

Emerging Diseases as A Challenge for Epidemiological Transition in This Global Village

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ABSTRACT

This commentary provides a quick overview to 2019 novel coronavirus (COVID-19) and other emerging viruses in recent decades. All the evidence related to emerging infections suggests that we are faced with unknown threats and challenges in the epidemiological and health transition. The coronaviruses already identified such as severe acute respiratory syndrome coronavirus (SARS-COV), Middle East respiratory syndrome coronavirus (MERS-COV), and nowadays COVID-19, may only be the tips of the icebergs, and probably more novel and severe emerging infections might be revealed in the near future in the humans' communities.

Keyword: Emerging Diseases; 2019 Novel Coronavirus (COVID-19); Epidemiological Transition

Commentary

The epidemiological and health transitions (shifting from infectious diseases to non-communicable diseases) in recent decades had been created false optimism about getting rid of infectious diseases. Previously, everyone thought that the epidemiological transition was a one-way process which begins with a decrease in communicable diseases as a cause of deaths and ends with an increase in non-communicable diseases. For this reason, in the most developed and developing countries non-communicable diseases such as cardiovascular disease, motor vehicle accidents, cancers, etc. have been considered as the priority for the prevention and allocation of health funds. It is the sad fact that in the past few decades, new emerging diseases have emerged and spread in different geographical areas in this global village. Among the pathogenic infectious agents, viruses are most transformed to cause emerging diseases [1-4].

The global Indicators related to the most prominent of these viruses in recent decades which they caused the rapid outbreak, epidemics, and pandemics in the human populations has been summarized in (Table 1). On 31 December 2019, a cluster of asymptomatic pneumonia cases from Wuhan City (It is the largest city in Hubei province with a population of over 11 million in central China), has been reported to world health organization (WHO). The concern of Chinese authorities and global experts raised on 7 January, when the Chinese authorities after a complex epidemiologic investigation confirmed that they had identified a new coronavirus that did not match with other known coronaviruses such as severe acute respiratory syndrome coronavirus (SARS-COV) and Middle East respiratory syndrome coronavirus (MERS-COV). The WHO officially named the 2019 novel coronavirus as COVID-19 on 11 February 2020 [5-8].

Table 1: The global Indicators related to the most prominent emerging viruses in recent decades.

Virus name	Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) [1,2].	Ebola virus disease (EVD) [2,3].	Middle East respiratory syndrome coronavirus (MERS-CoV) [2,4-9].	2019 novel coronavirus (CoVID-19) [2,10,11].
Epi center	China	West Africa (Guinea and Sierra Leone and Liberia)	Saudi Arabia	China
Epidemic time period	November 2002 until April 2004	2014-2016	September 2012 until December 2019	December 2019 until February 2020

Confirmed cases	8098	3429	2494	45208
Deaths	774	2251	858	1118
Case fatality rates (%)	9.6	65.64	34.32	2.47
Countries affected	26	<5	27	28
The basic reproductive rate (R_0)	2-5	2.3	<1	1.4-5.5

WHO declared some recommendations for the general public to protect themselves as follows:

- a) Frequently washing hands by using water and soap or alcohol-based hand rub.
- b) Avoiding close contact with anyone with cold and flu-like symptoms.
- c) Covering nose and mouth when coughing and sneezing with a tissue or flexed elbow.
- d) Thoroughly cooking raw meat, eggs, raw milk and etc and avoid unprotected contact with sick people (including touching one's eyes, nose or mouth), live wild animals, farm animals, and surfaces in contact with animals.
- e) Seeking medical care and share previous travel history with the health care worker if someone had a fever, cough and difficulty breathing.
- f) Avoiding travel if someone had a fever and cough [9-12].

The clinical presentation of the confirmed patients with COVID-19 commonly is fever, dry cough, and shortness of breath, and most patients (80%) will experience mild illness. The basic the reproductive rate of 2019-nCoV has been reported 4 fold more rather than to similar coronaviruses such as SARS-CoV. Current known evidence for COVID-19 suggests that we are now faced with the most virulent coronavirus and epidemic that the world has ever seen. In our previous studies, we have repeatedly warned the global experts that the coronaviruses are fatal and the global burden of premature mortality due to them are increasing in this global village [6,7]. Although our knowledge about coronavirus is rising, some gaps still exist. In the current situation, we hope that that the global community, especially government officials and Health system senior executives in this global village have serious attention to released recommendations and warning in the published literature about emerging infections. In fact, now and in the near future, they should be alert and prepare for responding to the emergence of biological threats such as COVID-19, MERS COV

and etc. Here, the authors declare to the senior manager of WHO that the coronaviruses already identified may only be the tip of the iceberg, and probably more novel and severe emerging infections might be revealed in the near future in the humans' communities.

Conflict of Interest

None declared

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