Massachusetts Institute of Technology
Model United Nations Conference XI
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Boston, Massachusetts
Dear Delegates,

Welcome to the 2019 MIT Model United Nations Conference (MITMUNC)! We are pleased to introduce you to our committee, the World Health Organization (WHO). We, Ronit Langer and Kenneth Cox, will be your chairs for the course of this conference. Ronit is a junior pursuing a degree in Electrical Engineering and Computer Science. Kenneth is a freshman who has not yet declared a major.

The topics that we plan to debate in the WHO include:

I. Combating Antimicrobial Resistance in Critical Superbugs
II. Defining the Scope of the Global Preparedness Monitoring Board

This is meant to be an introduction to the topics and should not replace individual research. We hope that you take the time to research your topics and your delegation’s affiliation with the given issues. In preparation for the conference, each delegate will submit a single page position paper on each topic to mitmunc-who@mit.edu.

We encourage you to take the time to read up on parliamentary procedures - however, in the interest of time and fruitful debate, we will go over a few changes to our committee at the start of the conference. If you have any questions, feel free to reach out to us at mitmunc-who@mit.edu.

We wish you all the best in your preparations and look forward to seeing you at the conference!

Sincerely,
Ronit Langer & Kenneth Cox

Chairs, WHO
Combating Antimicrobial Resistance in Critical Superbugs

Background

The use of antimicrobials to kill or inhibit disease-causing pathogens became widespread beginning in the mid-1940s with the mass production of the antibiotic penicillin.[1] Though medical professionals delightedly and liberally used first penicillin and then other antibiotics soon after, hints of trouble appeared. In fact, Alexander Fleming - the celebrated discoverer of the fungus which produces penicillin - was among the first to raise caution about the widespread use of antibiotics. Indeed, it was somewhat well-known among researchers that bacteria had the potential to destroy penicillin before the penicillin destroyed the bacteria, which is the basis of antibiotic resistance.1 However, the levels of resistance were monitored and, in the early days of antibiotic use, many researches were satisfied that antibiotics were, and would continue to be, working well.1 As decades passed, disease-causing viruses, fungi, parasites, and other harmful microbes became more understood, and scientists created treatments for them. Concurrently, new antibiotics were developed, and it seemed humanity was close to winning the war against microbes. However, in the 1990s, it became clear that pathogens such as S. aureus were becoming resistant to virtually all of the antibiotics used to treat them, and community outbreaks of such pathogens were increasingly reported. More recently, resistance to antimicrobials used to treat non-bacterial entities has been observed as well; oseltamivir, for example - an antiviral used to treat serious cases of influenza - has varying degrees of effectiveness each year depending on the level of resistance. The alarming rise of antimicrobial resistance, and the significant increase in deaths and hospitalizations as a result, has prompted many health officials to reconsider the role of antimicrobials in treatment and prevention. Overusing antimicrobials (e.g. treating livestock with antibiotics to prevent infection) can lead to resistance, but it is considered important to protect human health. More directly relevant to humans is antibiotics given to immunocompromised people
such as the elderly and chemotherapy patients. The World Health Organization (WHO), as one of the world’s leading public health bodies, has significant influence in the next steps humans take to combat the problem of resistance. The WHO must be resolute in its goal to reduce antimicrobial resistance, yet also be sensitive to the potential consequences of disrupting such a powerful tool as antimicrobials.

**Key Terms:**

**Antimicrobial:** An antimicrobial is a substance (e.g. a drug) that kills or limits the growth of microbes such as viruses, fungi, bacteria, and parasites. Note that an antimicrobial can be any substance which kills or inhibits microbes; different classes of antimicrobials include antibiotics, antivirals, and antimalarials.

**Antimicrobial Resistance:** According to the WHO, antimicrobial resistance is the ability of a microbe to stop an antimicrobial from working against it. Antibiotic resistance is perhaps the most well-known form of antimicrobial resistance, but it is possible, for instance, for viruses to become resistant to antiviral drugs, malaria-causing parasites to become resistant to antimalarials, etc.

**Critical Superbugs:** In February 2017, the WHO published a list of bacteria that the organization considers the “greatest threat to human health”; these are the critical superbugs. The list is composed of 12 families of bacteria, which are broken down into 3 levels of priority: critical, high, and medium.
Key Issues

Rise of resistance

Antimicrobial resistance is not a new phenomenon - in fact, it is speculated that some bacteria can be resistant to an antibiotic before even being exposed to it - but in recent years, the problem has grown into an exigent public health crisis. Millions of infections and tens of thousands of deaths are directly attributable to antimicrobial-resistant pathogens each year, and the situation is anticipated to worsen as factors such as antimicrobial misuse/overuse are neglected. Reducing the use of drugs such as antibiotics might curtail resistance, but it would potentially increase the incidence of preventable fatal disease.

Some questions to consider in the proposed solution:

1. Which countries might be most affected by antimicrobial resistance?
2. Could current efforts to combat the issue be improved, or are more drastic or innovative initiatives required (and if so, what)?
3. How much should antibiotic use be decreased, if it at all? How can any changes to current practices be enforced?

Research funding, difficulties, and risks

The WHO identifies a need for new antibiotics to be developed, particularly for the organisms on the list of critical superbugs; however, antibiotic development is especially costly and time-consuming. Moreover, efforts to develop other antimicrobials, though promising, are slow and expensive. Finally, there are always risks involved in studying pathogens, and dangerous viruses such as Ebola have almost found their way into the public because of research mistakes.
Some questions to consider in the proposed solution:

1. Should there be a global fund dedicated to researching new antimicrobials, or ways to make old antimicrobials more effective? If so, where would the funding come from?

2. Can the use of new antimicrobials be effectively regulated to at least slow the process of resistance? If so, how can these regulations be enforced?

3. Do some countries have a greater stake in the problem of antimicrobial resistance, and in the risky and expensive development of antimicrobials? If so, Should they be required, encouraged, or otherwise pressured to invest more resources into research?

4. How should research resources be allocated? Should critical superbugs be prioritized

Previous Attempts to Resolve the Issue

Conferences: In light of the scope and urgency of antimicrobial resistance, many conferences have attempted to find a solution to the problem. Some of the proceedings of these conferences may contain helpful insights into potential solutions.

Initiatives: The WHO and other health organizations, including the American Centers for Disease Control and Prevention, have begun initiatives aimed at encouraging safe and effective use of antimicrobials, and antibiotics in particular. These initiatives are sometimes tailored toward the public, but the main target is often doctors and other health professionals, who have a greater degree of control over who gets antibiotics.

Major Parties Involved
United States: The WBG advocates for universal healthcare as part of a solution to pandemic preparedness. The US is still very split on this issue. The US has a large stockpile of vaccines that they or may not be willing to share in the event of an epidemic. See Operation Atlantic Storm for a hypothetical response of US officials to an outbreak. The US is a major funder of the BWC and other international treaties.

Canada, Switzerland: Centers of major vaccine stockpiles, but may be more willing to share. See Atlantic Storm above.

Japan, Germany: Countries helping to finance the Pandemic Emergency Financing Fund.

U.S., Spain, France, Germany, United Kingdom, Japan, Mexico, New Zealand and Belgium: Top ten countries (in order) in terms of biotech research and development and their progress may be seriously impeded by new regulation.

Countries with a critical shortage in vaccines that are at higher risk of outbreaks: Afghanistan, Angola, the Democratic Republic of the Congo, Ethiopia, India, Indonesia, Iraq, Nigeria, Pakistan and South Africa.

Many of these countries are also facing economic challenges that slow the availability of vaccines: Liberia, Guinea, Sierra Leone, Nigeria, the US and Mali.
Countries affected by the 2014-2016 Ebola outbreak: Argentina, Brazil, Burma (Myanmar), Cambodia, Ecuador, El Salvador, Guatemala, Jamaica, Laos, Malaysia, Paraguay, Peru, Philippines, Saint Lucia, Samoa, Singapore, Thailand, Vietnam

Subset of countries affected by the Zika outbreak. Full list.

**Defining the Scope of the Global Preparedness Monitoring Board**

**Background**

The Global Preparedness Monitoring Board (GPMB) is a joint venture by the World Health Organization (WHO) and the World Bank Group (WBG) that was established in the response to the 2014 Ebola Outbreak in West Africa. The Ebola outbreak of 2014 started in Guinea and spread in full force to neighboring countries, with cases of Ebola being reported around the world. There is no vaccine for Ebola, and by May 2016, over 10,000 people had died from the disease worldwide. The epidemic cost billions of dollars, both in medical costs incurred and in lack of economic productivity. The goal of the GPMB is to ensure an outbreak of this magnitude never happens again. In the event that an outbreak occurs, the GPMB will be able to provide emergency funds to affected regions.

The GPMB was established in early 2018 and met for the first time in September 2018. The GPMB is the successor to the Global Health Crises Task Force, which ended in mid-2017. It is chaired by the former WHO Director General and the Secretary General of the Red Cross. Its stated mission is to “monitor progress, identify gaps and advocate for sustained, effective work to ensure global preparedness.” They work with governments to ensure that pandemic preparedness stays on countries’ agendas and that governments take the threat seriously. (See Figure 1) The GPMB works with countries affected by outbreaks to ensure that preparedness does not slow once an epidemic has passed. The WHO and the WBG have developed auxiliary programs to support the mission of
the GPMB. The WHO has invested in a health emergencies program that aims to have one billion people better protected from health emergencies by 2023. The WBG has developed the Pandemic Emergency Financing Fund that is able to make funds available to countries experiencing a disease outbreak.

The GPMB carries out its mission by independent monitoring and issuing a report of preparedness in governments, U.N agencies, the private sector and civil society. Much of the reporting is done by the countries themselves. It places the burden of responsibility on the countries to respond to the threats exposed by their reports. The role of the WHO is to set the standard for reporting, and coordinate the global surveillance efforts. The WHO provides technical assistance and training to epidemiologists, as well as laboratory space for conducting studies. The WHO also ensures international collaboration on specific disease threats, such as Influenza, Cholera and Meningitis.

The WBG ensures that the funds are available for countries struggling with an epidemic.

The GPMB is chiefly concerned with monitoring natural epidemics. However, engineered pandemics and bioterrorism are a growing concern. The Biological Weapons Convention (BWC) completely outlaws biological weapons, with no exceptions given to any country. In 2001, there was an attempt to grant the BWC monitoring powers; however, the United States blocked the passing of the motion. The BWC continues to have no preparedness power, only the power to mitigate disputes between countries accusing one another of using bioweapons. The GPMB currently does not include monitoring for engineered pandemics.

**Key Terms**

**Outbreak:** When a disease occurs at higher numbers than expected during a given season or in a given geographical area. The source of an outbreak is often unknown, or the disease is new to the area.
**Epidemic:** When an infectious disease is spread widely through a population during a given time period. Examples: SARS, Flu, Cholera

**Pandemic:** An epidemic that has spread over a large geographical area or the entire world. Examples: Black Plague, Polio, AIDS

**Preparedness:** Typically used a measure of readiness for war. In the context of the GPMD, it is a measure of how well equipped a country is to handle an outbreak, epidemic or pandemic. Preparedness is judged based on structures in place to respond to crisis, resilient health care system, and a government system in place for getting everyone on board for a response. See Strategic Framework for Emergency Preparedness put out by the WHO for more information.

**Biological Weapon:** Can be a natural or engineered biological agent, such as bacteria, fungi, or virus, that is used with intent to harm or kill people, animals or plants. Biological Weapons are outlawed by the Biological Weapons Convention.

**Non-state Actors:** People or institutions that are not allied with any nation’s government, but still have large amounts of political influence. Non-state actors can often take actions that states do, but without the surrounding political context. In the context of the WHO, non-state actors refer to individuals or groups of individual that are developing bioweapons without an allegiance to a country.
**Dual Use:** A technology that can be used for both civilian use and military use. Examples for bioweapons include: gene drives, gene editing proteins, publicly available genomes.

**Key Issues**

**Independent monitoring**

The main question this committee is being asked to address is whether or not the system of independent monitoring currently employed by the GPMB is either too rigorous and therefore infringes on countries’ rights to self governance, or too lenient and therefore threatening global health security. The system currently in place may also be the best balance between the two.

Some questions to consider in the proposed solution:

1. What standards do we use to judge countries by? Is it the same for every country?
2. What level of monitoring do we expect? Global, national or local?
3. Who is carrying out the monitoring on each level? WHO inspectors, government officials, academics?
4. What power does the GPMB have to intervene when a country is performing poorly? At which level should the problem be addressed

**Funding**

The main question the committee is being asked to addressed is how funds should be allocated for issues of preparedness. Solutions should address where the burden of responsibility lies, and should include a realistic budget that take into account the economic situation of many of the countries most heavily affected.

Some questions to consider in the proposed solution:

1. What is the source of funding for preparedness?
2. Should there be a global fund for countries? How much should each country contribute to the fund? When should a situation allow for money to be removed from the fund?

3. Should each country be responsible for their own funding? What happens when a country is unable to invest in their program?

4. Is the Pandemic Emergency Financing Fund enough? Does it cover enough countries in different enough situations to be useful?

5. How much of the budget should be spent on prevention vs dealing with outbreaks themselves? One of the criteria for preparedness is how good a countries hospital system is should the GPMB be attempting to improve global healthcare systems?

**Engineered Pandemics**

The main question the committee is being asked to addressed is whether or not engineered pandemics are within the scope of the GPMB. Solutions should either incorporate them into the preparedness score, identify another group that is addressing this issue, or argue that this issue is irrelevant.

Some questions to consider in the proposed solution:

1. What is the relationship between scientific progress and responsible monitoring of potential misuse? Is it the responsibility of the scientists or the governments or the WHO? How do scientific institutions account for dual use?

2. What steps are taken to prevent non-state actors from using bioweapons? Who should be regulating non-state actors? Governments, international investigators?

3. What are some threats of engineered pandemics that are not addressed by the current preparedness score?
Suggested Readings


7. https://www.webmd.com/cold-and-flu/what-are-epidemics-pandemics-outbreaks#1


