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ABSTRACT
Cemeteries or 'sleeping places' are where bodies or cremated remains are buried. Dead bodies are essentially 'wastes' and their improper disposal in the form of burial may come with health implications. This is particularly apt in Nigeria and indeed Rivers State where unsupervised burials are carried out in homes (houses), compounds and community-based cemeteries. A walk through survey of five functional public cemeteries in Rivers State appraised their current state and their possible health implications. This on-the-spot site visit revealed infrastructural, operational and maintenance challenges which have further stressed the need for better managed public cemeteries and more objective studies on the subject.

Keywords: Public Cemetery; Management and Health

INTRODUCTION
Cemeteries are places where bodies and cremated remains are buried. A cemetery literally means a 'sleeping place' which implies that the land is specifically designated as a burying ground. Burials depending on ones religious inclination or cultural beliefs could be in shallow or deep graves or even outright open dumping in 'sacred' or disused areas (like the sea, waste land or the forest). In developed climes, cemeteries are traditionally where the final ceremonies of death are observed. This is different from most African societies (like Nigeria) where long obsequies of pre-burial, burial and even post-burial activities are hallmarks of such burials. Many cultures believe that burial is the most respectful way to treat the dead body, and find comfort in having a specific gravesite for family and friends to visit.

A cemetery is typically divided into sections for men, women and children. There is an intentional methodical maximization of the use of land space. Typically, corpses (or dead bodies) may be disposed of by open dumping, burial, berging, cremation and mummification. The suitability of one method of disposal over the other is arguably hinged on culture, religion, belief and to some extent sanitation. The primary drawback to burial is that it requires space. With population growth and the death toll from diseases like HIV/AIDS, our cemeteries are rapidly filling up. The scope for new sites is extremely limited and once a cemetery is full, it tends to become dead space with probably no future alternative function!

Types of Cemetery
Cemeteries, whether monumental, lawn, natural or family, are considered a special kind of landfill in some places which by extension makes burials a method of waste disposal.

Improper disposal of dead bodies may pose serious sanitary problems as some communicable disease outbreaks have been linked to broken down graves especially during natural disasters like landslides, (and recently in parts of Nigeria including Rivers State) floods.

Monumental Cemetery is the traditional style of cemetery where headstones and other objects of...
artifactual value made of marble, granite or similar materials rise vertically above the ground (i.e. between 50cm and over 2m)\(^1\). They are often regarded as unsightly due to the random collection of monuments and headstones they contain and because maintenance rests on family members who over time abandon these graves to decay.

**Lawn Cemetery** as the name suggests is covered in grass and each grave marked with a commemorative plaque (mostly standardized by government) at the head of the grave at ground level\(^1\). This is much easier to maintain and ensures optimal utilization of space though privacy of visiting family members is virtually non-existent.

**Natural Cemetery** or eco-cemetery or green cemetery is a new style of cemetery and is an area set aside for natural burials (with or without coffin)\(^1\). Natural burials are motivated by a desire to be environmentally conscious with the body rapidly decomposing and becoming part of the natural environment without incurring the environmental cost of traditional burials. In principle, natural burial can be performed in any style of cemetery. Also, because of the rapid decomposition of natural burial, the re-use of the grave site can occur earlier than in conventional burial which would improve the efficiency of land use even as it has its socio-cultural implications.

**Features of a Cemetery**

Dead bodies are essentially solid waste and therefore their disposal must meet basic environmental health standards. A good burial site (good waste disposal system) should be well protected from animals and rodents, must not pollute underground or surface water and the air, must not be unsightly and must not be accessible to flies and other pests. A cemetery should have a steady source of clean water, pest control, beautification and gardening, record keeping, administrative office, security, worship or meditation place\(^4,5\).

The adherence to these features is important as Nigeria and indeed most of black Africa still buries her dead at home. Recently, burial grounds are laid out as public parks large and expressly laid out parcels of land for the interment of the dead and not necessarily a yard of any worship area. They are well kempt and add to the aesthetics of the area they are situated.

**Benefits of a Cemetery**

Even a place for the dead has its benefits! Cemeteries have been known in the United Kingdom and United States to be places of tourism. This can be seen at Westminster Abbey and the 9/11 ground zero respectively. Well kept cemeteries add to the aesthetics and beauty of a place as the well kept lawns and well tendered flowers add to the general ambience.

Being a major method of waste disposal (as people die every time, everyday), cemeteries enhance the sanitation of a community as they ensure that dead bodies are properly disposed of. Also, cemeteries are a rich source of history and historical artifacts as seen in the tombs of the Egyptian pharaohs. In archeology and medical research, places and events have been dated from findings in cemeteries.

In forensics and autopsies, cemeteries have been used to solve crimes from the exhumation and pathological examination of dead bodies. They have also been known to be places of meditation and worship. Revenue accrues to government from allotment of spaces in public and private cemeteries in many countries and even in Nigeria where cemeteries have been known to be a big business enterprise\(^5,6\).

**Public Cemeteries in Rivers State**

In Nigeria and indeed Rivers State, cemeteries are by law statutorily within the control of the local councils\(^6,7\). The Act does not make provision for the establishment of private cemeteries. However, it allows for community based cemeteries (which are designated parcels of land for burial). A visit to 5 cemeteries in Rivers State viz; Port Harcourt City, Bonny, Okirika, Degema and Ahoada East Local Government Areas showed that the cemeteries are situated in towns ranging from urban to semi-urban covering the three geo-political senatorial zones of Rivers...
These cemeteries were the only known and existing public cemeteries. However some councils are now trying to set up new ones where they did not exist as community-based cemetery burials or home burials in houses or compounds is the most prevalent practice. The visit to these cemeteries was to take a snap-shot, walk through assessment of the cemeteries’ layout, operations and maintenance using a checklist developed from existing outlined cemetery standards.

The walk-through visit to these cemeteries revealed that they all had challenges of space, access and location. The existing cemeteries are old and overstretched. Used graves have been ‘unknowingly’ re-used as bones have been dug up while digging graves for burial. Encroachment by land speculators is a challenge as towns have now grown into the cemeteries and vice versa. Human bones have also been dug up whilst developing plots of land close to the cemeteries. Cemeteries are so close to residential areas that the risk of underwater contamination is very high keeping in mind that aside from the hazard the buried corpses pose, metals and varnishes used in making the coffins/caskets may also pollute underwater. In controlling encroachment, some local councils have taken steps to fence some of these cemeteries. This, though coming late is welcome.

Also, poor staffing (i.e. gardeners, grave diggers, security officers, administrators, record officers etc) and sanitation present major operational challenges; as most of the cemeteries had not recruited new staff in the last 10 years. On the average, most of the cemeteries visited just had an administrative head, a ‘gardener’ and 2 manual grave diggers only. More importantly, is that these staff are ageing and grossly inadequate when compared to the size of the cemetery and the number/frequency of dead bodies they handle. The cemeteries are sometimes constrained to hire extra untrained hands from elsewhere. Therefore, the system is left with an ageing staff with declining efficiency to the extent that adhering to best practices in the handling and eventual burial of the dead may fall short of expected best practices. This apparent short fall in standard is also likely to put these cemeteries in a state where they pose health risks to the populace. This is against the back drop that dead bodies are wastes and poor disposal could come with all its attendant risks. There was also the challenge of infrastructure like office space, water, fumigation equipment, worship/meditation space, gardening tools and lawnmowers etc.

The poor sanitary state of these cemeteries which are a consequence of poor manpower and infrastructure which were evident in these cemeteries poses serious health challenges as epidemics have been traced to broken graves during tsunamis, landslides, a situation which may have occurred in the course of the recent floods in parts of Nigeria. This threat is due to the risk from the poorly protected graves which makes the ‘waste’ contained in them possible sources for disease causing agents. The physical and psychological blot on the landscape associated with these poorly protected graves is another healthcare and environmental menace which they cause.

All the evaluated public cemeteries were poorly secured. However, the low prevalence of grave robbery in Nigeria does seem to limit the magnitude of this setback. This could be due to the sacrilege associated with desecration of graves in Nigeria and indeed most of black Africa. However, there have been other security risks arising from the poorly secured public cemeteries such as the use of these cemeteries as havens for petty thieves, drug users/dealers and other social miscreants.

Death records expected in cemeteries include grave labeling, date and cause of death, date of burial and bio-data such as name, age at death, gender, occupation and address. These data form a pillar of vital statistics. In spite of the importance of these data, the burial records where they existed in the evaluated cemeteries were poorly kept. This undermines the forensic, research, archeological and historical benefits accruable from the public cemeteries in Rivers state.
CONCLUSION
There appears to be a deficiency in the number of cemeteries available for public use in Rivers State as most people buried their dead either at home or in community based cemeteries. The cemeteries were poorly laid out, poorly maintained and widely encroached on. These cemeteries may turn out to be recipes for health and social challenges like water borne diseases, pest infestation and crime (especially in disaster situations). More evidence-based objective studies on this subject and the provision of new (natural and environmentally friendly), better planned and maintained cemeteries is welcome. Also, the education of the public on the use of public cemeteries is strongly advocated.

REFERENCES