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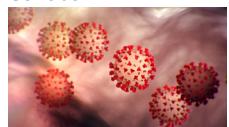
Preparedness and Lessons Learned from the Novel Coronavirus Disease

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Abstract

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In a short span, a novel coronavirus (SARS-CoV-2) has captured global consciousness by significantly affecting the day-to-day life of humans and emerged as a public health emergency. Undoubtedly, it indicates that lessons learnt from the past epidemics of coronaviruses such as the Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS), had not enough and thus left us ill-prepared to deal with the challenges that COVID-19 pandemic is currently posing. Currently, as a global pandemic, COVID-19 poses major challenges and thus forcing the entire world to lockdown. However, the disease has prepared humankind in facing such outbreaks at present as well as in the future. Besides, it has also taught numerous lessons that are worth considering and implementing to make the world a better reality.

Keywords: Coronavirus; SARS-CoV-2; Severe acute respiratory syndrome coronavirus 2 [Supplementary Concept]; COVID-19 [Supplementary Concept]; Pandemics; Disease outbreaks; Social distancing; Universal precautions

Introduction

Coronaviruses are zoonotic pathogens with positive-stranded RNA and belong to the family *Coronaviridae*.¹ A novel coronavirus (SARS-CoV-2) was first identified and reported in the province of Hubei, China in December 2019. As of 22 March 2020, a total of 308 720 cases and 13 071 deaths have been reported globally, affecting around 151 countries.² Responsive and robust health care systems are needed in preventing any diseases, especially outbreaks such as COVID-19, at a population level. It also requires long-term planning and a willingness to invest in health care, and thus the circumstances of COVID-19 have shown how far we lack and how much we still must do in this regard.³ Alongside public health agencies such as the World Health Organization (WHO) and the US

Center for Disease Control and Prevention (CDC) that are working around the clock to coordinate and assist the public to the rapidly changing situations, the public is also collectively learning how to better grapple with this pandemic, and there are essential practices, that emerged among and acquired by the public.⁴

COVID-19 and Universal Safety Precautions

Washing hands is the first line of defence against viruses such as coronavirus. Fear of the public for COVID-19 has significantly contributed towards maintaining the personal hygiene of the individuals. Practicing good hygienic measures in hospitals, schools and other public places, could drastically reduce the spread and thereby eliminate new cases.⁵ Governments and

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Received: Mar 19, 2020
Accepted: Mar 23, 2020

Cite this article as: Gudi SK, Tiwari KK. Preparedness and lessons learned from the novel coronavirus disease. *Int J Occup Environ Med* 2020;11:108-112. doi: 10.34172/ijjem.2020.1977

other organizations have succeeded in promoting the universal safety precautions such as washing hands, covering nose and mouth while coughing and sneezing, use of sanitizers, use of face masks, avoiding contact of fingers with mouth, nose and eyes, and social distancing techniques to a remarkable extent. Several cities and states across the world are currently short of hand sanitizers and face masks, which shows the public's interest in acquiring the universal precautions to a remarkable extent.⁶ Furthermore, in many countries, efforts are in place to demonstrate proper handwashing and mask usage techniques. Social distancing is a sage practice and an obvious action to be followed during outbreaks for preventing the spread of disease by confining the interaction of individuals and groups.⁷ Unfortunately, in China, social distancing measures were not in place until it was too late; as a result, hospitals were filled to capacity, and a rapid transmission was observed, which had led to a steep spike in newer infections. As a result, with the goal of flattening the curve, the Chinese health authorities have implemented non-pharmacological measures such as social distancing, which showed a significant impact in limiting the spread.⁸ A recent modelling study has predicted that if social distancing measures were implemented one week, two weeks and three weeks earlier in China, it could have reduced the number of new cases by 66%, 86%, and 95%, respectively.⁹ Furthermore, a *New York Times* model for the USA has suggested that aggressive social distancing measures could reduce COVID-19 cases from a possible peak of 9 million to 513 000 and cumulative deaths from 982 000 to 51 000 over the next few months.¹⁰ Similarly, by adopting the community mitigation measures such as social distancing, countries like South Korea, which experienced a severe outbreak in its

initial days, is now remarkably declining its epidemic curve.

Preparedness among Government Bodies

Consequences of COVID-19 have prepared the government bodies in planning and implementing various measures around the world in better assisting their communities during the disease crisis. Almost every country is doing its best to keep the disease at bay to avoid repeating the nightmares of SARS and MERS.^{3,7} For instance, China enforcing "round the clock closed management" system, Italy declaring the "red zone" alert, France announcing "nationwide ban on gatherings," and the USA implementing "containment areas" would be few mentions of what different countries are doing in ceasing the spread.¹¹ In addition, to avoid panic and misinformation, measures are in place in enhancing the transparency between government bodies and the public, which can help in educating citizens on the risks of transmission. So far, the experiences of COVID-19 are raw, visceral, and could be considered a rehearsal. This pandemic has clearly made governments know about their strengths and weaknesses regarding their health care systems in responding to outbreaks.⁷ For example, being one of the most leading countries in health care, Italy is unsuccessful in limiting the spread of COVID-19; while, countries like Singapore, Hong Kong, and Taiwan have been hailed for the measures taken to combat the disease and succeeded in keeping their morbidity and mortality rates lower, despite their stronger links to China.¹² Of note, Taiwan, a country on China's doorstep, managed to contain COVID-19 by building its public health infrastructure that could be launched during an emergency crisis. They also established a Central Epidemic

Command Center that responds to epidemics, biological pathogens, bioterrorism, and medical emergencies.¹³

Lessons Learned by Health Care Sectors

This unexpected catastrophe is compelling the health care sectors in tackling the situations. Preparation is a key, and it should be a major lesson to be learned from COVID-19. Hospitals in the USA are implementing disaster readiness and just-in-case scenario plans, as hospitals will not be notified in advance by a possible COVID-19 case.¹⁴ Also, they are stocking up on equipment and personal protective supplies, including gowns, eye protection and masks. While the risk of COVID-19 to the public is on the rise day-by-day, hospitals are not taking chances and are doing drills for worst-case scenarios. Thus, they are getting ready by setting up quarantine centers, preparing for the extra beds in accommodating the patients, facilitating for infection control, ordering more medical supplies in advance, and organizing cross-departmental emergency response committees.¹⁴ China has built two hospitals that have around 30 intensive care units and hundreds of beds in a span of few days to combat the fast-spread of the virus; it would be a prime example that is worth mentioning.¹⁵ However, this is not the case in certain countries, especially the UK, where there is a shortage of general practitioners and hospitals are underequipped. Furthermore, the UK also lacks enough beds and personal protective equipment for health care staff while dealing with the patients during this crisis.¹⁶

Impact of COVID-19 on Employment and Education

During this crisis, most of the private sectors, especially software companies, have

shifted their work routine from office-based to home-based and requesting their employees to work from home using modern technologies such as video conferencing, VPN systems, and cloud-based filings.¹⁷ Some companies have adopted a tag team method where groups of employees will take turns in coming to the office. Thinking optimistically, following such measures would, in fact, let employers as well as employees become aware of the advantages and disadvantages of flexible work environments. Also, such practices save natural resources such as gas, petrol, diesel, and thus prevent traffic and pollution. The US National Aeronautics and Space Administration (NASA) satellite images of China showing drastic drop-off in their pollution rates related to COVID-19 shutdown is one such prime example.¹⁸

Besides, schools and colleges across the world have switched from classroom-based to online-based courses to abide by the social-distancing recommendations in preventing the wide-spread of this pandemic. In developed countries like the US and Canada, all the provincial and private universities have cancelled the classes and are making use of virtual mediums.¹⁹ This novel virus has also thrown major challenges to the researchers and scientists all over the world and making them brainstorm in coming-up with the treatment and management strategies. COVID-19 is a reality check and a great exercise to reassess the quality and capabilities of every country's medical research sectors.

COVID-19 and Food Habits

Based on the investigations and research findings, it was reported that the COVID-19 pandemic has emerged from the bats in a live seafood and meat market in Wuhan, China.²⁰ This has taught the public a great lesson regarding appropriate cooking and food habits, and how they can lead

to such disease crises like COVID-19. Correspondingly, the Chinese government is set to ban the trade and consumption of live wild animals as food, as the virus is believed to have spread from animals to humans; scientists also recommend that eating slaughtered animals might be the cause of such outbreaks as COVID-19.

Conclusion

In a nutshell, this pandemic has reiterated the importance of a saying “prevention is better than cure” and has psychologically prepared mankind to battle and combat this pandemic. It has also revealed weak points in how we think about health and prepare for the disease. Coronavirus is not only a curse, but also a chance to improve our facilities and health care infrastructure and, above all, to learn how to be more ready for the next emergency crises.

Conflicts of Interest: None declared.

References

1. Habibzadeh P, Stoneman EK. The novel coronavirus: A bird's eye view. *Int J Occup Environ Med* 2020;11:65-71.
2. Worldometer. COVID-19 Coronavirus Pandemic. 2020, Available from www.worldometers.info/coronavirus/ (Accessed March 22, 2020).
3. Peeri NC, Shrestha N, Rahman MS, et al. The SARS, MERS and novel coronavirus (COVID-19) epidemics, the newest and biggest global health threats: what lessons have we learned? *Int J Epidemiol* 2020. doi:10.1093/ije/dyaa033. [Epub ahead of print]
4. Galea S. Four lessons from the Coronavirus. Fortune. 2020, Available from <https://fortune.com/2020/03/14/four-lessons-from-the-coronavirus/> (Accessed March 22, 2020).
5. Mineo L. How to reduce the spread of Coronavirus. The Harvard Gazette. 2020, Available from <https://news.harvard.edu/gazette/story/2020/03/preventing-the-spread-of-coronavirus-starts-with-basic-hygiene/> (Accessed March 22, 2020).
6. McGuckin A. Winnipeg pharmacies, businesses seeing shortages of hand sanitizers and face masks. Global News. 2020, Available from <https://global-news.ca/news/6629867/winnipeg-shortage-hand-sanitizer-face-masks/> (Accessed March 22, 2020).
7. Yeung J. Ten lessons from Asia on how to live with a coronavirus outbreak. CNN. 2020, Available from www.cnn.com/2020/03/04/asia/coronavirus-lessons-from-asia-intl-hnk-scli/index.html (Accessed March 22, 2020).
8. WHO. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). Geneva: World Health Organization, 2020.
9. Lai S, Ruktanonchai N, Zhou L, et al. Effect of non-pharmaceutical interventions for containing the COVID-19 outbreak: an observational and modelling study. *medRxiv* 2020. doi: 10.1101/2020.03.03.20029843
10. Kristof N, Thompson SA. How much worse the Coronavirus could get, in charts. The New York Times. 2020, Available from www.nytimes.com/interactive/2020/03/13/opinion/coronavirus-trump-response.html? (Accessed March 22, 2020).
11. Wamsley L. Life During Coronavirus: What Different Countries Are Doing To Stop The Spread. The Coronavirus Crises, 2020. Available from www.npr.org/sections/goatsandsoda/2020/03/10/813794446/life-during-coronavirus-what-different-countries-are-doing-to-stop-the-spread (Accessed March 22, 2020).
12. Barron L. What We Can Learn From Singapore, Taiwan and Hong Kong About Handling Coronavirus. Time. 2020, Available from <https://time.com/5802293/coronavirus-covid19-singapore-hong-kong-taiwan/> (Accessed March 22, 2020).
13. Wang CJ, Ng CY, Brook RH. Response to COVID-19 in Taiwan: Big Data Analytics, New Technology, and Proactive Testing. *JAMA* 2020. doi:10.1001/jama.2020.3151. [Epub ahead of print]
14. Chuck E. Not our first rodeo with new germs': To prep for Coronavirus, hospitals use lessons learned in past epidemics. NBC NEWS. 2020, Available from www.nbcnews.com/health/health-news/not-our-first-rodeo-new-germs-prep-coronavirus-hospitals-use-n1143566 (Accessed March 22, 2020).
15. Wang J, Zhu E, Umlauf T. How China Built Two Coronavirus Hospitals in Just Over a Week. *The Wall Street Journal* 2020. Available from www.wsj.com/articles/how-china-can-build-a-coronavirus-hospital-n1143566

- [hospital-in-10-days-11580397751](#) (Accessed March 22, 2020).
16. Hunter DJ. Covid-19 and the Stiff Upper Lip - The Pandemic Response in the United Kingdom. *N Engl J Med* 2020. doi: 10.1056/NEJMp2005755. [Epub ahead of print]
 17. Duffy C. Big tech firms ramp up remote working orders to prevent coronavirus spread. CNN Business. 2020, Available from [www.cnn.com/2020/03/10/tech/google-work-from-home-coronavirus/index.html](#) (Accessed March 22, 2020).
 18. Hauser J, Jackson A. NASA images show a decrease in China's pollution related to coronavirus shutdown. CNN. 2020, Available from [www.cnn.com/2020/03/01/world/nasa-china-pollution-coronavirus-trnd-scn/index.html](#) (Accessed March 22, 2020).
 19. Hadden J, Casado L. Columbia, Harvard, NYU, and other major US colleges and universities that have switched to remote classes and are telling students to move out of dorms to prevent the spread of the Coronavirus. Business Insider. 2020, Available from [www.businessinsider.com/major-colleges-and-universities-going-remote-over-coronavirus-fears](#) (Accessed March 22, 2020).
 20. Zhou P, Yang XL, Wang XG, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature* 2020;579:270-3.

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