

INFECTION CONTROL AND BIOSAFETY

Management and monitoring of deaths - COVID-19 Context (SARS-CoV-2)

The transmission of the new Coronavirus (SARS-CoV-2) occurs through person-to-person contact and through fomites. We point out that this virus can remain viable on environmental surfaces for 24 hours or more. The transmission of infectious diseases can also occur through the management of dead bodies, and its risk is increased due to the absence or inadequate use of personal protection equipment (PPE). In this context, professionals involved with body care are also exposed to the risk of infection.

The dead bodies management of patients with suspected or confirmed diagnosis of infection with the new Coronavirus (SARS-CoV-2) requires some care:

- **Confirmed cases:** diagnosis of infection with the new Coronavirus (SARS-CoV-2) confirmed by laboratory tests;
- **Suspicious cases:** any and all cases with history or clinical examination findings compatible, with the infection or clinical picture and / or picture of Severe Acute Respiratory Syndrome (SARS) to be clarified.

1. Death Communication

- **Approach of family members, friends and guardians:**

In this very delicate moment, considering the flow determined by the health authorities in relation to the funeral, if possible, it is recommended that communication of the death be carried out to family members, friends and guardians, preferably by specialized professionals, such as: psychologists and social workers, in a quiet place, which allows the reception and clarification of doubts.

2. Death Verification System - Specific guidelines for performing autopsies

For cases of confirmed or suspected COVID-19, following the recommendations of the Brazilian Society of Pathology, there are specific guidelines for handling the bodies and performing autopsies.

In cases confirmed by laboratory tests, the recommendation line issued by international bodies such as the World Health Organization and the United States Center for Disease Control and Prevention is that autopsies should not be performed. Doctors who care for these patients in hospitals must fill in the cause of death in a well-defined manner.

In suspected cases, flu-like conditions or relevant respiratory diseases, when there is no confirmation by laboratory tests, the indication is that the tests are collected at the hospital itself. Whether or not the autopsy is performed will depend on the regulation of each state and service, we do not have a single defined definition.

All other cases, which depend on the regulation and the time of the epidemic in the region, such as asymptomatic patients, which according to the literature have the same contagion capacity as symptomatic patients, and represent about 80% of the cases, there is no prohibition until the time to perform autopsies, but some important precautions are needed:

- ✓ Personal protective equipment (clean robe with long sleeves, waterproof and plastic apron).
- ✓ Plastic face shield or face mask
- ✓ Goggles to protect the face, eyes, nose and mouth from splashes of potentially infectious body fluids
- ✓ Gloves with cut-proof material for cutting-risk procedures
- ✓ Hand scissors - avoid oscillating saw that produces aerosols
- ✓ Disparation care
- ✓ Limit the number of people in the room during the procedure
- ✓ Beware of sharp punctures and aerosol emissions

Within the services performed during autopsies, special care is needed for the elderly, pregnant women and patients with chronic diseases. If there is a manifestation of a suspicious clinical picture such as cough, runny nose, fever and dyspnoea, removal is recommended, and if possible, collection of test / examination.

Every death confirmed for COVID-19 by the Obituary Verification Service, must be notified immediately to the local surveillance system. The local epidemi-

ological surveillance system should also be aware when the cause of death is inconclusive or discarded for COVID-19. It is recommended that public and private health services do not send suspected or confirmed cases of COVID-19 to the Death Verification Service (SVO). If the collection of biological material has not been carried out in life, post-mortem collection should be performed at the health service, using a swab in the nasal cavity and oropharynx, for further investigation by the local surveillance team. It is necessary for each location to define a flow of collection and processing of these samples.

Attention: If there are many deaths by COVID-19 the following measures must be adopted:

- ✓ Limit body recognition to a single relative / guardian.
- ✓ It is suggested that there is no direct contact between the family member / guardian and the body, maintaining two meters between them, which can even be done through glass. If there is a need for approximation, the relative / guardian should use a surgical mask, gloves and protective aprons.
- ✓ It is also suggested that, depending on the existing structure, the recognition of the body may be through photographs, avoiding contact or exposure.

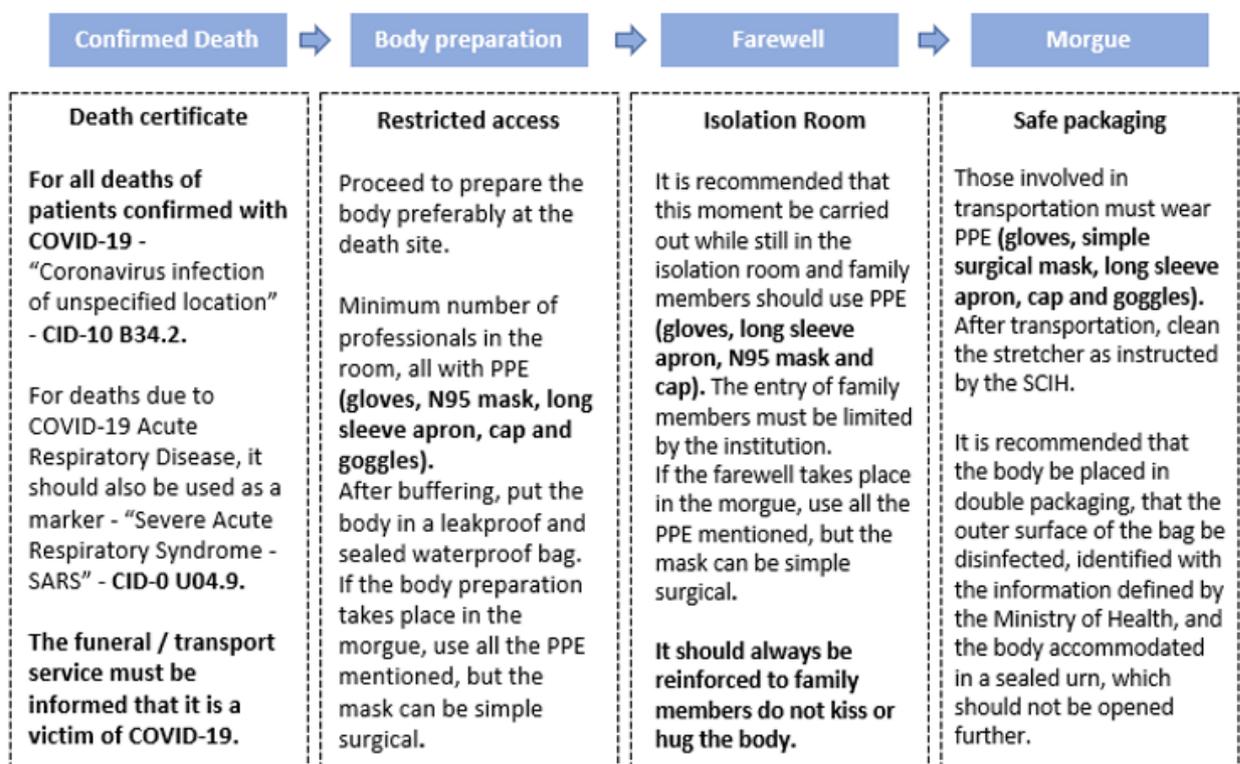
3. Body Management

As SARS-COV2 is transmitted by contact, it is essential that professionals protect themselves from exposure to infected blood and body fluids, objects or other contaminated environmental surfaces.

Below we list the recommended flows, considering the place of death:

- **DEATH IN HOSPITAL**

When caring for bodies of suspected or confirmed cases of COVID-19, only the strictly necessary professionals wearing PPE must be present in the room or any other area.



Always remove and dispose of all PPE where it was used and then wash your hands

The funeral service / transport should always be informed that they are victims of COVID-19, a biological agent with risk class 3.

- **Death certificate**

The death certificate is a legal document with the function of documenting an individual's end of life. The causes of death are standardized among all member countries of the World Health Organization and follow codification pre-established by the body.

The ICD-10 code B34.2 (Coronavirus infection of unspecified location) must be used for the notification of all deaths by COVID-19. For deaths due to acute respiratory disease due to COVID-19, the code U04.9 (Severe Acute Respiratory Syndrome - SARS) should also be used as a marker.

- **Body Preparation**

Proceed to prepare the body preferably at the death site, everyone involved should wear the recommended PPE (gloves, N95 mask, long sleeve apron, cap and goggles).

It is recommended that professionals aged 60 years or over, pregnant women, lactating women, those with chronic, cardiopulmonary, oncological or immunodepressed diseases should not be exposed to activities related to the handling of bodies of confirmed / suspected cases by COVID-19, due to the increased risk of complications. Wash your hands before and after preparing your body with soap and water, carefully remove tubes, drains and catheters from the body, due to the possibility of contact with body fluids, sanitize and stop / block the drain holes. of wounds and catheter puncture with impermeable cover, and the natural orifices to prevent extravasation of body fluids.

During packaging, which must take place at the place of death, handle the body as little as necessary. When possible, the body packaging should follow three layers:

1^a: wrap the body with sheets;

2^a: put the body in its own waterproof bag (this should prevent body fluids from leaking);

3^a: put the body in a second (external) bag and disinfect with sanitizer regularized by Anvisa, compatible with the material of the bag.

Label the patient's name. Identify the external transport bag with information related to biological risk: COVID-19, biological agent class 3 risk.

It is recommended to use a corpse transport stretcher for this purpose only, and that it be easy to clean and disinfect.

- **Farewell**

It is recommended that this moment be carried out while still in the isolation room and family members should wear PPE (gloves, long-sleeved apron, N95 mask and cap). The entry of family members is limited by the institution.

NOTE: if the farewell takes place in the morgue, use all the PPE mentioned, but the mask can be simple surgical. It should always be reinforced so that family members do not kiss or hug the body.

- **Morgue**

Upon arrival at the morgue, preferentially allocate the body in refrigerated compartment and signaled as COVID-19, biological agent class 3 risk.

It is recommended to use the body transport stretcher for this purpose only. In case of reuse of stretcher, it is necessary to disinfect it as recommended, it should be disinfected with 70% alcohol, 0.5% chlorinated solution at 1% or other sanitizing solution regulated by Anvisa. Professionals involved in transporting, guarding and allocating the body in the coffin must also adopt the recommended pre-security measures until the coffin is closed (gloves, simple surgical mask, long-sleeve apron, cap and goggles).

According to the Ministry of Health, it is preferable to identify the body with name, medical record number, National Health Card (CNS) number, date of birth, mother's name and CPF, using tape, with legible letters, fixed in the thoracic region. The body must be accommodated in an urn, to be sealed before delivery to family members / guardians, once sealed, the urn must not be opened. Clean the urn's surface, already sealed, according to recommendations with 0.5% chlorinated solution. After handling the body, remove and dispose of all PPE in infectious waste.

The funeral service / transport must be informed that it is a victim of COVID-19, a biological agent of risk class 3. There is no need for a special vehicle to transport the body, nor the use of PPE by the drivers the vehicles that will transport the coffin with the body, which also applies to family members who will accompany the transfer, considering that the urn is sealed and they will not handle the body.

- **Contingency plan**

We know that the virus has high transmissibility and that lethality differs according to age and presence of other associated clinical conditions, varying between 0.2% - 14.8%, according to the Ministry of Health - 2020. It is important that institutions structure a contingency plan if the number of deaths exceeds

their capacity for care, for that it is recommended that they daily analyze the severity profile of the patients who are under care and the clinical evolution of the cases, in order to identify the exact time to start the contingency plan.

Renting a space for the temporary custody of the bodies may be an option, remembering that it is necessary to consult the current legislation and the recommendations of the authorities for these decision-making.

- **DEATH AT HOME OR HOUSING INSTITUTIONS**

The relative / guardian or management of the long-stay institutions that report the death should receive instructions not to manipulate the bodies and avoid direct contact. Immediately after the death is reported, in the case of a suspected case of COVID-19, the certifying doctor must notify the health surveillance team.

The local Health Surveillance is responsible for investigating the case:

- Check the need to collect samples to establish the cause of death (if the patient is a suspected case).

The body must be prepared by a health team, observing the individual precautionary measures, as previously described. The body must be wrapped in sheets and in a plastic bag (this bag must prevent the flow of body fluids).

Family members / guardians or management of long-term care facilities should receive guidance on disinfecting environments and objects (using 0.5% to 1% chlorinated solution).

The transport of the body to the morgue must observe the precautionary measures and preferably be carried out in a mortuary car / hearse or other. After transportation, the vehicle must be sanitized and disinfected. In the necro-tertiary, the recommendations should be followed as described for the management of the bodies of deaths that occurred in a hospital environment.

* These conducts were based on the evidence available at the time and may be changed in the face of new evidence. It is recommended that additional strategies be based on epidemiological information periodically released by federal, state or municipal authorities.

References

1. Interim Guidance for Collection and Submission of Postmortem Specimens from Deceased Persons Under Investigation (PUI) for COVID-19, February 2020. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-post-mortemspecimens.html>
2. Manejo de cadáveres en el contexto del nuevo coronavirus (COVID-19). Organización Mundial da Saúde. 18 de março de 2020.
3. Biossegurança para manuseio de cadáveres suspeitos ou confirmados por COVID-19 – Serviços de verificação de óbito e Instituto Médico Legal. Informe técnico 55/2020 - Núcleo municipal de controle de infecção hospitalar (NMCIH/DVE/COVISA). 17 de março de 2020. https://www.prefeitura.sp.gov.br/cidade/secretarias/upload/saude/informe_tecnico_cadaveres_covid.pdf
4. Orientações para o Preenchimento da Declaração de Óbito. Secretaria de Estado da Saúde – Centro de Informações Estratégicas em Vigilância à Saúde – CIVS. 17 de março de 2020. http://www.saude.sp.gov.br/resources/ccd/homepage/covid-19/orientacoes_para_o_preenchimento_da_declaracao_de_obito_covid-19_atualizada_2020_1.pdf
5. Nota Técnica Gvims/Ggtes/Anvisa No 04/2020. Orientações Para Serviços De Saúde: Medidas De Prevenção E Controle Que Devem Ser Adotadas Durante A Assistência Aos Casos Suspeitos Ou Confirmados De Infecção Pelo Novo Coronavírus (SARS-CoV-2). (atualizada em 21/03/2020). Gerência de Vigilância e Monitoramento em Serviços de Saúde; Gerência Geral de Tecnologia em Serviços de Saúde e Agência Nacional de Vigilância Sanitária. <http://portal.anvisa.gov.br/documents/33852/271858/Nota+T%C3%A9cnica+n+04-2020+GVIMS-GGTES-ANVISA/ab598660-3de4-4f14-8e6f-b9341c196b28>
6. Manejo de corpos no contexto do novo coronavírus – COVID 19. Versão 1 – publicada em 25/03/2020. <https://www.saude.gov.br/images/pdf/2020/marco/25/manejo-corpos-coronavirus-versao1-25mar20-rev5.pdf>
7. Gestão de Cadáveres após Desastres: Manual para as Equipes de Primeira Resposta no Terreno - Organização Pan-Americana da Saúde – 2009. <https://www.icrc.org/pt/doc/assets/files/other/icrc-007-0880.pdf>