

Are we ready for the future?

*P*andemics have frequently occurred throughout the history of mankind, but in recent years we have seen the presence of new strains of microorganisms that spread quickly and uncontrollably around the world.

In 2009 the H1N1 strain of swine influenza crossed the interspecies barrier and caused a pandemic that alarmed health authorities worldwide. Fortunately this strain of influenza did not have the virulence of previous pandemic influenza strains such as the 1918 - 1919 one, also known as Spanish flu, which affected between 20% and 40% of the world population, causing death to approximately fifty million people.

In December 2013, the World Health Organization (WHO) reported local transmission of chikungunya cases in Saint Martin (in the Caribbean). Since then, the Pan American Health Organization (PAHO) has reported more than 1.7 million suspected cases of chikungunya in 45 countries in Latin America. At present, this virus that originated in Africa is responsible for outbreaks in Asia, Africa, Europe, America and the Pacific Islands.

An outbreak of Ebola was diagnosed in March 2014 in West Africa, which extended to Guinea, Sierra Leone and Liberia with 28,603 suspected cases (15,216 were laboratory confirmed) and 11,301 deaths. People, who were in contact with infected patients in these countries, facilitated the spread of the disease to Nigeria, Senegal, Spain, United States, Mali, United Kingdom and Italy. In September 2014, an international massive response was planned under the supervision of the United Nations Mission for Ebola Emergency Response (UNMEERS), organizing the efforts of UN agencies, national governments and non-governmental organizations like Médecins Sans Frontières and Samaritan's Purse that collaborated in disease control.

In early 2015, outbreaks of Zika virus were detected in Africa, Southeast Asia and the Pacific Islands. In May 2015, PAHO alerts of the first confirmed case of Zika virus in Brazil. The virus continues spreading explosively and by 2016 local transmission is confirmed in 52 countries. Outbreaks of Zika virus disease have been recorded in Africa, the Americas, Asia and the Pacific.

Tuberculosis, cholera, meningitis, legionellosis, typhoid and enteric fevers and pertussis are the top ten bacteremias causing human diseases from 2000 to 2010 according to Katherine Smith and coworkers from Brown University. Inadequate use of antibiotics, as well as poor quality or counterfeit drugs, facilitates the emergence of multi-resistant strains to traditional treatments

becoming a serious problem for global public health.

We live on a planet with more than 7 billion inhabitants. Contaminated water or drinking water shortage, as well as air pollution promotes the development of gastrointestinal and respiratory infections. Overpopulation in big cities and mass transportation facilitate the transmission of pathogenic microorganisms. With a more aged population, the increase in chronic diseases such as diabetes, stress, poor diet, generates immunosuppressed populations that are more susceptible to infections.

The destruction of the natural habitat and the interaction with wildlife create conditions for some pathogens to cross the interspecies barrier. Global warming allows the displacement of vectors into new areas where they did not exist before. Increasingly rapid and massive interoceanic communications enable pathogens to cross borders and evolve to new, more virulent, strains.

The most effective way to prevent, detect and respond to a health emergency is by governments, international organizations and civil society working together.

WHO recommends the Implementation of the International Health Regulations (IHR, 2005) for protection against international spread of disease. The IHR represents an agreement between 196 countries, including all WHO Member States, to work together for global health security. The goal of the IHR is to stop events in their track before they become an international emergency.

In February 2014, the Global Health Security Agenda (GHSA) was launched. This initiative created a partnership between 50 countries, international organizations, and non-governmental stakeholders to help build countries' capacities to prevent, detect, and respond to human and animal infectious disease threats, whether naturally occurring, accidentally or deliberately spread.

In spite of these programs aimed at responding to future health emergencies, it is essential to work more in prevention and for this it is necessary that governments, businessmen and the general population become aware of the need to protect our planet, improve hygiene in susceptible areas and educate and inform people so they can forestall future health disasters.

Carlos Peraza,
Director editorial