

The role of government and public health centers in prevention and control of covid-19 pandemic

Introduction

Given that China reduced the transmission of 2019-nCoV disease through travel restrictions, two-thirds of total cases exported from this country were undetected.¹ The super-spread of 2019-nCoV not only has led to many deaths and disabilities but has brought social and economic downturns. From the covid-19 pandemic, the gross domestic product (GDP) and consumption were predicted to decline 6 and 8 %, respectively. On January 7, 2020, the World Health Organization (WHO) named the novel coronavirus as 2019-nCoV or officially as COVID-19.⁴ The 2019-nCoV outbreak was characterized as a Public Health Emergency of International Concern and a pandemic in January and March 2020, respectively.⁵ To relieve the pressure on health care systems the political leaders have taken different measures to contain the COVID-19 pandemic.⁶ The OxCGRT (Oxford Covid-19 Government Response Tracker) team including alumni, students, and staff provides a systematic measure to study the government responses over the spread of covid-19 disease.⁷ At the outset of the coronavirus outbreak, the disease was linked to Huanan seafood markets and consumption of slaughtered game meats.⁸ To terminate the animal to human transmission of disease, regulatory measures on the sale and consumption of game meats were taken. The Huanan seafood market was closed on Jan 1, 2020.⁹ However, this virus showed further intercity spread after the control strategies to reduce the shedding from animal to human. The subsequent studies on the rapid flourishing of disease indicated the transmission of 2019-nCoV between human populations other than animal-human transmission.¹⁰ The studies on family clusters reported person-to-person transmission of 2019-nCoV.¹¹

Government

Hundreds of mitigation and suppression policies have been implemented in reaction to the current pandemic.¹² Implementation of top-down draconic controlling measures can prevent the transmission of disease. Many researchers believe in a mixture of mitigation and suppression measures.¹³ In the time of crisis, the leaders are responsible for solving the problem and preventing it from happening again.¹⁴ The strategies and measures for prevention and control are reported at three levels of national, case-related population, and general.¹⁵ Several studies have addressed the efficacy of governments' policies such as lockdown, testing, hospital utilization, and health care resource availability.^{16,17} For example, the number of people who stay at home completely increases by lockdown policies and physical distancing measures taken by governments.¹⁸ As reported, the mortality rate of covid-19 increases by lower government effectiveness.¹⁹ However, it should be stated that the government policies amplify the measures already taken by communities. The communities may take action even if there are no government policies on social distancing.¹⁸ The government should disseminate clear information and provide clear guidance to prevent panic buying and unreasonable use of personal protective equipment which leads to the shortage of supplies. The latest reports and guidelines can be provided by governments through health care centers. Social media can also²⁰ provide the latest information by teaming up with the government.²⁰ The public health measures such as isolation of suspected and infected cases and tracing contacts,

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disinfection of environment, and use of personal protective equipment are at national level strategies.¹⁵ For example, the Japanese company disseminates the latest 2019-nCoV information via Bebot which is an artificial intelligence-powered chatbot.²¹ Given that positive and negative messaging can quickly influence the public, short and clear messages are necessary to prevent misinformation.²⁰ The local and military health workers had a key role in ending the outbreak. Strict guidelines with an emphasis on controlling the outbreak by prevention measures should be provided by the ministry of health, the national health commission, and public health care centers. These guidelines are often based on World Health Organization (WHO) and Centers for Disease Control and Prevention (CDC) instructions and measures. For example, the National Health Commission of Iran and China publish national guidelines on prevention and control of 2019-nCoV.²² On the No.1 announcement (Jan 20, 2020), the medical institutes adopted the protocols to prevent and control 2019-nCoV.¹⁵ Policymakers should be cautious at times of crisis and control the outbreak while considering the financial resources. Hospitalization, personal and social hygiene, cleaning environments, tracing infected cases and isolation, etc. are heavy burdens on the governments. Chinese central bank has invested ¥150 billion to maintain the stability of the currency market.²¹ According to risk management of 2019-nCoV (received date: 28 February 2020), the Global Health Security (GHS) index of different countries shows that the USA, UK, Netherlands, Australia, Canada, Thailand, Sweden, Denmark, South Korea, and Finland are the top ten leading countries which are best prepared to prevent, detect and respond to health emergencies regarding this 2019-nCoV pandemic.²³

To compare government-imposed vs. self-imposed measures to change personal and social behaviors, the government early interventions such as school closure, early detection, isolation and treatment, adequate medical supplies, and ban of mass gathering can

slow down the spread while health care workers get ready to encounter the outbreaks.²⁴ As China illustrates, the current pandemic can be limited through the early implementation of strategies and tactics.²⁰ Public awareness on preventive measures such as hand hygiene, wearing masks, and self-isolation are more effective (efficacy: 50 %).²⁵ The long-term self-imposed interventions slow down the spread and are simple, however, these preventions require raising public perception with timely dissemination of accurate information. As estimated, the time between implementation of restriction measures and significant reduction for 2019-nCoV is 7-10 days.²⁶ The public should have time to make early informed interventions and take action before it gets late.²⁷ The efficacy of self-imposed interventions depends on the rapid dissemination of clear and accurate information to individuals.²⁵ The earlier the restriction measures were taken the lower the cumulative incidence was achieved for the covid-19 pandemic.²⁶

Public health care centers

In this time of crisis, the role of formal and informal institutions in promoting preventive behaviors is vital for the mitigation of infectious diseases spread.²⁸ Health care workers as the main providers of information should report the information on the internet; otherwise, the quality of the information received is inadequate or might be unreliable. In Saudi Arabia (Riyadh), a study was conducted to assess the knowledge of 676 participants toward MERS disease; the respondents were highly knowledgeable about the clinical aspects of MERS disease (90%), whereas they expressed poor knowledge regarding the epidemiological features of this disease (58%).²⁹ Preventive measures are recommended for the prevention of nosocomial infection.¹⁵ Public health care workers who are in close contact with infected cases should protect themselves by wearing proper clothes and gowns and leaving them in special laundry rooms and taking showers after work. The clothes and gowns should be completely decontaminated.³⁰ The gowns and nitrile or latex single-use gloves should not be reused and should be disposed of according to instructions. All who are in contact with health care waste should also be provided with personal protective equipment.³¹ In Wuhan city, 15 health care workers were infected by 2019-nCoV in one hospital.³² In a Chinese report on 11 February (2020), of 72314 records of 2019-nCoV patients from China's Infectious Disease Information System Analyses, 1716 and 5 health workers were infected and died, respectively while caring for patients. ³² Of 138 infected cases In Zhongnan Hospital of Wuhan, 29% were from health care workers.³³ On 25, February (2020), 3,387 and 18 infected and dead cases were from health care workers in Hubei.³⁴ The health workers are at risk regarding the close contacts with infected cases. Numerous health workers sacrifice their lives for their kind and work long hours with inadequate materials under pressure.³⁴ In the SARS outbreak, the health care workers and visitors who were in contact with suspected or infected cases were not permitted to enter non-SARS areas.³⁵ In Singapore, the temperature screening of health care workers was mandatory in the SARS outbreak and they were isolated if they were infected.³⁶ However, it should be stated that in low and middle-income countries there are not enough budgets for additional critical care units in times of crisis and this may exceed the reported case fatality rates.²⁰ Furthermore, besides looking for ways to succeed against covid-19 disease, the effectiveness of policies should be studied across countries and time.³⁷

Concluding remarks

The practical implementation of control measures should be considered as a critical solution to the wide spread of this virus

throughout different countries. The decision-makers consider the high costs of implementation of control measures rather than the benefits of prompt controls. Therefore, delay in taking prompt decisions such as travel restrictions and quarantining may cause the rapid spread of disease to other geographical regions. Other than wrong decisions, the delay in warning people might be due to the consequences of causing fear. However, lack of transparency results in intimidation of clinicians and allows the speculation and rumors regarding the spread of disease. Therefore, there is an urgent need in raising awareness on the biological nature, epidemiology, and clinical characteristics of 2019-nCoV to counter the spread. More studies should be conducted for a deeper evaluation of the disease.

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Conflicts of interest

Author declare that there is no conflict of interest.

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