

International Committee of the Red Cross (ICRC): Cemetery planning, preparation and management during COVID-19: A quick guide to proper documentation and disposition of the dead.

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The International Committee of the Red Cross (ICRC) is an impartial, neutral and independent organization established in 1863 whose exclusively humanitarian mission is to protect the lives and dignity of victims of war and other situations of violence as well as to assist in the response to humanitarian emergencies, such as epidemics. The ICRC developed forensic capacity in the early 2000 to support its humanitarian operations around the world, including for ensuring the proper and dignified management, documentation and identification of the dead [1].

The Management of the Dead (MotD) process includes proper documentation and appropriate disposition, including temporary burials [2 , pp. 27–28 and Annex 7]. Local capacities to perform this process can quickly become overwhelmed if there is a sudden and significant increase in the number of deaths. It is therefore important to develop policies and regulations that encompass the necessary administrative and standardized technical procedures to ensure that the dead are protected, and the interests of the relatives are best ensured. The benefits of implementing policies and procedures are multiple: the dignity of the dead is ensured through their proper disposition, (e.g., cremation or other forms of disposal in accordance with relatives' cultural and religious beliefs). This facilitates subsequent identification efforts and the traceability of bodies, in individual cases and after a mass fatality incident or an event that causes a surge in deaths over time.

The authorities and staff responsible for managing cemeteries and burial sites are usually involved in the following: (i) burials and documentation, (ii) maintaining burial places, and (iii) exhuming and transferring bodies. This document only examines the first point. Other forms of temporary or final disposal of bodies (i.e., cremation) are not covered here. This quick guide provides practical recommendations for managing and documenting the burial process, including temporary burial, with a focus on the COVID-19 pandemic. This guidance can be applied to any incident involving mass fatalities when the local capacity to provide safe, appropriate and dignified burials is overwhelmed.

In addition to this quick guide, the International Committee of the Red Cross (ICRC) has published a comprehensive set of recommendations [3] based on its experience of managing the dead in emergencies around the world, including during natural disasters and epidemics (e.g. Ebola [4]). These recommendations help authorities and managers plan for a surge in fatalities from the COVID-19 pandemic and offer guidance on how to respond appropriately. In these documents, other forms of final disposal of bodies have been duly considered, considering the cultural or religious beliefs of relatives. The recommendations also include special considerations for temporary storage areas, the final disposal of bodies and the handover of bodies to relatives. There are also recommendations for engaging with the next of kin, the documentation required and the registration of death.

The present document explains how to plan, prepare and manage a cemetery (see [5] for an example of local regulations in Colombia). It also provides specifications on size, spacing and excavation depths, together with information about other important considerations. The document also covers procedures for receiving bodies, as well as measures to ensure the health and safety of relatives and cemetery staff. Additional recommendations on how to correctly map graves is provided, as well as a list of actions to ensure the traceability and correct management of bodies in a cemetery.

The main principles in MotD can be summarized as: • The health and safety of everyone directly involved in the management of the dead is a priority. Appropriate personal protective equipment and training should be provided, and the infrastructure to bury bodies should be properly planned, prepared and managed.

All measures, including policies, regulations and practice, must ensure the protection and dignity of the dead, and demonstrate respect towards their relatives and affected communities, including special considerations for their cultural and religious practices and rituals.

Every effort should be made to ensure the timely and reliable identification, documentation and traceability of the dead. Relatives should be helped to obtain all relevant documents, such as death certificates, documents for registering the death and burial permits.

Correctly burying bodies and ensuring the appropriate documentation of cemeteries allows for the following objectives to be achieved: 1. All bodies are traceable and accounted for. This is particularly important for mass fatalities and for unidentified or unclaimed bodies. 1

The ability to carry out a forensic investigation into a death and the ability to identify a body at a later stage are maintained, if and when required.

Relatives can visit the resting place of their loved ones.

Bodies are handled and disposed of safely. This means prioritizing health and safety measures for cemetery staff and visitors to the cemetery.

Community consultations: How the dead are cared for varies according to local, cultural and religious practices. It is therefore recommended that consultations are carried out with relevant parties – particularly religious and community leaders and relatives – to ensure that any changes to usual practices for reasons of health and safety are understood and considered acceptable. Open and transparent discussions with relevant parties builds trust between authorities and the community. We recommend developing a communication strategy as part of the emergency response plan.

Managing the dead in perpetuity: All bodies stored temporarily or for longer term, including unidentified or unclaimed bodies, must be properly labelled, tracked and accounted for in perpetuity.

Individual markers for graves: All burials should be registered, and the graves physically identified with a marker that specifically refers to each labelled body.

Water sources: Care must be taken to ensure that run-off resulting from the natural decomposition of buried human remains is managed so as not to contaminate groundwater.

Repatriation: If a person who has died is a migrant or foreigner, provision needs to be made to repatriate the body to their country of origin. This may involve consulting embassies and consulates, immigration and border control departments, health authorities, civil aviation authorities and airlines, funeral homes, or any other government department. In light of the restrictive measures being enforced by many states and the closing of borders to prevent the spread of COVID-19, the relevant ministries of foreign affairs or governors' offices should be consulted about their current arrangements for repatriating people who have died from COVID-19 or other causes. Consultation with the authorities in the country where the deceased has died may also be required. This will require countries of origin to issue permissions and instructions for repatriation, with provisions for handling potentially infected bodies on arrival. The needs of relatives (e.g. cultural and religious) should be respected, provided that health and safety can be maintained. Examples include relatives being informed of any decision that either the country of residence or the country of origin takes to repatriate the body, or cases where the authorities decide to temporarily bury the body, pending a later return or repatriation.

Managing deaths in camps: Authorities responsible for managing camps for refugees and internally displaced people are encouraged to establish a cemetery next to the camp, if conditions allow. This allows relatives to visit more easily and it helps prevent disappearances.

Review regulations: Review the existing regulations for burial permits and ensure that the authorities issue a decree or instructions to facilitate the burial permits if mass fatalities occur or

when the capacities for burial are overwhelmed. Issues such as permits, and land availability must be considered, irrespective of whether the cemetery is intended for the temporary or permanent burial of bodies.

Include third parties: Identify third parties who can contribute to the planning process. This may include other organizations or companies involved in MotD, such as funeral services, crematoriums, private or public cemeteries.

Mass graves: Mass graves are not recommended, nor are they in line with international best practice on MotD. They are often the result of poor planning and show a disregard for the wishes and cultural and/or religious beliefs of relatives and communities. Individual graves facilitate a more accurate traceability of bodies.

Trench burials: In exceptional circumstances, a trench burial may be necessary: a trench holds a single level of labelled bodies, each placed parallel to the other. Bodies with or without coffins should not be stacked on top of each other. Trench burials may be acceptable if properly documented and managed, and if the justification for this burial method is communicated to the relatives and communities affected.

Body bags: Bodies that are potentially infectious should be buried in an individual body bag, regardless of whether a coffin is used or not.

Coffins: When coffins are used, they should be made from materials that degrade rapidly and do not release persistent chemical by-products into the environment.

Suitable sites: The land where the cemetery is to be located should not be at risk of flooding. Slopes and hills can be prone to landslides and may be more difficult to develop. It is important to seek an expert geological and hydrological opinion before approving and establishing a site for a new cemetery. Depending on the findings, some of the minimum distances provided in this chapter may have to be increased (Fig. 1 , Fig. 2 , Fig. 3). Fig. 1 Cemetery and minimal distances. Illustration by Igor Malgrati and Mirna Noaman/ICRC.

B = Buffer zone for planting deep-rooted vegetation and to separate the burial site from inhabited areas = 10 m minimum.

C = Distance between burial site and field drains = 10 m minimum.

D = Distance between burial site and drinking wells, boreholes and wells = 250 m minimum.

E = Distance between burial site and springs and water courses = 30 m minimum.

The minimum distances given for C, D and E may have to be increased, depending on soil conditions.

Grave section, with sizes and distances (for individual graves and trench burial). Illustration by Igor Malgrati and Mirna Noaman/ICRC.

B = Distance from bottom of the grave to water table = 1.2 m minimum (1.5 m if the burials are in sand).

C = Distance between bodies in a trench burial = 0.4 m.

D = Width of individual grave = 0.75 m to 1.2 m (1 m for urns).

WT = Water-table level (at its highest level).

The minimum depths given for A and B may have to be increased, depending on soil conditions.

Grave arrangement (in a row). Adapted from [6] page 587.

Burial space: The need for additional land for cemeteries must be evaluated in advance as part of the process to plan for mass fatalities and based on calculations of existing burial space. If it is anticipated that a cemetery will not have sufficient space to accommodate a sudden influx of bodies for burial, authorities should identify and plan alternative cemeteries or designate land that could be used as a cemetery. This should be carried out before there is an influx of bodies to avoid potential conflict with communities.

Funerals: The frequency of funerals is an important consideration when planning cemetery operations. There is a need to accommodate a range of logistical factors and to adequately coordinate work and traffic flow to meet the increase in demand for a safe and respectful funeral. This may require careful consideration of access to and from certain areas, such as the management of entrances and coordinated control over the roadways within the cemetery.

Water sources: It is important to identify water sources before siting a cemetery. To avoid contamination of nearby water sources, burial sites should be located a reasonable and safe distance from them, as recommended in this guidance (see Fig. 1).

Excavation: Excavating a grave correctly, and to an appropriate depth, prevents scavengers from accessing graves and it stops water sources from becoming contaminated. It also helps preserve unidentified bodies in case there is a need to identify them later and, ultimately, it helps ensure dignity for the dead.

Size: Graves are usually arranged in rows, as shown in Fig. 3 . In most places the grave is standard, usually adult and child size, as per Table 1 . Table 1 Size of grave by type. Adapted from [6] page 587.

Registration of bodies: The cemetery administrator must register all bodies when they enter the cemetery and confirm that the body is accompanied by the appropriate documentation for burial. This is part of the chain of custody to ensure the body can be traced. It guarantees that the body buried in a particular plot is the body registered in the cemetery records.

Handover details: Information must be recorded about who delivered the body, who received the body and the presence of any relatives at handover. The date and time the body was received must be recorded in the register.

Unidentified bodies: Unidentified bodies or bodies received without a relative present must be treated carefully, with proper records about the burial plot so that these bodies can be easily located in the cemetery. Families may wish to visit their dead relatives when they can do so, or bodies may need to be exhumed and returned to relatives later.

Individual records: Each body being buried should have a unique and individual consecutive number assigned to it that is formally recorded. Numbers should never be reused or duplicated. People responsible for completing the register and records should make sure that all the information marked on, and in, the coffin or on the tag of the body bag is clearly linked to the unique number of the grave or urn in which the remains of an individual will be placed.

Check documentation: Check the body has all the documentation required for the burial, including legal burial permits and other documents in accordance with any applicable legislation.

Personal items: Check whether there are any personal effects that need to be handed over to relatives before the burial. Also, ask relatives before the ceremony or burial if there are any items that they would like to bury with the body.

Responsibility for the dead in perpetuity: The cemetery administrator or the municipal services must maintain responsibility for the body and its whereabouts in perpetuity. The cemetery must be properly maintained so that no graves become unidentifiable or untraceable, either because of overgrown vegetation or headstones or grave markers being lost or destroyed.

Infection control: It is the responsibility of the cemetery administrator, with the support of the local authorities, to uphold all health and safety measures related to COVID-19 for relatives and others attending funerals. This includes responsible social distancing, the wearing of masks if required and the safe handling of the body by relatives, etc.

Arrival of infected bodies: During the COVID-19 pandemic, it is important for cemetery administrators to know which bodies arriving at the cemetery are suspected of being infected with COVID-19 or have been confirmed as such. This allows managers to ensure that all safety measures are in place for the health and well-being of staff and visitors.

Health and safety: Health and safety in the cemetery involves more than implementing safe body handling procedures to prevent infection from dead bodies. The excavation of graves, particularly trench graves, must include safety measures to prevent grave walls from collapsing. Appropriate safety equipment, such as hard hats and high-visibility jackets, are also important, as well as safe working practices for operating heavy machinery, such as excavators.

Safety around graves: Safety measures at burial sites should also include managing how people access and circulate around graves. It is important to prevent people from accidentally falling and to ensure grave walls do not collapse under the weight of people.

- It is important to properly map the graves or urn repositories on a cemetery map that is maintained and updated by the cemetery administrator.

Demarcate visibly each grave and assign each one a unique number.

Identify graves according to zones, rows or columns. These are often referred to as “lots” and “plots”.

The number of the grave should match the number in the documentation and registers kept by the cemetery administrator.

Procure enough grave markers to allow for a potential surge in the number of burials.

Mark each grave so that the marker cannot be not easily removed. Ensure the grave marker can withstand adverse weather conditions and time, and that the grave details remain legible.

The entire perimeter of all graves should be clearly demarcated to avoid accidentally exposing or damaging existing graves or human remains.

Cemeteries must be maintained and protected for reasons of dignity for the dead, but also so that the cemetery is safe to visit. Burial sites will need to be located by officials and relatives in the future.

The perimeter of the cemetery should be demarcated and clearly visible to the public. Erect a protective fence or wall that will prevent graves from being disturbed or damaged.

Fig. 4 , Fig. 5 illustrate some of these principles. Fig. 4 Example of cemetery mapping by areas and sections. Illustration by Mirna Noaman/ICRC.

Examples of how to mark graves, including areas and sections. Illustration by Mirna Noaman/ICRC.

- Do not bury a body that has not been labelled or does not have the proper documentation.

Do not bury an unidentified body that does not have a numbered tag affixed to the body for reference.

Do not lose continuity of process or records for unclaimed or unidentified bodies.

Do not bury an unidentified or unclaimed body with other remains in a mass grave or ossuary.

Do not move bodies between graves or between locations without a legal order from the authorities.

Do not cremate bodies without specific authorization and the agreement of the relatives.

Do not cremate unidentified or unclaimed bodies.

Do not exhume a body without an order and authorization from the authorities (if a body is exhumed or transferred, make sure all relevant information is properly recorded in the cemetery register or cemetery information management system).

Produced by the International Committee of the Red Cross (ICRC) Forensic Unit and Water and Habitat Unit, these guidelines contain official recommendations from the ICRC for the disposition of the dead and complements their existing guidance on the management of the dead and the management of infectious bodies and human remains. This document does not contain peer reviewed original data or experimental results. Any expressed guidance, advice, or opinions are solely those of ICRC and may not necessarily represent the views of the journal's editorial team or Elsevier.

The authors have no competing interests to declare.

Cordner S. Tidball-Binz M. Humanitarian forensic action – its origins and future *Forensic Sci. Int.* 279 2017 65 71 28846915 10.1016/j.forsciint.2017.08.011 2 Finegan O. Fonseca S. Guyomarc'h P. Morcillo Mendez M.D. Rodriguez Gonzalez J. Tidball-Binz M. Winter K. the ICRC Advisory Group on the Management of COVID-19 Related Fatalities International committee of the red cross (ICRC): general guidance for the management of the dead related to COVID-19 *Forensic Sci. Int.: Synergy* 2 2020 129 137 32412013 10.1016/j.fsisyn.2020.03.007 PMC7148714 3 Cordner S. Coninx R. Kim H.-J. Alpen D.V. Tidball-Binz M. Management of Dead Bodies after Disasters. A Field Manual for First Responders Second ed. 2016 International Committee of the Red Cross (ICRC), the World Health Organization (WHO), the Pan American Health Organization (PAHO) and the International Federation of Red Cross and Red Crescent Societies (IFRC) Geneva 4 Cordner S. Bower H. Tidball-Binz M. The Ebola epidemic in Liberia and managing the dead – a future role for humanitarian forensic action? *Forensic Sci. Int.* 279 2017 302 309 28501359 10.1016/j.forsciint.2017.04.010 5 Equitas.org.co. ¿Cuál es su nombre? Guía para el cuidado de personas no identificadas en cementerios 2011 [online] Available at: <http://equitas.org.co/narces/paginas/cartilla> 6 Neufert Ernst Peter Architects' Data 3rd ed. 2000 Wiley-Blackwell Publishing 586 587 1 In certain contexts, the deceased often come from vulnerable communities, perhaps living in shelters or on the street. The deceased may be a migrant, displaced person, refugee or a person separated from their relatives (including people deprived of their freedom), which prevents their relatives from identifying or immediately claiming their body. It is imperative to ensure that bodies are stored or buried appropriately.