**Health and safety**

Dr Fawad Muhammad January 29, 2020

A woman wearing a face mask passes a Public Health England sign, warning passengers arriving on flights into the UK, that a virus, Coronavirus, has been detected in Wuhan in China, at Terminal 4 of London Heathrow Airport in west London on January 28, 2020.-AFP

Biological threats, whether naturally occurring, accidental, or deliberate in origin, can result in disasters that are regional, national, or even global in scope if not properly contained.

Today, in an era of rapid globalization of trade, travel, climate change, protectionism and geopolitical populism infectious diseases spread faster than ever before. Emerging and re-emerging infectious diseases cause much human suffering and illustrate that once an infectious disease takes hold locally, the epicenter and the rest of the world is put at risk.

The borderless concept of the disease spread the view that, fundamentally, health problems are similar in both developing countries and high-income nations. Therefore, global and regional cooperation is required to effectively intervene in the dissemination of these life-threatening diseases. To enable developing countries to deal with the burden of infectious diseases financial aid and active technical assistance and contribution to research and innovation is needed. Modern transportation and communications systems ease collaboration when there is a new opportunity.

The world is currently witnessing increasingly complex epidemics as well as natural disasters, with a rising impact on both human health and the economy. National and global health challenges have increasingly proved that economic prosperity cannot be achieved when huge knowledge and capacity gaps exist in health systems. With strong resources, enough technical expertise, innovative health systems, countrywide strong surveillance systems, laboratory information management systems and health information management developing countries can overcome their health challenges.

Conversely, low-income resources countries are confronted with challenges such as lack of basic health infrastructure, technical expertise, choked surveillance system and weak laboratory and health information management systems. This makes them vulnerable to disease outbreaks, epidemics and even endemic diseases that persistently circulate within their populations.

If an outbreak is left unchecked and unaddressed, it can attain the status of a pandemic, thus becoming a major health security risk not only for neighbouring countries but globally as well. Moreover, developing countries primarily rely on foreign aid and technical support due to limited health budgets, and scare capacity to deal with their disease burden.

Recalling past history, infectious diseases such as the Severe Acute Respiratory Syndrome (SARS) in 2003, Middle East Respiratory Syndrome (MERS) in 2012, Ebola virus outbreak in West Africa in 2013, ZIKA virus outbreak in 2016, and 2018, and the Nipah Virus outbreak in India highlights an urgent need to change the current global status quo. Epidemiological investigation reveals that pathogens fall into two major groups based on their fatality. When in contact with the host, some pathogens slowly and persistently lead towards death. These pathogens take a long time to cause full-fledged infection; this time gives an opportunity for intervention in the infection. In contrast, some pathogens are contagious and very serious, and need to be contained prior to their contact with humans.

Back in 2003, SARS caused much human suffering and its devastating effects have remained for the last two decades. The WHO estimates that a total of 8,098 people worldwide became sick with SARS-CoV during the 2003 outbreak, and 774 died. Similarly, another outbreak of the closely related virus MERS-CoV of the same virus family was also recognized in Saudi Arabia back in 2012, and around 2,067 positive cases were reported.

Very recently, a newly contagious respiratory virus has sickened more than 440 people (and growing) across China – including more than a dozen confirmed deaths. Early this January, the Chinese government informed the World Health Organization (WHO) of a cluster of cases of pneumonia of unknown etiology detected in Wuhan City. To identify the causative agent of the infection, public health officials focused on continued contact – tracing conducting environmental assessments at the wholesale seafood market, and investigations to identify the pathogen causing the outbreak.

Epidemiological and molecular genotyping confirmed that a novel coronavirus (n-CoV), closely similar to the Severe Acute Respiratory Syndrome-related coronavirus (SARS-CoV) and the Middle East respiratory syndrome-related coronavirus (MERS-CoV) behind the deadly infection outbreak. Initially, it was felt that a spillover took place; however, recent investigation confirms that the patient who was diagnosed with n-CoV in the southern part of China had no history of traveling to Wuhan.

The cases have not been restricted to the local pool and till recent updates the virus has been spread across other metropolitan cities of China as well. Moreover, five confirmed cases of the deadly infection were confirmed in Japan (1), South Korea (1), USA (1), and Thailand (2).

Chinese President Xi Jinping has ordered all-out efforts to curb the spread of the virus and the World Health Organization (WHO) convened an emergency meeting on the virus. China has systematically implemented long-term plans including complete country-wide architecture for biosafety management. That includes the establishment of a series of improved biosafety laws/regulations/standards and a large number of high-level biosafety laboratories.

All countries should encourage preparedness and improve surveillance systems to predict, identify, and respond to the next public health crisis. Most importantly, international collaborations, partnerships and communications should be enhanced.

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