

## **Medical Practices in Covid-19 Pandemic: An Evaluation of Improved Management**

**Elechi C.E. PhD,**

Department of Human Kinetics, Health and Safety Studies,  
Faculty of Natural and Applied Sciences,  
Ignatius Ajuru University of Education, Rumuolumeni,  
Port Harcourt, Rivers State, Nigeria

**Rorkeek Michael Offiah,**

School of Public Health, Rivers State College of Health Science and Management Technology,  
Port Harcourt, Nigeria

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### **Abstract**

*This work reviewed improved medical practices in Covid-19 pandemic. It focuses on identifying efforts for quick detection of Covid-19 pandemic new cases, assessing its improved management strategies, streamlining the disease prevention protocol and evaluating Siracusa principles as applied in managing public health emergencies. The medical profession management strategies for Covid-19 pandemic include diagnosis, treatment and preventive measures. Non-pharmaceutical measures like physical distancing, hand hygiene, face masks' use, quarantine and isolation of cases were noted to be effective in decreasing the Covid-19 spread. Use of proper personal protective equipment by healthcare providers and of negative pressure rooms due to concern of aerosolization from procedures like non-invasive ventilation and high flow nasal cannula usage reserved for patients with acute respiratory distress syndrome but with adequate precautions are of utmost importance. The present state call for investing in population health, climate change counter-measures, global health surveillance systems and effective research into identifying pathogens, their treatment and prevention and effective health delivery systems in order to avoid the pandemic eroding previous gains in other disease programmes. Collaborative efforts among governments of many nations in provision of covid-19 vaccines to citizens should be sustained. Non-governmental organizations and concerned wealthy private individuals need to assist financially to make Covid-19 vaccines readily available worldwide along with incentives for those taking the jabs. The World Health Organization has to embark on comparative study of the various vaccines to select the best three based on potency and reduced side-effects.*

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**Key words:** *Medical practices, Covid-19 pandemic, management strategies, Siracusa principles*

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## INTRODUCTION

The medical profession is clearly seen as the oldest among the diverse aspects of health care. Surgery at a point in time branch off from it especially from the era of the 'Baba surgeons'. Both fields are more curative or therapeutic than preventive although there is 'Preventive and Social Medicine' branch. These medicine and surgery fields of health care have each since evolved or developed various specialties. Medicine and surgery now have the following specialties: allergy and immunology, anesthesiology, dermatology, diagnostic radiology, emergency medicine, family medicine, internal medicine, medical genetics, neurology, nuclear medicine, obstetrics and gynecology, ophthalmology, pathology, paediatrics, physical medicine and rehabilitation, preventive medicine, psychiatry, radiation oncology, general surgery and urology. Others are nephrology, gastroenterology, endocrinology, cardiology, pulmonology, otolaryngology, rheumatology and orthopedics. There are also infectious disease doctors, and public health is very much aligned with preventive medicine. Some of these still have other units of specialization. (St. George's University Medical School, 2021) The remarkable developments in medicine brought about in the 20th and 21st centuries, especially after World War II, were based on research either in the basic sciences related to medicine or in the clinical field. Advances in the use of radiation, nuclear energy, and space research have played an important part in this progress. Some laypersons often think of research as taking place only in sophisticated laboratories or highly specialized institutions where work is devoted to scientific advances that may or may not be applicable to medical practice. (Walford & Scarborough, 2021)

An occupational disease or illness is any chronic ailment that occurs as a result of work or occupational activity (Browser, 2019). An occupational disease is typically identified when it is shown that it is more prevalent in a given body of workers than in the general population, or in other worker populations. Occupational hazards that are of a traumatic nature (such as falls by roofers) are not considered to be occupational diseases. Under the law of workers' compensation in many jurisdictions, there is a presumption that specific disease are caused by the worker being in the work environment and the burden is on the employer or insurer to show that the disease came about from another cause. Diseases compensated by national workers compensation authorities are often termed occupational diseases. However, many countries do not offer compensations for certain diseases like musculoskeletal disorders caused by work (e.g. in Norway). Therefore, the term 'work-related disease' is utilized to describe diseases of occupational origin. This term, however, would then include both compensable and non-compensable diseases that have occupational origins. (Walford & Scarborough, 2021) There are many occupational diseases (ILO, 2010; Kim & Kang, 2013; Eryomin & Zibarev, 2020).

In course of their work, especially the general medical practitioners, they are often being exposed to certain disease conditions, e.g. emerging diseases. Some of these emerging and re-emerging diseases include the then Spanish influenza, haemorrhagic fevers; recent Ebola, Lassa fever and cholera; and on-going Covid-19 and HIV/AIDS pandemics. Illness caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) was termed Covid-19 by World Health Organization (the acronym derived from "Coronavirus disease 2019). The name was chosen to avoid stigmatizing the virus's origins in terms of populations, geography, or animal association. The name "coronavirus" is derived from Latin *corona*, meaning "crown" or "wreath", itself a borrowing from Greek *κορώνη* *korōnē*, "garland, wreath" (Wang et al, 2020). Recall that a Liberian (Mr. Patrick Taylor) who flew to Nigeria in 2014 to attend an ECOWAS

Conference collapsed, then rushed to a clinic and a Nigeria medical doctor got infected leading to loss of her own life (on 19/08/2014) only to be given a post-humour award by the Nigeria Federal Government as part of compensation. The on-going Covid-19 pandemic has caused the deaths of many medical doctors as key front-liners in battling the emerging health condition. On December 26, 2020, Covid-19 news had it that 20 Nigerian medical doctors die in one week and more than 1000 health workers tested positive for Coronavirus (Bernama Radio-TV, 2020). More than 179,587,904 people worldwide have tested positive. As at June 25, 2021, 3,891,685 people have died worldwide — 602,562 of them in the US. By this date Brazil in her second wave of Covid-19 pandemic has the second highest death toll of 509,282 from 18,243,483 cases of it. By June 24, 2021, India reported 51,667 Covid-19 new cases. Similarly, World Health Organization (WHO) was quoted of having stated that Africa faced fast surging Covid-19 third wave. (Nigerian Vanguard, 2021) Some Nigerian electronic media in late June, 2021 stated that Nigeria and Australia are already in their third wave of Covid-19 pandemic. Consequently, it was stated that up to 2.8 billion vaccine doses have been distributed so far worldwide. This study focuses on Covid-19 pandemic and medical profession. This work purposes to evaluate improved medical practices in Covid-19 pandemic with specific targets:

- 1) To identify efforts for quick detection of new cases of Covid-19 pandemic;
- 2) To assess improved management strategies of Covid-19 pandemic;
- 3) To streamline the Covid-19 pandemic prevention protocol; and
- 4) To evaluate ‘Siracusa Principles’ as applied when managing public health emergencies.

### **Detection of new cases**

Nigeria has been counted as one of the 210 countries affected globally by Covid-19 pandemic as at December 31, 2020. The first case was confirmed in Lagos State on 27 February 2020. This index case was a 44-year-old man, an Italian citizen who returned from Milan, Italy, on 24 February and presented at a health facility on 26 February 2020. Following the confirmation of the index case, 216 people were identified as contacts to be followed up. (Ugbodaga, 2020) The country has continued to experience an increase in the number of cases, which has spread across several states. While majority of the initial cases were imported, most of the new cases have no travel history or contact with such people. This is highly suggestive of ongoing community transmission. Under the current circumstances, the Primary Health Care (PHC) centres remain the most likely port of call for community members who develop symptoms that could be suggestive of Covid-19 (Akande & Akande, 2020). Following the detection of the index case, a multi-sectoral Nigeria Centre for Disease Control (NCDC)-led national emergency operation centre at level 3, the country’s highest level of public health emergency, was activated. This was followed by deployment of rapid response teams with states leading contact tracing and other response activities. The confirmed case was also evacuated to a health facility designated for the treatment of Covid-19. Some countries, e.g. Ghana engaged in multiple screening per test in order to screen large number of her population.

## Management strategies of Covid-19 pandemic

The highly infectious Covid-19 management is hemmed on diagnosis, treatment, and prevention/control although management protocols vary across countries, tailored to the capacity of its health system. For instance, at the peak state of overwhelmed enormous pressure with severe challenge, including a high risk of infection and inadequate protection as well as overwork, frustration and exhaustion among China Hubei Province hospitals and medical workers, Chinese Government and authorities have launched psychological intervention (Guo et al, 2020). Prevention along with development and use of vaccines was the focus of managing this pandemic. In any contagious disease outbreak either as epidemic or pandemic level, the medical profession often targets to achieve herd immunity. Herd immunity (also known as herd effect or community/population/mass immunity) is a form of indirect protection from infectious disease that can occur with some diseases when a sufficient percentage of a population has become immune to an infection, whether through vaccination or previous infections (*Encyclopedia Britannica, 2021*), thereby reducing the likelihood of infection for individuals who lack immunity. (Fine et al, 2011; *Gordis, 2013; The Scientist Magazine, 2021*) Immune individuals are unlikely to contribute to disease transmission, disrupting chains of infection, which stops or slows the spread of disease (*Merrill, 2013*). The greater the proportion of immune individuals in a community, the smaller the probability that non-immune individuals will come into contact with an infectious individual ((Fine et al, 2011).

Individuals can become immune by recovering from an earlier infection or through vaccination (*Merrill, 2013*). Some individuals cannot become immune because of medical conditions, such as an immunodeficiency or immunosuppression, and for this group herd immunity is a crucial method of protection. Once the herd immunity threshold has been reached, disease gradually disappears from a population. (*Oxford Vaccine Group, 2019; Somerville et al, 2012*) This elimination, if achieved worldwide, may result in the permanent reduction in the number of infections to zero, called eradication (*Cliff, 2013*). Herd immunity created via vaccination contributed to the eventual eradication of smallpox in 1977 and has contributed to the reduction of other diseases (*Kim et al, 2011*). Herd immunity applies only to contagious disease, meaning that it is transmitted from one individual to another. Tetanus, for example, is infectious but not contagious, so herd immunity does not apply. (*Oxford Vaccine Group, 2019; Somerville et al, 2012*)

Herd immunity was recognized as a naturally occurring phenomenon in the 1930s when it was observed that after a significant number of children had become immune to measles, the number of new infections temporarily decreased (Kretzschmar et al, 2010). Mass vaccination to induce herd immunity has since become common and proved successful in preventing the spread of many infectious diseases. Opposition to vaccination has posed a challenge to herd immunity, allowing preventable diseases to persist in or return to populations with inadequate vaccination rates. (*Quadri-Sheriff et al, 2012; Dubé et al, 2013; Ropeik, 2013*) The exact herd immunity threshold (HIT) varies depending on the basic reproduction number of the disease. An example of a disease with a high threshold is the measles, with a HIT exceeding 95% (*van-Boven et al. 2010*).

Life will not necessarily return back to normal after complete two time's vaccination because vaccines are not 100 percent fail-proof, and individual vaccination isn't the only part of

the greater community effort to curtail the Covid-19 pandemic (Bahl, 2020). According to Bahl (2020), expert Bernstein had exerted: “Until we have 70 to 80 percent of individuals being vaccinated, there will still be large susceptible populations who are at risk for morbidity and mortality from the virus”. He further reported that people who are immunocompromised, particularly people who have had organ transplants, often don’t produce antibodies after the regular doses of the Covid-19 vaccine adding that ‘new research’ suggests that a third booster dose of an mRNA Covid-19 vaccine could give them more protection. (Wetsman, 2021) He again narrated that the Centers for Disease Control and Prevention’s Advisory Committee on Immunization Practices (ACIP) seemed to think it could be the first to get a booster because they have clear signals that it could help them. “There’s no data to support recommendations for booster doses at this time, except for the caveat in severely immunocompromised hosts who are not able to mount a strong response,” said Sharon Frey, an ACIP member and clinical director of the Center for Vaccine Development at Saint Louis University Medical School. Wetsman (2021) stated that ongoing studies are tracking the durability of Covid-19 vaccine protection, for example, and the CDC (Centre for Disease Control and Prevention) is watching to see if any variants evade the vaccines. ‘Studies will check if people should get a third (or second, in the case of Johnson & Johnson) dose of a Covid-19 vaccine that already exists or a new shot with an updated form of the vaccine that targets specific variants’, he asserted. The ACIP member further stated: “If we start to see an uptick in re-infections for people, or new infections in people who have been vaccinated, that’s our clue that we need to move quickly”. Another ACIP member Helen Talbot, an associate professor of medicine at Vanderbilt University pointed out the main issue that getting unvaccinated people their shots — both in the US and around the world — is a critical way to protect everyone. She thus stated: “Prior to going around giving everyone boosters, we really need to improve the overall vaccination rate”.

The United Kingdom (UK) is facing an alarming escalation of the Covid-19 pandemic with the second wave appearing to be even more infectious variant of SARS-CoV-2 especially as of January 5, 2021; the first wave peaked in April 2020 (Hunter, 2021). Expert Prof. Paul Hunter asserted: “The only sure approach to reduce illness, hospitalisation and deaths is through vaccination.” With the Pfizer vaccine, normally the second dose would be given 21 days or more after the first. For the Oxford/AstraZeneca vaccine, the second dose would usually follow the first after 28 days or more. The current advice in the UK is that in future people should have their second dose 12 weeks after their first, for both the Pfizer and Oxford/AstraZeneca vaccines. However, people who have already gotten an appointment for a second injection sooner than this should still turn up. This depends on the vaccine. For the Pfizer vaccine, the two-dose schedule is 95% effective, but studies have shown that from 12 days after the first shot (so allowing time for it to generate protection) to the timing of the second shot, a single dose is about 85-90% effective. For the Oxford/AstraZeneca vaccine, the full efficacy is about 70% after two standard doses. But with the data currently available, one cannot calculate the efficacy of a single dose of the Oxford/AstraZeneca vaccine. However, it seems that a single injection can reduce the risk of hospitalisation. There is, therefore, good evidence of protection from about 12 days after the first injection for both vaccines proving their potency. (Hunter, 2021) While delayed second dose is unnecessary, the efficacy of the vaccine was actually a bit better in those people who had to wait longer for their second dose for the Oxford/AstraZeneca trials. It is known from immunisations against other infectious diseases that the first, priming doses tend to produce immunological

memory that is well maintained in healthy individuals, meaning that the second, top-up jab is still effective even if given late. That's why vaccine schedules are flexible: if jabs are missed or delayed, medical officers usually only require the schedule to be finished, not restarted. (Hunter, 2021) On whether the Covid-19 vaccine two doses come from the same manufacturer the physicians are in the affirmative, and it is the UK's policy that people should receive the same product for their first and second immunisations. There is the worry over that delaying the second dose until 12 weeks after the first injection will dramatically affect vaccine efficacy for either vaccine, but experts believe it may actually increase efficacy.

On people who were considering becoming pregnant in 2021 waiting for a vaccine was an issue for medical practice to determine. Much of the data collected is still new, and pharmaceutical companies did not specifically include people who were planning on becoming pregnant in their clinical trials. Therefore, there's no human data to suggest vaccine safety in people who are planning to become pregnant. Consequently, there's not a formal recommendation in the United States for families who are looking forward to becoming pregnant. But among participants in phases 2 and 3 clinical trials, and American Committee on Obstetrics and Gynecology (ACOG) stated that several persons have later become pregnant hence being followed up to collect safety outcomes. Advocates in the United States opined that people who are already pregnant to get vaccinated. Conversely, the United Kingdom's "Joint Committee on Vaccination and Immunisation" had warned that "women should be advised not to come forward for vaccination if they may be pregnant or planning a pregnancy within 3 months of the first dose." (Bahl, 2020)

In Singapore, at least 10 of the 26 doctors in Indonesia who died from Covid-19 in June, 2021 had received both doses of the vaccine developed by Sinovac Biotech Ltd, in China (the Sinovac Vaccine). A medical association stated this point raising questions about the Chinese-made shot that is being used in many parts of the developing world. Emont (2021) related that Chinese Covid-19 vaccines offer relatively low levels of protection compared with some of their foreign rivals. Here is why China is joining other countries in considering mixing and matching vaccines as a key to overcoming multiple vaccination challenges at once. Epidemiologists have resolved that there is need to investigate the deaths in order to determine whether factors like poor hospital care or underlying illnesses played a role. The Indonesian Medical Association's Covid-19 mitigation group is still working to verify the vaccination status of the 16 others, said Dr. Adib Khumaidi, who leads the group. According to the group's latest figures, over a five-month period, at least 20 doctors who were fully inoculated with Sinovac's vaccine died from Covid-19, accounting for more than a fifth of total fatalities among doctors during that time span. They also said more data is needed, including on how many vaccinated doctors overall were infected with Covid-19, which Indonesia's Health Ministry said it was not tracking. Around 90% of Indonesian doctors—roughly 160,000 in all—have been vaccinated with Sinovac's shot, according to the medical association, so the vaccinated doctors who died are only a tiny percentage of the total. (Emont, 2021)

On diagnosis of the highly infectious Covid-19, SARS-CoV-2 mode of transmission is considered as being disseminated by contact and by air droplets. Droplets can remain suspended in the air and travel distances beyond six feet. Average incubation period is 5 days although symptoms can appear within 2-14 days after exposure to the virus. Symptoms have been classified into minor symptoms --- fever, dry cough, nausea and tiredness; mild symptoms --- aches and pains including headache, sore throat, myalgia, malaise, conjunctivitis, runny nose

with loss of taste or smell and a rash on skin, or discolouration of fingers or toes; and major symptoms --- difficulty breathing or shortness of breath, chest pain or pressure and loss of speech or movement. A person is diagnosed to have Coronavirus if he had face-to-face contact with a probable confirmed case within one metre and for more than 15 minutes, had direct contact with a probable or confirmed case, directly cared for a client with probable or confirmed Covid-19 disease without the use of proper protective equipment and has laboratory confirmation of Covid-19 infection with or without signs and symptoms. The susceptible population involves the elderly and people with certain underlying medical conditions, which require more attention and care. (WHO, 2020a & b; Wang et al, 2020)

The diagnostic tests to be carried out include molecular test, serology/antibody tests, and other laboratory tests -- white blood cell count (WBC), liver enzymes, lactate dehydrogenase (LDH)) and imaging including chest x-ray examination, chest computed tomography (CT) and lung ultrasound (Gordon et al, 2020). Polymerase chain reaction (PCR) for Covid-19 as the diagnostic molecular test is often ultimately done. This is the same type of test that was used to detect severe acute respiratory syndrome (SARS) when it first appeared in 2002. Doctor may also order a chest CT scan to help diagnose Covid-19 or get a clearer view of how and where the virus has spread. Early detection of myocardial involvement through the measurement of troponin and beta-natriuretic peptide concentrations and echocardiography are applied. To collect a sample for this test a healthcare provider will likely perform one of the following: Swab your nose or the back of your throat, aspirate fluid from your lower respiratory tract and take a saliva or stool sample. Test results are positive if both genes are found, inconclusive if only one gene is found and negative if neither gene is found; extent of SARS CoV-2 dissemination is affirmed from chest CT scan.

Treatment of Covid-19 is based on the client's clinical condition but supportive care for infected persons can be highly effective. A conservative or de-resuscitative fluid strategy with early use of vasopressors and inotropes are recommended. There is no cure but drugs are in development which targets these proteins and the different steps of viral replication. If you have mild symptoms and are otherwise healthy, self-isolate and contact your medical provider or a Covid-19 information line for advice. Symptoms of Covid-19 usually go away on their own but if symptoms feel worse than a common cold (having fever), cough or there is breathing difficulty, seek immediate health care by contacting your doctor. The doctor may prescribe pain or fever medication and/or refer you. Try depending on drugs prescribed by your doctor and purchased from a legitimate source but do not take any form of chloroquine or other medicines. You may be counselled on rest in a separate room from other family members, if you feel sick; drinking plenty of fluid; and maintain eating nutritious food (healthy diet). The general principles of management include

- ventilators usage --- use of supplemental oxygen in hospitalized patients, non-invasive ventilation and continuous positive airway pressure as well as intubation and protective mechanical ventilation;
- conservative use of fluids, e.g. drinking lots of fluids by patients who can tolerate it;
- empiric antibiotics supporting treatment, including chloroquine and hydroxychloroquine (HCQ); antivirals such as remdesivir, baricitinib, lopinavir-ritonavir, favipiravir, tocilizumab, etc. HCQ use is gradually reducing;

- use of cough syrup, intravenous immunoglobulin, convalescent plasma (CP), and traditional Chinese medicine; and
- close monitoring of vital signs. (Laurent, 2020)

Prone ventilation is suggested for patients with refractory hypoxiemia due to progressive Covid-19 pneumonia. Mass testing of recovered patients who meet above criteria can provide an efficacious treatment source for Covid-19 patient. (Laurent, 2020; Hui et al, 2019)

### **Covid-19 pandemic prevention protocol**

Media partnerships with authorized organisations that regularly convey culturally appropriate, simple and concise messages on the situation of the pandemic with other preventive measures are worthwhile. Quarantine is the separation or limitation of activities of apparently healthy individuals who may have been exposed to a disease. Therefore, contacts of those who test positive are advised to self-quarantine at home. Quarantine aims to monitor symptoms and ensure early detection of the disease. Once an epidemic is in the community transmission phase, the combination of isolating infected individuals and quarantining their contacts, workplace distancing and school closure have been found to significantly reduce the number of Covid-19 infections (NPHCDA, 2020). See the streamlined preventive measures:

- Wash hands often and thoroughly with soap and water or use (clean/rub them with) an alcohol-based sanitizer
- Wear a mask to cover your mouth and nose when in a public settings or around others (when physical distancing is not possible)
- Practice social distancing by maintaining at least six feet distance between you and people coughing or sneezing
- Practice physical distancing by avoiding unnecessary travel or when there is no pressing need to go out in order to stay away from large groups of people (not gathering in groups and avoiding crowded places or mass gatherings)
- Stay home if you feel unwell
- Avoid people that are sick
- Avoid touching (do not touch) your face (eyes, nose or mouth)
- Cover your mouth and nose when coughing or sneezing with a tissue paper and dispose tissue properly after use
- Do not cough or sneeze into your hands but to your bent-elbow when tissue is not available
- Seek regular updates
- Refrain from smoking and other activities that weaken the lungs
- Clean and disinfect frequently touched surfaces
- Everyone should keep a healthy lifestyle at home
- Stay active and make social contact with loved ones through the phone or internet, like children need extra love and attention from adults during difficult times
- Keep to regular routines and schedules as much as possible (European Centre for Disease Prevention and Control, ECDC, 2020; NCDC, 2021)

### **Considering ‘Siracusa Principles’ for application in managing public health emergencies**



The World Health Organization (WHO) had described the Covid-19 pandemic as a public health challenge, even as an emergency. As of July 4, 2021 in Nigeria, confirmed cases of Covid-19 were 167803 out of which 1304 were active cases, 164378 discharged ones but with 2121 deaths (NCDC, 2021). Under the International Covenant on Civil and Political Rights (ICCPR), states may restrict certain rights during public emergencies that threaten the life of the nation to the extent that they are “strictly required by the exigencies of the situation.” (Sun, 2020) Covid-19 can be a fatal disease without known methods of prevention and treatment. In this condition, how states may restrict rights to try to control the pandemic became essential. The “Siracusa Principles” are a foundation on which to build especially in emergencies state restrictions on rights. These are only justified when they support a legitimate aim and are: provided for by law, strictly necessary, proportionate, of limited duration, and subject to review against abusive applications. (International Commission of Jurists, 1985) States’ measures must also be evidence-based and neither arbitrary nor discriminatory. Any curtailment of rights must consider the disproportionate impact on specific populations or marginalized groups. These principles are meant to apply broadly to all public emergencies but they are difficult to operationalize in public health crises. This is especially true because public health crises are diverse: the dynamics of transmission, the severity of illness, the availability of treatment, and control measures all vary immensely. For new disease outbreaks, uncertainty around all these factors makes assessing the degree to which responses are evidence-based or arbitrary extremely challenging. (Sun, 2020)

Recognizing this gap, some global institutions—including UNAIDS and the Global Fund—have issued guidance on human rights and Covid-19. (UNAIDS, 2020; Global Fund, 2020; WHO, 2020c) While these documents are useful in highlighting key human rights concerns, overall legal guidance on human rights is needed from the authoritative body on the interpretation of the ICCPR: the Human Rights Committee. Through its general comments, the Human Rights Committee provides useful guidance on how states can craft rights-aligned laws, policies, and practices. To date, however, its general comments have not specifically addressed rights restrictions in public health emergencies. (UN Human Rights Committee, 1999, 2001 & 2014) Other aspects not regularly applied include ‘Freedom of Movement’, and ‘Liberty and Security of Person’. The Covid-19 pandemic highlights a longstanding need for specific guidance on rights derogations related to public health issues. (Todrys et al, 2013; Amon et al, 2009) Key topics for this general comment may include the necessity and proportionality of state responses and the misuse of emergency powers during the pandemic. At the peak of Covid-19 an estimated 2.6 billion world’s population had experienced some form of broad quarantine and social distancing measures, simply known as “lockdowns (van-Hoof, 2020). These measures cover specific areas (e.g. parts of a city, local government areas and states), regions, provinces or entire nations. The measures also range in severity, with some countries allowing for essential activities regardless of distance or time, while others dictate specific travel limits and apply curfews. Positively diagnosed person with Covid-19 were ordered to stay in isolation but sad to note that many countries were/are turning to criminal penalties to enforce compliance with public health measures, including criminalization of Covid-19 exposure and transmission (Sun & Zilli, 2020).

When states enact public health measures that restrict rights, they must nevertheless meet certain core human rights obligations. These include must-met people’s basic needs like provision of food, water, sanitation, and shelter as well as guard against disproportionately harsh

impacts on, or application to, marginalized communities. Furthermore, people who suffer economic losses due to public health measures are entitled to fair compensation. (Sun, 2020; WHO, 2016; WHO, 2020c) It is essential that all these measures be remedied and reviewed. Similarly, during and after the acute phase of a crisis, there should be analysis and discussion to ensure that public health measures were evidence-based, proportionate, and necessary based on the available science, public health concerns, and human rights norms. (Sun, 2020)

### **Conclusion**

The Covid-19 condition caused by a novel Coronavirus which started in China has now spread rapidly globally changing the world rhythm. It is a threat of emerging and re-emerging infectious diseases. The Covid-19 pandemic has presented to us need for humanitarianism either as a country or mutilated levels and how the solidity of international relations was challenged. In the face of this pandemic, the rapid development, production and deployment of diagnostic tools, drugs and vaccines are critical. Scientific advancements since the SARS and MERS diseases have accelerated our understanding of the epidemiology, pathogenesis, and diagnosis of SARS-CoV-2 pandemic, as well as the development of therapies to treat the viral infection. The medical profession needs not lose guard in the face of emerging and re-emerging diseases.

### **Recommendations**

The following recommendations would go a long way to reducing the spread and management burden of Covid-19.

1. Preventive protocols as directed by World Health Organization (WHO) and different countries' ministries of health should be observed by the subjects of those nations.
2. Rigorous and adequate clinical trial for drug safety and effectiveness in randomized, controlled trials need be embarked upon by the ministries of health and WHO.
3. The World Health Assembly must carry out a comprehensive evaluation of the world's ability to maintain stability when faced with similar challenges in the future.
4. All nations through their health agencies must also craft measures to cope with the challenges brought on mankind together.
5. Collaborative efforts of governments, non-governmental organizations and concerned private, wealthy individuals financially to make Covid-19 vaccines readily available worldwide along with incentives for those taking the jobs.
6. The World Health Organization has to embark on comparative study of the various vaccines to select the best three based on potency and reduced side-effects.

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