

IMAGING SERVICES

Quality and Safety: Guidelines for Diagnostic Imaging

Diagnostic support services are essential to overcome the crisis of the new coronavirus (SARS-CoV-2) safely and assertively. There are important precautions that must be taken for the safety of the service, employees and patients in hospital and extra-hospital units. The Prevention and Control of Infection Commission related to Health Care has an important role in guiding third-party services regarding compliance with the guidelines established at the institution. The lack of uniformity of information between service providers and hospital institutions contributes to the occurrence of failures in the established safety guidelines.

Effective communication with diagnostic imaging services will certainly contribute to the safety of all, as well as minimizing the effects related to the exposure of professionals. Prevention and control measures must be adopted when assisting suspected or confirmed cases of infection with the new coronavirus.

Steps must be taken to prevent transmission to the unit. The health service must ensure that internal policies and good practices minimize exposure to respiratory pathogens, including the new coronavirus (SARS-CoV-2). The measures must be implemented before the patient arrives at the health service, upon arrival, screening, waiting for care, and throughout the assistance provided and after leaving.

1. Measures to Control the Care Environment in Diagnostic Imaging Services

- Equipment for shared use between people (for example, lead aprons and exam table safety straps) must be cleaned and disinfected after use;
- Properly hygiene of the hands, respecting the five moments of hygiene as indicated by the World Health Organization;
- Apply standard or additional precautions as suspected or confirmed by diagnosis;
- Provide a surgical mask to the person with suspected infection with the new coronavirus, or person who has or had contact with the suspected or confirmed case, and immediately send it to the examination room;
- Perform equipment disinfection and cleaning the environment, including bathrooms;
- Properly dispose of waste, according to Anvisa's health service waste management technical regulation.

Diagnostic imaging services that care for outpatients should continue to assist patients at reception by addressing contacts with infected people, or if some of the symptoms are present so that precautionary measures can be initiated.

- Care for preparing the examination room

The use of disposable equipment and materials should be prioritized, and only necessary equipment, furniture and medication should be taken to the procedure room, in order to reduce the number of items that will need to be cleaned or discarded.

- **Particularities of the radiological examination room**

To cover the radiological examination table, it is recommended to use disposable sheets to reduce the transport of contaminated layettes in the unit. The performance of tests with sedation must be previously communicated to the team so they can prepare the environment and equipment necessary for the procedure. Whenever possible, perform the exam with sedation or with intubated patients, at a time when the imaging sector is under occupation.

When the professional acts in procedures with risk of aerosol generation (tracheal intubation, extubation, need for open airway aspiration, respiratory cardiopulmonary resuscitation, among others) in caring for patients suspected or confirmed to be infected with SARS-CoV-2 use procedure gloves, apron and eye or face protector, in addition to the respiratory protection mask (particulate respirator PFF3 / PFF3 or N95 mask). These PPE must be available with the material for attending to the complications / emergency or must be used in cases where these procedures with risk of aerosol generation are programmed.

- **Particularities of the ultrasound exam room**

Patients with suspected coronavirus infection (SARS-CoV-2) should preferably remain in the place where they are being assisted by the health team and be transported to the ultrasound room as a last alternative, referring them to the room immediately before they are performed. To avoid contamination of the ultrasound gel, it is recommended to cover the gel outlet orifice of the vial and not to allow the gel container to touch the patient's skin or the surface of the transducer.

- **Patient transport**

Patients with symptoms of respiratory infection (fever, cough, sneezing, difficulty breathing) should wear a surgical mask during transport. Health professionals and support professionals who provide care less than one meter from the suspected or confirmed COVID-19 patient should wear recommended PPE (cloak / apron; surgical mask; eye shield or face shield; gloves).

- **Radiological / imaging procedures**

Diagnostic imaging procedures are not considered risky. The risk of respiratory exposure of professionals is due to the proximity they remain with the patient. Procedures with a higher risk of aerosol generation, such as transesophageal or sedation ultrasound that require intubation, should take special care as mentioned above. The number of professionals inside the room should be restricted to the minimum necessary. It is also recommended, whenever possible, before leaving the room, professionals should discard the aprons and gloves used. The cleaning of the environment must be carried out

rigorously and according to the local routine validated by the Infection Prevention and Control Service.

- **Cleaning the environment**

The coronavirus is surrounded by a lipid capsid that makes it particularly sensitive to disinfectants for routine use. There is evidence that the virus effectively inactivates with appropriate procedures that include the use of common disinfectants in diagnostic clinics and hospitals. The World Health Organization (WHO) suggests that "the complete cleaning of the surfaces of the environment with water and detergent for hospital use, followed by the application of disinfectants commonly used in health institutions" are effective and sufficient procedures to inactivate the new coronavirus.

Guidance on cleaning and disinfecting surfaces in contact with patients with suspected or infected with SARS-CoV-2 is the same as that used for other types of respiratory disease. Disinfectants with the potential to disinfect surfaces include those based on chlorine, alcohols and the quaternary ammonium. Articles, health products or equipment must be for the exclusive use of suspected or confirmed patients of COVID-19, disinfection with 70% alcohol (or with the solution indicated by the manufacturer) for shared use, avoiding cross-transmission of the virus.

For cases without suspected COVID-19, without epidemiology and no respiratory symptoms, the usual disinfection is performed; the room and equipment are released for exams, shortly thereafter. After carrying out tests on patients with suspected or confirmed COVID-19, it will be necessary to proceed

with cleaning and disinfecting the environment, surface and equipment according to institutional protocol or indication of the equipment manufacturers.

Ensuring the quality of cleaning in the hospital environment involves the availability of resources, structure and detailed routines, as well as adequate training of the team and tools aimed at monitoring the processes and results. It is important that a cleaning plan is described by the hygiene and cleaning service, based on ANVISA, validated by Hospital Infection Control Service (SCIH) and approved by senior management, as well as that it is available for consultation. Hygiene and cleaning staff should use the following PPE for terminal cleaning: surgical mask, cloak, heavy-duty gloves, eye protection (if there is a risk of splashing organic or chemical materials), boots or closed work shoes.

- **Cleaning and disinfection of equipment, ultrasound transducers and other materials**

For the disinfection of the transducers to be effective for any transmissible pathogen, the following can be used: 0.5% sodium hypochlorite; quarterly ammonium in total concentration of use must be less than 0.8%; hydrogen peroxide to a maximum of 0.5% or 70% alcohol. It must be considered that not all cleaning solutions are compatible with the transducers. Therefore, it is recommended to consult the maintenance and cleaning manuals for each device, which contains information on which products can be used to ensure patient safety without damaging the equipment. To clean the lead aprons, the solutions proposed above can also be used, however, it must be checked which solution is most suitable to avoid damaging the material.

2. Effective communication with own services and third parties

Effective communication helps in decision making and reduces anxiety reactions.

The institution must create or reinforce communication channels on the local epidemiological situation, periodically updating the data and thus strengthening transparency as an important value. Third party services must be included in the communication of institutional safety practices, as well as the definition of an agreement on the availability of personal protective equipment (PPE). The Occupational Health and Prevention and Control of Health-Related Infection teams must structure guidelines for the work of the partner teams, in order to protect patients and the professionals of the companies involved.

It is up to third party services in hospital institutions to seek the alignment of practices between services. In the same vein, healthcare professionals should use tools that reinforce the availability of information about suspicions or confirmation of COVID-19, remembering that the main communication tool among professionals is the patient's record.

Clear and simple records increase the relationship of trust, facilitate the communication process and allow professionals in the support and diagnosis sectors to plan the safe provision of health care and ensure biosafety.

3. Infection Prevention and Control Commission related to Health Care / and or Biosafety Committee and the link with diagnostic support services

The Health Care-Related Infection Prevention and Control Commission and / or the Health Services Biosafety Committee must develop and implement an infection prevention and control program covering all services offered by the institution, including technical guidance on Antimicrobial Treatment, Precautions and Isolation, Hand Hygiene, Cleaning the environment, Proper use of PPE and conduct against exposure with biological risk, the latter with the support of the Specialized Service in Safety Engineering and Occupational Medicine (SESMT), among others.

It is also responsible, through executing members, for the training of professionals and periodic assessment of adherence to good practices. In the current circumstance, it is essential to prepare and regularly publish reports with epidemiological information for professionals and Governance in order to inform and guide them on how to proceed. The activities performed by the outsourced services in the health units are also the responsibility of the contractors, and thus they must align quality and safety practices between the parties.

All the measures exposed 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. Organização Pan-Americana da Saúde. Periago, M. R; Comunicação em situações de crise, surtos epidêmicos e emergências. 2009. Brasília (DF).
2. Ministério da Saúde (BR). Portaria nº 2616, de 12 de maio de 1998. Diretrizes e normas para a prevenção e o controle das infecções hospitalares.
3. Colégio Brasileiro de Radiologia e Diagnóstico por Imagem. Cuidados específicos para serviços de ultrassonografia diagnóstica durante o surto de COVID-19. 2020.
4. The pharmaceutical Journal. A survey of disinfectant use in hospital pharmacy aseptic preparation áreas. Volume 264 nº 7088 p 446-448. 18 de março de 2000.
5. Conselho Regional de Enfermagem - PI. Recomendações gerais para organização dos serviços de saúde e preparo da equipe de enfermagem - Versão 1. COREN-PI. 2020.
6. Agência Nacional de Vigilância Sanitária. Nota técnica 04/2020 GVIMS / GGTES / ANVISA. 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 (2019-nCoV). 2020.
7. Centers for Disease Control and Prevention. Guidelines for Environmental Infection Control in Health-Care Facilities. Atlanta, GA 30329. 2003 - Updated: July 2019.
8. Centro de Vigilância Epidemiológica. Melhores práticas para Higiene e Limpeza de Ambiente Hospitalar. São Paulo, 2019.