

COVID-19: Implemented Recommendations and Consequences

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ABSTRACT

Pandemics such as the novel Coronavirus disease 2019 (COVID-19) claimed the lives of many people worldwide and resulted in human catastrophes throughout the history. Nevertheless, previous recommendations of the World Health Organization (WHO) in addition to changes in hygienic habits may have resulted in improved responses. This review illustrates the implementation of these recommendations on the ongoing pandemic of COVID-19. Moreover, it emphasizes on the economic consequences of this pandemic in addition to its impact on healthcare professionals.

ABBREVIATIONS: COVID-19: Coronavirus Disease 2019; WHO: World Health Organization; CDC: Centre of Disease and Control; APIC: Association for Professionals in Infection Control; PPE: Personal Protective Equipment; NPI: Non-Pharmaceutical Interventions; HCP: Health Care Professional

INTRODUCTION

Ibn Sina (Avicenna) introduced the concept of contagious diseases and the first description of bacterial and viral organisms in his encyclopedia "The Canon of Medicine" in 1025. He also introduced to the principles of quarantine as a preventive measure against contagious diseases [1,2].

The world has faced many pandemics owing to these microorganisms, the worst of which were the Spanish flu that claimed around 50-100 million lives from 1918 to 1920 [3,4] and the black death which killed more than 75 million people in the 14th century [5]. Although such disasters are few and far between, they have continued to be a source of rational and irrational fear among people [6].

Nowadays, the World Health Organization (WHO) has announced a new pandemic on the 11th of March 2020, caused by the Novel Corona Virus (SARS-CoV2) causing coronavirus disease 2019 (COVID-19) based on alarming levels of spread and severity [7]. Consequently, many questions have been raised regarding the appropriate implementation of the Centre of Disease and Control (CDC) and the WHO recommendations since previous pandemics. Moreover, the world today is facing many fears regarding possible economic and non-economic consequences [8]. For instance, the effect of this pandemic on peoples' hygiene and hand washing habits in addition to changes occurring to the health care services and providers [9].

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REVIEW

Health Care System Evolution

The health care system evolved the most in response to pandemics; a lot of misconceptions were washed away by those outbreaks. The mainstream idea in the past was eugenics, humans were divided into categories, with the elite being immune to most of the crowd diseases and the poor when infected were due to hereditary factors. It wasn't until the 1918 pandemic, The Spanish Flu, that affected more than 500 million people worldwide and killed more than 50 million that the health care providers started to understand that diseases don't differentiate between people and that blaming individuals for infection wasn't justified. Since the Spanish Flu, a lot of changes in health care systems have evolved globally; governments started embracing the concept of socialized medicine. Health care became available to the public with no eugenics playing a role in the care provided [10,11].

Evaluation of The Implementation of Lessons and Recommendations from SARS Outbreak

Prompt reporting of diseases with potential of international spread, with clarity and transparency [12]. It improved in some respects as now nations share info about the pandemic [13]. However, there are accusations that we knew about the scale of the disease too late after repeated denials and delays by the Chinese government [14], yet, Chinese officials say they allowed results of the virus to be shared quickly. However, the general performance of international information sharing has improved [13].

Adequate Timing of Global Alerts and Containment Measures

Improved to a limit, as most countries knew about the situation and were alarmed by their health officials, yet it could have been done earlier if the Chinese government reported real time facts [14].

Modifications of Travel Recommendations and Imposing Travel Restriction

This was improved than the 2003 outbreak [13,14], but still late which led to wide international spread as most countries didn't put early restrictions or checks on airports for arrivals due to the under estimation of the situation, probably due to alleged Chinese delays [14].

Weakness in Health Systems Can Cause Manageable Diseases to Become Deadly Epidemics

The healthcare systems has improved since the 2003 SARS outbreak [13]; Yet the surprisingly under-equipped systems of developed countries like Spain & Italy weren't able to cope with the overwhelming number of patients and were suffering from shortage of PPEs, ventilators and manpower, which probably was a factor causing high infection rate among healthcare providers and high mortality numbers, almost 60,000 combined in Spain, Italy & USA [15].

In the absence of a curative drug and a preventive vaccine, existing interventions, tailored to the epidemiological data and supported by political commitment and public concern, can be effectively used to contain an outbreak.

This appeared clearly in 2020 as the COVID-19 does not have a cure or a vaccine yet the recovery rate is 94% [15], with existing

supportive treatment, symptomatic measures, and respiratory assistance.

Effect of Pandemics on Hygiene and Personal Protective Equipment (PPE)

There was a study 150 years ago by Dr. Ignaz Semmelweis, he insisted that doctors performing necropsies should wash their hands before delivering a baby. This resulted in reducing mortality due to streptococcal puerperal sepsis from 22% to 3%. Nevertheless, healthcare workers and people still do not recognize the importance of hand washing [16]. Therefore, the Association for Professionals in Infection Control (APIC) and all other infection control organizations started to motivate people to appreciate non-pharmaceutical interventions (NPI) such as hand washing and hand antisepsis and face masks [17]. Moreover, following the outbreak of plague in Europe, Charles de l'ormede signed an innovative shielding, was known for its beak shaped mask nose, for doctors who dealt with plague patients in order to protect them from getting infected and to prevent transmitting infection [18,19].

In a study conducted to assess the perception and behaviors related to hand hygiene for prevention of H1N1 influenza transmission among students of a Korean university during peak pandemic period. This study revealed that there is 30.3% increase in hand washing frequency, which proves that pandemics increase people's awareness to avoid getting infected [20].

Nowadays, after COVID-19 pandemic, WHO and all organizations motivate people to care about their hygiene and hand washing habits. Consequently, this has promoted people's awareness and increased their use of antiseptics to the extent that they ran-out of global markets [21]. Moreover, the world is witnessing an increase in PPEs usage that also led to worldwide shortage [22,23].

Effect of COVID-19 on Health Care Professionals (HCPs)

The current situation showed us the considerable morbidity risk that faces HCPs; they are at high risk for acquiring infections during novel disease outbreaks, especially before transmission dynamics are fully characterized. Because they do not have PPEs suitable for the emerging disease as we still do not know its transmission mechanism, no HCP wore PPE recommended for COVID-19 patient care during contact with the index patient [24]. Unprotected, prolonged patient contact, as well as certain exposures, including some aerosol-generating procedures, were associated with SARS-CoV-2 infection in HCP [24].

To protect HCP caring for patients with suspected or confirmed infectious diseases, such as COVID-19, the medical Centre should promote early recognition and isolation of patients with possible COVID-19 and the use of recommended PPE to minimize unprotected, high-risk HCP exposures and provide adequate training regarding the usage and disposal of PPEs to improve the outcome of the protection process and follow strict international infection control guidance [25].

The COVID-19 crisis also demonstrated the mental and emotional toll that can be paid by the HCP; a survey of physicians and nurses in hospitals with fever clinics or wards for patients with COVID-19 in China, health care workers responding to the spread of COVID-19 reported high rates of symptoms of depression, anxiety, insomnia, and distress [26]. Also, non-medical healthcare workers showed significant results of emotional and mental distress [27]. Maintaining a healthy & 100% functional medical workforce

is essential in the global fight against the COVID-19 pandemic; Prioritizing health workers protection and safety should be a priority and including mental and emotional wellbeing component is imperative to maintain the functionality of the medical providers by providing emotional support and tools and interventions to avoid mental and emotional drain.

One of the main emotional and ethical crises points that face doctors and nurses every day is the question of "Is it worth it?" The decision to remain in or to leave a risky health care situation will depend on the provider's own risk assessment. There is a standard medical ethical code, but everyone will interpret and apply them according to his or her own situation. Medical institutions should create protocols for protecting their workers and be transparent and honest when a crisis happens. By doing this, we ensure the medical team that they are working in an institution that cares about them and will protect them, making them willingly choose to help with the crisis at hand. If a researcher goes through history, during most -if not all- health crises, health care providers chose to stay and fight [28].

Economic Impact of COVID-19

Following the spread of COVID-19, around half a billion people got poorer. Moreover, the poor countries will suffer the economic consequences especially those depending on tourism in addition to the sudden change in route of capital flows and great decline of main exports [29]. Also, decreased oil demand is expected to cause significant fall in prices [30]. The most recent of which is when U.S. oil prices hit the negative territory for the first time in history due to filled storage capacities. Additionally, crops will decrease due farmers mobility restriction which previously happened in Africa during Ebola pandemics, where food production decreased by 12% [31].

Lockdowns are causing decline in demand and further reducing goods prices. Moreover, disruptions of imports to African countries are causing shortage in some essential consumer commodities. Consequently, overall income losses in developing countries are expected to exceed US \$220 billion. A lot of developing countries are suffering from decrease in hard currency and increased burdens of debts. Accordingly, these countries need help to strengthen their response to the crisis and to restore job opportunities. Therefore, the international monetary fund decided to fund the poor countries to face the economic problems, it also moves to decreasing their debts. Moreover, high-income countries will need to supply poor countries with at least \$2.5 trillion [32].

CONCLUSION

COVID-19 pandemic became a devastating crisis threatening many aspects of human lives. Therefore, it became important to investigate whether the previous WHO recommendations have been appropriately applied or not. Although the disease is widely spreading, this review showed improved responses in many aspects. For instance, prompt reporting of the disease, information sharing, travel restrictions and improved healthcare systems. Additionally, following the proved efficacy of handwashing and hygiene against pandemics, the world is suffering from antiseptics and PPEs shortage. Moreover, health care professionals became not only prone to infection but also to depression, anxiety, insomnia, and distress. Therefore, it is important to prioritize health workers protection and safety including mental and emotional wellbeing by providing emotional support to avoid mental drain. Furthermore, the low-income countries are witnessing huge economic

consequences. For instance, decline in goods demand, commodities shortage, decreased hard currency and increased debts burden. Consequently, further collaboration between nations is required and should target the relief of the economic burden faced by developing countries.

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