

Health Implication of Coronavirus (COVID-19) on the Health Care Workers in Rivers State

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Abstract

Effects of COVID-19 could reverse progress made in health care system in Rivers State and in the world at large. Its impact could be so severe on health care system if actionable measures are not put in place and adequately funded. Right from the emergence of this virus in the city of Wuhan, China, in December 2019, its impact has greatly placed a heavy demand on humanity. The disease has spread worldwide, leading to a novel pandemic. Rivers State been one of the most populated state in Niger Delta region of Nigeria that felt the impact of this disease more severely. The risk is associated amongst frontline health workers. This study seeks to outline some of the impact that were encountered by the health workers (front liners), which include; psychological effects, emotional impact, High risk of contracting infectious diseases, reduction in provision of personal protective equipment PPE and non-adherence to social distancing, discomfort created as a results of frequent use of PPE, high incidence of fear and anxiety, reduced number of workforce, the need for special attention beyond the routine in terms of resources and procedures, increase in the number of cases and limited carrying capacity of the health system, difficulty maintaining adequate staffing and supporting staff, difficulty maintaining and expanding hospital capacity to treat patients, shortages of critical supplies, materials, and logistic support, anticipated shortages of ventilators, increased costs and decreased revenue, changing and sometimes inconsistent guidance seeking medical care early if you have a fever, cough and difficulty breathing; and staying informed and following advice given by your health-care provider, national and local public health authority, or your employer on how to protect yourself and others from COVID-19

INTRODUCTION

The coronavirus disease of 2019 (COVID-19) pandemic gripped the world with a shock, thereby overwhelming the health system of most nations. The World Health Organization (WHO) declared the novel human coronavirus disease (COVID-19) outbreak, which began in Wuhan, China on December 8, 2019, a Public Health Emergency of International Concern (PHEIC) on January 30, 2020 (WHO, 2020). With over seven million cases globally as of June 7 (2020): United States (over two million cases), Brazil (over 700,000 cases), Russia (over 500,000 cases), and in Africa, South Africa (over 54,000 cases) and Egypt (over 38,000 cases) bear the greater brunt.

Following this WHO declaration, the Coronavirus Preparedness Group was constituted on January 31 in Nigeria (a country with 36 states and a Federal Capital Territory [FCT]). WHO categorized Nigeria as one of the 13 high-risk African countries with respect to the spread of COVID-19. Nigeria is also among the vulnerable African nations, given the weak state of the

healthcare system (Marbot, 2020). In Africa, there are still communities without healthcare facilities, apart from the scarcity of health workers (Amzat, 2011). The projection is that Africa could bear the final burden of the COVID-19 pandemic if the countries do not institute effective measures to combat the pandemic.

Sociologically, the pandemic has caused global social disruption by limiting global social relations. The idea of "social distancing" negates regular social interaction, which is the bedrock of human society (Amzat and Razum, 2014). A contagious disease of global health importance also disrupts the usual norms of close physical contacts since the disease transmits through contact with individuals who already contracted the disease. COVID-19 deglobalizes the world in terms of human migration with airports shut, and social events (sports, festivals and the like) postponed indefinitely. The "stay-at-home" campaign and proscription of (large) social gatherings mean that social interaction has been limited.

Globalization, which signifies compression of time and space, aids the transmission of diseases on a global scale, facilitating the spread of COVID-19. The world has been witnessing global trade, movement of people, and the globalization of health (see Youde, 2020). The global transmission of diseases is one of the dysfunctions or latent functions of globalization, which offers both opportunities and catastrophes. The world is a global village; hence the health of individuals is intrinsically linked irrespective of distance. Beck, (1992), Beck, (1999) and Giddens (2002) introduced the idea of risk society theory. The theory is concerned with the unintended and unforeseen side effects of modern life, which backfire on modernity (itself) (Wimmer and Quandt, 2006). These side effects change human society: a health risk in Wuhan (China) becomes a pandemic, through human migration, affecting all countries of the world, with several thousands of deaths. As the world is being de-territorialized, facilitating trade, communication, and information, it is also prone to (health) risks. Beck (1992) noted that the world reflects the creation of health hazards, which jeopardize human living conditions at a global level.

According to the theory, modern advancements also come with a reproduction of risks: in this case, manufactured risks that lead to the gradual creation of risk society (Giddens, 2002). "Manufactured risks" are exacerbated and controllable by human interventions. A risk society is "a systematic way of dealing with hazards and insecurities induced and introduced by modernization itself" (Beck, 1992:21). For Beck, "risk" is used in the contexts of hazard and vulnerability. The spread of COVID-19 has shown how the world is vulnerable to risks through social connectedness due to advancements in transport technology. This theoretical background about pandemic-induced disruption and risk explains the globalization of COVID-19. It is, therefore, not surprising that COVID-19 has engulfed the world with the resultant socio-medical impairments. Nigeria also faces the growing burden of COVID-19.

The first month of COVID-19 in Nigeria (February 27 - March 27, 2020)

According to the Nigerian Centre for Disease Control (NCDC), the training of the rapid response teams across the 36 states in Nigeria was concluded in December 2019. On January 28, the NCDC further revealed that a Coronavirus Group had been set up to activate its incident system to respond to any emergency. Additionally, the NCDC worked with 22 states in Nigeria to activate their emergency operations centers to manage and link up with the national incidence coordination centers (Ihekweazu, 2020). Although the government had strengthened the surveillance at the airport since January 2020, Nigeria recorded its COVID-19 index case that was imported from Italy, on February 27. This raised concerns about the effectiveness of airport surveillance and, by extension, the country's general preparedness. The index case (an Italian) had visited some other states of the federation before testing positive for COVID-19. The pre-COVID-19 preparedness was grossly inadequate.

Nevertheless, the onset of COVID-19 sent waves of panic across Nigeria, like in every other country. Due to globalization, the health risk of communicable diseases could be pandemic (Martin, 2005, Tausch, 2015). Trade and travels facilitate the flow of people, who incidentally could move, carrying a health risk (in this case: the coronavirus). From one imported index case, many countries (including Nigeria) face tremendous health challenges with multiple cases and deaths. Since the first index case in Nigeria, the number of cases has been increasing (see Table 1), although at a snail pace due to public health interventions.

Table 1

First incidence of Coronavirus outbreak in Nigeria, February 27 - March 27 (first 30 days).		
Total positive cases	81	
Total discharge cases	3	3.7% (of positive cases)
Total deaths	1	1.2% (of positive cases)

Timeline of Coronavirus Outbreak in Nigeria (February 27- June 7, 2020).

Upon the detection of the index case, the NCDC activated a multi-sectorial National Emergency Operations Centre (EOC) to oversee the national response to COVID-19. Subsequently, the Presidential Task Force (PTF) for coronavirus control was inaugurated on March 9, 2020. The PTF announced that travelers from 13 COVID-19 high-risk countries had been restricted from entering the country. The Port Health Services and NCDC monitor the self-isolation of returnees from the affected countries from then onward. The concern from several quarters was that the ban on high-risk countries would have taken immediate effect. By the time the ban took effect, the nation had recorded more imported cases. Unfortunately, most of those who arrived in the country did not comply with the 14 days self-isolation recommended by the NCDC.

The NCDC disclosed that all confirmed cases of COVID-19 in the country between February 27 and March 17 (the first 30 days) were imported by returning travelers. As of March 27, one month after the first case, ten states in Nigeria had 81 clinically confirmed cases. Three patients had fully recovered, and one death was reported. At this time, Lagos State had the highest number of cases (52; 64.2%). By April 5, the number of positive cases had increased exponentially to 232. The death toll had risen to five, and 33 persons had recovered while states with positive cases in Nigeria totaled 14.

Epidemiology of and Early Response to COVID-19 in Nigeria:

Within the first 30 days, the NCDC observed that 70.0% of the individuals tested positive for COVID-19 were male, and 30.0% were female. Their ages ranged between 30 and 60 years. People aged 31-50 years were the most affected (39.0%). About 44.0% (101) of the cases were imported, some 41.0% (96) had incomplete epidemiological information; the sources of their infections were unknown. Thirty-five (15.0%) patients were known contacts of positive cases (NCDC, 2020) -- suggesting community transmission or cross-infection. Lagos State accounted for over 50% of the cases in Nigeria, followed by Abuja (20.3%) and Osun State (8.6%). Common characteristics of Abuja and Lagos include being the sites of major international airports and hubs of commercial and administrative activities in the country.

Similarly, Ejigbo, the epicenter of the infection in Osun State, has many of its indigenous people working in Cote d'Ivoire and other neighboring countries that are already battling with hundreds of COVID-19 cases. When COVID-19 forced some of them to return to Nigeria, many returned positive for COVID-19. From the first index and other imported cases, there has been a continuous spread across other states through inter-state travels.

During the first 30 days of COVID-19 in Nigeria, the disease distribution was elitist. The majority of those who tested positive were returnees from abroad (NCDC, 2020). Air travel is predominantly elitist in Nigeria because of the high rate of poverty. The political elite also bore the early brunt of COVID-19 with three state governors and some political appointees testing positive for COVID-19. Due to the (initial) trend, the initial perception was that COVID-19 was a disease of the elite, who returned from international travels or had contact with the political bourgeoisie. Such perception, which has not dissipated, undermined control efforts. Sooner than expected, there was evidence of community transmission as COVID-19 broke the class boundary. It then became the responsibility of every Nigerian to take preventive responsibility.

COVID-19's mode of transmission is still under scientific investigation; hence, people are advised to observe safety guidelines (such as safe hand washing, social distancing, or staying at home). These behavioral change imperatives transform the nature of social life and realities in Nigeria. The new social normal adversely impacts livelihood and survival chances, amidst grossly inadequate palliatives. Experiences and lessons from the worst-hit countries (e.g., the USA, the UK, Italy, France, and Spain) prove that no country can adequately prepare to contain the COVID-19 pandemic. Globally, only a few countries have achieved generalized testing. In most countries, significant challenges being faced due to the COVID-19 pandemic include inadequate healthcare personnel to manage the patients, insufficient medical resources (especially personal protective equipment [PPE] and ventilators), and inadequate facilities and treatment centers, among others.

Many health experts projected that Africa would face a hard time and struggle to keep the coronavirus outbreak under control once it is confirmed on the continent. The concerns were based on pervasive poverty, weak healthcare systems, and the diseases ravaging most parts of Africa. As of June 7 (2020), no country in Africa was coronavirus-free; the confirmed cases (in Africa) stood at 192,721, with about 5,200 deaths and 85,107 total recoveries (Worldometer, 2020). Generalized testing is a significant measure for detecting cases; unfortunately, universal testing may not be possible in all parts of Africa (including Nigeria) due to inadequate resources. Nevertheless, every imperfect-but-best-possible-effort to stop the infection constitutes marginal gains and a step in the right direction until a cure is discovered.

The African Centre for Disease Control (Africa CDC) trained experts from Nigeria and 15 other African countries on the diagnosis of COVID-19 using Polymerase chain reaction (PCR), between February 6th and 8th (Africa CDC, 2020). Therefore, most tests (In Nigeria) (as of June 7) have been through PCR tests in molecular laboratories, while studies to validate the integrity of the Rapid Diagnostic Test (RDT) kits are ongoing. There are also plans to add Gene-Xpert machines once they are available (NCDC, 2020). Between February 27 and June 7, about 76,802 persons were tested in Nigeria. The number was described as paltry in a country with an estimated 200 million population (Akor et al., 2020). COVID-19 testing is being done in runs; each run takes an average of six to seven h. For each person, the result takes between 20 and 48 hours to be ready. Efforts are being made to reduce the timing to 12 h (Akor et al., 2020). Due to limited testing and treatment resources, the Federal Government (FG) has targeted only those in pressing need of testing. Therefore, those to be tested are the following:

1. Returnees from overseas trips who are symptomatic within 14 days of their arrival (the returnees were advised to self-isolate for 14 days upon return to Nigeria),
2. Persons who had contact with confirmed cases and developed symptoms within 14 days of contact,
3. Those having COVID-19-related symptoms of unknown cause,
4. Persons residing in areas with a moderate or high prevalence of COVID-19.

The number of molecular laboratories with the capacity to test for COVID-19 increased from five to 23 (as of June 7). Currently, private molecular laboratories are not being used for COVID-19 testing in Nigeria. Over three months after the index case was confirmed, more than one-third of the 36 states are without a testing laboratory. Samples are to be sent to Abuja or any of the available molecular laboratories if any case is suspected from the states without testing centers (Michael, 2020). Although there is no cure for the COVID-19 infection, the NCDC revealed that the treatment of COVID-19 patients harmonizes with the guidelines from the African Centers for Disease Control. Additionally, the Federal Government is making efforts to eradicate the virus by directing the Coalition of Epidemic Preparedness Innovation [CEPI] to oversee three agencies (the Nigerian Institute for Medical Research [NIMR], the Nigerian Institute of Pharmaceutical Research and Development [NIPRD], and the National Agency for Food and Drugs Administration and Control [NAFDAC]) that will research and find a cure to the virus (Ifijeh, 2020). NAFDAC has accepted some local herbal remedies for testing.

Treatment of positive patients takes an average of one month. Most of the patients who succumbed to the infection in Nigeria reportedly had severe underlying health conditions, which became complicated by the coronavirus disease (NCDC, 2020). Following international best practices, the NCDC has made a prescription for safe burial practices with minimal risk to the deceased's loved ones. COVID-19 requires competent laboratory diagnosis and stringent care procedures. Therefore, home management by primary caregivers (relatives) should not be an option, although the PTF is considering it due to limited resources and facilities. The virus is highly contagious; hence, it requires PPE, which is even inadequate for those in the front lines. If implemented, the option of home care might lead to an upsurge in the burden of COVID-19 in Nigeria.

The growing burden of COVID-19: The next 60 days (March 28 - June 7, 2020)

The number of new infections has been undulating since the outbreak started in Nigeria the highest number of new cases in the first 100 days was recorded on May 30, when 553 of the total samples tested came back positive. Between March 28 and June 7, the country recorded an upsurge of the total number of confirmed cases there is a positive relationship between the number of cases and the creation of more testing centers. There is an increase in the case fatality rate (CFR) and the number of discharged patients within this period. A walkthrough testing center was opened by the Oyo and Ogun state Governments (Nigerian Tribune, 2020, Editor, 2020). A possible reason for the high number is the stage of infection; the country had reached the phase of community transmission (News Agency of Nigeria, 2020a). Signs of community transmission were first publicized at a press briefing on April 1, and this later became more evident with 203 positive cases whose sources of infection remain indeterminate, according to the NCDC (Oyeleke, 2020).

As of June 7 (2020), only one State out of the 36 and FCT has yet to record any COVID-19 cases. Lagos, Kano, and the FCT have the highest incidence, with 46.2%, 8%, and 7.6%, respectively. Lagos remained the epicenter of Nigeria's COVID-19 crisis. The NCDC noted that a majority (80%) of COVID-19 patients have exhibited mostly mild symptoms, and some made a full recovery. Despite the capacity response, more deaths were recorded as the CFR increased from 1.2% (on March 27) to 3% on April 27, but dropped to 2.8% as of June 7. The case fatality rate from COVID-19 in Nigeria has been described as the highest in West Africa (Sobowale, 2020). Most of the fatalities were recorded among persons with underlying health conditions (NCDC, 2020), predominantly chronic/non-communicable diseases that constitute a public health burden in Nigeria and Africa in general (Okpetu et al., 2018).

Furthermore, 812 healthcare personnel (representing 6.5% of the positive cases) reportedly contracted COVID-19 in Nigeria (Shaban, 2020). Some of these cases were from patients

with a subclinical coronavirus infection who presented in hospitals with other conditions while hiding vital information from health workers (Ayeleso, 2020). A shortage of personal protective equipment at some isolation centers is another reason why some health workers were infected (Adejoro, 2020). An additional contributory factor is the unethical practices by some medical practitioners who run private hospitals in locations such as Lagos. Private hospitals were said to be secretly treating patients, who tested positive for COVID-19, without government approval (Adelakun, 2020). The infection of healthcare personnel in Nigeria has created apprehension and could further strain COVID-19 control efforts in the country. In response to this, the Lagos State Government initiated a telemedicine platform, Eko Telemedicine, to cater to COVID-19-unrelated health problems in the state (Adediran, 2020).

Coronavirus preparedness in Rivers State:

Rivers State Nigeria, COVID-19 response preparedness began inter alia with the designation and equipping of the General Hospital Eleme for the care and treatment of patients suspected and confirmed of having COVID-19 infection. A team of medical doctors, nurses, hygienists, and other technical assistants were employed as health personnel to cater for these patients. These health workers provided the necessary response activities. However, with the increasing number of cases in the State and an obvious increase in workload for healthcare workers at the initial treatment center, there arose the need for expansion of the capacity of the holding area and treatment centers. Thus, more facilities were opened at the Rivers State University Teaching Hospital, University of Port Harcourt Teaching Hospital, General Hospital Bonny, and the Yakubu Gowon Stadium in Port Harcourt. These provided for the needed increase in capacity of the health system to accommodate the rising number of COVID-19 cases in the state and also to ensure delivery of quality healthcare services with positive outcomes aftercare and safety of the patients and healthcare workers. Despite these efforts, the rapidly increasing number of cases has further challenged the carrying capacity of the health system and its ability to cope with the trend. This led to some task shifting, such that health workers were reassigned away from their primary duties in the health facilities to the infectious disease units or epidemic units at the holding and treatment centers. Series of training and retraining sessions were conducted to better equip them and refresh their skills in caring for patients infected with the Coronavirus disease. These changes together with the effects of coping with the new pandemic may affect the confidence and brevity of the frontline healthcare personnel. It is therefore important to gain insights into their experiences to provide the best support they need at this crucial time and to improve on response preparedness for future pandemics. This study seeks to identify and document the experiences of health care workers in Rivers State of Nigeria, who are involved in the management of suspected or confirmed cases of COVID-19 during this Coronavirus pandemic and to make recommendations that will assist healthcare planners in the planning of future pandemics and response activities

Definition of coronavirus

According to Righteous and Chibuzor (2021). Corona-Virus is a communication disease that effect not only the respiratory system but the entire major organs of the body system due to the chemistry chain from the brain to the liver and other part of the body that will experience a similar symptom.

Coronavirus is a type of common virus that infects humans, typically leading to an upper respiratory infection (URI.) Seven different types of human coronavirus have been identified.

Most people will be infected with at least one type of coronavirus in their lifetime. The viruses are spread through the air by coughing and sneezing, close personal contact, touching an object or surface contaminated with the virus and rarely, by fecal contamination. The illness caused by most coronaviruses usually lasts a short time and is characterized by runny nose, sore throat, feeling unwell, cough, and fever.

Examples of human coronaviruses that have been reported to cause severe symptoms include the MERS-CoV (the beta coronavirus that causes Middle East Respiratory Syndrome, or MERS), SARS-CoV (the beta coronavirus that causes severe acute respiratory syndrome, or SARS), and the new 2019 Novel Coronavirus (2019-nCoV) outbreak that began in Wuhan, China. Charles (2021)

This course provides a general introduction to COVID-19 and emerging respiratory viruses and is intended for public health professionals, incident managers and personnel working for the United Nations, international organizations and NGOs.

As the official disease name was established after material creation, any mention of nCoV refers to COVID-19, the infectious disease caused by the most recently discovered coronavirus

Effect of Coronavirus

COVID-19 outbreak has led to an increment of psychological distress levels in the general population. Some contributing risk factors for this increment are the unpredictable nature of the disease, home isolation and confinement, a lack of clarity from leaders regarding the seriousness of the risk, or the emotional contagion between individuals (Huremović, 2019).

Effect of Coronavirus on health workers in Rivers State

1. Psychological effects: This impact has been reported to be especially high in healthcare workers (HCW), who face additional group-specific stressors (Cheng and Li Ping Wah-Pun Sin, 2020; C. Zhang et al., 2020b). Very intense work-related stressors include long working hours, strict instructions and safety measures, a permanent need for concentration and vigilance, reduced social contact, and the performance of tasks which they may not have been prepared for (Vieta et al., 2020).

2. Emotional Impact: The impact experienced by HCW during the COVID-19 pandemic has been significantly associated with depression, stress and anxiety (Elbay et al., 2020; Lai et al., 2020), with anxiety being frequently observed in HCW (Garcia-Iglesias et al., 2020). Recent studies have shown that frontline HCW may be experiencing the highest levels of anxiety (Buselli et al., 2020), because they are usually responsible for the care of patients with COVID-19, and more mentally overwhelmed by the lack of specific treatment guidelines or adequate support (Liu et al., 2020b). A previous study reported that nurses with a higher level of stress were more likely to develop anxiety (Mo et al., 2020) and HCW women seem also to be at higher risk for anxiety (Babore et al., 2020).

3. High risk of infection among the health workers: Risk of infection, inadequate protection, loss of control, lack of experience in managing the disease, overwork, negative feedback from patients, perceived stigma, significant lifestyle changes, quarantine and less family support. (Kang, Hu et al. 2020) (Chong, Wang, Hsieh, et al. 2004) (Maunder 2003). These factors increase the incidence of psychological problems among healthcare workers, such as fear, anxiety, depression and insomnia, which can negatively affect work efficiency and long-term well-being. (Maunder, Balderson et al. 2006) (McAlonan, Lee AM, et al. 2007) During the SARS epidemic, 29%–35% of hospital workers suffered from a high degree of emotional distress. (Maunder 2003) Even several years later, 10% of healthcare workers still reported symptoms of post-traumatic stress (Wu, Fang, Guan, et al. 2009). Individuals who experienced quarantine or worked in wards for patients with infection were two to three times

more likely to have post-traumatic stress symptoms, (Wu, Fang, Guan, et al. . 2009). Although a few studies have investigated the prevalence of psychological problems among healthcare workers during the COVID-19 pandemic, (Lai, and Wang, et al..2020) (Zhang WR, Wang K, Yin L, et al... 2020) no study has investigated the distribution of psychological problems among different groups of healthcare workers.

4. Reduction in provision of personal protective equipment and non-adherence to social distancing: Given this assessment, physicians, nurses and other staff risk their personal health each time they tend to COVID-19 patients and this is made worse by the shortage of PPE (Personal Protective Equipment). Lack of PPE and inadequate social distancing are the two modifiable risk factors that if addressed through the implementation of enforced physical distancing, increasing the availability of PPEs, and proper guidelines would significantly reduce transmission rates and help save lives (CDCP, 2020), (Sen-Crowe and Mark, 2020).

5. Discomfort created as a results of frequent use of PPE: Health workers also reported the experience of excessive sweating with the use of PPE. This corroborates with findings made by Purushothaman, Priyanga, et al (2020), Adewuyi, Fowotade et al (2019) and Lee, Venugopal, et al (2020), who observed similar complaints among their participants. Excessive sweating is therefore one of the challenges to the use of PPE and may occur as a result of thermal stress and the body's regulatory process of maintaining homeostasis and preventing damage to the body due to excessive heat. Impairment of vision was another report made by participants. As they explained, this is due to excess sweat entering the eyes and the formation of fog in the goggle they wear as part of the PPE. A similar experience was reported by more than fifty percent of the participants in a study by Yáñez Benítez Güemes, Aranda (2020). This challenge of impaired visibility from excess sweating and goggle fog formation together with other problems with the use of PPE may affect the delivery of quality health services to the COVID-19 patients and may increase the occurrence of error while providing these services, Loibner, Hagauer, Schwantzer (2019).

6. Incidence of fear and anxiety: The occurrence of fear among health workers in this study is a manifestation of psychosocial stress and this has been known to affect the mental wellbeing of the health workers which can consequently affect the quality of services rendered. Hu, Kong, Li, Han, et al, (2020) and Wang, Liu, Hu, Zhang, et al (2020). This confirms observations of Hu et al in China who identified that about ninety percent of the frontline health workers had fear of becoming infected with COVID-19 Hu, Kong, Li, Han, et al, (2020).

7. Reduced number of workforce: Due to the creation of covid-19 isolation centres, in other to curb the emergence of the coronavirus pandemic. There is a significant reduction in the number of workforce among health workers, as some of the health workers were sent to the various isolation centres.

8. Women may be at risk or exposure due to the occupational sex-segregation: Globally, women make up 70 percent of the health workforce and are more likely to be frontline health workers, especially nurses, midwives and community health workers, (Otu, Ameh, Osifo-Dawodu, Alade, et al 2018). They are also the majority of health facility service-staff – such as cleaners, laundry, catering – and as such they are more likely to be exposed to the virus. In some areas, women have less access to personal protective equipment or correctly sized equipment. Despite these numbers, women are often not reflected in national or global decision-making on the response to COVID-19.

9. The Need for special attention beyond the routine in terms of resources and procedures: It was stationary on the health workers to ensure intensive care on the various patients, the health workers had to give extra attention on the patients even when it was

beyond their routine operation. It was pertinent on them to maintain to follow a standard operating procedure that was introduced at the emergence of the pandemic.

10. Increase in the number of cases and limited carrying capacity of the health system:

The rapidly increasing number of cases and limited carrying capacity of the health system is affecting positive patient outcomes and reducing the confidence and brevity of frontline health workers who are faced with the danger of becoming infected and being a source of spread of the disease. Researchers have observed the sacrifices made by health workers during epidemics even at the cost of their lives, (Maunder 2003). Other researchers have observed that health workers are at a greater risk of psychological distress and contracting the infection during epidemics than the general population.

Other challenges faced by the hospital.

a. Severe Shortages of Testing Supplies and Extended Waits for Results: Hospitals reported that severe shortages of testing supplies and extended waits for test results limited hospitals' ability to monitor the health of patients and staff. Hospitals reported that they were unable to keep up with COVID-19 testing demands because they lacked complete kits and/or the individual components and supplies needed to complete tests. Additionally, hospitals reported frequently waiting 7 days or longer for test results. When patient stays were extended while awaiting test results, this strained bed availability, personal protective equipment (PPE) supplies, and staffing.

b. Widespread Shortages of PPE: Hospitals reported that widespread shortages of PPE put staff and patients at risk. Hospitals reported that heavier use of PPE than normal was contributing to the shortage and that the lack of a robust supply chain was delaying or preventing them from restocking PPE needed to protect staff. Hospitals also expressed uncertainty about availability of PPE from Federal and State sources and noted sharp increases in prices for PPE from some vendors.

c. Difficulty Maintaining Adequate Staffing and Supporting Staff: Hospitals reported that they were not always able to maintain adequate staffing levels or offer staff adequate support. Hospitals reported a shortage of specialized providers needed to meet the anticipated patient surge and raised concerns that staff exposure to the virus may exacerbate staffing shortages and overwork. Hospital administrators also expressed concern that fear and uncertainty were taking an emotional toll on staff, both professionally and personally.

d. Difficulty Maintaining and Expanding Hospital Capacity to Treat Patients: Capacity concerns emerged as hospitals anticipated being overwhelmed if they experienced a surge of patients, who may require special beds and rooms to treat and contain infection. Many hospitals reported that post-acute-care facilities were requiring negative COVID-19 tests before accepting patients discharged from hospitals, meaning that some patients who no longer required acute care were taking up valuable bed space while waiting to be discharged.

e. Shortages of Critical Supplies, Materials, and Logistic Support: Hospitals reported that shortages of critical supplies, materials, and logistic support that accompany more beds affected hospitals' ability to care for patients. Hospitals reported needing items that support a patient room, such as intravenous therapy (IV) poles, medical gas, linens, toilet paper, and food. Others reported shortages of no-touch infrared thermometers, disinfectants, and cleaning supplies. Isolated and smaller hospitals faced special challenges maintaining the supplies they needed and restocking quickly when they ran out of supplies.

f. Anticipated Shortages of Ventilators: Anticipated shortages of ventilators were identified as a big challenge for hospitals. Hospitals reported an uncertain supply of standard, full-feature ventilators and in some cases used alternatives to support patients, including adapting anesthesia machines and using single-use emergency transport ventilators. Hospitals

anticipated that ventilator shortages would pose difficult decisions about ethical allocation and liability, although at the time of our survey no hospital reported limiting ventilator use.

g. Increased Costs and Decreased Revenue: Hospitals described increasing costs and decreasing revenues as a threat to their financial viability. Hospitals reported that ceasing elective procedures and other services decreased revenues at the same time that their costs have increased as they prepare for a potential surge of patients. Many hospitals reported that their cash reserves were quickly depleting, which could disrupt ongoing hospital operations.

h. Changing and Sometimes Inconsistent Guidance: Hospitals reported that changing and sometimes inconsistent guidance from Federal, State, and local authorities posed challenges and confused hospitals and the public. Hospitals reported that it was sometimes difficult to remain current with Centers for Disease Control and Prevention (CDC) guidance and that they received conflicting guidance from different government and medical authorities, including criteria for testing, determining which elective procedures to delay, use of PPE, and getting supplies from the national stockpile. Hospitals also reported concerns that public misinformation has increased hospital workloads (e.g., patients showing up unnecessarily, hospitals needing to do public education) at a critical time.

Advice for the public on Coronavirus

WHO/Europe continues to encourage individuals to take care of their own health and protect others by:

1. washing hands frequently with water and soap or using hand-sanitizing gel;
2. maintaining social distancing (keeping a distance of 1 metre (3 feet) between yourself and anyone who is coughing or sneezing);
3. avoiding touching eyes, nose and mouth;
4. following respiratory hygiene (covering your mouth and nose with your bent elbow or tissue when you cough or sneeze, then disposing of the used tissue immediately);
5. seeking medical care early if you have a fever, cough and difficulty breathing; and
6. staying informed and following advice given by your health-care provider, national and local public health authority, or your employer on how to protect yourself and others from COCOVID-19

Conclusion

Challenges faced by the health workers (front liners) in Rivers State in course of combating the novel pandemic were enormous. The emergence of the pandemic was so sudden, which made so many health fertilities to set up plans on how to curb its effect. In light of the above so many health workers suffered some impact ranging from psychological effect, emotional impact, working in high risk infectious area, reduction in supply of person protective equipment and its discomfort, increased rate of fear and anxiety. There was serious reduction in the number of workforce, sudden need for special attention beyond the normal routine. There was high rate of cases and limited carrying capacity of the health system. Some other numerous challenges presented itself alongside.

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