African Union

AFRICA CDC
Centres for Disease Control and Prevention
Safeguarding Africa's Health

Africa Centres for Disease Control and Prevention (Africa CDC)

Guidance on Setting Up an Isolation Ward for COVID-19 Cases

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Scope

The number of coronavirus disease 2019 (COVID-19) cases in Africa is increasing, and in many countries the number of cases has surpassed the number of available hospital beds. Because of the surge many countries are using tents or converting existing buildings into isolation wards. This document simplifies the WHO guidance on severe acute respiratory infection (SARI) treatment centres and is meant to be accessible to healthcare workers, policymakers and others who want a quick overview of the key requirements for a COVID-19 isolation centre either within an existing facility or as a standalone centre.

Introduction

This document aims to provide guidance on how to set up isolation wards for the management of COVID-19 patients. It is aligned with the WHO infection prevention and control (IPC) strategies to limit COVID-19 transmission in healthcare facilities, premised on the mode of transmission[2].

SARS-COV-2, the virus that causes COVID-19, is primarily transmitted through droplets and contact routes[1]. However, certain procedures performed in health care settings produce aerosols that may render the virus airborne and capable of spreading over much longer distances. These include nebulizer treatments, suctioning of respiratory secretions, and endotracheal intubation.

In addition to providing the needed advanced patient care services, healthcare facilities and treatment centres supporting critically ill patients must:

1. have floor space that is adequate to separate patient beds;
2. adequately separate COVID-19 patients from other non-infected patients;
3. manage the flow of personnel and other patients to avoid unnecessary contact with COVID-19 patients;
4. provide adequate space for healthcare staff to don and doff protective equipment;
5. provide for appropriate handling of respiratory air from the treatment area;
6. properly handle and dispose of potentially infected medical waste;
7. have appropriate plumbing with sufficient clean water for handwashing and wastewater disposal; and
8. provide adequate pest and rodent control.

The ideal treatment centre, as recommended by the WHO, incorporates all these requirements in a single purpose-built complex[4]. An illustrative example is provided in Figure 1.

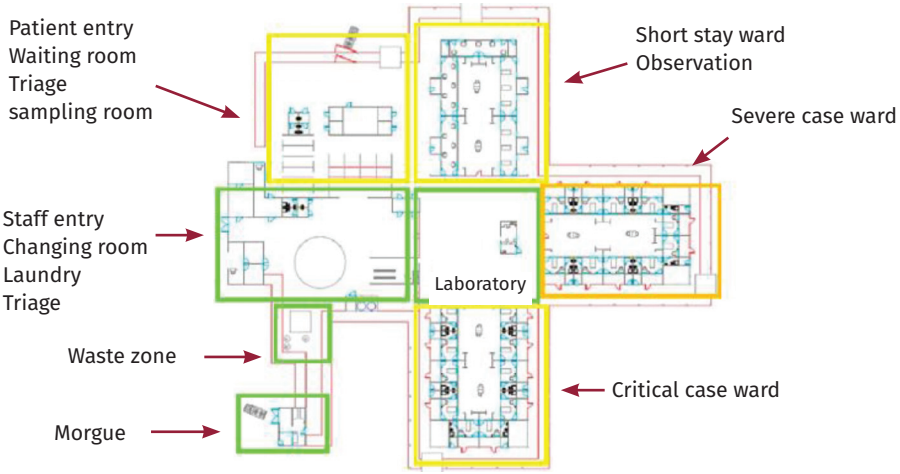
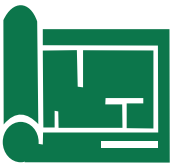


Figure 1: Layout of services and facilities in an ideal purpose built severe acute respiratory infection treatment centre[4]

Functional concepts

1. Staff not wearing personal protective equipment (PPE) should not have contact with patients or with staff wearing PPE who have been caring for patients. Donning areas should be separated from the doffing areas, with separate entrances and exits, and away from patient areas[5].

2. Grouping of cases according to severity allows for an efficient workflow and effective use of equipment. It can also allow for a more efficient use of personnel.



Minimum requirements for facility design

Regardless of whether an existing healthcare facility is being adapted for use in caring for severely affected COVID-19 patients, or a temporary facility is being established externally, certain designated areas should be included in the facility design. These designated areas do not have to be co-located with the isolation centre but should be close enough to ensure efficient and secure workflow.

Location

- If the isolation centre is not in an existing health facility:
    - Ensure that the site has good drainage, does not have a high water table, is at least 30 m from any river or body of water to avoid flooding.
    - Ensure that the ground is flat and level, not stony and not in a landfill with lots of organic material.
- If in a health facility:
    - Choose a site as close as possible to the main entrance to centralize all entrances.
    - Ensure good access for patients and staff, with guaranteed security.
    - Choose an area that can be separated from the general patient population, including separate waiting areas.
- Should have access to clean running water, electricity, toilet and safe waste disposal facilities.

- Should be located close to an intensive care unit (ICU) for easy transfer of patients who become critically ill.
- Should have access to a laboratory, pharmacy, laundry and a morgue if within a health facility. If the treatment centre is not on the same site as a general health facility it must have these elements included.

Layout

- Plan for unidirectional flow of patients and visitors.
- Staff areas should be clearly demarcated and separate from patient areas.
- Air should flow from clean zones to dirty zones and should be 60 litres/second/patient for mild-moderate patient areas and 160 litres/second/patient for severe wards and ICU.
- Ensure that all finishes, furniture and patient care equipment can be easily cleaned and disinfected.
- The layout will differ depending on whether the isolation ward is a referral centre or takes direct admissions. If it takes direct admissions it will include facilities for triaging patients.
- Specific areas should be designated as:
    - Triaging (screening) section, patient waiting area, and holding bay
    - Reception
    - Staff entrance and changing room (for donning and doffing PPE)
    - Separate wards for confirmed and suspect patients
    - Storeroom for cleaning reagents in low and high-risk areas

- Discharge area
- Laboratory
- Medical staff handover area/office
- Pharmacy
- Morgue
- Laundry
- Waste management area
- Ambulance bay

Triaging area should be/have:

- the first point of patient contact before entry into the facility;
- in a well-ventilated room, designated space or can be outside of the building;
- a staff area and patient area;
- at least 1 m between healthcare worker and patient. A plexiglass barrier can be placed between the patient and HCW;
- a thermometer or "no-touch" electronic temperature measuring device;
- PPE[5] (e.g. medical masks);
- hand hygiene facilities such as alcohol-based hand rub (ABHR) or/and handwashing station with running water and soap;
- equipment for disinfection of surfaces[6]
- clear and readable signage to direct patients to triage area and to holding bay.

Patient waiting area should be a well-ventilated room or can be a designated area in an open space. Patients may also be given individual cubicles. If patients are together in one area there must be at least 1 m between each person. Facilities can consider marking the areas using colored tapes, chalk or paint. The place should be disinfected after each patient.

Isolation/holding bay is a temporary area that must be close to the screening area for a person suspected of having COVID-19 to wait if they require transfer to another facility.

Reception should be close to the entrance. The receptionist must have clear view of the entrance and will assist to direct patients to the holding bay. The receptionist works closely with the triage staff to ensure proper patient flow.

Staff entrance is the first IPC administrative control because that is where temperature screening and hand hygiene of staff occurs.

- It also prevents unauthorized entry ensuring the separation of staff from patients.
- It should be spacious and well ventilated.

Changing rooms should be/have:

- separated into male and female areas;
- large enough to avoid overcrowding and should be well ventilated;
- separated by a door;
- preferably have a higher pressure than the corridor or be separated by an anteroom that is at higher pressure or have good natural ventilation;
- adjacent to the isolation ward;

- adequate shelving for clean PPE;
- facilities for hand hygiene and waste disposal.

Isolation wards for confirmed and suspected cases should be in a segregated area not frequented by outsiders/visitors. If possible, access to isolation ward should be through dedicated lift/guarded stairs. It should not be co-located with post-surgical wards, labour wards, neonatal units and wards with vulnerable patients. Entry and exit doors should be separate and clearly marked. There should be clear signages on the door indicating that the space is an isolation area.

Single rooms

Suspected COVID-19 cases must not be in the same ward as confirmed COVID-19 cases.

- Suspected cases should preferably be admitted in well-ventilated single rooms. Where this is not possible, they may be admitted in wards with a separating barrier between each bed or a space of at least 1 m (3 ft) from the edge of one bed to the other.
- Rooms should have en-suite bathroom and toilet.
- Natural ventilation is recommended, however, where air conditioners are used for patient comfort, the exhaust should be towards spaces away from human flow.
- Where negative pressure systems are not available, natural ventilation is acceptable or an air-conditioned single room with an exhaust to the outside away from areas of human traffic. Avoid air recirculation. Air conditioner filters must be changed regularly according to manufacturer's recommendation

- An extractor fan can be placed in the room to direct the airflow to the outside.
- Ceiling fans are not recommended.
- There should be a well-ventilated room close to the ward with adequate space for staff to don and doff without overcrowding.

Open wards

Patients that are confirmed positive for SARS-CoV-2 can be admitted into the same ward if single rooms are not available. Wards may be the long dormitory type ward but should be divided into bays. They may be in tents or community buildings, e.g. hotels, town halls or schools. The requirements for mild, moderate, severe and critical cases are similar except in the area of ventilation and distance between patients. For all wards, there should be/have:

- adequate provision for uninterrupted safe water, sanitation and hygiene facilities, as well as electricity and communication;
- at least one toilet for every 20 patients;
- an adequate waste disposal system which is colour-coded;
- in wards for mild/moderate cases, 60 l/s per patient[5] airflow for natural ventilation;
- beds at least 1 m apart edge-to-edge between patients;
- in wards housing severe/critical cases, 160 l/s per patient airflow for natural ventilation;
- if mechanical ventilation is in use then airflow should be at least 12 air changes/hour. The air should be emitted outside. It should not be recirculated. The point of emission must not be near air intakes, windows or where there is human traffic.

- severe/critical wards with beds separated by at least 2 m edge-to-edge (space requirements of the increased numbers of equipment used in the management of cases);
- There should be dedicated furniture and equipment for the isolation area to reduce nosocomial transmission. If feasible, healthcare workers should also be dedicated to the isolation wards.

Sampling room

This is where COVID-19 laboratory samples are taken; sampling may be carried out in the triage area if there is adequate space. Well-ventilated individual cubicles with natural ventilation or hybrid ventilation with a HEPA filter for the exhaust air is recommended. Each cubicle should be clearly labelled and must be cleaned and disinfected after each patient to avoid disease transmission.

Cleaning services in clean and dirty zones is a designated and dedicated space in each ward (isolation zone) and in the staff (clean zone) area. This area is used for dilution of disinfectants, storage and reprocessing of reusable cleaning equipment and supplies. It should have good lighting and be well-ventilated with adequate water supply, energy and waste management system. It must have hand hygiene facilities[2].

Discharge area is for patients who are preparing to be discharged home[3,7]. There should be a wide window on both sides to ensure adequate natural ventilation. Handwashing points must be available at the entrance and exit.

Ambulance bay should be at the patient entrance and exit and close to the isolation/holding bay.

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