



## REVIEW ARTICLE

# Proper Handling of a Covid-19 Dead Body: tapping from the Good Practices and Lessons Learnt from Ebola Outbreaks in Africa.

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### Abstract

**Objective:** The numbers of deaths that have been projected for Africa are expected to be high due to several decades of neglect of the health systems and the current overwhelming of the fragile health systems in most nations in Africa by COVID-19 Pandemic. There is therefore great need to plan and prepare for these mass deaths to help lower the pain that families and by extension the community will experience, if this high death rate eventually occurred in the continent. Countries like South Africa, Djibouti, Sao Tome and Principe already recording higher cumulative COVID-19 cases and about eleven countries namely Chad, Sudan, Liberia, Niger, Egypt, Mali, Burkina Faso, Algeria, Sierra Leone, Angola and Tanzania are reporting case fatality rate comparable to or higher than the global case fatality rate of 4% for COVID-19. Although, World Health Organization (WHO) has categorically stated that Severe Acute Respiratory Coronavirus 2 (SARS-COV-2) is not transmitted from the COVID-19 dead bodies to the living. There is need for caution because this is a new virus with so many unknown biologic behaviour. It might be too early to make such statement as few countries recently reported a possible risk of transmission from COVID-19 dead bodies to the living during handling. It is therefore, very imperative that the lessons learnt from the various Ebola outbreaks in Africa especially, the handling of dead bodies of Ebola victims should be applied in overcoming the unforeseen risks during this current COVID-19 Pandemic in Africa, through proper preparation, planning and proper handling so that the dignity of the deceased victims of COVID-19 and their surviving families are respected.

Keywords: Proper Handling, COVID-19 Dead body, Lessons Learnt.

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## 1 | PREAMBLE

The concern on how the mass deaths should be handled and buried during epidemic or pandemic dated back to over 5000 years, when an epidemic wiped out an entire village in China. <sup>(1)</sup> All age groups were victims of this very deadly epidemic and unfortunately the bodies of the dead were stuffed inside a house heralding the origin of mass burial in history. The house was later burnt down and the site converted to an archaeological site which is now called "Hamin Mangha". <sup>(1)</sup> The major discovery at this site by Archaeologists was that the epidemic occurred so rapidly that there was no enough time to conduct proper burials for the deceased during the epidemic. This prehistoric epidemic is known as circa and is the oldest and most ancient in history.

The past three decades in Africa have witnessed a sharp increase in mass deaths mostly from man-made or unnatural causes such as wars due to political instability in some countries mostly in the Central, West and East Africa. <sup>(2)</sup> several outbreaks of religious conflicts between Christians and Muslims across Africa, <sup>(3)</sup> violent conflicts due to land boundaries inequalities, poverty, social and economic inequalities <sup>(4)</sup>; terrorism which is now overshadowing internal conflicts; and periodic deaths from outbreaks of highly infectious diseases such as Lassa fever, Ebola in West Africa <sup>(5)</sup> and recently this ongoing COVID-19 pandemic caused by a virus in the family of coronavirus known as SAR-CoV-2 virus. <sup>(6)</sup>

This is not the first time a member of the family of coronavirus will surprised the world by causing a pandemic. SAR-CoV-1 virus, a member of coronavirus which caused SARS was isolated from patients in China during the outbreak of SAR-CoV-1 virus in 2003. The virus within few months of outbreak, spread to western countries sparing Africa, infected about 8000 people with about 1000 deaths recorded within 6 months of the outbreak. <sup>(7)</sup>

Despite the diverse controversies surrounding the actual cause of the SARS-CoV-2, this highly transmittable, pathogenic viral infection and novel coronavirus disease (COVID-19) outbreak which started in Wuhan, China has spread to over 180 countries

in the world and World Health Organization (WHO) few months ago declared the disease as a pandemic one. <sup>(7)</sup>

Africans have believed that like the outbreak of SARS-CoV-1 which largely exempted Africa, that SARS-CoV-2 will also not spread to Africa. Despite the virus spreading to Europe, America and the other continents, many nations in Africa did not prepare for the possible spread of the virus to the continent. Surprisingly, on the 14<sup>th</sup> February, 2020 when Valentine Day was celebrated across the nation of Africa, the first case of coronavirus in Africa was confirmed in Egypt. <sup>(8)</sup> Few days later, the first confirmed case in sub-Saharan Africa was also confirmed in Nigeria <sup>(9)</sup>

Scientists and experts are very worried about the spread of COVID-19 to Africa, because of the existing weak health systems, acute shortage of health workers, gross knowledge gap on this novel disease, inadequate funding of the health sector due to decades of neglect and lack of adequate health facilities especially Personal Protective Equipments (PPEs), Ventilators and other items that will be needed to combat the pandemic. <sup>(10)</sup> It was feared that the pandemic could be difficult to keep under control in Africa, and could cause huge economic problems if it spread widely. <sup>(8)</sup> Access to quality and basic water and soap are in short supplies in some regions of Africa and the supply of ventilators is very low in the continent. <sup>(11)</sup> It was reported that as of April 18, 2020, there are only a total of 2,000 ventilators in 41 countries out of the 54 countries in the continent, and the rest countries have no ventilators at all <sup>(12)</sup> These are the current situational analysis vis-a-vis the various challenges that might make Africa the most devastated continent by COVID-19, if the above are not urgently address as the pandemic is spreading widely across the continent.

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Currently, Africa has very fewer cases of COVID-19 compared with most other parts of the world. <sup>(13)</sup>.<sup>(14)</sup> It remains very unclear why this is so, some has attributed this to the relative existing herd immunity against infectious and parasitic diseases prevalent in the region, protective effects of BCG immunization and lack of testing capacity. There is also speculation that the virus has not spread because it cannot thrive in warmer regions, like Africa. <sup>(13)</sup>.<sup>(15)</sup> The number of confirmed COVID-19 cases and deaths from the disease in Africa continue to rise on a daily basis. Although, the virus was slow to reach the continent compared to other parts of the world, infection has grown exponentially in recent weeks and continues to spread. <sup>(16)</sup>.

## 2 | BRIEF BIOLOGY AND THE ROUTES OF SPREAD FOR SARS-COV-2 VIRUS.

SARS-CoV-2 virus, the causative agent of COVID-19, is a virus belonging to the family of Coronaviridae (genus: Beta coronavirus), a large family of enveloped, positive-sense single-stranded RNA viruses. SARS-CoV-2 has been detected in blood, air ways, and faecal specimens. <sup>(17)</sup> The main route of transmission has largely been reported through large respiratory droplets by inhalation or deposition on mucosal surfaces, but other modes of transmission (i.e. airborne and faeco-oral) have also been proposed. Another route implicated in the transmission of SARS-CoV-2 includes contact with contaminated fomites due to persistence of the SARS-CoV-2 on surfaces. <sup>(18)</sup> It has been reported that the environmental stability of SARS-CoV-2 could last 4 hours on copper, 3 hours post aerosolisation, 24 hours on cardboard and 2–3 days on plastic and stainless steel. <sup>(19)</sup> The average incubation period is estimated at 5 to 6 days, ranging from 0 to 14 days. <sup>(20)</sup> There is currently no definitive treatment or vaccine against COVID-19. <sup>(18)</sup>

## 3 | WHAT ARE THE LESSONS LEARNT FROM THE VARIOUS EBOLA OUTBREAKS IN AFRICA.

During the Ebola outbreaks in Africa, poor handling and the interaction of relatives of dead bodies infected with Ebola through the practising of the various burial sites such as kissing and washing of the bodies which are common burial practices in Africa led to the increased deaths during the epidemic. Ebola we understand is commonly spread through contact with the body fluids of individuals infected with Ebola. There was aggressive campaigns encouraging people in the various communities in the West Africa to stop these burial practices and burial teams were established to handle and conduct burial for all dead from Ebola. These interventions eventually led to the most useful strategy that helped to combat the last Ebola outbreak in 2016. We might stand a better chance in combating this COVID-19 Pandemic in West Africa, if we deploy the same strategies used to conquer the last Ebola outbreak in the region.

## 4 | PLANNING HOW TO PROPERLY HANDLE COVID-19 DEAD BODIES IN AFRICA

Africa countries must plan and put in place needed strategies to handle the projected higher deaths that could be caused by COVID-19 in the continent, if local capacity will not be overwhelmed due to the limited number of mortuaries and trained funeral directors. <sup>(21)</sup> Deaths from COVID-19 Pandemic must be properly handled and such bodies given the necessary dignity of burial including respecting the culture of the deceased.

The various lackadaisical attitudes and lack of effective planning for past mass casualties in Africa such as Ebola outbreak in late 2013, led to several mass burials in West and Central Africa with antecedent few records on the mortality statistics <sup>(22)</sup> The practice of mass burial and the inability of the deceased relatives to locate where their family members are buried could be very worrisome.

Even in the developed countries like United States of America, funeral homes and morgues have been

## **PROPER HANDLING OF A COVID-19 DEAD BODY: TAPPING FROM THE GOOD PRACTICES AND LESSONS LEARNT FROM EBOLA OUTBREAKS IN AFRICA.**

quickly overwhelmed by COVID-19 deaths in this pandemic. Unfortunately, how to handle the death bodies during this kind of pandemic are usually not extensively discussed in Africa. It is not in our culture in Africa to plan for death.<sup>(23)</sup> Several ongoing preparations and interventions in Africa on COVID-19 have not accorded the necessary priority on how to handle the deaths from this pandemic. Unfortunately, in Africa people do not appreciate the relevant of mortuary services even in the hospital set-up until they need the services of the mortuary to keep their deceased member of their family or friend.<sup>(24)</sup>

It is very important that an urgent burial plans should be activated or established now to prevent crisis related burial of the forecasted deaths in Africa from COVID-19.<sup>(25)</sup> There is need to urgently consider and ensure deaths arising from COVID-19 pandemic will not overwhelm the limited resources and burial team, to ensure reliable death registration and certification.

### **5 | CONDUCTING A SAFE AND DIGNIFIED BURIAL FOR A DEAD BODY OF SUSPECTED OR CONFIRMED CASE OF COVID-19.**

Whether COVID-19 patients died in the hospitals or in the community, the body must be granted a safe and dignified burial. The safety and well-being of everyone who tends to attend the burial must be given first priority. It is very important to constitute a Burial Team as part of the preparedness in combating the COVID-19 Pandemic. The burial team members must be trained on safe burial practices and must be allowed to handle dead bodies and conduct all burials. The team should be equipped with the necessary resources such as Personal Protective Equipments (PPEs), body bags, dedicated ambulances or vehicles to convey the body and members of the burial team and disinfectants.

World Health Organization (WHO) at the onset of COVID-19 Pandemic stated that there was no evidence of COVID-19 dead bodies infecting the living due to contact during handling of such bodies.<sup>(26)</sup> It is very important that all COVID-19 dead bodies are

considered potentially infectious and standard precautions should be implemented for every case particularly during COVID-19 pandemic. There is need to minimize the risks of transmission of infection from known and also suspected cases of COVID-19 by properly handling dead bodies and preventing exposure to body fluids, blood and tissues. COVID-19 is a novel disease with some unknown information about its biological behaviour, it is highly recommended that standard precautions are recommended for all dead bodies from COVID-19. This is one of the lessons learnt from the Ebola epidemic in Africa that claimed about 12,000 lives with one of the major channels of transmission Ebola virus was through handling of the dead by untrained responders.<sup>(26)</sup>

The burial process ideally should take into consideration the deceased culture and religions. It is very important to carry the family members along all decisions concerning the burial of the deceased body. Autopsy on COVID-19 bodies generally should be discouraged in developing countries like Africa, because most of the autopsy facilities in many hospitals are sub-standard and there is paucity of trained Anatomic /Forensic Pathologist in the continent.<sup>(21)</sup> However, where facilities for high-risk suite exist to handle at least category 3 hazardous infectious biological agents, good ventilation, adequate space, adequate PPEs and trained Anatomic/Forensic Pathologists are available, autopsies should be carried out on COVID-19 bodies as this will greatly help in the understanding of the pathogenesis of the disease particularly, taking into consideration genetic diversity as few of the autopsy findings on COVID-19 were done on Caucasians. It is vital to state that only trained personal and members of the burial team should be allowed to handle dead bodies from COVID-19 and the handling should be kept at a very minimum.

Following some of the lessons learnt from the various Ebola Epidemics in Africa for decades,<sup>(26)(27)</sup> the following steps should be carefully followed to ensure safe handling and burying of suspected and confirmed dead bodies of COVID-19 victim:

1. Readiness of the Burial team and availability of PPEs, Disinfectants and other logistics for

effective burials. The burial team in conjunction with the Public Health Department should have sorted out the cemeteries to be used for the burial and all issues that will have to do with records and litigation.

2. Meeting with the deceased family and preparation for the burial with the family. This meeting is very important as this will prevent unnecessary future litigation and disagreement that might arise, if they are excluded from the burial process. Social distancing must be maintained during the meeting and all the necessary precautions taken into considerations. <sup>(28)</sup>
3. After the family meeting, members of the burial team and the family representatives of the family should ensure that the necessary precautions are taken such as wearing all Personal Protective Equipment (PPE) before handling the body. <sup>(24)</sup>
4. Fluid proof and properly sealed body bag should be used to place the body. The body inside a body bag should be placed in a coffin and convey to the cemetery. It is highly recommended that practices such as kissing, touching and washing of a COVID-19 dead body should be discouraged. The handling of the body should be very minimal and if possible such body should be buried immediately without necessary storing in the mortuary for keeping. The burial ceremonies such as funeral service, prayers should be very brief and attended by few mourners. It is recommended that all participants including the burial teams should be less than twenty (20) participants maintaining social distancing.
5. The venue where the dead body of COVID-19 was recovered either in the hospital or home should be decontaminated using 0.5% sodium hypochlorite (bleach) or 70% ethanol should be placed on a surface for at least 1 minute.
6. Careful recruitments of participants for the burial at the cemetery is very important. Aged people especially individuals 60 years and above should not be invited, individuals with

chronic illnesses like heart disease, diabetes mellitus and cancer; children, individuals with respiratory illnesses and immunosuppressed by HIV/AIDS should be excluded from the burial. Social distance must be maintained during the burial. The practice of viewing in funeral parlour by allowing the bereaved to see and spend time with the dead before uncoffining should be discouraged.

7. Proper transportation of the coffin to the cemetery designated for the burial of COVID-19 by the burial team. The coffin and body bag should be placed in the grave and buried. However, if because of religion or culture the deceased body cannot be buried with the body bag or coffin. The body bag and coffin should be properly decontaminated using 0.5% sodium hypochlorite or 70% ethanol and these items should be properly handled in line with clinical waste disposal ordinance by the burial team. <sup>(28)</sup>
8. After the burial, PPEs should be properly removed and all other wastes should be properly decontaminated and handled by the burial team. The cemetery should be properly decontaminated after the whole exercise. The decontamination process should include the ambulance that conveyed the COVID-19 body to the cemetery. All participants at the burial are not expected to smoke, drink or eat. Do not touch your eyes, mouth or nose. Observe a high standard personal hygiene by washing your hands with liquid soap and water or proper use of alcohol-based rub. The above highlighted steps and lessons learnt from Ebola epidemics are adequate in ensuring proper handling of suspected and confirmed dead bodies of COVID-19 patients.

Cremation is generally not acceptable to Africans and this should not be encouraged except if absolutely indicated. The preference in most African cultures is burial. It is generally believed in most cultures in Africa that deceased people proceed to meet their ancestors after death and their bodies must be maintained whole in order to prevent a missing part when they arrive again in the next world. <sup>(29)</sup>

# PROPER HANDLING OF A COVID-19 DEAD BODY: TAPPING FROM THE GOOD PRACTICES AND LESSONS LEARNT FROM EBOLA OUTBREAKS IN AFRICA.

## 6 | CONCLUSION

In conclusion, it is therefore very imperative that the lessons learnt from the various Ebola outbreaks in Africa especially, the handling of dead bodies of Ebola victims should be applied in overcoming the unforeseen risks during this current COVID-19 Pandemic. There is also need for proper preparation, planning and proper handling so that the dignity of the deceased victims of COVID-19 and their surviving families are respected.

### Competing interests

The author declares no competing interests.

### Authors' contribution

AEO did the conception and design of the study, literature review and interpretation, manuscript writing, and submission of manuscript.

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