



# Microbes and Infectious Diseases

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## Short report

# 'Micro-terrorism': COVID-19 makes the horrible face of microbiology

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### ABSTRACT

Micro-terrorism! We coin this term to show the horrible face of microbiology in a way similar to the current widespread terrorism throughout the world. Throughout the ages, tiny organisms were the immediate cause of devastating epidemics that killed hundreds of millions of the inhabitants of the planet. Corona virus disease -19 (COVID-19) is a prominent milestone in the history of microbiology. Historically, microbiology witnessed prominent milestones from the discoveries of Antoni Philips van Leeuwenhoek and Louis Pasteur to the development of antibiotics in the first half of the twentieth century. Nowadays we live a new milestone in microbiology history. From the public point of view, it is astonishing that a tiny unseen organism could produce such a huge transition in the history of the world. Extra jeopardy is that the COVID-19 patient put his contacts at work and household members at a real risk of rapidly transmitting the disease all over the world.

### Introduction

#### 'Micro-terrorism'!

Micro-terrorism! We coin this term to show the horrible face of microbiology in a way similar to the current widespread terrorism throughout the world. Throughout the ages, tiny organisms were the immediate cause of devastating epidemics that killed hundreds of millions of the inhabitants of the planet. Coronavirus disease 19 (COVID-19) is a prominent milestone in the history of microbiology. Historically, microbiology witnessed prominent milestones from the discoveries of Antoni Philips van Leeuwenhoek (1632-1723) and Louis Pasteur (1822-1895) to the development of antibiotics in the first half of the twentieth century [1].

Nowadays we live a new milestone in microbiology history. From the public point of

view, it is really astonishing that a tiny unseen organism could produce such a huge transition in the history of the world. Extra jeopardy is that the COVID-19 patient put his contacts at work and household members at a real risk of rapidly transmitting the disease to them, so the need for strict isolation even at home [2].

#### What is COVID-19?

Coronavirus disease 19 is an infectious disease caused by RNA viruses that can cause the disease to humans and mammals. It is transmitted through the air (small droplets or aerosols) when an infected person coughs, sneezes or even speaks near a healthy person [3]. Transmission by surfaces is not yet confirmed. The first cases were identified at Wuhan city in China in December 2019; as the organism was not known at that time, the cases were mistaken as pneumonia. At Wuhan most of the

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COVID-19 cases appeared in a seafood and animal market. The COVID-19 virus belongs to coronaviruses that cause diseases ranging from mild such as common cold, to serious such as acute respiratory syndrome (SARS-CoV). The common symptoms of COVID-19 include fever, dry cough, and shortness of breath, sore throat, tiredness, loss of taste and smell senses and headache [4]. The disease usually runs a mild, non-fatal course except in the elderly persons, and patients with immunodeficiency states, chronic respiratory diseases, diabetes and hypertension where they suffer severe complications such as pneumonia, acute respiratory distress and sepsis. Currently, there is but vaccines from different sources such as Oxford, Pfizer-modern and AstraZeneca with variable success. Fortunately, the disease can be prevented by simple measures such as hand washing, face masks, social distancing and quarantine. By now almost around 111 million persons got COVID-19, with more than 2,450 million deaths [5]. As the current epidemic spread in large areas through multiple continents, it was given the term 'pandemic'.

#### **A new different world**

The world after COVID-19 will not be as before it, and it is unlikely to return to the world that was before the pandemic. All aspects of life will be changed, from health service delivery to e-commerce. Responsive measures to contain the impacts of COVID-19 pandemic resulted in unprecedented catastrophes in traditional economics [6]. The pandemic results in expanding the equalities between countries, and within the same country, especially with the loss of millions of jobs worldwide. Matters are worsened by the absence of programs of social protection, especially in the developing world.

On the other hand, the digital economy in the COVID-19 era witnesses some flourishing of digital behaviours such as remote working, learning, telemedicine and delivery services including drugs and clothes [7]. The policymakers and employers will sooner realize that in many jobs there is not a great difference between working from home and working in the field. Thus, a valuable contribution of the pandemic is the acceleration of the rate of the digital transformation of the economics, and social services including health and education. The laptops, desktops and smartphones have turned into official learning platforms instead

of classrooms, from kindergartens to postgraduate studies [8].

#### **Health services and COVID-19**

One of the first steps against COVID-19 by health authorities are allocating human resources of hospitals to emergency services against COVID-19. As a result, a disruption affects the management and care of non-communicable diseases (NCDs). Some countries allow delivery services of drugs of NCDs to patients' homes by the hospital and community pharmacies [9].

The World Health Organization (WHO) performed a survey in May 2020 that included 155 countries on the status of health services in the pandemic time. Overall, the WHO survey confirms that health services have been disrupted with varying degrees. In half of the surveyed countries services for hypertension and diabetes are disrupted. Also, services of other cardiovascular diseases and cancer were disrupted in 42% and 31% of the surveyed countries respectively [10]. Besides, that COVID-19 had devastating effects and caused major disruption in maternal and child mortality mainly in low-income and middle-income countries. The situation is worse for rehabilitation services (disrupted in 63% of the countries). The mental health sectors were hit hard as the result of COVID-19 in most countries, people developed symptoms of posttraumatic stress and the health authorities had to rely on the online assessment as a part of the crisis psychological interventions [11]. Even a vital service like screening for breast and cervical cancers have been postponed. The causes of service disruption include a shortage of staff who are allocated for COVID-19, deficits in medicines, problems in public transportation due to home isolation for drivers [12]. Thus, countries all over the world will need to have better strategic and action planning to sustain their essential health service delivery, main the course of the health services delivery to avoid system collapse at all health services levels.

#### **Conclusion**

Micro-terrorism is a coined term that was used to describe the horrible face of microbiology pandemic known as COVID-19, which is a prominent milestone in the history of microbiology. COVID-19 has changed the shape of the world and it is most unlikely that the world will not return to the world that was before the pandemic. All aspects of life will be changed, from health service delivery

to e-commerce, the changes in the management, care of NCDs, medication supply and distribution. It is suggested that countries all over the world should come with alternatives plans, better strategic and action planning to cope with such massive changes in people daily living as the result of such horrendous pandemic.

## References

- 1-**Zainab SM, Junaid M, Xu N, Malik RN.** Antibiotics and antibiotic resistant genes (ARGs) in groundwater: A global review on dissemination, sources, interactions, environmental and human health risks. *Water Research* 2020;116455.
- 2-**Ladhani SN, Chow JY, Janarthanan R, Fok J, Crawley-Boevey E, Vusirikala A, et al.** Increased risk of SARS-COVID-2 infection in staff working across different care homes: Enhanced COVID-19 outbreak investigations in London care homes. *Journal of Infection* 2020; 81(4):621-4.
- 3-**Zhao D, Yao F, Wang L, Zheng L, Gao Y, Ye J, et al.** A comparative study on the clinical features of COVID-19 pneumonia to other pneumonias. *Clinical Infectious Diseases* 2020: covidwho-7938.
- 4-**Tian S, Hu N, Lou J, Chen K, Kang X, Xiang Z, et al.** Characteristics of COVID-19 infection in Beijing. *Journal of Infection* 2020; 80(4):401-6.
- 5-**Rentsch CT, Kidwai-Khan F, Tate JP, Park LS, King Jr JT, Skanderson M, et al.** Patterns of COVID-19 testing and mortality by race and ethnicity among United States veterans: A nationwide cohort study. *PLoS medicine* 2020; 17(9):1003379.
- 6-**Queiroz MM, Ivanov D, Dolgui A, Wamba SF.** Impacts of epidemic outbreaks on supply chains: mapping a research agenda amid the COVID-19 pandemic through a structured literature review. *Annals of operations research* 2020; 16:1-38.
- 7-**Wang B, Schlagwein D, Cecez-Kecmanovic D, Cahalane MC.** Beyond the factory paradigm: Digital nomadism and the digital future (s) of knowledge work post-COVID-19. *Journal of the Association for Information Systems* 2020; 21(6):10.
- 8-**Dwivedi YK, Hughes DL, Coombs C, Constantiou I, Duan Y, Edwards JS, et al.** Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. *International Journal of Information Management* 2020; 55:102211.
- 9-**Yadav UN, Rayamajhee B, Mistry SK, Parsekar SS, Mishra SK.** A syndemic perspective on the management of non-communicable diseases amid the COVID-19 pandemic in low-and middle-income countries. *Frontiers in public health* 2020; 8:508.
- 10-**Xiong J, Lipsitz O, Nasri F, Lui LM, Gill H, Phan L, et al.** Impact of COVID-19 pandemic on mental health in the general population: A systematic review. *Journal of affective disorders* 2020; 277:55-64.
- 11-**Moreno C, Wykes T, Galderisi S, Nordentoft M, Crossley N, Jones N, et al.** How mental health care should change as a consequence of the COVID-19 pandemic. *The Lancet Psychiatry* 2020; 7(9):813-824.
- 12-**Singh S, Kumar R, Panchal R, Tiwari MK.** Impact of COVID-19 on logistics systems and disruptions in food supply chain. *International Journal of Production Research* 2020: 1-16.