Module 6
Public Health

It refers to all organized public or private measures to prevent or eradicate disease, promote health, and prolong life among the population.
The three main public health functions are:

- The assessment and monitoring of communities and population's health at risk to identify problems and priorities.
- The formulation of public policies designed to solve local and national health problems and priorities.
- To assure that all populations have access to appropriate and cost-effective care, including health promotion and disease prevention services (From the WHO).

One way to illustrate the breadth of public health is to look at some notable campaigns:

- Vaccination and control of infectious diseases
- Motor-vehicle safety
- Safer workplaces
- Safer and healthier foods
- Safe drinking water
- Healthier mothers and babies and access to family planning
- Decline in deaths from coronary heart disease and stroke
- Recognition of tobacco use as a health hazard

The term global public health recognizes that, as a result of globalization, forces that affect public health can and do come from outside state boundaries. In consequence, responding to public health issues now requires attention to cross-border health risks, including access to dangerous products and environmental change.

In fact, each citizen has a right to have an efficient and quality health system accessible. *Is this the case for our country?* Dr Chedly Maksoudi works in the Intensive Care Unit at the Regional Hospital of Kasserine, Tunisia; an area without many resources for health care, which causes delayed diagnosis. He argued that health services were distributed unevenly between different regions of Tunisia: "The inequality of the system leaves people uncared for and that is simply unacceptable. There is also a vast difference in quality of care between the public and private sector. I see sick people who are dying of things that are preventable, because of a lack of health care workers, medicines, and in some cases delayed diagnosis due to a break-down in service delivery."

A pandemic is an elusive concept, a bit difficult to really be defined. So, that's why I will argue the definition given from epidemiologists, which define it as an epidemic occurring worldwide or over a very wide area, crossing international boundaries and usually affecting a large number of people.

So, the more or less stable features of the modern pandemic are:

- It is infectious.
- It exists on more than one continent.
- It is a new strain of disease or a familiar one whose incidence exceeds statistical norms.

Another recent kind of pandemic is the bioterrorism which affected the world in 2011 through the propagation of the "bioweapon" anthrax.

Let's take a look at the evolution of pandemics through history (pandemics video from the global civics academy):

- Measures driven by panic and/or purely national/imperial interests did not work.
- Quarantine and other methods of containment were unable to bring disease under control by themselves.
- Attempts to pool health sovereignty and epidemiological intelligence helped to reduce epidemics, as well as disruptions to commerce.

In recent decades, diseases have spread faster than ever before due to high speed travel. In the past, people were travelling by shipment and news by telegraphs and now airlines carry more than 2 billion passengers annually, vastly increasing opportunities for the rapid international spread of infectious agents and their vectors.In the globalized world, diseases can spread far and wide via international travel and trade. A health crisis in one country can impact the livelihoods and economies in many parts of the world. Such crises can result from emerging infections like Severe Acute Respiratory Syndrome (SARS), or a new human influenza pandemic. Also, the trade in goods and services between countries and continents, often during the incubation period before the signs and symptoms of disease are visible, helps spread infectious diseases.

Today, diseases as common as the cold and as rare as Ebola are circling the globe with near telephonic speed, making long-distance connections and intercontinental infections almost as if by satellite. You needn't even bother to reach out and touch someone. If you live, if you're homeothermic biomass, you will be reached and touched.
—Angier, 2001

Today, there is growing recognition that an outbreak anywhere can potentially represent an emergency of international public health concern, as it is threatening the health of the world's population. So, it is the result of a centripetal force as if it is declared in a far place, it could have direct consequences on us (Avian flu, corona, etc.) So, countries will be requiring regional and global alert and mechanisms to ensure rapid access to technical advice and resources in order to achieve maximum protection against the international spread of disease with minimal disruption to trade and travel.

No single institution or country has all of the capacities to respond to international public health emergencies caused by epidemics and by new and emerging infectious diseases (WHO). Thus, compliance has three compelling incentives:

- To reduce the disruptive consequence of an outbreak
- To speed its containment
- To maintain good standing in the eyes of the international community

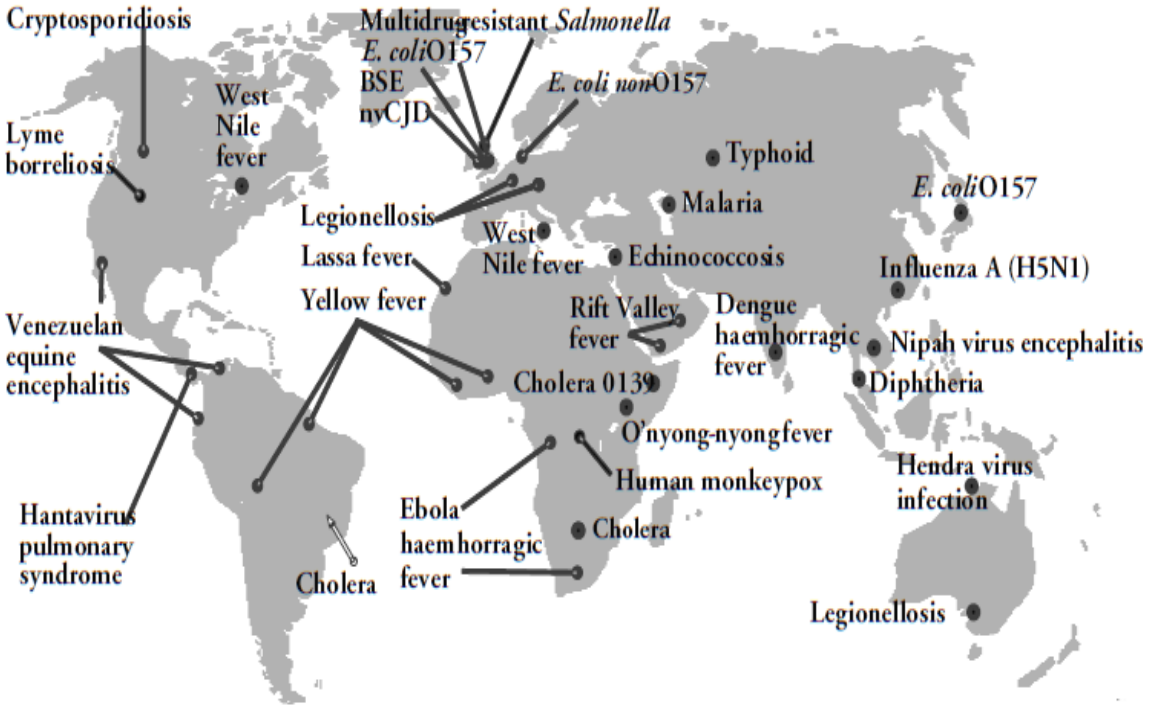

FIGURE S-2a Emerging and reemerging diseases, 1996–2001.
SOURCE: Klaucke (2002).

How can we stop something that we don't see?

Dr Margaret Chan said that: "The world has changed dramatically since 1951, when WHO issued its first set of legally binding regulations aimed at preventing the international spread of disease. At that time, the disease situation was relatively stable. Concern focused on only six "quarantinable" diseases: cholera, plague,

relapsing fever, smallpox, typhus and yellow fever. New diseases were rare, and miracle drugs had revolutionized the care of many well-known infections."

Given today's universal vulnerability to a lot of sorts of threats (biological, chemical), better security calls for global solidarity. International public health security is both a collective aspiration and a mutual responsibility. As the determinants and consequences of health emergencies have become broader, so has the range of players with a stake in the security agenda. The new watchwords are diplomacy, cooperation, transparency, and preparedness.

Timely and open reporting of public health events will help make the world more secure. Therefore, several agencies help to keep the world informed.

1. The Global Outbreak Alert Response Network (GOARN) was created in April 2000 to improve the coordination of international outbreak responses and to provide an operational framework to focus the delivery of countries' support. Since 2000, WHO and GOARN have responded to over 50 events worldwide with over 400 experts providing field support to some 40 countries.

   GOARN contributes towards global health security by:
   - Combating the international spread of outbreaks
   - Ensuring that appropriate technical assistance reaches affected states rapidly
   - Contributing to long term epidemic preparedness and capacity building
   - Building consensus on guiding principles for international outbreak alert and response

2. Global Chemical Incident Alert and Response Network (ChemiNet) is a network of networks which pools human and technical resources to assist member states to deal more effectively with the public health and medical aspects of chemical incidents and emergencies, including outbreaks of illness of chemical etiology. It functions as the chemical "arm" of GOARN.

3. The International Health Regulations (IHR) is an international legal instrument, binding on all the member states of the WHO (194 countries). It defines the rights and obligations of countries to report public health events and establishes a number of procedures that the WHO must follow in its work to uphold global public health security by strengthening their existing capacities for public health surveillance and response.
   It aims to:

- Help the international community to prevent and respond to acute public health risks that have the potential to cross borders and threaten people worldwide.
- Limit interference with international traffic and trade while ensuring public health through the prevention of disease spread.

Case study: *How did Nigeria stop the Ebola epidemic?*

Guinea, Sierra Leone and Liberia were severely touched by Ebola. Nigeria, however, succeeded in the stopping of the propagation in his territory. What were the reasons for its success?

Experts imagined a nightmarish scenario and were almost sure that Nigeria, as it is the most populated country with almost 170 million inhabitants, eight times more than Guinea, Sierra Leone and Liberia joined, would be severely affected by this epidemic (Figures 1 and 2).

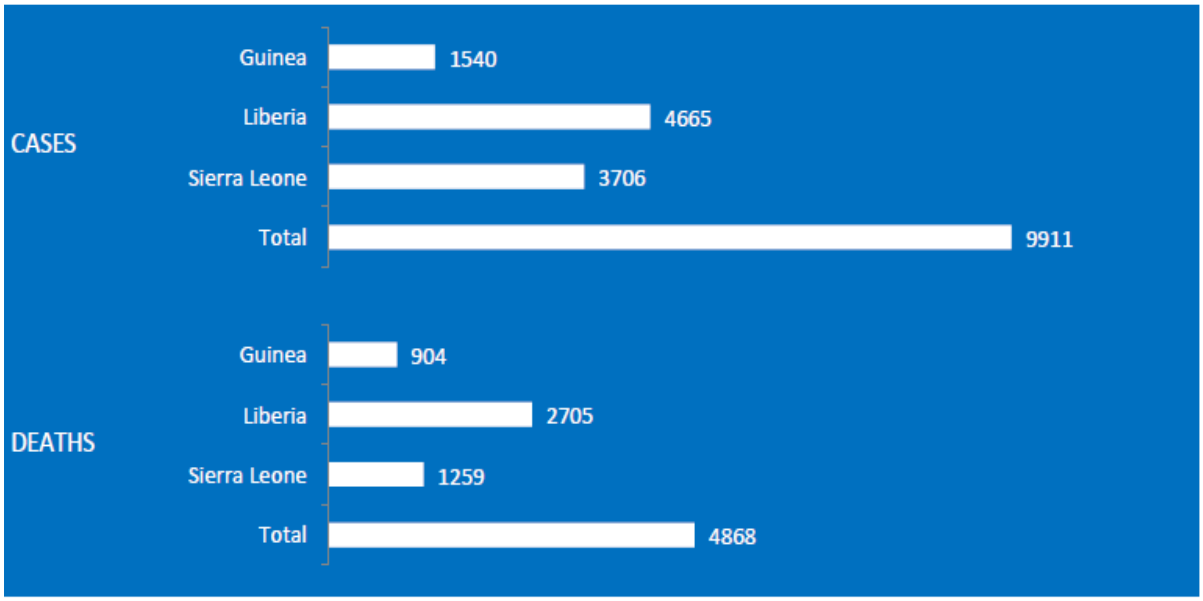

Figure 1. Ebola situation report (WHO, 2014)

Figure 2. Ebola distribution in Africa

Several factors were present in these countries that contributed to the epidemic, such as: (i) the sanitary services were busy, (ii) there was a strike of physicians, (iii) businessman and rich citizens frequently travelled, and (iv) unfortunately, it was a bit chaotic due to other local problems (Boko haram, etc.). Dr Simon Mardel, international specialist of emergent diseases argued that the propagation of the epidemic was enhanced when one infected person was close to others.

Therefore, Nigerian actions focused directly on breaking this chain or cycle. This achievement was not easy at all. Actually, it was the fruit of collaboration between the Lagos state, federal institutions, private sector and the Non-Governmental organization (NGO) that conjugated their efforts to eradicate the disease by immediately disinfecting patient's houses. This was the exact opposite response of the United States where the wife of the first infected person there was left 5 days in the presence of contaminated objects.

In fact, to contain the spread of the Ebola epidemic, the World Health Organization (WHO) advises to do like Nigerians did by promoting the logistics and the sanitization actions which are as important as the quality of the care.