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Research Article

Health Determinants of Safe Infection Prevention Control of COVID 19 Deaths to enable safe Disposal and Cadavers Dissection as Distinct Educational Tools in Western Kenya

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Health determinants on safety of community health during coronavirus disease 2019, (COVID, 19), determined by freshly arterial embalment for safe disposal and cadaver's dissection. Fluid concentration based specific case analysis to enable quality hygiene and eliminate community transmissions. COVID-19 symptoms: fever, sore throat, cough and dyspnea due to aseptic shock and low blood pressure attributed with sudden mortality. COVID 19 pathogens takes 48hrs in deceased to die while HIV/ AIDS 16 days. Study assessed knowledge, attitude and practices on safety of the community health when exposed to highly infectious death and associated health risks. Determined utilization of arterial embalment and elucidate level of PPEs uptake. Despite existing enabling global health protocols on handling COVID 19, advocacy and meditations by intersectoral collaborations on safety of the community health through health promotional on health behavior change, and holistic professional machinery arterial embalment needs, the world still struggle to purchase curative machines to solve a Public health problem as cure to a public health pandemic. Thus need to enable, mediate and advocate for holistic and comprehensive functional Primary prevention approaches, machinery arterial embalment to enable dignified disposals and cadavers' dissection. Descriptive mixed research: surveys and interviews were exploited, sample size of 150, observation by 3Ls explored for valid and reliable inferences through purposive random sampling. Results opined 98% COVID 19 deaths, occurred in public facilities were neither disinfected nor embalmed maybe due to global health restrictions, which were social genocides on African customs, virtues and norms, as noted with night calm exhumations, exposing community health to health risks of OD 6.7, RR (5.6, 7.7). Uptake of PPEs was very low, due to MOH failure to classify distinct, Red and Blue COVID 19 zones to enable holistic health behavior change. Thus only 25% population health enables correct uptake of PPEs with insignificance OD ratio of (1.0), and RR (2.3, 2.3). The 6 feet physical/social distance application remained insignificant with P value of 13.67. Surprisingly 76% of participants knew that COVID 19 deaths transmit infections, while only 24%, participants, knew that since COVID 19 was airborne, it's difficult to transmit infections after dead. Need to mediate and advocate for improved functional Primary preventions approaches to enable reduction of global mortalities attributed to COVID 19 pandemic.

Key words: Airborne disease, COVID 19, Fresh embalment fluid, Global health, Population health, Health promotion, Primary Prevention.

INTRODUCTION

The novel coronavirus disease (COVID-19) is a global health disease discovery in Wuhan, China in December 2019, Hung, *etal*, (2020), (M Silali, 2020a). Most

observational and epidemiological studies suggest that COVID-19, affects older cohorts of 56 years and above, with other underlying diseases like hypertension, diabetes,

obesity, chronic lung diseases. Clinical studies attributes low female susceptibility to COVID 19 with their marked reduction levels in cytokine production, higher numbers macrophage and neutrophil activity for immune response than male counterparts who have high level of cytokines production and few numbers of neutrophils and macrophages, CDC Atlanta, (2020). Females gender have also low expressions of angiotensin-converting enzyme 2 (ACE2) in their kidneys than males gender. The clinical presentations of symptomatic COVID 19 patients are fever, dyspnea, cough, fatigue, and sore throat. Gastrointestinal symptoms are nausea, vomiting, diarrhea, and abdominal pains, Cheung *et al*, (2020). In advanced cases, patients may rapidly develop respiratory failure with acute respiratory distress syndrome, due to aseptic shock associated with drop in blood pressures and even progress to death, (CDC Atlanta, 2020).

The global mortality updates on COVID 19 by mid of December, 2020 were 1,635,464 deaths, Country with highest mortality, United States of America 303,797 deaths, and least country with mortality, Vanuatu in South Pacific Ocean Nation, with 8 islands had 1 dead. Regionally, Kenya had the highest mortality rates of 92,459 deaths and Tanzania had the least, 509 deaths, Global Map, (2020). The global mortality rates help to measure the burden of COVID-19 deaths, which is globally being reported differently using case fatality ratios: the number of deaths divided by the number of confirmed cases. Global differences in mortality numbers are closely attributed with variations in number of people tested, thus more you test more people with milder cases are identified, and hence lowering the case-fatality ratio. Also mortality may rise as the facilities become overwhelmed with COVID 19 patients, and have limited resources. Thus vital need to initiate public health prevention, at home based care units and health promotion approaches to enable holistic and comprehensive uptake of disease management and safe disposal to prevent community transmission, and enable primary prevention.

Globally and regionally most MOHs imposed heavy curfews and lockdowns to its specific population health, WHO, (2020b), and prolonged restrictions (quarantine measures) to limited movement and reduce community transmission, thus limit number of unclaimed dead for cadavers preparations, Mills, (2010), which forms distinct tools for education. Global misinformation, fear, and hysteria led to myths of environmental contamination, Funeral Consumers, (2011), which spread throughout global mortuary service providers are associated with limited knowledge on utilization of arterial fluids, (Rutula and Weber 2019), lack of job specialization and descriptions in majority of facility morgues in Sub Saharan Africa and limited empowerment on knowledge on the wide range mortuary services offered, Vita –Finzi, (2006), thus causing limited empowerments and sustainability of quality mortuary services required to be executed during

the COVID 19 pandemic. Despite the global establishment of safe standards of disposal of COVID 19 deaths using health determinants of safe infection prevention control and health promotion interventions to enable health behavior change on COVID 19, the Sub Saharan Africa still lacks quality public health approaches to enable, advocate and mediate for holistic and comprehensive uptake of both primary prevention and machinery arterial embalmment. Prolonged limited application of primary prevention interventions are attributed with low health behavior change on the disease management, thus the regional and local live hoods have constantly remained in the vicious cycle since the emergence of COVID 19 pandemic.

MATERIAL AND METHODS

Knowledge Attitude and Embalment Practices to Destroy COVID 19 Pathogens.

In 2014 mortuary science encountered Ebola epidemic in west and central Africa whose virulence was severe compared to the novel coronavirus disease 2019,(COVID 19), that has transformed the global health care system and mortuary services with limited observations of other simple illness, communicable diseases and large mortalities in span of short period, thus urgent needs to protect the larger population health from exposure of COVID 19, Wong, *et al* (2020), through enabling and advocating application of freshly prepared embalmer fluid that contain: methyl alcohol, phenol crystal, formaldehyde sodium citrate, sodium chloride, glycerol, and sodium laury sulphate a surfactant which was introduced to anatomical embalment, by Laskowski in the mid-19th century Laskowski,(1886), Mills (2010), and sodium hypo chlorite solution that is microbial disinfectant used in isolation with specific analysis. (Pereira, *et al*, 2015).

The global health have revolutionized models of safe infection prevention control measures on COVID 19 deaths to enable safe transportation, disposal and dissection as distinct educational tools, OSHA, (2014), (Funeral Consumers, 2011). But they have global limited on nested, intersectoral collaboration and empowerment for recruiting qualified embalmers to execute quality embalment procedures, which continue to pose a global health challenge, for instance, African societies have consistent values attached to the living dead through specific cultures and religious virtues and norms, which were ignored due to fear of COVID 19 transmissions , because COVID 19 corpse were neither embalmed nor disinfected for dignified disposal or future cadaver's dissection, (Vita Finzi, 2006). Some myths have persisted concerning the COVID 19 potential to environmental contamination in related to disposal of COVID dead, (Funeral Consumers, 2011). Thus need to enable the global health influence holistic participations and

empowerments of compulsory machinery arterial embalment holistically across the global health.

Mode and Sources of Susceptible Population health to Acquire Infection from Infective dead (reservoir)

In mortuary and forensic the main sources of infection after death of any human being are basically body fluids such as blood, saliva ascetic fluids, pleura fluids, and gestural intestinal fluid, waste products such as fecal material, CDC, (2020), and urine, aerosol of infection material released through the mouth and nose, microbes on the skin surface such COVID 19 or Ebola may be acquired by direct contact that need to contain immediately after death, (Ramesh and Joseph 2020).

Transmission of infective COVID 19 pathogens to susceptible host (population health) requires 3 elements to occur: Source who are dead or infective subjects, COVID 19 pathogens is a reservoir host for the infective agent and the population health is the susceptible host, to receive the COVID 19 pathogens, and the mode of transmission may be contact or (inhalation) airborne, (WHO, 2020f).

Infection transmission between the infective agent (dead or objects) and susceptible host may cause disease to develop and progress into illness after 21 days of contact for COVID 19, (MB Silali, 2020b.). The most common clinical presentations of symptomatic suspected individuals infected with COVID 19, are fever, dyspnea, cough, fatigue, and sore throat. Gastrointestinal symptoms are nausea, vomiting, diarrhea, and abdominal pains, Cheung *etal*, (2020). Dead body may remain potentially infective with viable pathogens colonizing the tissue organs at varying rate before they die, for instance after death ,COVID 19 pathogens last for 48hrs like most of the viruses except HIV / AID virus which last for more 16hrs in blood before they die (Kampf, and Steinmann, 2020). If dead bodies are not decontaminated thoroughly by embalment, they cause infection by inhalation (airborne), or autopsy contact, within the 48hrs after dead for COVID 19, (Hanley, B *etal* 2020).

Main sources of COVID 19 transmissions after death are determined by: microbial load of the source of infection (dead or contaminated objects), susceptibility of the host (health population) at portal entry of infection agent, and mode of transmission: droplet inhalation, contact via contaminated hands for COVID 19 virus placed into mouth, nose or eyes, Wang, *etal*,(2020) autopsy contaminated mortuary instruments or equipment, utilization of defective PPEs that mal transmit infection to health-care providers,(Wong *etal*, 2020). Clothing, uniform soiled with infective microbes, Blood fluids split into the eyes, or mouth or another mucosal membrane during operation. Breakage into skin to cause a direct contact of microbes into body, (WHO 2020c).Thus the need for advocating for machinery arterial embalment to enable safe handling of COVID 19 fomites and deaths, and manipulate for disposal and dissection.

Health risks associated with Contact of COVID 19 Pathogens during Autopsies.

Safety procedures attributed with handling COVID19 disease are consistent with those used to execute autopsies, (Hanley, B. *etal*, 2020). Lungs and other vital organs of COVID-19 dead may still contain live pathogens, thus additional respiratory protection is needed during aerosol-generating procedures like generate small-particle aerosols using oscillating machine or washing of intestines during the autopsy (Lacy J. *etal* 2020). Postmortem must be done in an adequately ventilated room with natural ventilation or using electrical mechanical ventilation, only a minimum number of staffs should be involved in the autopsy procedure, (WHO, 2009). Pathologist active in dissecting body and the two technical staffs cleaning and passing instruments to avoid cross contamination of the workplace, (Ramesh and Joseph, 2020). Appropriate PPEs must be available, such as scrub suit, long sleeved fluid-resistant gown, gloves and two pairs of surgical/autopsy gloves), anti-mist goggles, and boots, respirator or N95 masks are worn against aerosol-generating procedures, (Wong *etal*, 2020). Fresh disinfectants with label claims against emerging viruses on autopsy table, Instruments used during the autopsy should be cleaned and disinfected immediately after the autopsy, (Royal College of pathologist, 2020).

Environmental surfaces, where human remains are prepared, should first be cleaned with soap and water, Pereira *etal* (2015), or a commercially prepared detergent solution; After cleaning, a disinfectant with a minimum concentration of 0.1% sodium hypochlorite, or 70% ethanol should be placed on a surface for at least 1 minute before you commence scraping and mobbing using appropriate PPE, for respiratory and eye protection, (OSHA, (2014). After end of autopsy dissection, the autopsy kits, bench, autopsy room after dissection and all material and items classified as clinical waste must be decontaminated in 0.5% hypochlorite and phenol solution then disposed properly according to legal and OSHA requirements.,(Red/black or Yellow liners) or incinerated, (Kampf G and Steinmann).

Advocacy for Machinery Arterial Embalment for Safe Infection Prevention Control of COVID 19 Dead for Disposal and Dissection.

Modern machinery arterial embalment practices aims at enabling and advocating for various traditional cultures, customs and religious traditions to be accorded with holistic dignities required during disposal and dissection as distinct educational tool in medical schools. Embalment practices ensure of complete efficacy and reliable safe handling of the associated COVID 19 dead for prolong periods as they remain safe with infection prevention and control interventions, (Burden, 2006). If infectious corpse which are not buried within 48hrs, service providers are encouraged to use complete PPEs during decontamination process before any handling and transportation is executed. Hasty disposal of COVID19 d-

eaths should be avoided and management should manage each situation on a case-by-case basis, balancing rights of the family cultural values and the need to investigate the cause of death and the risks of exposure to infection, (WHO, 2020c). The infective corpse must be planed for arterial embalming to allow viewing or if not embalmed, COVID 19 body should be disposed immediately without viewing or kissing, (Morgan, 2004).

Machinery arterial Embalment, act as preservatives, sanitizes and disinfectant thus a model of safe infection prevention control, (WHO, 2020g). Embalming fluid contains a mixture of phenol, formaldehyde, Sodium chloride, eosin yellow,/ glycerol, methanol, and sodium laury sulphate , sodium citrate and oil of winter, concentrations are constituted based on case to case basis of corpse, (Bedino, (1994). Observation studies from the study region opined that over 98% of mortuary facilities could not prepare and sustain these arterial fluid, because they were neither trained as professional embalmers nor the facility could afford to sustain the complete ingredients set for embalment, (Bennett and Dolin, 2015).)

Since toxicology is rarely requested on suspected COVID 19 human remains, it is highly recommended to embalm and leave the body for 7 days before one request for autopsy dissection during the pandemic. Do not remove any inserted equipment from the body such as infusion fluid tubing, endotracheal, or other tubing or implant, electro-metal devices for 7 days after embalment, to reduce health risks of disease transmissions. Synergistic participation of mortuary service providers with hospital administrates to influence safe infection prevention and

control. WHO 2015 recommended regular decontamination of mortuary premises and postmortem benches, before cleaning and never spray or fumigate infectious pathogens on human beings with disinfectants because we have no scientific proof of evidence to ascertain any disease control, but just a waste of health resources, (WHO,2020c).

Advocacy on Valid Chemical Ingredients for Embalment

Embalment fluids, enable and advocate for safe environments and public health of minimal or no risk, harm or fear when handling COVID19 associated corpse, the fluid ensure preservation of the whole body in a “life like manner” disinfect, prevents putrefaction action of bacteria, and autolytic action of the Cathepsin enzymes, *Silali et al*, (2017a), the fluid also prevent contamination by insects and maggots development besides restoring dead cells and organs, [(Ajman, 1998), (Edmond Souchon (1908))] The aims of embalming corpses for cadavers is to retain their anatomical architecture for dissection, as distinct educational tools in medical schools, (Coleman and Kogan, 1998). Embalming also prevent desiccation, and inhibits fungal and bacterial growth hence retarding the growth of the potential pathogens. Embalment fluid is basically constituted using ingredients’ of preservatives, germicides (disinfectants), modifying agents buffers, surfactants (wetting agents), anticoagulants), dyes and water as the main vehicle, (Mayer, 2012).The major ingredients of embalment’s are tabulated in table 2.1 below and SOPs for embalment (Appendix 1).

Table 2.1: Distribution of Arterial fluid Ingredients with the attributed Mode of Action on topical and Tissue insitu.

Serial No.	Arterial Ingredient	Mode of Action
1	Formaldehyde (37-40)%	Preservative and fixative cells firm and life like manner and coagulates blood, (Degroot <i>et al</i> 2020)
2	Gluteraldehyde	React with proteins in wide range of PH, Disinfectants of virus and spores, (Bedino 2003)
3	Alcohol	Bactericidal and Bacteriostatic of vegetative pathogens, effective on viruses, fungi, mycostics, (Ali <i>et al</i> , 2001)
4	Anticoagulants Sodium citrates	Preservative airy salts, inhibits growth of clostridium botulism, Preserve color of cells,
5	Phenol crystal	Disinfectants and bacteriostatic at 0.2%, fungicidal and bactericidal at 1.5%
6	Buffers: sodium borate, magnesium bicarbonate	Maintains PH of dead at 9.0, prevents growth of molds, and bacterial decomposition (Mayer, 2012)
7	Humectant and wetting agents	Glycerol soften tissues by allowing only little formalin to enter cell each per time.
8	Surfactant agents	Make tissue to stretch like a skin hide e.g., Sodium lauryl sulphate,(Mackone, 1999)
9	Anticoagulants	Dissolve blood clots along blood vessels to influence efficiency embalment Pressure. E.g. sodium citrate and sodium oxalates. Control iron s in tissues. (Mackone, 1999)

10	Hypochlorite	Viralcidal, 0.5% v/v, or 1.4% w/v with sodium hypochlorite, or calcium hypochlorite., [Mayer's (2012,) (Hop wood, 1969)]
11	Tissue cell dye	Eosin yellow powder, improve the role of restorative science. , (Pereira <i>etal</i> 2015)

Conversion of COVID 19 Corpse into Cadavers Dissection.

Human cadaver is classified as a distinct educational tool of non-vital morbid and mortal variable of 3-dimensional: individual physical, psychosocial and social demographic, prepared using neat embalment fluid and left for over 6 month shelf life, to achieve the mummification which turns protein into resin like sponge material and reduced health hazards exposed to medical students when dissecting (Brenner et al., 2003). One of important prerequisites for utilization of corpse in educational settings is by candid use of neat freshly prepared embalment fluid and enabling faster mummification and conversion into cadaver for dissection, (Cunningham, 1975). The preservation is appropriate, when COVID 19 cadaver is kept safe from harm, destruction or decomposition. Preservation is an action to keep infective corpse safe from harm, destruction and decomposition. Conservation is a process of careful preservation and protection corpse for dissection, while embalming is disinfecting and treatment of dead body with special neat or diluted chemicals/ arterial fluid to protect it from postmortem changes: autolytic and petrification processes , pathogen transmission, (Brener and Pmarali, 2003). Basic chemical constituted arterial fluid are tables in *Table 4.1 above*, include: methanol, formaldehyde, phenol crystal, glycerol, sodium chloride, sodium citrate, sodium laury sulphate, and sodium hypochlorite for topical disinfections, which are constituted based on case analysis, and volume to surface area ratios of the corpse, (Troyer,2010). Dissection of Cadavers is critical in development of human anatomy and pathology relations in clinical management of diseases. While morbid anatomy requires opening of the corpse to study in its relation with the clinical history provided. Humphrey, (1987).

Uptake of OSHA and PPEs during COVID 19 Pandemic.

Occupation Safety and Health Act (OSHA) requires that employers furnish to all employees with a package of employers free from recognized hazards that are likely to cause death or physical harm at place of work. Epidemiological organs are infectious pathogens that are of health care interest such COVID 19 virus. (OSHA) also states that the employer must access the workplace of their employee with a risk management plan to determine kind of hazard that are present then decide on appropriate PPEs to protect the employees (Wong, *etal* 2020). A risk management plan is a document that a project manager prepares to foresee risks, estimate impacts, and define responses to risks. It also contains a risk assessment matrix. PPE are supplied based type of job task assigned to employees.

Uptake of Personal Protective Equipment (PPEs) in COVID 19 Disposal and Embalment

Main PPEs required when handling communicable diseases such as Ebola and COVID 19 pandemic are: Nitrite gloves, puncture resistance, anti-mist goggle, or face shield, fluid resistant or impermeable gown, overall and aprons. Face masks must cover both nose and mouth, dedicated washable shoes, with protective shoe covering, N95 respirator, and room powered by air purifying respirator, (CDC, 2020). PPEs are used to minimize the risks of skin and mucus membrane contact with potentially infective dead and fomites. Decontamination of PPEs after use may controls self-contamination (WHO2020c).

It's vital to limit the number of service provider to handle infectious body to minimize exposure rates for example during embalming only two technicians are enough so that one active in handling the case and the second cleaning and passing instruments, (ICCFA. 2020). This will avoid cross contamination of the work area, after remove or change of gloves you must wash in antiseptic or soap in running tap water. When clothes are soiled with infectious waste, remove and shower immediately, (Kampf and Steinmann, 2020). When doing a procedure wear a dedicated washable footwear. If exposed to potential infectious material notify your supervisor (WHO2020c). COVID 19 corpse may have the best viable anatomic structures, Cunningham's, (1986), which are intact for dissection because none of organs that caused death is likely to re-infect after long period of mummification. Studies indicated that COVID 19 corpse buried un embalmed when left for long period are reduced to skeleton with limited health hazards of transmission, except case of anthrax which may be still potentially infective even when handling infected bones, (WHO,2020d)

In mortuary and forensic science handling of infective corpse must be executed with a well-trained personnel, good observers, must wear correct PPEs, any soiled surfaces , equipment and patient care surfaces must be decontaminated immediately in 0.5% sodium hypochlorite, before disposed in Red liners(biohazard bags), MB Silali, (2017 b), (WHO, 2020a) Disinfection executed using freshly prepared embalmer disinfectant which is a mixture of freshly prepared Phenol crystal, 0.5% sodium hypochlorite aquas or 14% calcium hypochlorite granules, and methanol dissolved in tap water to form sanitize and disinfectant against infectious pathogens on the corpse and fomites, Degroot *etal*, (2009), (Bedino, 2003).

Transportation of COVID 19 corpse, needs to use double disposal gloves, with extended cuffs, with long sleeved disposal gowns, and avoid transportation repatriation of

non-embalmed infective corpse for long distance journey, or non-cremated by aircraft, coordinate with the state authority in advance to avoid delays, protect the corpse with Blue / cold zone from the hospital, waiting final disposition, (CDC, 2020). Use pre identified hearse by the public health officer among the burial team in advance to accompany infective corpse with Red liners to ensure safety disposal and decontamination of area after completing the disposal services, (Vita finzi and Campanili, 2006). Anyone handling body bag must wear double disposal gloves, disposal gowns with extended cuffs and long sleeved, never open the casket if the body was not embalmed by modern embalment, all embalmed bodies should be allowed to be buried based on the culture customs and religious traditions of specific community which may vary from community to community. Before an autopsy examination or embalming mortuary service providers should wear eye protection, mask, gowns anti mist goggles, and N95 respirators and switch on mechanical ventilators to extract and supply in fresh air, [CDC, (2020), (WHO, 2020c)]. Histological specimen should be fixed immediately into 10% buffered formalin and left for 14days tissue processing and staining in Haematoxyline, MB Silali, (2017a), Eosin. (Hanely, *etal*, 2020)

Burial and Exhumation of COVID 19 Human Remain

MOH has obligations and duties to protect health burial teams and the whole community from contracting COVID 19 associated risks of transmissions by advocating and

enabling compulsory arterial embalment to influence dignified burials, finance funerals services associated with the pandemic, and amicably facilitates key cultural rites and religious traditions to evade exhumation, (WHO, 2020g).

Family members should be allowed to participate in burials arrangements of COVID-19 cases. Synergistic participation does not compromise infection prevention and control measures. Involve and engage the community to enhance faster healing and reduce psychological stigma associated with COVID 19, (M Silali, 2017 a). For any health successful approach in the community, the strategy may adapt traditional burials nested within customs of the wider community engagement, empowerments, and health communication to enable understanding of community for sustainability safe infection prevention and control measures. Failure of social collaboration and public research may results to exhumations. Exhumation are done based on local and national guidelines and level of transmission virulence, thus never accept to exhume un embalmed infectious body due to failure to follow cultural and religion traditions or dissection and research. When dealing with recently dead or old buried and exhumed for autopsy or proper reburial reduce infection rate by covering cuts or lesions with waterproof dressing. Rinse any injury in running tap water and practice good personnel hygiene. Main clients of corpse during dissection or autopsy are medical students, pathologist, anatomist, medical doctors, nurses, embalmers, morticians, funeral directors, forensic scientist, and religious leaders, (CDC, 2020).



Figure 2.1: Disposal of COVID 19 corpse by Public health team, April (2020)

Figure 2.1 demonstrates typical subjective indicators attributed to limited synergistic participation of MOH burials of COVID 19 dead without collaborating with specific community cultural and religious rite thus, enabled planned calm night exhumations in the absence of county /security administrations, (Star media, 2020).

METHODS

Study and Sampling Designs

The study methods exploited descriptive mixed research approaches of semi structured questionnaire for survey, observational design using 3Ls, during community diagnosis and transect survey mapping, FGD and KII tools explored during interviews on Knowledge attitude and practice associated health risks attributed to massive exposure to infective COVID 19 corpse in western Kenya. **(Appendix 2)** The sampling design was purposive random sampling of infected and affected target community/ facility household. Yes or No written paper were used as the inclusion criteria for the target population. All participants consented before was enrolled for study and were free to leave without being forced in data collection.

Sample Size Estimation

Sample size of 153 respondents from both facility and Community Home Based Care units of COVID 19 survivors, warriors and health population sampled. The study also explored on regional and global observational mass data, (3Ls) on global impacts of COVID 19, and purpose random sampling designs to provide inferences, Target population was achieved by picking Yes and No as inclusion from study population. Research assistant were trained by principal research to ensure quality data collection.

RESULTS AND FINDINGS.

Demographic characteristics of COVID 19 mortalities in the study region.

Five demographic variables were evaluated in relation to COVID 19 mortality in the study region, included: Gender : male/ Female, Age cohorts, Marital status, level of education achieved, and religion of the household affected with COVID 19 deaths. Majority of the findings, 53%, of participants demonstrated that COVID 19 deaths are highly significant with older cohorts (56 yrs. and above), with P values of 0.34, achieved highest level of education and married. The COVID 19 endangered cohorts are classified by the community health to be associated with high social economic status and employed in education, health, engineering and Agricultural sectors, compared to the marked low mortalities realized among the same older cohorts of self-employed population in rural homes, middle income earners and low income earners of other cohorts of above 35years living in urban slums and rural habitats. COVID 19 mortality by gender, the findings indicated more men 67%, (100), succumb to COVID 19 disease than female 33 %, (50) may be due higher immunity and less stimulation of angiotensin-converting enzyme 2 (ACE2) by the infested female lungs with COVID 19 disease.as indicated Figure 4.1 below.

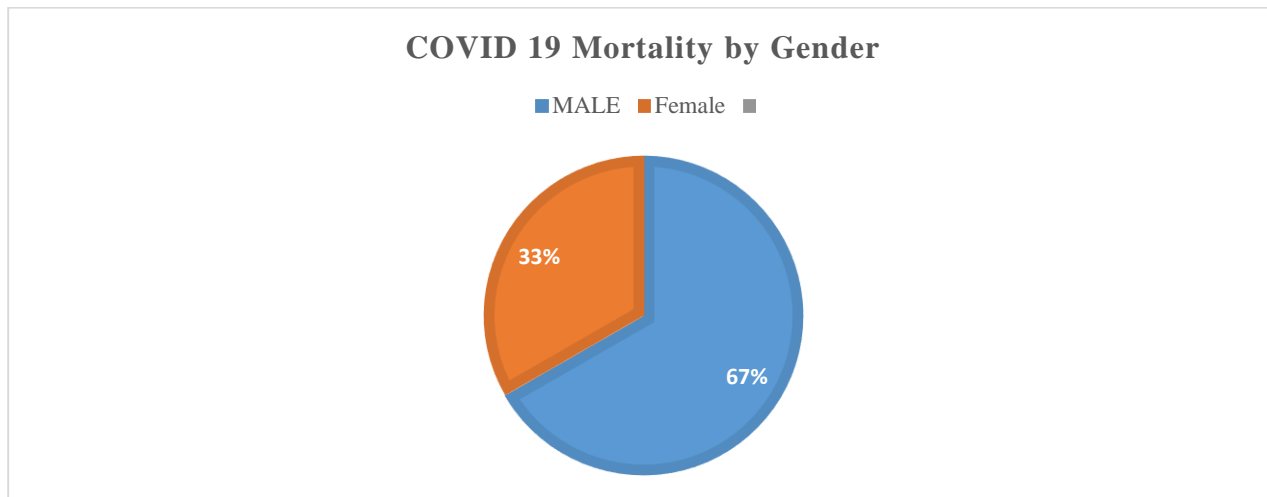


Figure 4.1: Pie chart demonstrating how more male are affected with COVID 19 mortalities compared to female gender living in the same settings.

KAP of Health Service Providers on Machinery Arterial Embalment as Model for Infection Prevention Control of COVID 19 Deaths

Study results knowledge attitude and practices of health service providers on prompt arterial embalment of COVID 19 dead as safe model of infection prevention

control opined that majority, 98% (150) of COVID 19 deaths were neither disinfected nor embalmed as stipulated in ICCFA, embalmer manual of 2020, on safe infection prevention and control protocol applications before disposal and cadaver's dissection as distinct educational tools

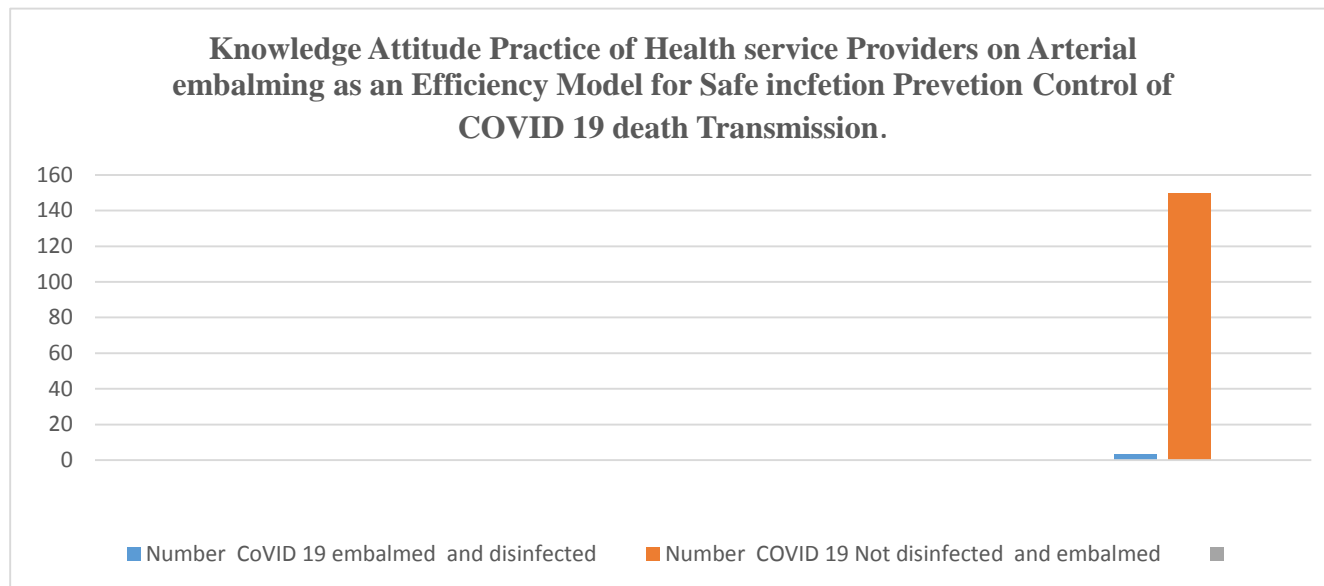


Figure 4.2: Above demonstrated a skewed number of COVID 19 dead embalmment in early pandemic Corona virus globally and regionally.

The associated limited KAP of service providers on embalmment and disinfection of COVID 19 human remains, remain a major challenge in the fight against infection prevention and control of Corona virus among population health with attributed health risks of OD 6.7 and RR (6.7, 7.7), between the health burial team and population health respectively. Consistence failure of MOH to instruct compulsory embalmment of COVID 19 deaths was attributed to misinterpretation of the interim directives from global health protocols on safe handling of the confirmed or suspected COVID 19 deaths, which is social genocide to many African cultural practices and religious traditions, because COVID burial team from MOH, lowered dignities and last respects approaches normally accorded to the deceased and creating prolonged psycho social community stigma, besides the noted planned calm night exhumations after 2 weeks of burial, that exposed the community health both health hazards and risks of OD 6.7, RR (5.6, 7.7).

“Some Bukusu elders warned against exhuming bodies of people who have succumbed to Covid-19 and reburying them in line with local cultures and traditions. One of the parish priests lashed out at families who allowed exhumations to happen, terming the act as health hazard and health risk to community health. It was said that some families exhumed COVID 19 body of their relatives to secretly rebury them at night. The rationale of calm night exhumation was that, they believed that the dead were resurrecting at night and haunting life relatives, demanding them to execute a dignified send-off in line with Bukusu culture and customs. Whereby, a dead person was supposed to be buried after certain rituals are performed on his or her body, like not burying with ties as it will

strangulate the deceased, or lie on left lateral side facing where Sun sets, and never buried with pair of shoes as it will hurt them and they will never rest in their internal journey, which was never done by health burial team who came in white gowns and gloves’ thus why community and next of kins opted for night exhumation which was said to dearly expensive procedure”. KII from a Bungoma based priest who warned the specific community May 2020 and discussants with Bukusu Elder.

The uptake of PPE in Red zones was low and ill advice by MOH to population health, thus only 15% had a proper uptake of PPE with insignificance OD ratio of (1.0), with RR (2.3, 2.3), since MOH did not enable, advocate and mediate with other collaborators candidly on when and where to use PPEs between the Red and Blue zones, which were never defined by MOH. Though the application of 6 feet social/physical distance, was socially marketed in mass media its practical application in various demographics remain skewed and unachievable with only 15% uptake (23 respondents). However hand washing was greatly acknowledged with over 65% uptake (100 respondents) and in average uptake by the entire population health, thus influence a marked lower prevalence of diarrheal diseases like cholera and typhoid during the COVID 19 pandemics as witness in number of FGDs triangulated in depths interviews.

“Since the COVID 19 pandemic started we have not realized any serious challenge and complications associated with of cholera, dysentery or typhoid in our community nowadays Daktari (Dr.).... in fact, most clinics in our community have been closing up because they are lacking patient / cases to treat, hence they unable to pay

rents of their premises, so even when corona / COVID 19 ends up let us continue to wash our hand daily and impress

hygiene” FGD discussants in Vihiga , Migori, Trans nzioa County facilities, June 2020.

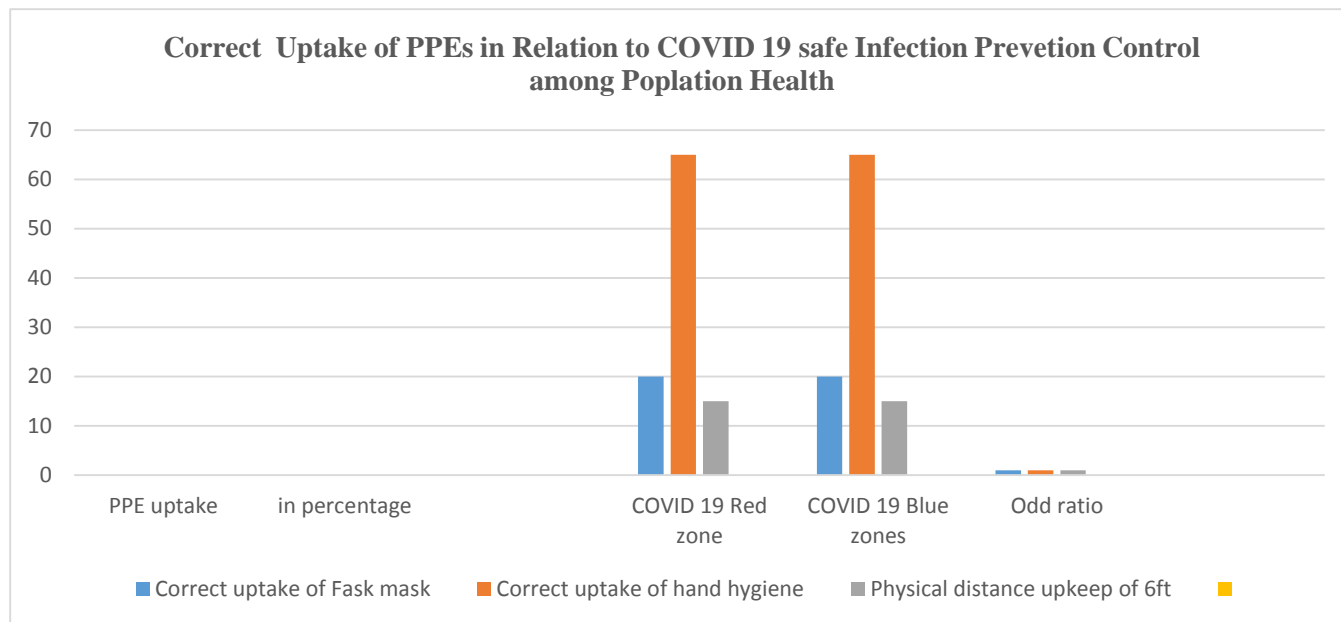


Figure 4.3: Above opines the mains subjective attributions related to safe uptake of PPEs in COVID 19 pandemic as a primary prevention in public health.

Majority of the respondent, 76% (116) respondents, knew that infective COVID 19 dead could transmit infection. But only 24% (37) respondents knew that COVID 19 dead

were airborne, thus hard to transmit infection because they were not breathing by time of dead.

Table 4.1: Modes of COVID 19 Transmission between the Pathogen and Susceptible host (population health)

Ways of Direct transmission COVID 19 in Community (%)	Ways of Indirect Transmission of COVID 19 in Community (%)
Airborne droplets inhalation	Breathing contaminated COVID 19 droplets
Contact of fomites	COVID 19 Soiled hand contact Face and eyes
Total	Total

Further findings demonstrate that mode of COVID 19 advocacy to population health on health education, health communication and public health research were limited towards vertically communication, orders were only from MOH, with limited or no synergistic participation in the sector wide approach (SWAP), thus lacked blended approaches of health promotion interventions on COVID 19 health behavior change in the society, as marked with very low or limited implementation and community empowerment of COVID 19 concepts, as opined in many. KII and FGDs discussions with insignificant implementation of COVID 19 protocols on safe infection

prevention controls, thus why Nation Police service acted on obedient civilians, at one time the country behaved like being manned Police state, which was clearly mentioned and stated in number of FGDs, and KIIs, from Trans Nzioa, Kakamega, Bungoma, Busia, Vihiga, Eldoret Moi, Kisumu, Homabay, Migori and Siaya counties, who said candidly that

“Their fellow people were being clobbered by Police service for not adhering to curfews and lockdown restrictions on timings” FGD discussion held in Bunguma, Kitale, Eldoret and siaya, June, 2020”

Knowledge, Attitude, Awareness on Embalment Practices to Influence Safe Infection Prevention Control in infective COVID 19

Table 4.2: Utilization of Machines and Gravitational Embalment for Safe Disposal and Dissection.

Facility Uptake and Method of Embalment	Modern Machinery Provide valid and Reliable long efficacy of safe Infection Prevention Control.	Gravitation Method, Provide unreliable and limited and short safe Infection Prevention Control	Hygiene level, on Ritchers scale: 9, very clean, 4.5, clean and 1, not clean.
Kitale County facility	NO	YES	4.5
Moi referral level 6 facility	YES	NO	9
Bungoma	NO	YES	4.5
Kakamega	YES	NO	9
Busia	NO	YES	4.5
Vihiga	NO	YES	1
Russia level 6 facility	YES	NO	9
Kisumu district	NO	YES	4.5
Migori	NO	YES	
Homa Bay	NO	YES	
Siaya	NO	YES	1
% Frequency on method of Embalment in study region	27.3	72.7	100%

The table 4.2 above opined that only 27% of mortuary facilities in western Kenya, like the population health may be aware on how the modern machinery arterial embalment influence safe infection prevention control in COVID 19 deaths compared to gravitation methods where by most (73%,) of facilities utilized is as embalment method of choice. Likewise majority 88% (135) respondents were not aware on the correct constituent ingredients that forms Embalmer / arterial fluid, to enable safe infection prevention and control transmission mainly: Formaldehyde/ glutaraldehyde, phenol, sodium citrate, sodium laurylsulphate, glycerol, methanol, methyl salicylate, sodium chloride, Sodium borax and eosin yellow. Most respondent knew only formalin has a drug of option in embalming. Only Kakamega, Russia and Moi referral and teaching, facilities executed modern machinery arterial embalment, but with only one or two ingredients specifically formalin, due to limited resource. *"We only use formalin to embalm because of the limited resource to purchase other reagent if given money we will buy and utilize it Darktari," FGD discussant in Kakamega facility morgue in August 2020.* Lastly, 6 feet physical/social distance application was insignificant with P value of 13.67

DISCUSSIONS

Collaborated KAP of health service providers on arterial embalment provide efficiency model for sustainable infection prevention control of communicable diseases such as COVID 19 disease and associated deaths in western Kenya which still remain low and skewed, contrary to study by M Silali *et al*, (2017b), on community

participation medico legal concepts to identify unclaimed or missing dead bodies, embalm and improve public health. Machinery arterial embalment form cradle instruments for safe infection prevention control before disposal and cadaver dissections as distinct educational tool in medical school, which is in line with study by Brenner and Pomsroli, 2003 and WHO interim guideline (2020g), on embalment as a better option for safe practical approach to enable cultural and religious traditions to be executed on COVID 19 deaths without health risk exposures.

Health education form vital approach for functional health promotion interventions on COVID 19, to enable, advocate and mediate on the prompt need of arterial embalment utilization of PPE, through health behavior change to influence safe infection prevention control and synergistic community implementation. However the uptake of PPE in study region were contrary to the laid out interim guidelines from the global health COVID 19 protocol, due to limited utilization of health promotion intervention approaches for gradual health behavior change among population health, as demonstrated by many National police service personnel clobbering innocent citizens due to claimed incorrect uptake PPE, as a criminal offence, These were noticed in a number of observation surveys, FGDs and KILs complains by participants for being forced to pay fine if found wearing face masks on mandible or on the occipital head, which was never demonstrated during health education forum for community to action to influence health behavior change on proper PPE uptake as approach of COVID 19 health promotion intervention.

Safe disposal humans' remains for burial or cadavers' dissection as distinct education tool in medical school were

completely prohibited in the global interim guideline of handling COVID 19 pandemic, hence all burials were strictly executed by “*public health burial team*”, within 48hrs of death, without any form of embalment and disinfection. Communities identified the burial team from MOH, as “*Men in long sleeved white gowns boots and gloves with mortuary gadgets*”, whose roles in health service provision were contrary to study by WHO (2020c), CDCs, (2020), Silali *etal* (2017b), ICCFA, (2020), and Ajman, (1998), on quality embalment approach as the key primary prevention concept for safe disposal and Cadaver dissections of COVID 19 humans remains, safe and limited or no community transmission.

MOH often planed burial in the study area without synergistic involving the next kins’ to factor in their cultural, religious traditions rites and influence dignified burial ceremonies. The negative effects of limited family participations in burial arrangement during COVID 19, was closely associated with several night planned, calm exhumations of COVID 19 related dead as witnessed in Bungoma and Siaya Counties. Most burials were organized by “*the Public health teams*” who candidly executed disposal against the Community cultural customs and religious rites. Likely also against the studies and global protocols by (Funeral Consumer, (2011), WHO, 2020c, WHO 2020g) guideline on disposal of COVID 19. Also human remains exhumation at night time was contrary to study by Silali *etal* (2017a,), on roles of DNA in Identification of human remains in western Kenya using comparative standards and roles of embalment by Ajman in (1998). Thus the timely need for global health to enable advocate and enhance mediation strategies for health promotion intervention, towards health behavior change for impressing primary prevention better curative service on COVID 19 case, besides further studies on safe infection prevention control of COVID 19.

CONCLUSION

Safe disposal and cadavers dissections of COVID 19 deaths as distinct education tools in western Kenya, remains low and skewed as per the WHO (2020), recommendations on COVID 19 protocol and authors observational expectations due to limited uptake of comprehensive and holistic Community empowerment in the society on good health promotional approaches: social mobilization, community empowerment, quality COVID 19 advocacy in context of Kenyan scenario, health education, candid health communication and synergistic social marketing on of effect of COVID 19 disease and deaths, to enable efficiency primary prevention on safe infection prevention control with enhanced sustainable uptake PPEs by the older cohorts with higher risks to contact. COVID 19, which is primary a public health problem. When COVID 19 disease progress to secondary stages one develop severe pneumonia, dyspnea with sudden drops of blood pressures due to septic shock hence a medical problem now, thus the patient needs intensive care unit

ICU, machines to supplement oxygen in body. Government should focus on primary prevention and advocate for palliative supplement of Vitamin C, D dietary. Mediate for compulsory arterial embalming before disposal or repatriation of COVID 19 dead, and encourage health education and advocacy of quality uptake of PPEs specifically N95 among the older age who are at high risk for COVID 19, to influence equitable universal health care by 2030.

Acknowledgments

Wish to acknowledge great efforts put in this publication by my fellow scholar- editors and reviewers of Premier publishers whom have synergistically partnered in reviewing many epidemiologic articles. No other persons have conflicts of interest attributed this research work. Neither grants nor funds were involved in this research writings.

REFERENCES

- Ajman ML, (1998). Embalming: Principles and Legal Aspects of embalming human remains, Jaypee Brothers Publishers
- Bedino JH, (1994), Phenol exposure in embalming rooms: part 1. Champion Expanding Encyclopedia of Mortuary Practices, 621, 2498-2500.
- Bedino JH (2003), Embalming Chemistry: Glutaraldehyde versus Formaldehyde. Champion Expanding
- Bennett, J.E., Dolin, R., Blaser, M.J. (Eds.), (2015), Mandell, Douglas, and Bennett’s principles and practice of infectious diseases at facility setup, Eighth edition Elsevier/Saunders, Philadelphia, PA
- Burden, B. (2006). Centers for Disease Control and Prevention Atlanta, Georgia, as quoted in Mortuary Management magazine
- Brenner E, Maurer H, Moriggl B, Pomaroli A ,(2003), The human cadaver as a distinct educational tool classification and comparison with other educational tools pg., 185, 229-230
- Calverton, M. (2009) "Demographic Health and Survey, CBS and ORC Macro Ministry for Public health and sanitation, Nairobi Kenya" 114-119
- CBS, (2010), Population and Housing census for 2009, Ministry of Finance and planning Nairobi Kenya
- CDC, in Atlanta, (2020), Symptoms of coronavirus. Atlanta: Centers for Disease Control and Prevention
- CDC and ICAN, (2020), Best Practices for Environmental Cleaning in Healthcare Facilities in Resource-Limited Settings. Atlanta, GA: US Department of Health and Human Services, CDC; Cape Town, South Africa: Infection Control Africa Network
- Cheung KS, Hung IF, Chan PP, Lung KC, Tso E, Liu R, et al.,(2020) . Gastrointestinal manifestations of SARS-CoV-2 infection and virus load in fecal samples from the

- Hong Kong cohort and systematic review and meta-analysis. *Gastroenterology*. (2020) 159:81–95
- Cunningham, (1975), 'The Kinds of human Anatomy', *Medical History and dissection* 1-19
- D. C. Humphrey, (1987); 'Dissection and Discrimination: the Social Origins of Cadavers in America
- De Groot AC, Flyvholm M-A, Lensen G, Menné T, Coenraads P-J *etal* (2009) Formaldehyde-releasers: relationship to formaldehyde contact allergy. Contact allergy to formaldehyde and inventory of formaldehyde-releasers. *Contact Dermatitis*, 61, 63-8
- Funeral Consumers Alliance (2011). Dead Bodies and Disease: The "Danger" That Doesn't Exist
- Hanley, B. et al. (2020). Autopsy in Suspected COVID-19 Cases. *Journal of Clinical Pathology*, 73, 239-242
- GOK (2014) "Government of Kenya: Population of local authorities with Towns, County's Administrative and Political Units
- Global Map, (2020), John Hopkins University, corona virus resource center
- Hung C, Wang Y, Li X, Ren L, Yhao J, Hu Y, *et al.* (2020), Clinical features of patients infected with 2019 coronavirus in Wuhan, China. *Lancet*.
- IUCR, (2012) Inter University Research Council: Challenges facing people living in torrid zones and effort to improve their lives and environment
- International Cemetery Cremation and Funeral Association ICCFA, (2020): Embalming SOPs for infective COVID 19 human remains
- Kampf G, Todt D, Pfaender S, Steinmann E., (2020) Persistence of coronaviruses on inanimate surfaces and their inactivation with bactericidal agents. *Journal of Hospital Infection*. 2020; 104(3):246-51
- Koh, D., (2020). Occupational Health risks for COVID-19 infection. *Occupation Med* 70, 3–5.
- Lacy, J. *et al.* (2020). COVID-19: Postmortem diagnostic and biosafety considerations. *American Journal of Forensic Medicine and Pathology*.
- . Mayer, R. (2012). *Embalming: History, Theory, and Practice*, Fifth Edition, McGraw Hill NY
- McKone HT (1999) *Embalming—Chemistry for Eternity*. *Chem Matters*, 17, 12-13.
- Mills PR (2010) Preparation and presentation of Anatomical specimens at the University of Sydney
- M B Silali. (2020a) "Factors Associated with Low Virulence in the Infective COVID-19 Virus in Africa with the Pandemic infection Rise". *Acta Scientific Medical Sciences* 4.4 (2020): 130-134
- M B Silali. (2020b) "21 Days of Social Synergistic Pilot Survey on Community Participation to Determine the Level Virulence of COVID-19 in Africa before Re-Opening of the Education Sector in an efficiency, Affordable and Sustainable Approach". *Acta Scientific Medical Sciences* 4.7 (2020): 47-48
- Moa, D. *et al.* (2020). Guide to forensic pathology practice for death cases related to coronavirus disease (2019), (COVID-19) (Trial Draft). *Forensic Sciences Research*, 5(1).
- Morawska, L. *et al.* (2020). Airborne transmission of SARS-CoV-2: The world should face reality *Environmental International*, 139, 105730
- Morgan, O. (2004) *Infectious Disease Risks from Dead Bodies Following Natural Disasters*. RDivision of the World Health Organization
- Troyer, J.E. (2010). *Technologies of the HIV/AIDS Corpse*. *Med Anthropol*. 2010.
- Occupational Safety and Health Administration (2014). OSHA Fact Sheet: Safe Handling, Treatment, Transport and Disposal of Ebola
- Ramesh, N., Siddaiah, A., Joseph, B., (2020). Tackling corona virus disease 2019 (COVID 19) in workplaces. *Indian J Occup Environ Med* 24, 16
- Pereira, S.S.P., Oliveira, H.M. de, Turrini, R.N.T., Lacerda, R.A *etal.* (2015). Disinfection with sodium hypochlorite/ calcium hypochlorite in hospital environmental surfaces in the reduction of contamination and infection prevention.
- P. S. Fritz, Geneva, (1960); Getting's, *Death, Burial or cremation the Individual with infectious diseases*, pg. 216—34
- Royal College of Pathologists (UK). (2020). Autopsy practice relating to possible cases of COVID-19 (2019, novel coronavirus from China 2019/2020)
- Rutala, W.A., Weber, D.J., (2019.) Best practices for disinfection of noncritical environmental surfaces and equipment in health care facilities: A bundle approach. *Am J Infect Control*
- Rutala, W.A., Weber, D.J., (1997). Uses of inorganic hypochlorite (bleach) in health-care facilities. *Clin. Microbial. Rev.* 10, 597–610, (<https://doi.org/10.1128/CMR.10.4.597>)
- Star media, July, (2020) Culture before safety, Covid-19 human remains secretly exhumed, buried by Bukusu elders exhume, supervise the reburial of 2 bodies that were 'improperly' buried
- Silali MB, Odero W, Rogena E (2017a) Roles of DNA Molecules in Identification of Unclaimed or Missing Dead Bodies Presumed Death in Western Kenya Utilizing Comparison Standards. *J Foren Path* 2: 106
- Silali MB, Odero W, Rogena E (2017b) Community Participation Medico Legal Concepts to Identify Unclaimed or Missing Dead Bodies from Public Mortuaries to Improve Public Health in Western Kenya. *J Health Med Informat* 8 260. doi: [10.4172/2157-7420.1000260](https://doi.org/10.4172/2157-7420.1000260)
- S.W.X., Tan, Y.K., Chia, P.Y., Lee, T.H., Ng, O.T., Wong, M.S.Y., *et al.*, (2020). Air, Surface Environmental, and Personal Protective Equipment Contamination by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)/ COVID 19 from a Symptomatic Patient. *JAMA* 323, 1610
- Vita-Finzi L, Campanini B, (2006). Working together for health to improve infection prevention and control in population health

- Ye, G., Lin, H., Chen, L., Wang, S., Zeng, Z., Wang W *et al.*, (2020). Environmental contamination and decontamination of the COVID 19 in healthcare premises
- WHO. Geneva. (2009) A primer for mainstreaming health promotion. Working draft for The Nairobi Global Conference on Health Promotion, Kenya
- World Health Organization, Geneva (2020a), Decontamination and Reprocessing of Medical Devices and equipment for Health-care Facilities
- World Health Organization, Geneva, (2020b), Essential environmental health standards operation in health care
- World Health Organization, Geneva, (2009), Natural ventilation for infection control in health-care settings
- World Health Organization, Geneva, (2020c), Infection prevention and control for the safe management of human remains in the context of COVID-19: interim guidance.
- World Health Organization, (2020d). Infection Prevention and Control during Health services when COVID-19 is suspected or confirmed
- World Health Organization, Geneva, (2020e), Home care for patients with suspected /confirmed COVID 19 infection presenting with mild symptoms and management.
- World Health Organization, (2020f), Modes and Sources of transmission of Virus causing COVID-19: implications for IPC precaution recommendations
- World Health Education, (2020g), Practical considerations and recommendations for Religious Leaders and Faith-based Communities on disposal in context of COVID-19

APPENDICES

Appendix 1: Standard Operating Procedure COVID19 Embalment, (ICCF, 2020)

- i. Mortuary service providers must wear full PPE with N95 respirator or greater
- ii. Preferably two technical staffs should be allowed in procedure room, one active in handling the embalming and the second cleaning and passing instruments mainly to avoid cross contamination of the work area
- iii. Human remains must have facial area covered with a disinfectant soaked cotton cloth barrier before any manipulation and the entire remains must be sprayed down with disinfectant
- iv. Human remains clothing and personal effects must be bagged and then double bagged in a way not to contaminate the second bag,
- v. Human remains with retained facial area covered should receive a complete cleansing with embalmer's disinfectants, while adhering to "contact time" of at least 1hr the product to be utilized
- vi. Provide a plastic see-through barrier should be placed over the entire head area to create second facial barrier. The facial area should be also disinfected and cleansed last.
- vii. Clean eyes, nose, ears, mouth and throat using a strong disinfectant. Adhere to the contact time of the product. The plastic barrier must remain in place as you can work with your hands under the plastic at all times
- viii. After the nose, mouth and throat are cleaned, place packing (i.e. cotton) with disinfectant into the throat and nasal area in attempts to completely occlude the passages from the throat leading to the nose and mouth
- ix. Set features of the dead body accordingly
- x. Raise vessels and prepare for arterial injection
- xi. Mix an arterial solution into embalment tank set and maintain pressure of the injector pump of 4 -5 Pascal throughout the procedure.
- xii. Use a drain tube for your drainage to create a closed system between you and the blood discharged during the embalming. The hose leading off the drain tube should be placed down into the waste drain to prevent exposure to the blood as much as possible, (*there should be no free-flowing drainage down the table.*)
- xiii. Begin your injection on a closed system (drain tube closed). A low rate of flow is suggested so you don't cause distention.
- xiv. Allow as much injection to take place without causing distention or risking purge. Remember, the plastic barrier is still in place over the head and facial area.
- xv. When you have injected a sufficient amount of chemical, turn the machine off and wait for 15-20 minutes to allow the chemical to work and accomplish as much disinfection as possible in the allotted time
- xvi. Begin injection again and open drainage to allow the release of pressure.
- xvii. Perform topical embalming and intermittent drainage throughout the embalming process, allowing pressure to build and then release
- xviii. Follow normal embalming procedures to ensure a well embalmed body (i.e. use more arterial chemical if needed per case analysis). Stop after arterial injection
- xix. Wash and disinfect remains again (terminal disinfection)
- xx. DO NOT aspirate the human remains from any body cavity for toxicology for a minimum of 24-hours after arterial injection

Accepted 18 December 2020

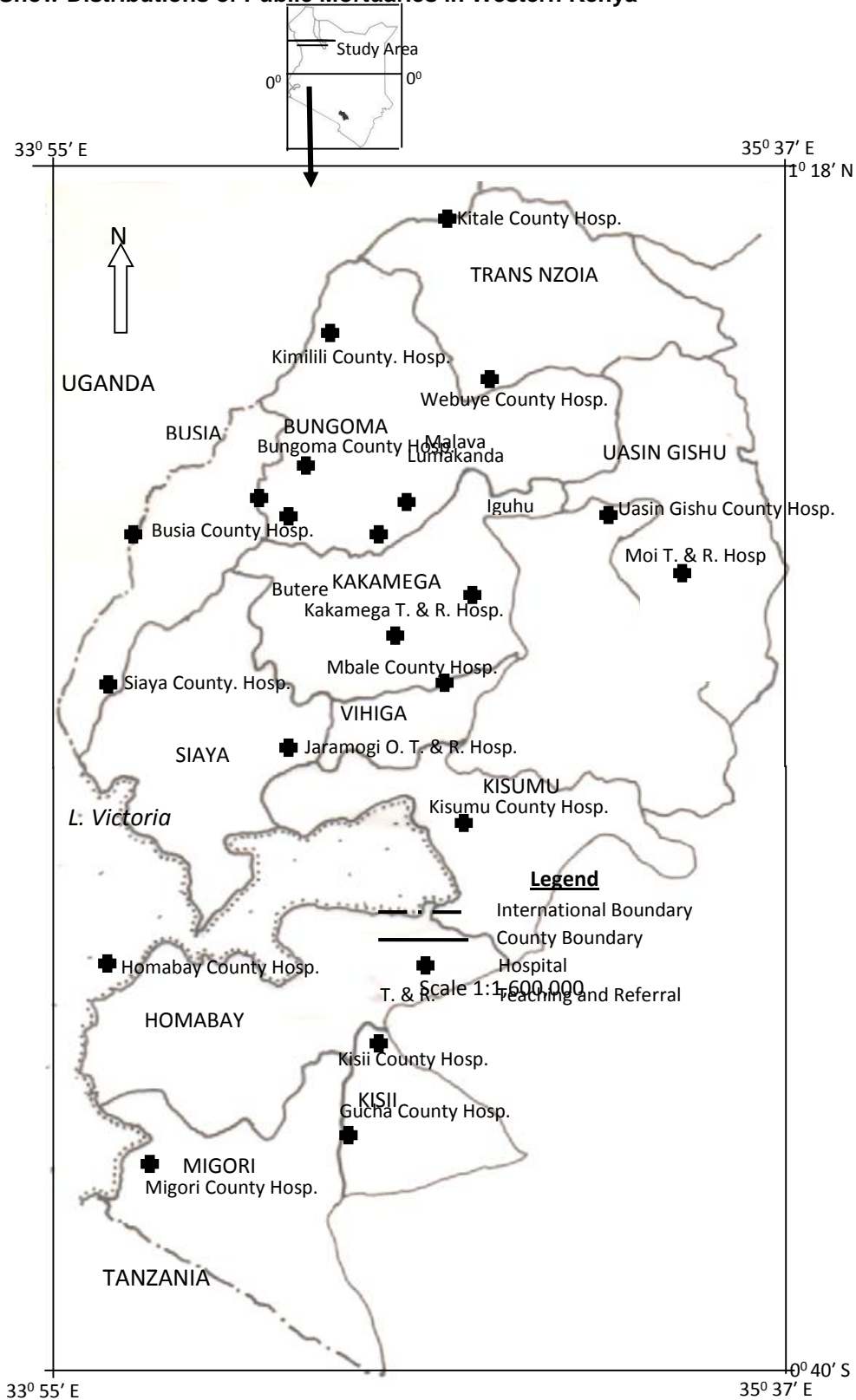
Citation: Maurice S (2021). Health Determinants of Safe Infection Prevention Control of COVID 19 Deaths to enable safe Disposal and Cadavers Dissection as Distinct Educational Tools in western Kenya. *International Journal of Public Health and Epidemiology Research*, 7(1): 199-213.



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Appendix 2: Map of Western Kenya

Figure 3.1: Show Distributions of Public Mortuaries in Western Kenya



Source: (County's Administrative and Political Units, 2014)

