provide the financial aid to do so, and thus community education and awareness does not occur.

The WHO committee must determine whether there are any public health actions which should be taken now, based on the available scientific information, and what specific actions should be taken.

Questions to Consider

1. *Eradication vs. Elimination:* Eradication involves the reduction to zero of the incidence of malaria in a defined geographic area, and continued intervention measures are required. Elimination, however, is defined as the permanent reduction to zero of the worldwide incidence of infection by malaria, so that intervention measures are no longer needed. To determine whether the goal for your country/WHO should be eradication or elimination, you must consider the importance of the disease in terms of impact and burden, the technical feasibility of both eradication and elimination, and political, logistic, and legal issues.

2. *Risk Assessment and Surveillance:* What factors should be considered in the assessment of risk of a malaria epidemic?

How should the risk assessment affect surveillance? Surveillance should enable the detection and subsequent investigation of the epidemiology of malaria. What would a surveillance procedure involve, and how can it be implemented? Who would carry out these procedures?

3. *Outbreak*: Should a malaria epidemic occur, how would your country respond? What steps would be taken to control the outbreak? What about the global economy? How can such an outbreak be avoided in the first place?

Sources

<http://www.cdc.gov/malaria/index.htm>
(News and information about malaria)

<http://www.who.int/topics/malaria/en/>
(WHO's website on the health topic: Malaria)

<http://apps.who.int/malaria/wmr2008/malaria2008.pdf>
(Information about the current situation of malaria)

http://whqlibdoc.who.int/hq/2003/WHO_CD_S_WHOPE_S_2002.5_Rev.1.pdf
(information about vector control)

<http://www.mosquito-netting.com/>
(mosquito net information)

<http://74.125.47.132/search?q=cache:-5RG0tsRnn0J:malaria.who.int/docs/IRS-position.pdf+IRS+malaria&cd=2&hl=en&ct=clnk&gl=us>
(Information about IRS)

