**COVID-19 in Africa: A comment from the frontline in South Africa on the management of high-risk and severely ill COVID-19 patients**

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**Abstract**

**Background**:

The current global pandemic of the Coronavirus Disease 2019 (COVID-19) and epidemics in various countries, especially in the African continent, poses a great danger to populations and health care workers. It also has disrupted normal lives of all whilst at the same time inflicting great losses of life amongst health care professionals. This situation demands statements from frontline workers, especially Primary Health Care staff from porters and cleaners to professors. The Primary Health Care approach remains a very important factor if we are to stop this epidemic and prevent deaths from devastating the continent and the entire world.

**Methods**:

This statement is based on review of reports and journals and discussions with fellow medical practitioners. Parts of this statement are based on own practical experience without any rigorous research or scientific evidence.

**Results**:

A short statement is presented here to initiate discussions amongst Primary Health Care practitioners. It includes ensuring the prevention of spread of identified infections and minimizing deaths as the foundation of strategy followed by practical steps of protecting medical personnel and healthy patients from infection, definitive diagnosis, inserting practitioners into the body of contact tracing teams, supportive treatment and transfer of critically ill patients to appropriate facilities, following up on the management of own patients and post-discharge management and support which include psychosocial or mental and social care.

**Conclusion**:

The COVID-19 pandemic is still spreading in South Africa and on the African continent with devastating death toll in communities and amongst health care workers, especially medical and nursing personnel. The pandemic is still affecting many countries such as the USA and countries of South America very adversely. There is no cure for COVID-19. Therefore, the medical profession must emphasize the need for all to master Basics of Control of Communicable Diseases with great emphasis on good infection control to stop all identified infections and minimize deaths. Those who are caring for high risk and the severely ill must prioritize isolation of the infected, quarantine of contacts with supportive treatment of the ill and regular dynamic monitoring to allow the body to heal itself with the minimum of invasive procedures. It is also imperative that patients be well-cared for and supported in the post-recovery period

**Keywords**: COVID-19, Primary health care approach, comment

**Introduction**

It is now eight months since the world was made aware of the outbreak of the epidemic caused by the SARS CoV2 in Wuhan in the Hubei Province of China and six months that the pandemic has taken root in Africa. It on this score that I state that the medical fraternity is still learning about this virus and the disease that it causes, namely the Coronavirus disease 2019 (COVID-2019). We therefore have no experts on this disease but we are all learning as we fight the anti-COVID-19 war on all fronts.

**Background**

The first case of COVID-19 in China was traced back to 17 November 2019. In Africa, the first recorded case was on 14 February in Egypt and South Africa’s first case was on 5 March 2020 imported from Italy.

On 14 March 2020 there were 129 303 total confirmed cases diagnosed globally, 67 790 in mainland China, 1678 in the USA, 152 in Africa and 17 in South Africa. Yesterday on 14 August these cases are 20 730 456 globally, 89 625 in mainland China, 5 150 407 in the USA, 925 297 in Africa and 579 140 in South Africa. It will be very interesting to analyse and understand regional or provincial variations in various countries, especially if the analysis is expressed scientifically as incidence of cases per 100 000 population as compared and contrasted to absolute numbers.

A meeting that I attended on 4 February 2020 to discuss the COVID-19 China epidemic that was fast being transformed into a global pandemic mainly through the evacuation of infected patients from China, especially the Hubei Province, in complete violation of fundamentals of Public Health, two matters were very clear. Firstly, that we have to prepare ourselves from imported cases that were going to result from the explosion of COVID-19 from countries such as France, Russia and the USA; and secondly, that we must be fully prepared for the local epidemic that was going to be a reality if we fail to master Basics of Control of Communicable Diseases and also fail to prepare our epidemiological response which included clinics, hospitals and laboratories in the public and private sector.

The initial spread of COVID-19 in South Africa was in affluent communities, mainly those with very strong links with the USA and Europe. The catastrophic spread into various communities was occasioned mainly by the failure of health authorities to isolate all the infected and trace all contacts within forty-eight (48) hours of diagnosis of the disease in specific patients.

The failure of the Western Cape Provincial Health Authorities to contain and control patients, contacts and the environment on the 28 March 2020 when there was only one (1) patient in Khayelitsha and five (5) in Mitchell’s Plain is a case in point. Failure to act on time, the decision to refer the patient to the Khayelitsha Hospital instead of Tygerberg and the speedy discharge of the patient back into Khayelitsha for self-isolation in a shanty or backroom lead to community spread that lit the fuse of the inferno of infections in the Cape Peninsula and subsequently in the Eastern Cape and thereafter to mining communities of the North West Province and Limpopo and highly industrial areas of Gauteng.

The consequence of failure to contain and control the spread of COVID-19 as detailed above is now history including the ongoing long list of the dead from communities and amongst nurses and doctors, in the Western Cape and the rest of the country. This province of South Africa still has the highest incidence of COVID-19, which is 1534.17 confirmed cases per 100 000 population as compared to other provinces of South Africa, viz. Gauteng at 1342.23, the Eastern Cape at 1278.18, and the Free State at 1045.02 and KwaZulu-Natal at 911.26 cases per 100 000 population. These figures reflect correctly the state of the nation with the Western Cape as the worst affected province.

Dr Matshidiso Moeti, WHO regional director for Africa, is quoted as having said yesterday that South Africa is the most affected country in the African region, accounting for more than 60% of all deaths and cases on the continent. That is most probably reflected in infections and deaths amongst health care workers, especially doctors and nurses on the frontline.

**Areas of focus**

*Definition of high-risk and severely ill patients*:

The CDC lists the following as people who are at high risk of severe illness from COVID-19: cancer, chronic kidney disease, chronic obstructive pulmonary disease (COPD), immunocompromised state or weakened immune system from solid organ transplant, obesity with body mass index [BMI] of 30 or higher, serious heart conditions such as heart failure, coronary artery disease, or cardiomyopathies; sickle cell disease and Type 2 diabetes mellitus.

The following are listed as those who might be at high risk of illness from COVID-19: might be at an increased risk for severe illness from COVID-19: moderate-to-severe asthma, cerebrovascular disease, cystic fibrosis, hypertension or high blood pressure, immunocompromised state or weakened immune system from blood or bone marrow transplant, immune deficiencies, HIV, use of corticosteroids, or use of other immune weakening medicines; neurologic conditions, such as dementia, liver disease, pregnancy, pulmonary fibrosis, smoking, thalassemia and Type 1 diabetes mellitus.

In South Africa, initial perspective and assumption was that COVID-19 would infect much more those patients with HIV and TB. This is not the case. My assumption, which I have shared with colleagues, is that it is highly probable that those who are on antiretroviral therapy might be protected against COVID-19 because of the inability of COVID-19 to replicate as a result of the said drugs. This is a matter that needs research and further interrogation.

*Definition of “A patient who has recovered from COVID-19”*

In South Africa, the definition of *“A patient who has recovered from COVID-19”* is defined differently for epidemiological/ surveillance purposes, for clinical management and for occupational health purposes, that is employees who are confirmed as COVID-19 cases before they can return to work. This practice or act coupled with the directive that “PCR testing is not required for return to work” is open to scientific scrutiny as it poses the risk of confusing health practitioners and allowing infectious patients to be discharged from hospital into communities and work places thereby spreading the disease.

*The prevention and control of infections at the point of first contact*

There is very little that has been written on prevention and control of infections at rural health posts and in local health clinics, medical practices run by General Practitioners and hospital casualty wards. These are the first points of contact which are staffed by nurses, doctors and support staff.

The CDC summarises steps and measures that must be in place to prevent the control of infections at the point of first contact by stating the following:

*“Infection prevention must be made a priority in any setting where healthcare is delivered. Those with primary administrative oversight of the outpatient facility must ensure that sufficient fiscal and human resources are available to develop and maintain infection prevention and occupational health programs. This includes the availability of sufficient and appropriate equipment and supplies necessary for the consistent observation of Standard Precautions, including hand hygiene products, injection equipment, and personal protective equipment e.g. gloves, gowns, face and eye protection”.*

*Diagnostic strategy and capacity*

As late as June and July of this year, many a country publicly acceded to the fact that it had neither a solid strategy nor capacity to test for COVID-19 despite having stated in March that it was ready for the epidemic. South Africa was no exception. Despite assurances given to the Ministry of Health and health authorities by the private and public health sector, the lack of strategy and capacity was glaring, especially non-availability of personal protection equipment and laboratory testing essentials.

Interestingly, some of the decisions that were taken about care of patients, health workers and patients were based on the availability of resources and not Public Health principles, for example the lack of capacity to diagnose COVID-19 in the laboratory influenced the choice of clinical protocols. Examples of those are that laboratories issued notices that stated that asymptomatic patients must not be tested, only the sick must be tested and that those who spent fourteen days in isolation must not be subjected to further COVID-19 PCR Test to guide decisions of clinicians at the time of their discharge from hospital.

*Therapeutic management*

There is no specific treatment for COVID-19 and as such treatment is mainly supportive. Post-consultation at a Primary Health Care facility, the patient must be transported in a very safe and comfortable way to the hospital or isolation centre.

People who are regarded as high risk must adhere to their treatment.

*Management of patient post-discharge from hospital or isolation centres*.

Ensure that every local community has a strong case detection and post-elimination surveillance system based on local programmes and national protocols that inform and are in line with those of the WHO.

Steps must be taken and protocols must be in place to ensure that there is very high vigilance for those identified as high-risk patients and also for the elderly in the community and old age homes. Where possible registers of the vulnerable must be put in place.

**Discussion**

The medical profession is in the process of amassing knowledge about SARS CoV2. We do not have what one could refer to as expertise about COVID-19 except the knowledge that we have amassed since the outbreak in November-December 2019. We also know that this corona virus is highly virulent and deadly. Therefore, the best is to stay away from the germs that cause this disease, COVID-19, as the medical profession manages the pandemic and conducts relevant research to increases its knowledge and expertise about the disease.

COVID-19 is a viral disease like most others such as SARS, MERS and Ebola. It obeys normal immunological laws. It therefore has to be combatted with great care with that knowledge in mind.

Unless we all anchor our battles against COVID-19 on the Primary Health Care approach, apply fundamentals of Public Health and master Basics of Control of Communicable Diseases with active involvement of local communities, we will not win the war against any disease or epidemic or pandemic including the current war against COVID-19 in our countries, our continent Africa and the globalized world.

The main aim of prevention and control of communicable diseases, many of which are deadly, is to halt the occurrence and/or spread of identified infections and to minimize deaths. It involves the three interrelated processes of bioexclusion, surveillance, and biocontainment ... It involves the development and implementation of a stringent biosecurity plan which comprises a hierarchy of components directed at preventing or limiting the risk and consequence of disease.” It is never designed to let the deadly disease run its course through vulnerable communities.

Frontline workers play the most important role in the early detection of infection; control of patients, contacts and the environment through isolation and quarantine in hospitals and the protection of the environment from contamination by COVID-19. Notification of cases of COVID-19 by Primary Health Care workers is a universally accepted practice. Physicians and health care providers are legally required to report suspected, lab-confirmed, and clinical diagnoses of specific diseases and conditions within specified time to local, provincial and national health authorities and to the patient’s county of residence. This facilitate effective institution of international control measures.

The above plus other infection control measures such as hand washing, social distancing and the wearing of effective protective masks are the mainstay of Basics of Control of Communicable Diseases.

COVID-19 is a disease that shares very important common factors with SARS and MERS. Previous studies on these two viruses are an important scientific legacy that could allow us to gain valuable time during this public health emergency.

In South Africa as the most common mode of transmission or spread of SARS-CoV-2 and the illnesses it causes which is COVID-19 is community transmission, all South Africans are regarded as at risk of infection, severe illness and mortality associated with COVID-19. Other risk factors areas of the country where local transmission of the virus may be occurring at higher rates such as the Western Cape, the Eastern Cape and Gauteng; contacts of a confirmed case of COVID-19, healthcare workers, the elderly and individuals with co-morbidities, such as heart disease, high blood pressure, chronic respiratory diseases, cancer patients, endocrine diseases such as diabetes, have been found to be at a higher risk.

Globally males, advanced age, hypertension patients, diabetes mellitus patients, and patients located in America are some of the independent risk factors of death among COVID-19 patients. Extra attention is required to be given to these factors and additional studies on the underlying mechanisms of these effects.

Health workers, especially doctors, nurses and community health workers must, in their management of every patient suspected of infection with COVID-19, practice meticulous infection control. In my own daily practice, I avoid taking specimens in my consulting rooms and send patients to appropriately equipped laboratories to have specimens taken. This might be very difficult to do in shanty towns and rural villages with no hospitals and laboratory facilities.

Patients with HIV and SARS-CoV-2 infection are not at greater risk of severe disease or death than patients without HIV. However, the observed more favourable outcomes need to be confirmed in larger-cohort studies.

Compared with patients who are HIV-negative, those with HIV with SARS-CoV-2 infection may not be at a greater risk for severe disease or death.

The assertion that is being made by Claire Keene, Erika Mohr-Holland et al in The Lancet: Respiratory Medicine that *“... the health impact of COVID-19 is likely to be far more substantial and long-lasting in countries with high incidences of tuberculosis and HIV2 than in those with low incidences ...”* deserves interrogation and validation through research. One of the main reasons for that is the fact that there is anecdotal evidence that patients that are on antiretroviral therapy are not at a higher risk of infection, severe illness and mortality associated with COVID-19. I suspect that antiretrovirals prevent the replication of the SARS CoV2 at the RNA-DNA interphase thereby preventing the infection from taking root.

Irrespective of the views of some experts and various programmes that are instituted to fight the COVID-19 war, the fundamental aim of this war and programmes against any epidemic must always be the elimination of the offending microorganism or the prevention of its spread and the minimization of deaths of those affected by the disease.

*Transportation of COVID-19 patient*

COVID-19 is a highly contagious, potentially lethal disease caused by SARS-CoV-2, especially in older patients. COVID-19 patients from non-designated hospitals, isolation sites, or fever clinics should be transferred to designated hospitals for further treatment. Critically ill patients should be transferred from general wards to ICU for critical care. Thus, adequate preparation should be made to ensure the safety of patients and transport staff, as well as public health before, during, and after transportation.

Physicians must also ensure that all patients receive adequate psychological care, sleep, pain relief. Agitation and delirium are usually experienced by patients who have more severe and critical condition caused by COVID‑19.

**Recommendations**

The following are recommendations that I am advancing to fellow health professionals and workers as we continue with our war against COVID-19 in our respective countries and globally:

1. The approach to any epidemic and the COVID-19 global pandemic must be based on Primary Health Care principles and fundamentals of Public Health.
2. Those who assess the rate of spread of infection must not only use absolute figures but consider also the incidence of the disease in various localities per 100 000 for better appreciation of the gravity of the disease.
3. The definition of high-risk and severely ill patients must be standardized to assist health professionals, various sectors such as education, the economic sector and communities to appreciate strategies that are being followed to combat diseases such as COVID-19.
4. The definition of *“A patient who has recovered from COVID-19”* must also be standardized across countries for ease of work and collaboration.
5. The prevention and control of infections at the point of first contact is most critical. It is key to reducing the numbers the number of severely ill patients,
6. Countries that are faced with the threat of infectious disease or epidemic must have a solid but simple diagnostic strategy and the capacity anchored on Primary Health Care principles and designed plus accepted by all frontline health workers.
7. There is neither a vaccine nor specific therapy or treatment for COVID-19. As a result, treatment is mainly supportive. Post-consultation at a Primary Health Care facility, the patient must be transported in a very safe and comfortable way to the hospital or isolation centre.
8. The management of patient post-discharge from hospital or isolation centres is very important for full recovery post-COVID-19.

Conclusion

* With the wisdom of hindsight, let me state here that it would have been and will always be more cost-effective and sustainable if responses to deadly epidemics are based on the Primary Health Care approach where the mastery of Public Health principles are the first prize.
* Health resources, infrastructure and health systems must be left relatively intact and health care services not disrupted but augmented and strengthened.
* Permanent infrastructure is strengthened with temporary rapid modular hospital that could be removed immediately when the epidemic subsided. China has shown the world how that is done

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