

Review

Mitigating the spread of COVID-19 in low-income countries

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Coronavirus disease 2019 (COVID-19) has become an increasing concern to global health organizations, and may pose major challenges to health care systems in the low-income countries due to the absence of equipment, lack of funding, and insufficient training of healthcare workers. Thus, mitigation measures that involve social distances and personal hygiene may be prioritized. The main objective of this review was to propose guidelines steps that will mitigate the spread of novel emerging COVID-19 in low-income countries. The community mitigation may delay the influenza peak to decrease stress on the health-care system thereby decreasing morbidity and mortality. Social distancing and hygienic practices are among the main community mitigation measures recommended during influenza pandemics. People must separate themselves from others and should regularly wash their hands, avoid touching their face, cover mouth and nose when coughing or sneezing, and clean frequently touched surfaces. Therefore, in the lack of funding in low-income countries, the public health measures can rely on preventive actions such as social distancing and hygienic practices to mitigate the spread of novel emerging COVID-19. In addition, surveillance, accurate screening, and vaccination remain, whenever possible, effective mechanisms of viral control.

Key words: COVID-19, low-income countries, mitigating, personal hygiene, social distancing, corona virus.

INTRODUCTION

In December 2019, Wuhan city, became the center of outbreak of coronavirus disease 2019 (COVID-19), which is caused by a new virus called the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Coronaviruses (CoVs) are a large family of viruses that cause human illness that ranging from the common cold to more severe diseases, such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) (Modjarrad, 2016; Rothan and Byrareddy, 2020). SARS-CoV-2 is a new strain that has not been previously identified in humans. The

COVID-19 outbreak may have started from a zoonotic transmission and soon became person-to-person transmission (Li et al., 2020). The SARS-CoV-2 can be spread, before it causes symptoms, through breathing, even without coughing, contaminate surfaces with dramatic rise over a relatively short period of time. COVID-19 can be fatal, with a mortality rate of around 3%, hence it becomes of increasing concern to global health organizations. Symptoms can include fever, coughing and shortness of breath, and in more severe cases, the infection can cause pneumonia while in some

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cases, the disease can be fatal. Older people and those suffering from chronic medical conditions, such as diabetes and heart disease, are at greater risk of infection (Dong et al., 2020; Guan et al., 2020). Since the spending of government to healthcare in poor countries remains low, the disease will undoubtedly pose major challenges to health care systems in such low-income countries. COVID-19 has exhibited increased outbreaks in so many low-income countries (Nkengasong and Mankoula, 2020). On April 20, 2020, over 22,313 confirmed cases of coronavirus have spread to 52 African countries, with number of deaths at 1,124 and 5,492 recoveries (WHO, 2020). This has led authorities to impose a range of prevention and containment measures against the spread into the African countries. However, many of the healthcare systems on the low-income countries are inadequate, having problems such as lack of equipment, funding and insufficient training of healthcare workers (Patrone and Resnik, 2011; Hopman et al., 2020). Additionally, it is predicted that in Africa, the pandemic could spiral out of control, thereby resulting to huge economic problems if it spreads widely. The response priorities should comprise strategic steps forward to strengthen virus control through surveillance, diagnosis, prevention, vaccine development, risk management, coordination and integrated action across sectors (Nkengasong and Mankoula, 2020). Therefore, in the absence of equipment, lack of funding, and insufficient training of healthcare workers in the low-income countries, preventive actions that involve social distancing and personal hygiene should be prioritized. However, lockdowns could be challenging in some places in Africa, which may be exacerbated by the prevalence of endemic diseases such as malaria and cholera. These mitigating measures may also face difficulties of implementation due to the high number of populated informal settlements in economies in these countries where most of the people depend on daily earnings for subsistence. The main objective of this review was to propose guidelines steps to mitigate the spread of novel emerging COVID-19 in low income countries.

RESPONSE PRIORITIES

The main challenge for the authorities in the low-income countries is the prompt response to control such pandemic disease. To limit the risk of such emerging infectious disease, there should be an increase in understanding, identification and surveillance of the disease, in addition to providing information and knowledge needed for potential solutions and actions or decisions to be taken. Thereafter, there should be continued monitoring and evaluation of the effects of actions and outcomes to control the disease. Thus, the response should comprise strategic steps forward to strengthen virus control through surveillance, diagnosis,

prevention, vaccine development, risk management, coordination and integrated action across sectors (Afrough et al., 2019). Public health measures are everyday preventive actions that involve social distancing and personal hygiene. Many mitigating measures have been implemented in different low-income countries including travel restrictions, flight cancellations, event cancellations, and border closures. Some of these have been studied previously to evaluate their effectiveness against influenza pandemics (Pérez et al., 2012). The lockdown, in high degree, to the restaurants, shops, schools will strongly encourage people to stay home. The lockdown is found to be very effective under the condition of early activation and long-lasting implementation of combined measures (Kelso et al., 2009). In the author's view, although Africa, where populations are much younger (the median age is under 20 years compared to 40 in Europe), is less affected by COVID-19 virus than other countries, the spread of the virus is a special challenge, as cases are difficult to detect. This is because the virus may be carried in a person who has little or no symptoms, which may spread slowly across the country, and at the end, the pandemic may become worse. Health systems are bare, governments are weak and people are poor. So these countries should try to avoid the worst of the epidemic. Many African countries have imposed lockdown measures so as to flatten the curve of COVID-19 infections. Social distancing measures must be carried out, and low-income countries should try these measures anyway. Some countries should ban movement in and out of the country and should order lockdown, while others can enforce social distancing.

SOCIAL DISTANCING

Social distancing is one of the community mitigation measures recommended during influenza pandemics (Ahmed et al., 2018). It has been shown that quarantine, social distancing, and isolation of infected populations can contain the epidemic (WHO, 2019). The goals of community mitigation are to delay the influenza peak to buy time for the development and administration of a well-matched pandemic vaccine; reduce the peak number of daily influenza cases to decrease stress on the health-care system and reduce the overall number of influenza cases in order to decrease morbidity and mortality (Qualls et al., 2017). It is very important for people in low-income countries to stay homes. If possible, they should not go out even to buy their essentials. Staying home for 14 days will greatly reduce the overall amount of infections which could pass to others in the community. While staying home, social visitors and friends are not allowed or invited to enter home. If there is a need, people can use the phone or social media. A distance of about 2 m (3 steps) should be kept away from people who live together, and they should

be encouraged to sleep in a different bed where possible. People must separate themselves from others while staying home, then they should regularly wash their hands, avoid touching their face, and clean frequently touched surfaces. People should minimize as much as possible the spent time in shared spaces such as kitchens, bathrooms and sitting areas, which should be kept well ventilated. If possible, they should use a separate bathroom from each other. The shared toilet and bathroom should be cleaned every time after each use. Everybody should use separate towel to dry himself after bathing, showering, and hand-hygiene practicing. Although there is no evidence yet that companion animals/pets can be infected with coronavirus (COVID-19), contact with animals should be avoided. Dirty laundry should not be shaken, thus to minimize the possibility of dispersing virus through the air. All routine medical and dental appointments should be cancelled while staying home. Further, it is only during emergency that one is allowed to call an ambulance. Each person should drink enough water to keep himself hydrated during the day. Lastly, it is important to keep in mind that each home member should take care of his mind as well as his body. He should stay in touch with family and friends over the phone or on social media, or through sources of support and information. People can keep themselves busy with activities such as cooking, reading, online learning and watching films. Even when feeling well enough they can take part in light exercise within their home.

HYGIENIC PRACTICES

Personal protective measures such as hand hygiene and use of face mask are parts of public health guidelines for pandemic preparedness. This will help to protect all people who live together in one place from the spread of infection. The handwashing step is one of the most effective steps in reducing the risk of transmission to others (Xiao et al., 2020). Individual can be infected by transmission of the virus through direct contact with respiratory droplets and touching surfaces contaminated with the virus (e.g., eyes, nose, mouth). The efficacy of face masks among healthy individuals is unclear. Facemasks are not recommended to be used as an effective means of preventing the spread of infection. They can be effectively used in clinical settings (Benjamin et al., 2019). The combination of masks and hand hygiene has been shown to be more effective to reduce transmission of respiratory viruses (Xiao et al., 2020; Benjamin et al., 2019). Transmission by contact occurs by touching contaminated hands of the mucous membrane of the mouth, nose, or eyes. The virus can also be transmitted by indirect contact from one surface to another by contaminated hands. Therefore, it is very important for everybody to wash his hands frequently on

each day with soap and water for a minimum of 20 s. This prevents the spread of any bacterial or viral pathogens, including COVID19 virus. Alcohol-based hand sanitizer can be used instead of soap and water. Therefore, hand hygiene is considered the only most effective measure to reduce the spread of infection in communities and where to provide health care facilities (Monica, 2019).

In many countries, the availability of hand hygiene methods is often suboptimal in community and in health care facilities settings, especially the low-income countries. In this regard, it was estimated that 3 billion people worldwide do not have a hand-washing facility in their homes, and that two out of five health care facilities lack hand hygiene (WHO, 2019). The acceptability and adherence to hand washing practices are improved when it is provided free of charge and becomes mandatory by public health authorities; including in public health emergencies of international concern (Wolfe et al., 2017; Sterk et al., 2008).

Beside to hand washing, covering of the mouth while coughing and sneezing is an important and effective way to stop the spread of germs. Uncovered coughing or sneezing may cause the virus to remain in the air for several hours and may descend to the surface and live there (Lindsley et al., 2012). The Centers for Disease Control and Prevention (CDC) has shown that continuous practices of personal hygiene can help prevent the spread of infectious diseases, including respiratory novel covid-19 (CDC, 2019). In the case of coughing or sneezing, the mouth and nose should be covered with a disposable tissue paper, and if this is not available, then the sneezing or coughing can be in the crooked elbow, not in the hand. The used tissues should be disposed into a covered rubbish bag, thereafter hands should be immediately washed with soap and water, or alcohol-based hand sanitizer (Hugonnet et al., 2002).

Although the COVID-19 virus may live on surfaces for several hours, it can easily to be eliminated by simple disinfectants. While cleaning, each person should use his own usual cleaning materials (detergents and bleach), and cleaning should be effective so as to get rid of the virus on surfaces. Frequently touched surfaces such as door handles, walls and table tops should also be well cleaned. The shared bathroom should be cleaned after each use. Personal wastes (such as used tissues) and disposable cleaning cloths can be stored safely in garbage bags and then can be later on disposed safely.

OTHER FACTORS THAT MAY REDUCE THE SPREAD OF COVID-19

Although many of the healthcare systems on the low-income countries are inadequate, a number of factors, whenever facilities are available, may help to reduce the spread of the disease. COVID-19 surveillance is the first

element of the response. Surveillance concurrently involves the health care delivery system, public health laboratories and epidemiologists. The risks associated with the COVID-19 are currently considered very high based on the probability of transmission and impact of the disease. Authorities should implement methods for enabling accurate screening of the viral infection. Vaccination remains the most successful and effective mechanism of pathogen control. The process of developing the vaccine will take time, and is likely at least one year to 18 months away from substantial vaccine production. Such steps should begin even if the production of a usable coronavirus vaccine is likely to take time (Drury et al., 2019).

CONCLUSION

Therefore, in the absence of equipment, lack of funding, insufficient training of healthcare workers in the low-income countries, the public health measures can rely on preventive actions such as social distancing and hygienic practices to mitigate the spread of novel emerging COVID-19. Surveillance, accurate screening, and vaccination remain, whenever facilities are available, effective mechanisms of viral control.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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