MONWHO 2018

HEALTH CRISES

March 2018

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Acknowledgments

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What is MonWHO?

Healthcare is not limited to the interactions between patients and doctors within the walls of a hospital. Healthcare, especially in the context of global health, is a multifaceted, multidimensional discipline that incorporates both the intellect of science and the dynamics of the social community. The Montreal World Health Organization Simulation (MonWHO) is a conference that aims to promote a macroscopic perspective of global health, and to draw attention towards the social, cultural, ethnic, economic, and political factors of international relations that affect the global health care system. In 2007, MonWHO executives hoped to create a conference where students from any field of study could collaborate together to broaden their perspectives of international health. MonWHO has grown substantially since its inaugural conference and is now supported by the McGill International Health Initiative (MIHI). In 2009 and 2010, MonWHO hosted the Global Health Advocates of the Canadian Federation of Medical Students (CFMS). In 2010, MonWHO was established alongside the European World Health Organization Simulation (EuWHO) as part of a transnational project of the International Federation of Medical Student's Association (IFMSA).

Introductory Remarks

Welcome to MonWHO 2018 Crises Theme Guide!

If you are reading this, it means that you have been selected to deal with the most pressing issues. This year, nine committees have been created to solve a specific health crisis, and your role, as a delegate, will therefore require all your skills and talent.

Your main mission: produce a delegation paper to be approved in order to manage the crisis while navigating the complex delegations' politics. Wisely use your debating power along with alliances. Your motto: collaboration and negotiation.
Bear in mind your position regarding the problem and carry ideas efficiently with factual discussions.

The purpose of this guide is to give you the background information on your topic, immerse yourself in the historical context or conference context, and know where to find the resources to be fully prepared for the conference.

The MonWHO 2018 team would like to thank you for joining us in this exciting project!
Good luck, and have fun!

Laetitia GAURIER, VP Theme and Content

Introduction

What is a crisis?

By definition, a crisis is unexpected and represents a decisive moment. It is a turning point that has been reached in a critical phase. There is always the possibility of a highly undesirable outcomes – this is why leaders' actions are especially at stake. Nowadays, crises surround us: global warming, social inequalities or uncontrollable infectious diseases.
The severity of a crisis depends on several factors: the number of people affected, the probability of disease/adverse outcome and the ability to find solutions to tackle the root cause.

In other words, crises represent moments where a *risk* has become a *reality.*
The concept of risk is extremely important: it is the intersection between hazard, population and exposure. If few people are exposed and such exposure always leads to harm, is that a high risk (e.g congenital defect) ?
Inversely, if many people are exposed but the probability of being exposed to a hazard is extremely small, would this be considered a high risk if such event occurs (e.g water contamination) ? There are many elements to consider when answering these questions, and in your case especially political interests and financial means.

Besides, it is important to consider that one extraordinary crisis event can lead to another: for example, population camps increase human concentration and therefore person-to-person contact. Therefore a refugee camp can become a point source of a cholera epidemic. People close proximity increases the risk of encountering mosquitoes that carry infectious agents and able to infect a whole cluster of inhabitants. To

summarize, increasing some risk factors because of unexpected events can trigger or amplify another chain reaction.

What is a crisis committee?

A crisis committee is a small structure dedicated to deal with a disruptive, unexpected and potentially harmful event. Such event is at risk to harm the committee or the general public, and therefore crisis management is a crucial process in public relations.

Crisis committees undertake crisis management. The key steps include identification of the type of crisis, information of a spokesperson, keeping the public informed if beneficial for its own safety, containing the disaster and following a plan.

HIV

Introduction

We will first define disease etiology in order to understand the root cause of 1980s HIV crisis. HIV (human immunodeficiency virus) infects, replicates within and destroys CD4+ T cells. These are specialized in immune defense, and along with such infection, the number of white blood cell dramatically decreases.

The virus can be transmitted through certain body fluids: sperm, secretion or blood. It can be acquired sexually or through direct blood contact (syringe, transfusion). There are three stages in any HIV infection: the acute phase, the latency phase, and AIDS. Acute infection phase symptoms resemble that of flu, and can be sometimes called ARS (acute retroviral syndrome). On the other hand, the latency phase is characterized by an absence of symptoms while the virus continues spreading. At this stage, HIV replication levels are so low that they sometimes cannot even be detected by standard laboratory tests. Latency phase can last up to 10 years.

The last stage of HIV infection leads to AIDS, short for Acquired Immunodeficiency Syndrome. This is a set of symptoms that translates into an extremely weak immune system favouring development of opportunistic infections.

Nowadays, we can control HIV with ART (antiretroviral therapy). If treated soon enough in disease development, someone seropositive can live as long as someone non-diseased. Aside from life prolongation, this drug can also greatly lower the risk of infecting others.

What is the situation today?

At the end of 2016, 36.7 million people were living with HIV at the end of 2016.
Among them, 20.7 million were receiving antiretroviral therapy in mid-2017. Roughly 2.1 million people in Western Europe and North America were living with HIV in 2016. This compares to 19.4 million people in East and Southern Africa. According to AVERT numbers, approximately 11.5 millions of them are treated (76% know their status and among them 79% are on treatment). Nevertheless, HIV is nowadays developing resistance to ART drug around the world. This has dramatic economic and health consequences.

During the 1980's, AIDS was one of the leading cause of deaths among young adults in some parts of the USA. In this context, Act Up was created and HIV discovered.

Crisis 1 - HIV/AIDS Crisis in the 1980s

MonWHO conference takes place during this milestone decennial.

The 5th June 1981, CDC investigation reveals that presence of rare lung infection in five healthy, previously gay men. Their immune systems seemed to have stop working. As the population is more closely monitored, Kaposi's Sarcoma cases are also linked to a lack of immune response in otherwise healthy individuals. In 1982, the term "AIDS" is coined, and institutions dedicated to understand the disease, find a cure and alleviate the symptoms multiply. In 1984, the retrovirus causing AIDS is identified by three separate research groups located in Paris and San Francisco. Discord around who discovered it first was solved politically by a mutual agreement between France and United States governments in 1987. This very same year, WHO also launches its Global Programme on AIDS.

Nevertheless, we have to wait for 1996 to see a substantial governmental action taken and a working antiretroviral therapy.

During this entire time period, many die in silence or in shame since AIDS is relatively unknown and marginalized. Without effective cure, being diagnosed with HIV equals a death sentence. The number of AIDS-related illnesses and deaths continue to inexorably rise. Black market drugs number skyrockets: many desperate people try various imported drugs mix – hoping to improve their fatal condition. In the 1980's decade, around 110 000 deaths were attributable to AIDS and a third of them occurred in 1990 alone. Most of these deaths from occurred among homosexual or bisexual men and among intravenous-drug users. San Francisco, Los Angeles and New York City sheltered the biggest number of AIDS-related deaths.

The action group ACT UP is founded in 1987 in response to slow and insufficient government's and drug companies' efforts to fight AIDS. The motto of the organization is "Silence = Death".

1990 is the year of the Ryan White CARE Act to provide HIV community-based treatment services, especially for low-income and underinsured AIDS victims. The act's name commemorates the death of its eponym, Ryan White, at age 18. White became an American emblem after being revoked from school due to his disease status.

Many challenges are crucial during this HIV pandemic. First, there is the medical challenge to understand, slow transmission and cure AIDS - a race against time as the virus is spreading extremely fast. Also, there is the stigma associated with it. In 1985, the US Army tests its soldiers for HIV. The church condemns the disease at that time, and in a number of states, HIV exposure is criminalized. Then, there is also healthcare access in a private US system.

Marginalization associated with lack of counselling or testing fuel the epidemic. The biggest the stigma around AIDS, the less likely person living with AIDS will be seeking for help. Hence criminalization is counter-productive in the fight against AIDS.

Additional information:

How to Survive a Plague (2012): nominated for Best Documentary Oscar.

Fire in the Blood (2012): Available on Netlfix.

ACT UP website: http://www.actupny.org

AVERT website: https://www.avert.org

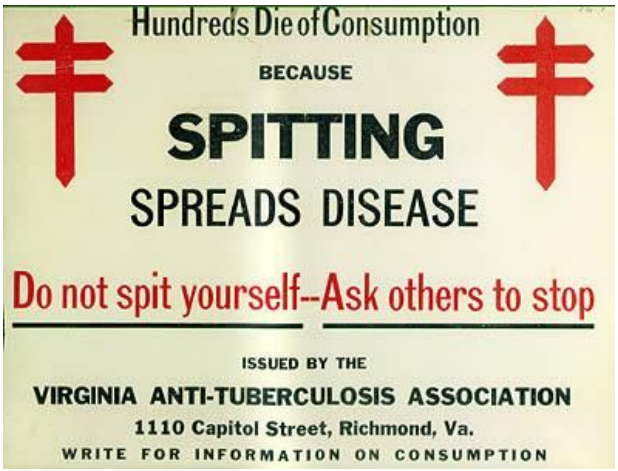
HOW STIGMA LEADS TO SICKNESS

Many of the people most vulnerable to HIV face stigma, prejudice and discrimination in their daily lives. This pushes them to the margins of society, where poverty and fear make accessing healthcare and HIV services difficult.

Antibiotics– the Era of Globalization: 21st Century and Today

Introduction

Antibiotics and natural active substances have been used for centuries to relieve or treat various infections. They are bactericides compounds already produced by other microorganisms or eukaryotes. However, the science of microbiology and bacteriology flourished from the 19th century, with great achievements such as Koch's postulate or Pasteur's vaccines. In 1928, Alexander Fleming discovers by accident penicillin. The 1945 Nobel prize in Physiology or Medicine is awarded to him, Florey and Chain for "the discovery of penicillin and its curative effect in various infectious diseases" (The Official Web Site of the Nobel Prize, 2017). Along with treatment, development in sanitation and hygiene develop increasingly (e.g promotion of handwashing in schools, famous "Do not spit" campaign in the early 20th century to fight tuberculosis in the US).



(Historical Collections at the Claude Moore Health Sciences Library, University of Virginia. Retrieved from : http://exhibits.hsl.virginia.edu/alav/campaigns/)

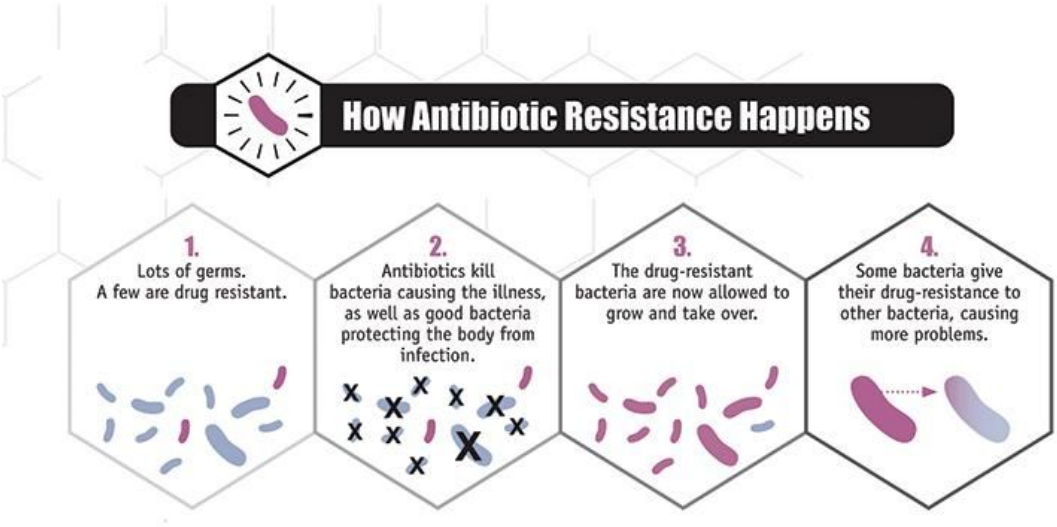
Follows an incredibly successful period in the never-ending war against pathogens. Mortality rates due to treatable infectious diseases drop sharply – especially infant and child mortality. The 20th century is the era of the control of infectious diseases.
Two factors contributed to this success: the rate of drug discovery (in the 1950's and 1960's, new drugs were consistently isolated) and the beginning of mass production of antibiotics (making them accessible to almost everyone).

So what happened, only half a century later? Why has the World Antibiotic Awareness Week been celebrated from by WHO in November every year since 2015?

The development of antimicrobial resistance (AMR) is a great concern to the whole humanity. AMR is, as its name indicates, the ability of a pathogen to resist the effects of an antibiotic to which they were once sensitive. Resistance arises in two ways at the microbiome level. We call microbes that have become resistant to multiple drugs "superbugs".

One of them is the clearance of "good" microorganisms increasing the risk of being infected by harmful ones. When the drug is administered, both commensal (i.e. non-harmful, normally living in our bodies without causing in harm) and harmful bacteria are killed. However, commensals normally occupy their "human territory" and prevent the attachment and colonization of other pathogens. Following their disparition, harmful bacteria are more prone to infect our bodies.
Another way is at the genetic level. When antibiotics are appropriately taken (e.g for the whole duration prescribed, not only until symptoms disappear), they supposedly wipe out all pathogens. Nevertheless, when taken in small quantities (as a "cautionary" measure for animal production, or when a patient use some to speed up recovery), the drug only kills the weaker pathogens. There is genetic variability to one microorganism to another, thus some individual cells have specific gene mutations leading to new mechanisms to fight the drug. Once all the "mutation-deprived" cells have been wiped

out, only the stronger ones remain in the bodies. They have more space and nutrients for themselves, and divide, producing a whole new strain generation resistant to this antibiotic. Repeat this process a couple times, and in a few generations – in the microorganisms' world, this is a couple of months – all representants of a bacterial specie could be resistant to the drug. This is Darwinian selection in a nutshell.



(Centers for Disease Control and Prevention.Updated September 2017. Retrieved from: https://www.cdc.gov/drugresistance/about.html)

Several factors have contributed to the rise of such resistance. Firstly, the rate of discovery of new antibiotics has declined. Previously, if a bacteria were to show signs of resistance to a particular drugs, at least some of the "reserve" drugs were relatively new to the pathogen and able to annihilate it. Most of the antibiotic compounds are discovered in nature – soils and water. Indeed, soil shelters billions and billions of unicellular organisms, most of them unknown and extremely hard to culture in a laboratory environment.

Another contributing factor to this declining discovery rate is the business strategy of pharmaceutical companies. If it takes 10 years and billion of dollars to develop a drug, and this same drug once on the market becomes ineffective because of resistance in a 2 to 5 years span, this is not profitable.

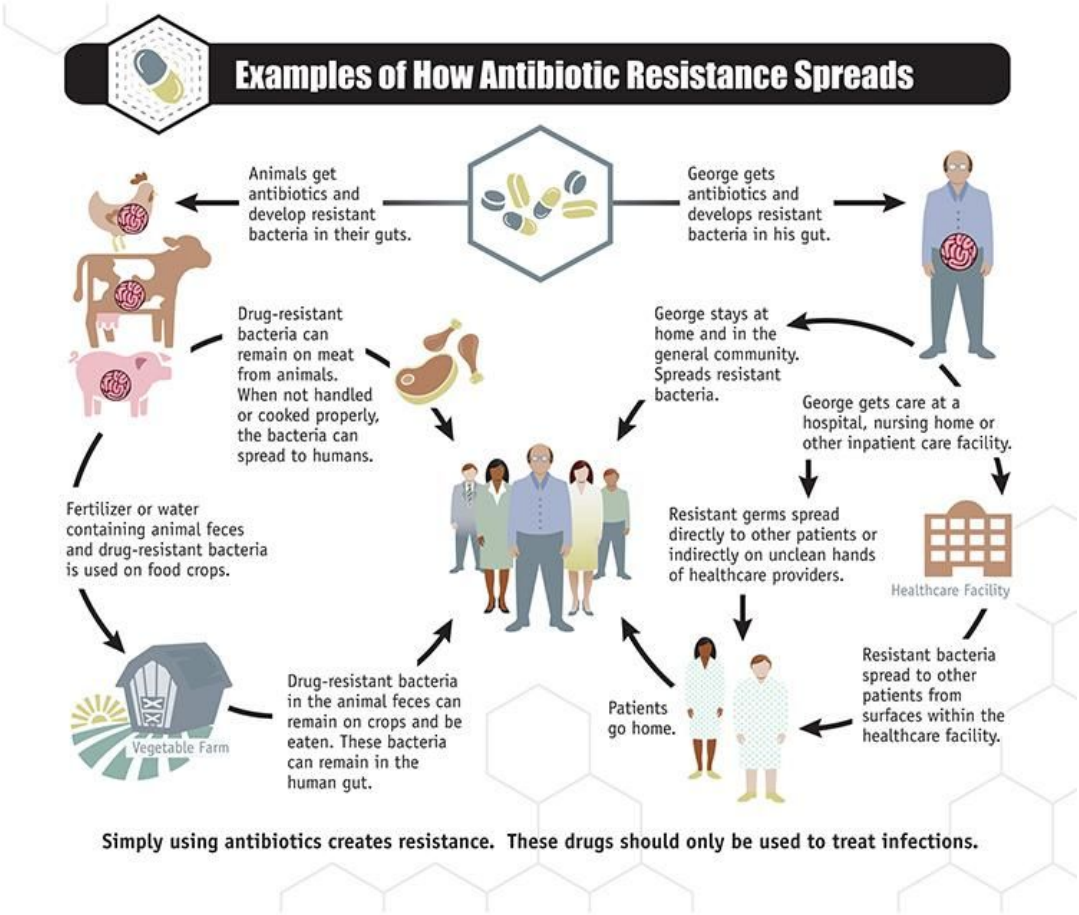
The main problem occurs when we use reserve antibiotics. As previously mentioned, one of the greatest challenges is the ability to culture microorganisms producing them or to isolate the compounds; therefore the “reserve” antibiotics are our last resort now, and some strains have already started to develop resistance to it. The real question is: what happens when there are no spare drugs left?
On the clinical side, treatments should be effective but also devoid of side effects. Unfortunately, spared antibiotics, which are supposed to be used in extraordinary circumstances, are potentially more toxic to patients than usual drugs.

Secondly, the use of antibiotics is now widespread. As a consequence, the number of opportunities for misuse and development of resistance has never been higher.

Antibiotics misuse occurs in virtually every aspect of our lives: agriculture, healthcare or domestic use. We have squandered antibiotics by putting them in our cleaning products. Traditional medicine has been prescribing drugs “just in case” for the past decades, and now systematic use of antibiotics is deeply rooted as a part of our medical system.
Massive animal production also uses carelessly the precious drugs. For farmers, antibiotics are sought for their double action. They have been shown to favour animals’ development and could prevent diseases transmission between extremely close and numerous animal units found in a tiny, confined space. But such practices increase resistance, and resistance of livestock microorganisms is often transmissible to humans. With that hazard in mind, Denmark banned such practices.
With great results.

We have to realize that for every patient we treat, we introduce a sense of resistance into the bacterial community. We need to start thinking about microorganisms as a big, interconnected web whom members grow every hour. The lack of regulations is one

source of the problem; poor infection control, inadequate sanitary conditions and inappropriate food-handling are some others.



Centers for Disease Control and Prevention.Updated September 2017. Retrieved from: https://www.cdc.gov/drugresistance/about.html)

Nowadays, we have to cope with superbugs such as MRSA or the “Great White Plague” – a nickname for resistant tuberculosis.

To conclude, AMR is a worldwide issue that needs to be addressed by all governments across a wide variety of sectors (agriculture, hospitals…).

Resistance is a major threat to global health, and a worrisome throwback when infectious diseases were leading causes for mortality at all age. In the short-term, AMR

is also very costly to society. Hospitalization times and illnesses are prolonged, and disabilities as well as deaths are more frequent. Some medical procedures become at very high risk because of potential infections (e.g organ transplantation, cancer chemotherapy, caesarean sections…).

From an epidemiologic point of view, with untreated infections, the risk of transmission and attack rate are much more elevated.

Several committees have been created to help tackle this problem: the Interagency Coordination Group on Antimicrobial Resistance (IACG), the Global Antimicrobial Resistance Surveillance System (GLASS) and the Global Antibiotic Research and Development Partnership (GARDP).

IACG should coordinate international organizations to undertake a global action and has the WHO Director on his board. GLASS is a standardized collection and analysis method of AMR data. GARDP directly targets the pharmaceutical sector by encouraging the development of new drugs and improvement of existing ones.

Here are four core actions recommended by CDC to start fighting resistance.

1) Prevent infections – thanks to public health measures – to avoid treating them.
2) Second, track effectively antibiotic-resistant infections to look for common causes or risk factors.
3) Improve antibiotic prescriptions. We need to change the way we use antibiotics: most them are used in unnecessarily or inappropriately.
4) Last but not least, putting more effort – and money! - in new drugs and diagnostic tests development.

As the WHO puts it, “All countries need national action plans on AMR”. Let’s get to work.

Additional information:

Resistance (2014): Available on Netflix.

Crisis 2 - Tuberculosis and Antibiotic Resistance

Tuberculosis (TB) is an airborne disease caused by the bacterium *Mycobacterium tuberculosis.*

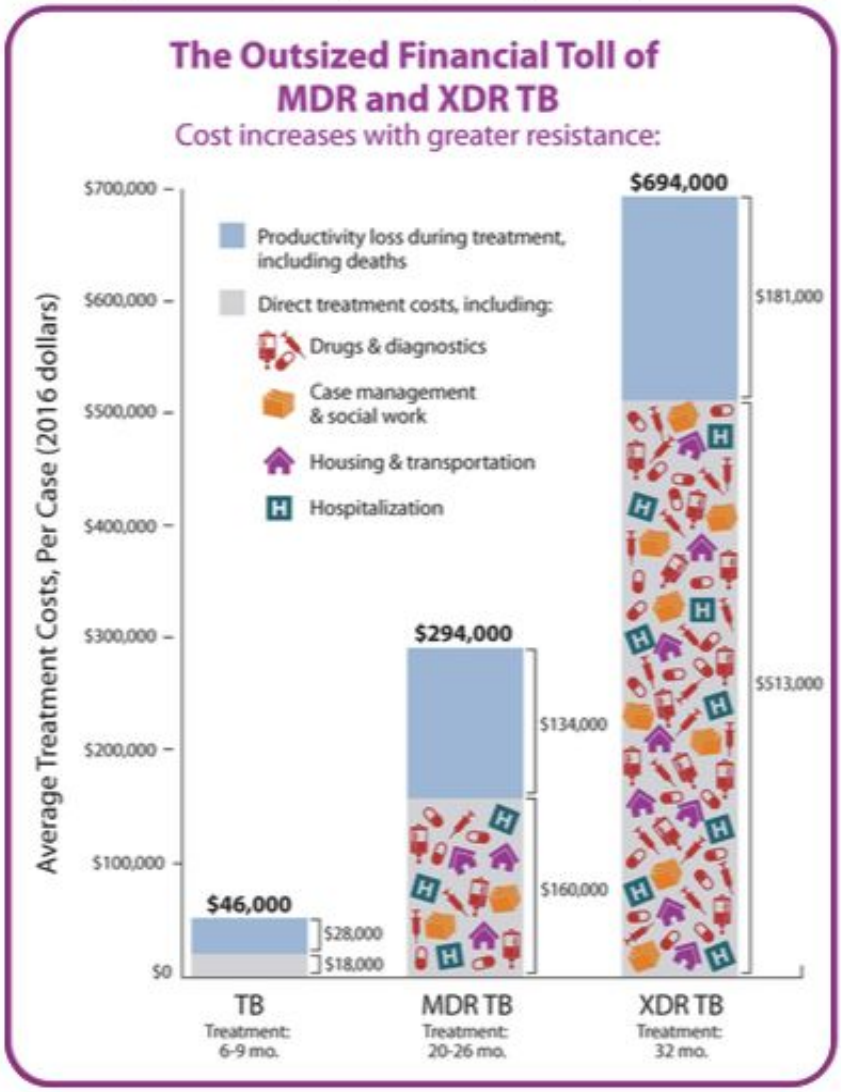
In 2012, more than 150 000 people died from drug-resistant TB and in 2011, antibiotic resistance was identified in 10% of new US cases.

Infection usually starts in the lungs, and can then spread to other body parts (brain, kidneys…). The disease in itself can be deadly if not properly cured with antibiotics.

Nowadays, TB bacteria resistance can be classified by three denominations: drug resistant TB (resists at least on first line anti-TB drug such as isoniazid and rifampicin), multidrug-resistant TB (also called MDR-TB, resists to more than one anti-TB drug) and finally extensively drug-resistant TB (also called XDR-TB and resistant to at least 4 main TB drugs).

There were 480 000 new cases of MDR-TB in 2014. Only half of patients infected were successfully treated and 3.3% of new tuberculosis cases identified in 2014 were caused by MDR-TB. The more extreme resistant form of this superbug, XDR-TB, is still pretty rare but nonetheless present in 105 countries. In some cases, bedaquiline can be used to treat multidrug-resistant tuberculosis; however, the side effects are so important that the patient needs to be closely monitored (cardiac, renal or liver toxicity possible).

In addition to that, the burden to society is enormous. A summary provided below by CDC is an excellent illustration of the TB situation.



(Center for Disease Control and Prevention. 2017. The costly burden of drog-resistant TB in the US. Retrieved from: https://www.cdc.gov/nchhstp/newsroom/docs/factsheets/costly-burden-dr-tb-508.pdf)

Resistance arises because of unnecessary or incomplete treatment and is difficult to contain due to a lack of new drugs. CDC recommends avoiding drug-resistant TB when possible (patients in closed and crowded places such as hospitals, prisons or homeless shelters).

Zoonosis - the Era of Globalization: 21st Century and Today

Introduction

A zoonosis can be defined as an infectious disease existing in animals that can be transmitted to humans. Some examples are toxoplasmosis (parasitic disease), rabies (viral disease), salmonellosis (bacterial disease) or mad cow disease (prions). Cooking habits, hunting campaigns and agriculture development have shaped our handling of animal production and animal products consumption. Most of the time, zoonotic diseases originate from domestic animals and hereby are transmitted to humans. Many are increasingly emerging from wildlife species such as bats or birds. This was the case for SARS, that emerged from bats, passed to cats, infected people in the live animal markets of southern China and took 800 lives globally in 2002- 2003. Ebola also originally came from bats – showing up to 90% mortality in some outbreaks.

Nowadays, little is known about agent pathogenicity switch when changing hosts. Indeed, how comes bats – mammals like us – carry asymptomatically deadly pathogens such as Hendra virus?

As much as 70% of newly emerged infectious diseases in humans are zoonotic and there is a new type of zoonotic disease emerging every four months. Consequently, WHO suspects the next pandemic to be due to an unknown zoonotic agent coming from wild animals. Two processes are primarily responsible for emergence of new diseases: the adaptation of the pathogen to the new host, and then the spread of the adapted pathogen into the new population (transmission possible).

There are several reasons for the impressive number of zoonosis. First, changes in environment - mainly due to climate change or colonization. Indeed, species interactions

or increased amount of a certain habitat (e.g stagnant waters) may favour certain diseases. Change in vector distribution is a great concern (abundance of a specie, migration patterns of birds…) since it can alter transmission and affect pathogen survival in the environment. Last but not least, if an ecosystem is disturbed, it will affects its biodiversity at all levels in an unpredictable way from microflora to animals distribution.

Also, overpopulation and massive animal production bring humans and cattle closer together. Globalization and demand for animal products fuel this animal production system. Some diseases are readily transmissible to humans whereas others gradually increase their human-to-human transmission ability.
Along with this production may arise antibiotic resistant pathogens that are transmissible to humans. Furthermore, if host ecology or pathogen biology shifts, some drugs may become useless as the agent mutates.

One of our best defenses against these risks is surveillance and close monitoring of livestock diseases. Animal vaccination can also be useful in some cases.
Since most epidemics and pandemics in the last century were emerging diseases with an animal reservoir, pathogens undergoing a zoonotic stage need to be more closely monitored. Most outbreaks go unnoticed by authorities, but uncontained outbreaks often do great damages. So far, zoonosis threats or incidence have cost billion of dollars to US economy: if any of these zoonotic diseases have become global, the economic costs will be counted in trillion of dollars.

Another strategy would be to buffer further the space between wildlife and humans. For example, one of the main mammal vectors for rabies are foxes. The more of them bite domestic animals (dogs, cattle…), the more likely will the owners of these animals be infected. By protecting human zones and not interfering with nature, we decrease our interface with wildlife zoonotic diseases.

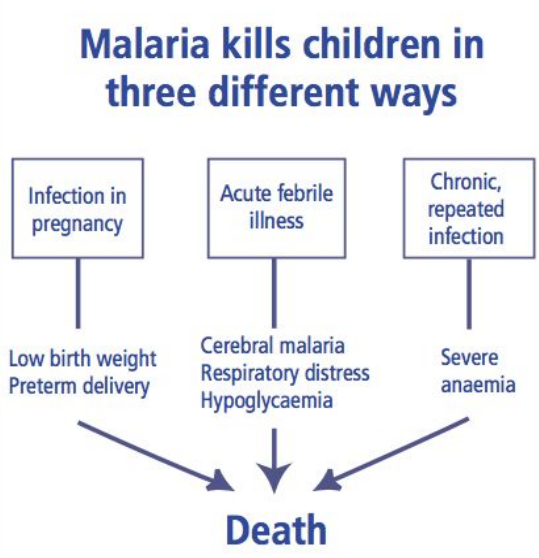
The burden of zoonosis on our health and industries is enormous. The food industry is especially at stake with animal products.

The risk of infection is real, as the following example demonstrates: in 2011, a human *Salmonella* Heidelberg infections was linked to ground turkey by CDC. The pathogen found in the meat was resistant to four classes of antibiotics. Luckily, all products were recalled and only 30 persons were infected with mild symptoms. Would any of the consumers have had weaker immune systems (e.g infants, AIDS, older adults) the consequences could have been much worse.

To conclude, the increasing concern of antibiotic resistance is to be kept in mind for this crisis. You need to look at animal production regulations, consumer's habits and safety as well as public health measures to contain potential outbreaks. Those are unpredictable; therefore you need to intervene on what you can. A multidisciplinary approach should be encompassing the medical, veterinary, ecological and environmental sectors (e.g "One Health Initiative").

Crisis 3 - Malaria in Africa Today

Malaria is a parasitic infection that occurs through the transmission of sporozoites in a human host by an infected female *Anopheles* mosquito. Even though this disease is preventable and curable, almost 500 000 people have died from malaria in 2016 alone. The population groups most at risks are infants, pregnant women, children younger than 5, HIV/AIDS patients and travellers. As a matter of fact, 70% of malaria deaths were young children (under 5 years old) and one child dies from malaria *every two minutes*. One of the explanations could be that they did not have the time to develop a life-long exposure resulting in partial immunity. Once infected and if left untreated within 24 hours, fever, headache, and chills symptoms often progress to more severe illness and death. On the other hand, partial immunity may trigger asymptomatic infection in some endemic areas. The figure below summarizes three main reasons children die from malaria.



(Against Malaria. Chapter 1: The burden of malaria in Africa. Figure 1.2. Retrieved from: http://www.againstmalaria.com/downloads/RBMBurdenMalariaAfrica.pdf)

90% of total malaria cases (reaching around 216 million in 2016) and 91% of deaths occurred in Africa region. Since mosquitoes can bite anyone, half the world was at risk of malaria in 2016 and the disease was being actively transmitted in 91 countries. Socio-economic factors also come into play, as parasite prevalence is higher in poorer children.

Sporozoites are a parasitic stage occurring in *Plasmodium* parasites lifecycle.
Five *Plasmodium* species cause malaria in humans, however *Plasmodium falciparum* and *Plasmodium vivax* are the two biggest threats. The first one is the deadliest one (accountable for most malaria death worldwide) and the second one is widespread outside sub-Saharan Africa. Only some *Anopheles* species are able to transmit the parasite, and vector transmission lies upon two crucial criteria: human-biting habit and long lifespan. Indeed, the parasite can complete its development inside the mosquito if its lifespan is longer, and mosquitoes will preferentially seek blood meals in humans.
Since African species have these characteristics, almost all malaria cases are found there. In addition to that, climatic conditions play an important role in vectors survival (rainfall, temperature, humidity, water sources to lay eggs…).

Malaria can be prevented successfully through vector control. This includes long-lasting insecticidal nets (LLINs), other forms of insecticide-treated mosquito nets and indoor pesticides spraying. Sadly, this last method has - as you can imagine - other undesired health effects. Otherwise, antimalarial drugs are available for travellers or pregnant women. Some suppress the blood stage of the parasite as a preventive measure.

Nowadays, insecticide and drug resistance are an increasing problem. Mosquitoes selection with continuous spreading along with extensive antimalarial drug use can impair malaria elimination. At least five Asian countries have reported *Plasmodium falciparum* resistance; this is a great threat to all the work that has been done globally to contain malaria.

WHO plans to eliminate malaria include *"WHO Strategy for Malaria Elimination in the Greater Mekong subregion (2015-2030)"* and "*Global Technical Strategy for Malaria 2016-2030".*

Crisis 4 - The Black Plague

In the 15th century, a “great mortality” spreads through Europe, causing the death of 34 million people. The culprit? *Yersinia pestis* bacterium. It is found in small mammals and their fleas. Human transmission occurs by the bite of infected fleas, contact with infected tissues or inhalation of infectious droplets. Symptoms appear after an incubation period lasting a week. Depending on the route of infection, the disease takes the form of either a bubonic or a pneumonic plague.

Bubonic plague is extremely common and caused by flea bite. The bacteria replicates in the lymph nodes that become inflamed and characteristic open sores with pus can appear at a later stage of infection.

Pneumonic plague is far more deadly and serious, with symptoms onset occurring within 24 hours (and infectivity multiplied since it can spread through droplets). If not diagnosed early enough or left untreated, this form can be fatal – 30 to 100% case-fatality rate ratio. Common enterobacteria antibiotics are usually effective.

When the Black Plague struck Europe in the 15th century, no medication was available. Villages would barricade themselves and come in close proximity, increasing transmission rates. Little was known about microorganisms and safe manipulation or disposal of corpses.

Nowadays, there are still three endemic plague countries in the world: Peru, Democratic Republic of Congo and Madagascar. As recently as 2017, there was a plague outbreak in Madagascar that claimed the lives of more than a hundred people.

Water – 21st Century, Climate Change and Massive Population Displacements

Introduction

Water is one of the four elements, and present in every cell of our bodies. While water is pretty common on our planet (making up to 70% of it), freshwater is far scarcer – only 3% of the world's water, and most of it is unavailable because frozen in glaciers.
In our bodies, water plays an essential role in digestion, circulation (allows to carry nutrients and oxygen) and detoxification (e.g. urine excretion). We lose a tremendous amount of water every day through basic bodily functions, sweat or breath. We replace our lost fluids by drinking clean water.
However, in absence of fluid replacement, we go into a dehydration state. Children are more susceptible to dehydration because of their skin-surface to volume ratio. In absence of water, we cannot survive longer than three to five days. Death occurs through major physiological changes: blood volume may drop, causing lowering of blood pressure, sweating stops and body temperature goes unregulated (the body is not able to "cool down"). People decease quickly with such deadly conditions.

Besides, water is also essential for hygiene, cooking and agriculture. Lacking some in any of these areas can be a risk factor for other issues (e.g. food production and safe consumption). Therefore, when estimating needs for water consumption, we need to take into account domestic and non-domestic uses. Millenium Development Goal 7 purpose is to increase equitable access to safe water: however we need to take into account location, availability and quality of the water for this measure to be accurate.

What can impede a proper hydration and water security?

Even though the UN General Assembly explicitly declared water and sanitation a human right, it is far from being a reality in all parts of the world. To start with, water access can be restricted, difficult or compromised in case of water scarcity. Almost one billion people in the developing world do not have access to it, and among them 160 million people dependant on surface water.

Overuse of water sources (agriculture) and other human activities- with main consequence climate change - have contributed to disappearance of half of the world's wetlands. By 2025, two third of the world population would face water shortage and half of the world's population will be living in water-stressed areas.

Droughts can be exacerbated by the way we use land. This include agriculture, power plants or urban development over a portion of territory with limited water supplies. A drought is extremely expensive (economical burden) and can cause famine, starvation or death in some developing regions.

Also, political tensions may regulate water access with armed conflicts, borders or territories' geography. Additionally, socio-economic factors impede equitable access. The discrepancy can be observed between rural and urban areas, but also in the same city: low-income neighborhoods and illegal settlements do not have the same access to safe water sources as other inhabitants.

Water contamination is also a great concern. For instance, water-borne diseases cause illness; being physically incapable to go to a water source can equal death in some countries, and aggravating symptoms such as diarrhea further increase dehydration. Water-borne diseases include diarrhoea, cholera, dysentery, typhoid and polio. Worldwide, 2.4 billion people are exposed to such diseases by drinking water contaminated by faeces and around half a million people die from diarrheal diseases

alone each year. On the other hand, in 2015 5.2 billion people had access to safely managed drinking service. In other more developed countries, surface and groundwater pollution increases the risk for population intoxication.

Water is essential for hygiene and healthcare sectors, and as much as a third of health care facilities lack an improved water source in low and middle income countries.

Least but not last, even clean water harbors vectors of deadly or morbid diseases. For example, mosquitoes transmit dengue fever or malaria. Even though simple precautions such as covering water pot to prevent breeding of insects may be easy to implement, there are not always followed.

Apart from health consequences, there are dramatic economic and social consequences to unequal water access. If people spent less time looking for water, but instead went to school or worked, this would mean an increase in country's productivity. Additionally, improved health would also mean productivity along with reduced likelihood of becoming sick. This would alleviate the medical costs or other related burdens. Children would particularly beneficiate from easy access to clean water, with long-term consequences such as their development and education.

Nowadays, there are many strategies that are worth trying to implement. Those include better water-management systems or re-use of wastewater (for irrigation in agriculture for example). However wastewater must be treated and handled properly to not pose health risks.
Other strategies are education to save water and its effective use as well as seeking alternative water sources (such as wastewater, groundwater or desalinization). UNICEF and WHO have developed Water and Sanitation for Health Facility Improvement Tool (WASH FIT) as an adapted water safety plan. That tool targets primary care facilities in low and middle income countries. Last but not least, planning and satellite monitoring

help reduce the impact of drought or floods by better organizing humanitarian responses.

To conclude, your main goals as committee is to achieve drinking water security, and propose ways to meet WHO guidelines in emergencies context. You have to propose solutions to address these problems and ensure drinking-water quality meets WHO recommendations.

Additional information:

Manitoban Climate and Green Plan: http://www.gov.mb.ca/asset_library/en/climatechange/climategreenplandiscussionpaper.pdf

Crisis 5 - Cholera

Cholera is a water-borne disease caused by the bacterium *Vibrio cholerae*. The disease is an acute diarrhea that can kill within hours by dehydration if left untreated. Most severe cases require antibiotics and intravenous fluids whereas mild cases need to drink oral rehydration solution. During the 19th century, cholera spread across the world from its original reservoir in the Ganges delta in India. Six subsequent pandemics killed millions of people across all continents. The current (seventh) pandemic started in South Asia in 1961, and reached Africa in 1971 and the Americas in 1991. Cholera is now endemic in many countries. In this Crisis Committee, multiple crisis of Cholera will be discussed, including the London case and the current worldwide state.

Cholera in London

In 1854, the Broad Street cholera outbreak in the Soho district of London killed 616 people. Studying its causes made the epidemiologist John Snow notably famous. By methodically pinpointing cases location, he discovered that the difference between cases and non-cases was the water source and the sanitation system used. That allowed him to confirm its hypothesis that contaminated water was the source of cholera. That was also a major proof against “miasma theory” prevalent at that time.

Cholera Today

Cholera remains a global threat to public health and an indicator of inequity and lack of social development. Researchers have estimated that every year, there are roughly 1.3 to 4.0 million cases, and 21 000 to 143 000 deaths worldwide due to cholera. Cholera transmission is closely linked to inadequate access to clean water and sanitation facilities. The number of cholera cases reported to WHO has continued to be high over

the last few years. During 2016, 132 121 cases were notified from 38 countries, including 2420 deaths.Currently there are three WHO pre-qualified oral cholera vaccines (OCV): Dukoral®, Shanchol™, and Euvichol®. All three vaccines require two doses for full protection. There is currently ongoing effort to reduce Cholera deaths by 90% by 2030 by the Global Task Force on Cholera Control (GTFCC) which WHO is part of.

Additional information:

http://apps.who.int/iris/bitstream/10665/258763/1/WER9234.pdf?ua=1

http://www.who.int/cholera/en/

http://www.who.int/mediacentre/news/releases/2017/partners-reduce-cholera/en/

Food – Obesity Epidemic and Unsecure Food in the 21st Century

Introduction

While some countries are ravaged by famine and nutrients deficiencies, others have seen their average BMI and diabetes rates rise tremendously in the past few decades.
Food is essential to health, but not any type of food. It is well known that processed food ingredients rise insulin levels, have hidden sugars and are overall detrimental to health. The shift of whole nations to consumption of these products, along with new lifestyle habits and growing portion sizes, have led to one of the greatest epidemic of our times: obesity.

Overweight and obesity are associated with devastating and extremely costly health defects, such as cardiovascular diseases, hypertension, high cholesterol or type 2 diabetes.

Several factors contribute to this epidemic: agriculture style, the food industry, the cost of groceries, socio-economic factors, education and consumption habits. For example, food prices have skyrocketed in the three years: + 83%, according to OXFAM Canada. This rise can be due to fossil fuels price increase as well as extreme weather consequences playing with the market.
Access to health is currently based on purchasing power. Poor people are the most susceptible to increased prices, as they already spend more than half their income on food. This money cannot be spent on other essential things such as healthcare or education; small farmers are targeted as well since what they produce is sold and they often cannot sustain themselves.

Worldwide, around 850 million people are hungry (11% of the world population!) and the rise in food prices is expected to add 300 million people to this already impressive number. Millions of children are malnourished, with 155 millions aged under five stunted (shorter than they should be).
Of course, food price -that impedes food access- is only a part of the problem for hunger in the world. Floods or droughts are also main drivers that reduce crop yields. Climate change events, as more thoroughly described in the environment committee, destroys fields or disrupts proper crops' development, therefore impacting food availability and stability. El Niño is a recurrent phenomenon that illustrates the tremendous effect of climate and precipitations on agriculture.

Another factor impacting world hunger are violent conflicts. A joint report from FAO, IFAD, UNICEF, WFP and WHO states that *"the highest proportions of food-insecure and malnourished children in the world are now concentrated in conflict zones."* Furthermore, people living in countries undergoing lasting crises are 2.5 times more likely to be malnourished than anywhere else on Earth. Examples include South Sudan, Nigeria, Somalia or Yemen.

Food safety also represent a huge concern. From genetic engineering to pesticides use, our food is more denatured and potentially toxic than ever. The lobby of farming companies, such as Monsanto, puts the agriculture system in an extreme privatization system it has never encountered before. For example, seeds are purchased every year since the technology even controls regeneration of plants - producers become therefore dependant of Monsanto products. Food genetically modified has unknown and potentially harmful side effects. Some studies suggested an allergen link between GMO protein and in vitro cells, an overall increased toxicity and a decreased nutritional value. It is widely allowed in the US, but sixteen countries in Europe have signalled they wanted to opt out GMO use in 2015. In addition to that, GMO supplanting natural crops

(monocultures) have consequent environmental impacts on plant and insect biodiversity.

In spite of all this, there is hope. Local production need to be encouraged. It is not only environment-friendly, it also creates jobs, empowers producers and has a lasting social impact.

Moreover, food production needs to be more sustainable. What can we do to keep acceptable productivity while using alternative fuels, irrigation systems, plant species, nutritive content and not exhaust soils fertility?

Globally, we also need to coordinate action for countries facing population starvation. Ii is outrageous to think that in developed countries, food waste is an issue while we know that we produce enough food to feed the world. Disparities arise from food uneven distribution.

Several strategies are being put in place - help small-scale farmers, using satellite technology to predict food shortages, food storage and smarter food distribution. You can look at the 2030 Agenda for Sustainable Development proposed by UN. This plan aims to end hunger and malnutrition by 2030.

Further information:

Article on crop fertility: A.R McCrea, I.C Trueman and M.A Fullen. 2001. A comparison of the effects of four arable crops on the fertility depletion of a sandy silt loam destined for grassland habitat creation. *Biological Conservation*. 97(2) pp 181-187. Retrieved from: https://doi.org/10.1016/S0006-3207(00)00110-5.

European Commission website: https://ec.europa.eu/food/plant/gmo/legislation_en

Food and Agriculture Organization of the United Nations website: http://www.fao.org/home/en/

Crisis 6 - The Obesity Epidemic

Nutritional Taxes

Sodas, juices and other sugar-added beverages are incriminated for insulin resistance and weight gain (e.g consumption of sugar-added beverages has been proven to cause weight gain in adolescents). They are an important driver in the obesity epidemic and a main calorie intake for children and adolescent population.
Governments have been trying in the past decade to modify consumption behaviours, as the food industry deploys more ingenuity than ever to play on our biological "sweet tooth" and brain reward system to sell its products.

The principle is very simple; it targets all products or beverages with sugar addition. The array of products subject to this tax as well as the amount varies from one government to another. This tax has its detractors: for taxpayers, it may seem irrelevant or even unfair. The ethics of such taxes can be questioned since in some country, poorest people are more likely to consume taxed products, putting them further on the edge.
To work, the tax needs to target products that have a clear impact on health. It also needs to be high enough to induce a change in consumer's purchase habits. Last but not least, it should not lead consumers to substitute for other non-healthy products.
To summarize, an increase in sugar-sweetened beverages needs to accompany a shift to buy more fruits and vegetables to have the desired effect. Using the tax to fund education program or else is idealistic, since by definition it should not be a constant revenue as people stop buying sugar-sweetened beverages.
This tax can also be applied to junk food - the famous "fat tax" already applied in Denmark. It stays extremely controversial as it applies on "basic" house grocery supplies like butter; nonetheless a small decrease in population saturated fats was observed.
Let's take another example. Mexico shelters more obese adults than the USA, and around 10% Mexican children are obese. The president implemented a fat tax of 8% and

a sugar-sweetened beverages tax. The results for now are a drop in junk food sales - time will tell us the extent of the long-term health benefits on Mexican population.

Environment– There Is No Planet B

Bilingual Committee

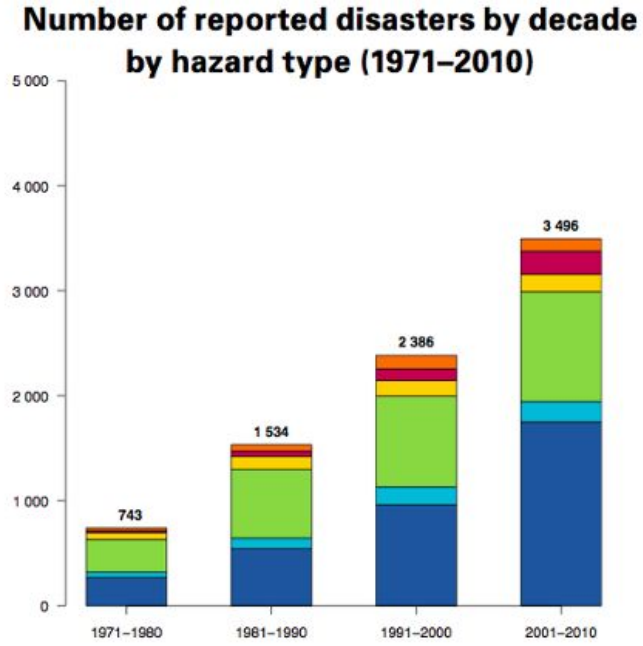
This committee is bilingual. The crisis is therefore written in French.

Introduction

The environment concept can be interpreted in different manners. First of all, that may be the natural world in itself – then an environmental crisis will be an extreme manifestation such as an earthquake, a tsunami or a forest fire. Secondly, it may also represent a set of conditions that affect and influence development, health, behaviour or survival of organisms. In that case, examples of environmental disasters encompass air pollution or nuclear leak.

The world is more unstable and prone to disasters than before. This is the observation of the World Meteorological Organization, with increasing number of natural disasters. One of the main reasons is global warming due to greenhouse gases release in the atmosphere. The following scheme was taken from 2014 WMO Report from the UN.

The NASA states that temperatures increase explain some of these phenomena. Warmer temperatures create more water vapour in the atmosphere, resulting in hotter and more humid environments. These changes are expected to be more drastic in dry and cold environments, such as the poles. Another factor is the temperature difference between the poles and the equator. Since the temperatures are evened out, this would decrease the number of storms formed. However, the increased amount of water vapour released in the atmosphere will generate more intense storms. Indeed, water vapour is the fuel of such storms.



Key: Dark blue = floods. Light blue = mass movement wet. Green = storms. Yellow = drought. Magenta = extreme temperature. Orange = Wildfires Photograph: /WMO Flooding and mega-storms were by far the leading cause of disaster from 2000-2010. About 80% of the 3,496 disasters of the last decade were due to flooding and storms. Seas are rising because of climate change. So are extreme rain storms. There is growing evidence that warming temperatures are increasing the destructive force of hurricanes.

(WMO Report: the Escalating Impact of Climate-Related Natural Disasters. 2014. Retrieved from: http://newsroom.unfccc.int/nature-s-role/wmo-report-the-escalating-impacts-of-climate-related-natural-disasters/)

"*The combined result of increased temperatures over land, decreased equator-versus-pole temperature differences, and increased humidity could be increasingly intense cycles of droughts and floods as more of a region's precipitation falls in a single large storm rather than a series of small ones. A warmer, wetter atmosphere could also affect tropical storms (hurricanes), but changes to tropical storms are harder to predict and track. Some scientists have speculated that a warmer climate that allows more intense storms to develop would also spawn more hurricanes. Warmer temperatures may also heat ocean waters farther from the Equator, expanding the reach of large tropical storms. But there is little evidence to support the either of these theories*" says Kerry Emanuel, a professor of tropical meteorology and climate in the

Massachusetts Institute of Technology's Program in Atmospheres, Oceans, and Climate (Holli Riebeek, 2005).

Moreover, because global warming leads to melting of polar ice caps, it is also responsible for the rising sea levels and disturbed patterns of precipitation. These changes may result in desertification or intense flooding.

Extreme manifestation such as storms, floods or tsunami is a mix of climate change consequences and bad luck. When a country has a history of disasters, it is wise to develop population training, health professionals dedicated to such scenario, specialized buildings and infrastructures (e.g earthquake engineering, rainwater green management in Copenhagen) and monitoring systems. You have to be prepared when the disaster of the century strikes.

We will now describe some longer term environmental consequences on our health and quality of life. Pollution encompasses here air, water and soil contamination. Waste disposal, heavy metals, industry, and vehicles' exhaust are responsible for damaging our environment. And in our modern world, they are everywhere, and accepted as a fact of globalization. The trends of overconsumption paired with overpopulation deplete our planet's resources and cleanliness. The culprits are the usual suspects: use of fossil fuels as well as dumping our plastic garbage in the oceans - or even worse, burning them.

We live nowadays in the "hydrocarbons century". Fossil fuels are a threat to soil and air quality, and we are using them at an unsustainable rate. From extracting them to their burning, every step costs the planet – and humans, as worker's health can be severely endangered.
First of all, extraction from the ground is performed with mining or drilling. Mining is used for solid fossil fuels (coal). Surface mining is highly invasive and devastates local

environment. Indeed, scraping land surface induces deforestation, and runoff water will alter natural flows of streams and introduce salt water. Mines may also pollute local drinking water sources with toxic chemicals.
Underground mining can cause mine collapsing that will affect surface and underground waters. Acid mine drainage is the flow of acidic waters that has reached mines. Bacterial oxidation converts sulphide to sulphuric acid, lowering the water pH to 4 or below. Such acidity is detrimental to all sort of life and makes the water undrinkable.

Drilling is used to reach liquid or gaseous resources (oil, natural gas). On example is natural gas hydraulic fracturing (fracking). During this extraction process, water trapped in geologic formation reaches back the surface, carrying with it harmful dissolved substances (heavy metals, radioactive materials…). Such water cannot be consumed and can contaminate the surrounding environments and waters.

Burning of fossil fuels is toxic and warms our planet. The combustion process releases emissions (sulfur, nitrogen, carbon dioxide) and particulates (ash) into the atmosphere. Those are either responsible for the creation of acidic rains, ozone depletion or greenhouse effect. Acidic rains will have a direct impact on the environment as well as ocean acidification.
Last but not least, deforestation for land availability or wood use also represents a huge concern. Clearance of trees that naturally trap carbon dioxide and produce oxygen further increase the issues described above.

To sum up, pollution favors natural disasters and alter the quality of the air we breathe or the water we consume. The price to pay can be asthma, poisoning or cardiovascular diseases. What are the guidelines and the action you can implement to protect your country’s population and be environment-friendly? Since the future of the generations to come is at stake, it is your duty to promote long-term actions.

Crise 7 - Le désastre de Fukushima

Le 11 mars 2011, un tremblement de terre provoque un tsunami de grande envergure qui frappe la station nucléaire de Fukushima. La plupart des réacteurs s'arrêtent automatiquement en cas de tremblement de terre, mais ce jour-ci, les unités 1 à 3 de Fukushima Daiichi furent largement endommagées par le tsunami - et ce, même si elles avaient résisté au tremblement de terre. La vague a submergé le système de refroidissement, et les systèmes de sécurité ne se réactiveront que dans les 30 heures suivant l'accident. Un ordre d'évacuation est donné, d'abord d'un rayon de 2 km, puis de 20 lorsque le ministre constate l'étendue des dégâts. Les réacteurs en surchauffe doivent être refroidis, et c'est à l'aide de pompiers aspergeant d'eau que l'on y parvient.

Les deux principaux éléments relâchés dans les émissions radioactives de la station sont l'iodine-131 et le caesium-137. Ce dernier a une demi-vie de 30 ans et contamine durablement l'environnement. Grâce aux efforts coordonnées des employés, le site réussit à être mis en "cold shutdown" en quatre jours. Deux mois après, une infrastructure couvrant les réacteurs (semblable au sarcophage de Tchernobyl) commence à être mise en place.

Selon un rapport de 80 experts de "UN Scientific Committee on the Effects of Atomic Radiation" paru en 2013, l'accident n'aurait pas engendré une exposition radioactive dangereuse au court-terme pour la population. Cependant, pour l'OMS, des effets long-terme sont à craindre en particulier concernant l'incidence de cancers.
L'accident fut classé comme un 7, le maximum sur l'échelle de l'INES (International Nuclear Event Scale). Sans le sacrifice et le travail des pompiers, des employés et des soldats pour limiter les dégâts et intervenir rapidement sur le site, peut-être aurions nous fait face à un désastre d'encore plus grande ampleur.

Les dégâts environnementaux, ainsi que la pollution de l'eau de mer, du sol, de l'atmosphère et des nappes phréatiques par infiltration sont immenses et très compliqués à estimer précisément. La pollution de l'océan Pacifique se poursuit, parce qu'une grande partie de la radioactivité du réacteur fuit peu à peu dans des proportions inconnues.

Crisis 8 - The Day Humanity Was Almost Wiped Out

Introduction

Infectious diseases are everywhere. In the air you breathe, in the inanimate objects you touch – like this doorknob or your computer's keyboard, when you shake someone's hand or when you kiss your grandmother. When there are more cases than usual, we call this an outbreak.
However, in our globalized world, an epidemic can easily become a pandemic. Pandemic comes from the greek "pan" (all) and "demos" (people). In this conference, you will have to deal with such scenario.

Conference context

A small youth hostel in Cambodia welcomes enthusiastic individuals from around the world. Most of the time, the guest are between 18 and 30 years old, Westerner tourists, enjoy the outdoors and meeting new people. The hostel is located near a farming area with more than 10 000 farming families. Here, everything goes together and walk freely: hens, pigs, dogs and children. They all use a common water source, a nearby running river. The young Westerners come here to exchange skills for accommodation; they help with the farm and agriculture work, and get a bed and some food twice a day.
Everyone is extremely happy with this deal; the Cambodian tourism is on the rise, children learn some English, and tourists make good friend, get in good shape and escape the busy world in their hidden paradise.

However one day, Chloe gets sick. She has an intense fever, throws up several times per hour and can barely move. Everything happens extremely quickly; she gets her first

symptoms one night and is extremely weak less than 24 hours later. Locals first believe that she experiences food poisoning, a delay bringing her to the nearest hospital. Her friends take turn to take care of her during the night: Joaquin, Ademola, Léa, Ghali and Igor. Around 2 in the morning, Chloe experiences difficulty to breathe therefore she is brought to the hospital. Several hours later, the young woman dies. There was nothing the doctors could do.

Extremely shocked and traumatized, all the young visitors decide to cut their vacation short. They all take the bus to go to the airport, then go into separate planes and carry on with their lives in Chile, Nigeria, France, Morocco and Russia.

About a week later, you are called in for an emergency committee: you have a higher mortality than usual in the biggest cities of your country.

You need to pinpoint the source of the epidemic, the zero case and implement emergency measures. The pandemic may go global, so work with other countries as well. However, since you do not know this disease, you do not want to cause panic; you will need to keep the situation under control and as normal as possible. That is, you cannot brutally quarantine an airport and block all traffic without explanation to the press.

Further information will be given at the conference. You will have a confidential file with the disease progression and cases figures in your country. An expert will deliver the results of the autopsy to identify the pathogen. In the meanwhile, you can prepare yourself by learning as much as you can on your country, the possible transmission routes (main hospitals, roads, borders, business relationships) and your health policies.

Keep all your information confidential. If the press learn in more detail about it, you will have a real trouble controlling the massive crowd movements.

Maybe you can also find inspiration on how to deal with such situations with examples from the past or current WHO guidelines.

Further reading strongly recommended:

WHO Report on response to pandemics and other public health emergencies. Retrieved from: http://apps.who.int/iris/bitstream/10665/75235/1/9789241564335_eng.pdf?ua=1

Excellent book on smallpox eradication: House on Fire: The Fight to Eradicate Smallpox by William H. Foege

Crisis 9 - The Spanish Flu

Influenza is a seasonal disease occurring between the Northern and Southern hemisphere every winter. Usually the disease is fairly mild - even though weaker populations may undergo more severe symptoms or even die. Children under four years old and elders are particularly at risk. The flu mutates every winter. This is why a race between the virus and the vaccine takes place yearly; and this vaccine is more often than not largely imprecise and unspecific in regard to the annual virus form.
However, every 20 to 40 years, the virus undergoes a dramatic DNA change (i.e mutation). This usually occurs when a wild flu poultry virus exchanges genes with a pig virus.This process occurred repeatedly throughout human history, with the first pandemic recorded in 1578. Yet none of them compared to the Great Flu, that happened right after the First World War.

In 1918, troops still left in France have a fever and feel so weak they have to be sent to the camp infirmary. Witnesses report that in a matter of hours, the cheeks of the diseased soldiers turn brown and their visage coloration begins to turn blue (cyanosis). Lungs became filled with fluids – autopsies would compare them to lungs of the drowned. After a long battle for breathing, they die extremely painfully from suffocation. In the meanwhile, British soldiers experience the same symptoms, and the virus spread to London by train. In 1919, around 675 000 Americans, 230 000 Britons and 10 million Indians and have died from this disease. Media communication about the disease was the most intense in Spain, where it started to be called “Spanish flu”.
Worldwide, 50 millions lives have been claimed by the Great Flu in 12 months (other sources report between 20 and 100 million deaths).

So, what happened? First, the onset of disease was unusually extremely quick – sometimes death occurred within 24 hours. Also, the mix of mutagenic gases employed

during the trenches war as well as the close proximity of animals could have generated this deadly mutated strain. Epidemic starts in the trenches, and troops returning home unwillingly spread the disease. Massive number of travelling soldiers as well as crowd gathering to celebrate the end of the war accelerates transmission of the disease.
Finally, Spanish flu was deadliest to 20 to 34 years old. Indeed, the fittest had the strongest immune response to the virus, to the point of causing damages. Therefore they were more susceptible of having their lungs filled with fluids and thus die by suffocation.

Nowadays, extremely deadly pathogens can spread easily like wildfire thanks to planes and the globalization era. For example, in 2003, SARS (Severe Acute Respiratory Syndrome) spread from a doctor in Hong Kong to 16 other people in less than 24 hours. Among these 16 people, 5 of them took the plane and flied to other countries. By suspending flights and taking other emergencies measures, SARS “only” killed 1000 people and spread to 29 countries. The fear associated with this virus made the fortune of some companies and destroyed tourism in Hong Kong for a while.

Panic is always associated with pandemic; but nowadays we can limit them with scientific progress, education campaigns and governmental measures. Another threat to consider is increasing resistance in antiviral drugs. Influenza A viruses are now resistant to M2 inhibitors: in the absence of cure, pandemic seems harder to control.

Concluding Remarks

Now that you have an overview of the problem you will be dealing with this March, you have some preparation to do. We strongly recommend you to do as much research as you can before the conference, as you will need facts, numbers, figures and information to debate and write a position paper.

Familiarize yourself with conference terms and rules of procedures.

Information you need to know about your country or organization include, but are not limited to:

- General country information
    - Geography
    - Population and Society
    - Economy (unemployment rate, GDP, trading partners…)
    - Current government in power
    - Crisis history

- International politics

- Health
    - Key statistics (mortality, leading death causes…)
    - Healthcare system
    - Major threats to population health

- Laws, policies and guidelines in your country and around the world related to your topic

Please refer to MonWHO website for conference content and any additional information (e.g explanatory videos).

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