OSJI OPEN SCIENCE JOURNAL

COMMENTARY

Evaluating Healthcare Workers Needs and Empowering them during Pandemics

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OPEN ACCESS

Citation: Akintujoye I.A. (2020) Evaluating Healthcare Workers Needs and Empowering them during Pandemics. Open Science Journal 5(3)

Received: 17th May 2020

Accepted: 9th July 2020

Published: 20th July 2020

Funding: The author(s) received no specific funding for this work

Competing Interests: The author has declared that no competing interests exists.

Abstract:

Healthcare workers play an essential and critical role in mitigating the effect of COVID-19 pandemic on the population. In the United States, estimated confirmed cases are over 3million as of July 8, 2020. Healthcare workers have increased risk of infection and, likewise, their close contact. Healthcare workers are the frontline heroes in this battle with their families as collateral damage. During the outbreak, healthcare workers have taken drastic steps to reduce the risk of infecting their family members. Some have moved out of their homes, staying in hotels, in makeshift tents in their garage, or staying with fellow healthcare workers while having decided to stay home not just because they want to get infected but mainly because they do not want to infect their loved ones and families. This paper explains how to encourage health workers to work during a disease outbreak, such as the current coronavirus called COVID-19. It is an eye-opener to what the Government can do to keep health workers encouraged to continue to render services by providing the necessary medical equipment, disposable and non-disposable gears, continuous education on proper hand hygiene, and regular check on the stockpile. The suggestion is for health workers to shower and change into a different cloth when going back home at the end of every shift, and the clothes wore at work will be recycled at the disinfecting unit within the hospital. The hospital should provide scrub that can be recycled. It will reduce the rate at which infection spread out of the hospital.

Keywords: Coronavirus, COVID-19, Disinfecting and recycling work outfit, Healthcare workers.

Introduction

The coronavirus outbreak has left many cities and countries in panic and fear of the unknown, causing damage to our society. Coronavirus, an enveloped, non-segmented, positive-sense single-stranded RNA virus, belongs to the Coronaviridae family and the subfamily Coronavirina [1]. The current strain, coronavirus severe acute respiratory syndrome coronavirus 2 (SAR-CoV-2), was previously named 2019 novel coronavirus (2019-nCoV). It causes the coronavirus disease (COVID-19), which shows more significant health concerns compared to other Coronavirus disease encountered in the last twenty years; which are 2002 Severe Acute respiratory syndrome (SARS), and 2012 (MERS) Middle East respiratory syndrome [1, 2].

Generally, COVID-19 manifests as a respiratory illness that runs its course with no special medical attention. It is more severe in the elderly, and those with underlying chronic medical conditions [4] but less severe in children [2].

In 2003 epidemic, a coronavirus strain; SARS-CoV, affected the highest number of health workers [3], which could be one of the reasons most health workers will prefer to stay off work during an outbreak. They are directly in contact with these patients—enabling them to spread the disease to family and friends quickly. Health workers are essential workers and are needed the most during any outbreak due to increasing patient volume. Having them call off work because they do not want to be infected or spread infection that may subsequently paralyze the healthcare system. This paper describes some of the possible ways to empower and encourage healthcare workers, to alleviate their fears, protect them during outbreaks, and for optimal patient care.

Methodology

Finding information on the best way to resolve the spread of human to human COVID-19 infection was difficult for the research. A systematic review investigated the effect of coronavirus on the healthcare system. The papers reviewed were for SARS-CoV-2, SARS, MERS, and other coronaviruses conditions from COVID-19-specific sources. With no ethical bias, the search cut across all the possible materials on the electronic database as of March 16th, 2020, written in English for comparison in other countries apart from the United States. The searched keywords include COVID-19, coronavirus strains of public importance, protective gear during pandemic/epidemic, prevention and challenges of epidemic/pandemic, and novel coronavirus. Further search includes some information read from other articles such as the history of coronavirus outbreaks.

Thousands of items surfaced during the search since it is a current global health interest topic and included were 24 articles. However, exclusion criteria were; the year research was done (mostly 2019 and 2020), credibility addressed based on authors' background information, validity, previous citations, and if the current article is related to past projects. Also, the review identified articles cited by well-known researchers and those with clear information on the topic of discussion. Most of which had the same conclusions about the mode of transmission and survival of coronavirus strain on surfaces. The most recent details were chosen for this study. The primary database used for review of stockpiles and current disease situation was the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC). Full-text

research articles were from online journals using search engines such as PubMed and Google Scholar. Another source used was the Grand Canyon University library. Professors at the Grand Canyon University consulted during the review of this paper. The major challenge faced was identifying the most accurate information, which depends on the writer and the researcher, and that is addressed by reviewing other articles written by the same author and how well the article is cited. The rationale for selecting these sources was reliability and self-interest based on the topic of study.

Findings

Most data discussed how coronavirus is transmitted and prevented with the history of prior outbreaks of other strains. Some papers identified the fear of getting infected or spreading the infection to loved ones as a primary concern for working during an outbreak. With others expressing a physical, mental and spiritual support of HCW during pandemic has a form of encouragement. Most papers concluded that the health system is not always ready during the outbreak as the stockpiles get exhausted within a few days of an epidemic. Optimal use of protective gear, housing structure review, and continuous education of the HCWs will alleviate the most burden that occurs during the tough times. Randomized trials are needed to establish these suggestions better, but this information may guide further research in the future.

Definitions

Healthcare workers (HCWs) are people who work in health facilities and are in either direct or indirect contact with patients who need any form of health services. The direct HCWs are doctors and nurses; they take a medical history, assess, examine, and diagnose to prevent or treat diseases according to patients' needs [5, 6]. The indirect HCWs are people who attend to other medical services to impact patients without direct contact with them, and they include people in the business arm of the health facility, technicians, helpers, assistants, medical waste, and sharp disposal handlers [5, 6].

An epidemic is a disease that affects a large population within a short period, such as the influenza virus in the United States. An endemic is a disease that is known to occur in a region and found in a certain percentage of people example is malaria in Africa [7]. Pandemic is a terminology used when there is an imminent threat to nations spreading across continents, and an example is a COVID-19 disease [7]. We randomly use these to express the situation of conditions of public health importance.

This pandemic may be different, universal precautions, including proper hand hygiene, reduce the incidence of nosocomial infections in hospitals. HCWs should take necessary precautions when attending to patients and consider the appropriate hand hygiene process, using hand sanitizers with 60% alcohol or at least a 70% alcohol-based wipes to disinfect surfaces such as consulting tables and other commonly used hospital equipment [8]. Above all, washing of hands with soap under running water for 20 seconds will drastically reduce the risk of contracting and spreading the infection [8].

Mode of transmission

As we battle to find a cure or vaccine to combat coronavirus, another strain has developed and has been a treat to humanity. The novel virus can spread in different ways, such as aerosol droplets from human to human, [9, 10] or by touching objects with the viral droplets and then touching the mouth, nose or eye [9, 11]. Reports on how long the virus can survive on different surfaces shows nine days [9, 12]. Also, according to CDC, the virus survival varies for different objects between hours to days [8]. However, suggested recommendations are to disinfect surfaces and environments frequently [8, 13].

Transmission in healthcare facility

High-risk individuals are healthcare workers [14]. Some hospital staff in Wuhan city China were confirmed positive and then spread to other people [15]. Healthcare workers are in direct contact with the patient before the arrival of diagnostic results, making them prone to infection. Those that contacted the virus before leaving the hospital may infect others either at home or at the store before they get home. Individuals in the community may find themselves in contact with someone who arrived from a high-risk region or with someone who unknowingly has direct contact with a person with the virus.

Interventions

To reduce the spread of infection from HCWs to their loved ones and the masses, the Federal Housing Administration may consider incorporating a small room in the garage of every health professional's homes. This room will allow them to take a shower and change into new clothes before entering the main house. The locker room in hospitals is a great idea. However, including a shower room may be considered where HCWs will shower at the end of their shift and changed back into clothes worn before taking over the shift. The work outfit should be recycled within the hospital, though it may increase the medical budget for the year since the hospital will be involved with doing the staff's laundry. However, it will, to some extent, reduce the chances of taking the infection out of the hospital, which might increase the number of morbidity or mortality. We can make this a unit and call it "Breaking the Infection Cycle (BIC)."

While the government considers this idea, health management should emphasize frequent education on hand hygiene to reduce disease spread. If healthcare workers do this routinely, it will become habitual. Therefore, at the onset of pandemic emergencies, infection spread will be limited between HCW, families, and the general population at large. It will encourage HCW to work since they know the necessary measures are in place for them to work without the fear of infecting their loved ones.

During a pandemic, hospitals are short-staffed because some people might not be able to work but putting in place some of these measures will encourage a handful of healthcare workers, which can make a difference in helping during the pandemic. Based on the study conducted among healthcare workers in the New York metropolitan region during an influenza outbreak, among 6,400 healthcare workers in 47 facilities, 48.4% of them were willing to work during Severe Acute

Respiratory Syndrome (SARS) [16]. In order words, only about 3,097 [15] healthcare workers are willing to work during the outbreak. HCW mostly stated fear of getting infected and family members' safety as the reasons for not wanting to work during an outbreak [16]. The healthcare industry is always in need of its workforce, even when there is no outbreak, but then the disease outbreak leads to fewer people working, which makes the need for human resources higher. We need the services of HCW for patient care, therefore, ensuring their safety, spiritual, physical, and mental health is paramount [17]. Fire and hazard control, routinely done in homes and organizations, should also be incorporated in the hospital's days in the month and or years when a random check can be done on all equipment, identifying the role health workers will play at the onset of an outbreak.

There should be plans for places that will function as treatment centers during pandemics. Moving forward, since healthcare management is expensive, the government should make reservations from every fiscal budget that is specific for epidemics to have more funds available to purchase adequate disposables and non-disposable equipment for healthcare workers. Equipment such as mechanical ventilators is essential in the treatment of diseases with airway compromise and should be made available for proper management of the patient.

The epidemic affects not just the individual but can also cripple the whole nation if not properly handled; therefore, continuous education of the society, through all forms of media, governmental and non-governmental organizations, will help to empower the individual. An increase in demand for bed space and considering that some patients were admitted at the hospital before the outbreak may need continuous stay for adequate monitoring. Depending on the medical condition, specific hospital departments may require an extended patient hospital stay depending on the patient's type of disease. Patients with myocardial infarction and cerebral infarction may need more attention and thereby stay longer for rehabilitation [18]— ensuring that the hospital plan for the unseen event by working in collaboration with the government so that more funds are made available to establish care for the current patient and for those yet to come by planning accordingly.

Building more centers and expanding some urgent care centers may be of great benefit because a patient with flu and fever will likely visit urgent care first before going to the hospital. Moreover, there is a very high probability that the patient may have infected the people in urgent care. Some urgent care facilities may be converted to isolation centers during an epidemic to support hospital needs, while other urgent care facilities may continue to meet the general community need. The government may consider building a new structure that will only cater to ICU patients, which will be the largest ICU compared to the one within the hospital setting and increasing the workforce that will cater to people's needs because the bed space is growing, but that does not correlate with the increase in the workforce [19].

Infections such as COVID 19, SARS, Ebola, and MERS, may be severe and require Intensive Care Unit (ICU) management and the use of mechanical ventilators [20]. It is expensive to house excess medical equipment, but it is necessary for patient survival. Despite the full functioning 62,000 ventilators and 8,900 in stock, [21] the current estimated needs of a ventilator in the United States is between 1.4 and 31 patient per ventilator in the treatment of COVID-19 pandemic [22]. Personal protective equipment (PPE) shortage increased as the virus continue to spread. Frontline health workers have limited access to protective gear such as N-95 masks and gowns [23]. Optimization for PPE is the

use of reusable PPE after disinfecting using sterilization technique, and the use of PPE beyond manufacturer instruction for training [24].

As we consider increasing structures and bed space, expanding the workforce is a necessity. Because pandemics are unpredictable, preparing towards it as part of daily life living is essential. Ensuring processes are put in place, such as workflow processes, continuous training, and educating staff on the use of the protective gear, should be emphasized.

Summary

A pandemic may be unavoidable, therefore establishing continuous processes by making emergency medical gear available, including mechanical ventilators, PPE, and all essential amenities, will make healthcare professionals do the needful. Also, provision of hospital-based sterilized re-useable work clothes, installation of a bathroom in the personal house garage to shower on arrival at home, and or at the hospital where they can shower at the end of the shift before heading home should encourage HCW to work.

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