PAHO

Pan American Health Organization

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REGIONAL OFFICE FOR THE Americas

Emergency Medical Teams

Medical Surge

COVID-19

Technical recommendations for configuration of a triage area for patients with respiratory symptoms

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Triage area for patients with respiratory symptoms

Descriptor

The triage area provides a rapid clinical assessment of patients with respiratory symptoms to detect cases that meet the criteria for hospitalization or referral to a higher-level health facility.

Key characteristics

The triage area for patients with respiratory symptoms is located in or near a health facility and serves to ensure: (i) early identification of patients with signs and symptoms of severe acute respiratory disease; (ii) isolation of the possible source, with implementation of infection prevention and control measures; and (iii) reduction of the risk of hospital transmission of the infectious agent.

The triage area may be installed in foldable structures (tents, containers) or in facilities within the health care center designated and reorganized for this purpose. Emergency medical teams (EMTs) can deploy triage areas in collaboration with health facilities. The triage area should function 24 hours, 7 days a week, and should have sufficient expansion capacity to meet demand for its services.

Special considerations

Triage of patients with respiratory symptoms is organized in accordance with the needs and context of the health facility, taking into account the actions needed to prevent transmission of the disease among patients, family members, and health workers. A routing system should be set up to ensure that patients are immediately directed to the appropriate destination (hospital admission, outpatient management, transfer, or home), minimizing the risk of transmission.

Structure

Installations

Foldable structures (tents, containers) or facilities within the establishment designated and reorganized for this purpose, to be deployed as an expansion of the installed capacity of existing infrastructure and/or attached to an emergency medical team.

Approximate areas

It is recommended that the triage facility have the following areas:

An area for checking vital signs

An area for data entry

A triage area

A waiting room (pre-triage)

Depending on the installed capacity of each country, there may be an area within the triage area for patients with respiratory symptoms where specimens can be obtained to be sent subsequently to a laboratory. This area should have adequate ventilation, personnel, and supplies.

Specifications

Any type of tent, container, or alternative structure can serve as the area of first contact with the patient, where vital sign checks and data entry will be performed. The patient waiting room will also be located in this area. Special care should be taken to ensure conditions that will allow adequate environmental ventilation and avoid crowding of people.

It is suggested that tents or containers designed for clinical use, with adequate ventilation, be used for triage. Table 1 below shows the recommended specifications for such structures.

Table 1. Recommended specifications for tents or containers for clinical use

Floors	Smooth, no seams or gaps, ideally a single piece. In isolation areas, a floor with flash coving is recommended.
Walls	Smooth, seamless, with the least possible amount of Velcro.
Doors	In air-conditioned areas, rigid doors, with a small window providing a view of the interior, are recommended to create an insulation seal to control the air conditioning. Folding doors may be used to separate contiguous areas inside the structure.

The use of fire-resistant materials, high-traffic flooring, and installations that are waterproof, lightweight, easy to clean, and resistant to hospital disinfectants is recommended.

The estimated space requirement for the triage area is around 300m.^{2}

System

Internal flows

Personnel: A specific route for the flow of personnel should be established to avoid the risk of crossinfection between patients and staff. There should be a specific donning and doffing area, for staff to put on and remove personal protective equipment, and sanitary facilities within the health care facility adjacent to the triage area. If such an area is not available, a specific installation should be set up for this purpose.

Patients: A specific route for the flow of patients should be established to avoid the risk of crossinfection between patients and triage area personnel.

It should be ensured that both groups follow infection prevention and control (IPC) measures, in line with PAHO/WHO recommendations.

Similarly, specific traffic flows should be established for support service and ambulance personnel. The latter should follow established protocols for bringing patients into the health facility, applying applicable coordination mechanisms in accordance with national and international guidelines. If needed, more detailed guidance on the subject may be found in the document "Recommendations: Prehospital Emergency Medical Services (EMS) COVID-19,"[1] published by the Pan American Health Organization.

Annex 1 shows a flowchart of the recommended process. The recommended patient flow and a possible floor plan are shown in Annex 2.

The suggested parameters for patient flow and configuration of the triage area for patients with respiratory symptoms are described in Table 2 below:

Table 2. Recommendations for triage area for patients with respiratory symptoms.

Area	Recommendations
Reception and waiting room	Patients not exhibiting respiratory symptoms should be directed to the routine triage area of the health facility, which should be clearly identified and marked. Patients exhibiting respiratory symptoms should go to the designated triage area, which should also be clearly marked. Patients entering this area should be asked to perform hand hygiene and put on a surgical mask, if the patient is able to tolerate a mask. In the area where patients wait prior to having their vital signs checked, it is recommended that markers be placed on the floor to indicate where each patient should wait. These markers should be placed two meters apart and should be clearly visible. Wheelchairs should be available for patients who need them.
Vital sign check	A "do not enter" sign should be placed on the floor at least two meters before the entrance to the vital sign check area. Patients should remain behind this line at all times unless they are instructed otherwise. Patients' vital signs (temperature, preferably measured with an infrared thermometer, and oxygen saturation) should be checked, after which the personnel should sanitize the equipment used. The personnel should also collect general information from the patient and inquire about risk factors. Patients who do not meet the criteria established by the emergency service should be given recommendations for home isolation and should follow the exit path, which should be marked and should be located at least two meters from the patient entry area. Preferably, the exit route should be physically separated from the entry route (by screens, prefabricated structures, etc.)
Data entry	Patients who meets the criteria established by the emergency service should be directed to the data collection area, where the necessary patient information should be recorded. The patient information file

[1] https://www.paho.org/en/file/61792/download?token=YtxsTC9i

	should be kept by personnel of the triage area at all times and should not come into direct contact with the patient.
Waiting room	Once patients' data have been entered, they should be directed to the pre-triage waiting room. There should be two meters of space between the chairs in this area.
Triage	Triage area personnel should call patients in for classification. The patient's condition should be evaluated and patients requiring hospitalization should be identified. Patients who meet the criteria for hospitalization under national guidelines should be directed by waiting room personnel to the appropriate area, following the designated internal route for patients with respiratory symptoms. For patients not requiring hospitalization, the triage personnel should provide appropriate instructions. Patients should then be directed to the designated exit route, which should be separated from the entry route by at least two meters.

Sterile materials: A specific pathway should be established for the handling of sterile materials. This pathway should not at any time cross the pathway for soiled and waste materials.

Contaminated or dirty materials: A specific pathway should be established for the handling of soiled and waste materials, which should be separated from the flow of sterile materials at all times. The handling of this type of materials should be the responsibility of the health facility where the triage area is located.

Water and sanitation pathways

Drinking and gray water: There should be at least one surgical sink at the entry to the triage area for patients with respiratory symptoms and drinking water should be available. Provision should be made for the final disposal of gray water in accordance with the regulations in force in the country. If a handwashing station cannot be installed in all areas, stations for the application of hand sanitizer (minimum 70% alcohol) should be set up.

Waste management: Containers for biohazardous and ordinary waste (where applicable) should be placed in all triage areas for patients with respiratory symptoms. Waste management should be the responsibility of the health facility where the EMT has set up the triage area.

Sanitary facilities: There should be separate sanitary facilities for men and women to be used by patients in the triage area. Where such facilities are not available, specific installations should be set up for this purpose.

Sanitization

Disinfection and cleaning: Disinfection and cleaning practices should be implemented for all parts of the triage area (including cleaning of sanitary facilities between patients), in accordance with national and international recommendations.

It is recommended that all surfaces that might have been touched by patients, such as tables, be disinfected with disinfectant wipes between patients. To clean and disinfect large surfaces, such as floors, the use of chlorine solutions, with a concentration of 1,000 ppm, is suggested, in accordance with national and international recommendations.

Supplies and equipment

Clinical self-sufficiency

Equipment: The triage area for patients with respiratory symptoms should have adequate medical equipment, in accordance with the estimated number of patients to be treated.

Drugs and supplies: Supplies of drugs, consumables and other inputs should be adequate to meet operational requirements.

Annex 3 contains a list of suggested equipment.

As for recommended medical devices, it is suggested that the reader review the list of priority medical devices in the context of COVID-19[2].

Operational self-sufficiency

Water supply: Provision should be made for surgical sinks (with foot pedals), with an estimated consumption of one liter per day for patients and six liters for health personnel. Water supply during operating hours should be ensured by means of a connection to the drinking water and sanitation systems in the adjacent medical facility or by means of elevated water reservoirs where faucets are not equipped with autonomous pressure systems or for the filling of carafes and/or pipes where such systems are present. Gray waters, if they cannot be flushed into the sanitation system, should be stored in portable reservoirs for subsequent transport to treatment and disposal facilities.

Consumables: The triage area for patients with respiratory symptoms should have assured supplies of the necessary resources for their operations.

Lighting: The following lighting is suggested:

- Vital sign check: 14 LED units with 15W capacity
- Triage: 2 LED units with 40W capacity
- Waiting room: 5 LED units with 40W capacity

The access areas between the triage area and the treatment center should have adequate lighting. If the health center does not have sufficient exterior lighting, the necessary exterior lights should be installed.

Electricity supply: The supply of electricity in the triage area should be ensured, either through connection to the local electrical grid (or that of the adjacent health facility) or through diesel generators that can guarantee the necessary supply, even during maintenance or breakdowns. A main generator with 25KVA capacity and an auxiliary generator with 5KVA capacity should be sufficient for the purposes described in this document.

Protection and distribution panels and voltage stabilizers should be used to protect both electrical equipment and personnel from discharges and surges.

Climate control and ventilation: Where possible, prior to the installation of the triage area, account should be taken of the direction of the prevailing winds so that the area can be set up with an upward ventilation flow. An air circulation rate of 60 l/s per patient should be ensured insofar as possible, especially in the triage area. Ventilation can be produced naturally by creating air corridors that allow air to circulate. Natural ventilation can be used simply by taking advantage of wind direction in one of two ways: opening the windows of the installation to create cross currents of air or else

[2] https://www.paho.org/en/documents/technical-specifications-medical-devices-case-management-covid-19-healthcare-settings

opening the two doors of the installation to create a unidirectional flow parallel to the corridor of the enclosure. In the absence of wind, convection currents can be used, if the installation has an air outlet in the ceiling, by opening the side windows and allowing the air to rise as it warms and then escape through the chimney and/or exhaust pipe of the tent.

In any case, personnel and patients should be prevented from coming within at least two meters of the area around the air exhaust outlet of the tent ventilation system because droplets carried by air currents generated inside the tent will accumulate in this area. When natural ventilation is used, the air outflow should be marked in order to avoid the passage of people through this area.

If there is sufficient capacity, mechanical ventilation with electric extractors can be used, although such ventilation systems tend to be difficult to install in tents. Mechanically extracted air can be expelled directly to the exterior, in which case a secure perimeter should be maintained around the air outlet. Personnel should not be allowed to come within two meters of the area, nor should any other structure be set up at a distance of less than two meters. Alternatively, electric extraction systems with a HEPA particle filter can also be used. Such systems do not require a secure perimeter in the air exhaust area, but they are more complex to maintain.

If necessary, the climate control should be ensured where required in the triage area. Where possible, air conditioning systems with HEPA filters should be used.

The WHO manual “Natural ventilation for infection control in health-care settings”[3] provides more detailed technical information for planning the ventilation system.

[3] http://whqlibdoc.who.int/publications/2009/9789241547857_eng.pdf

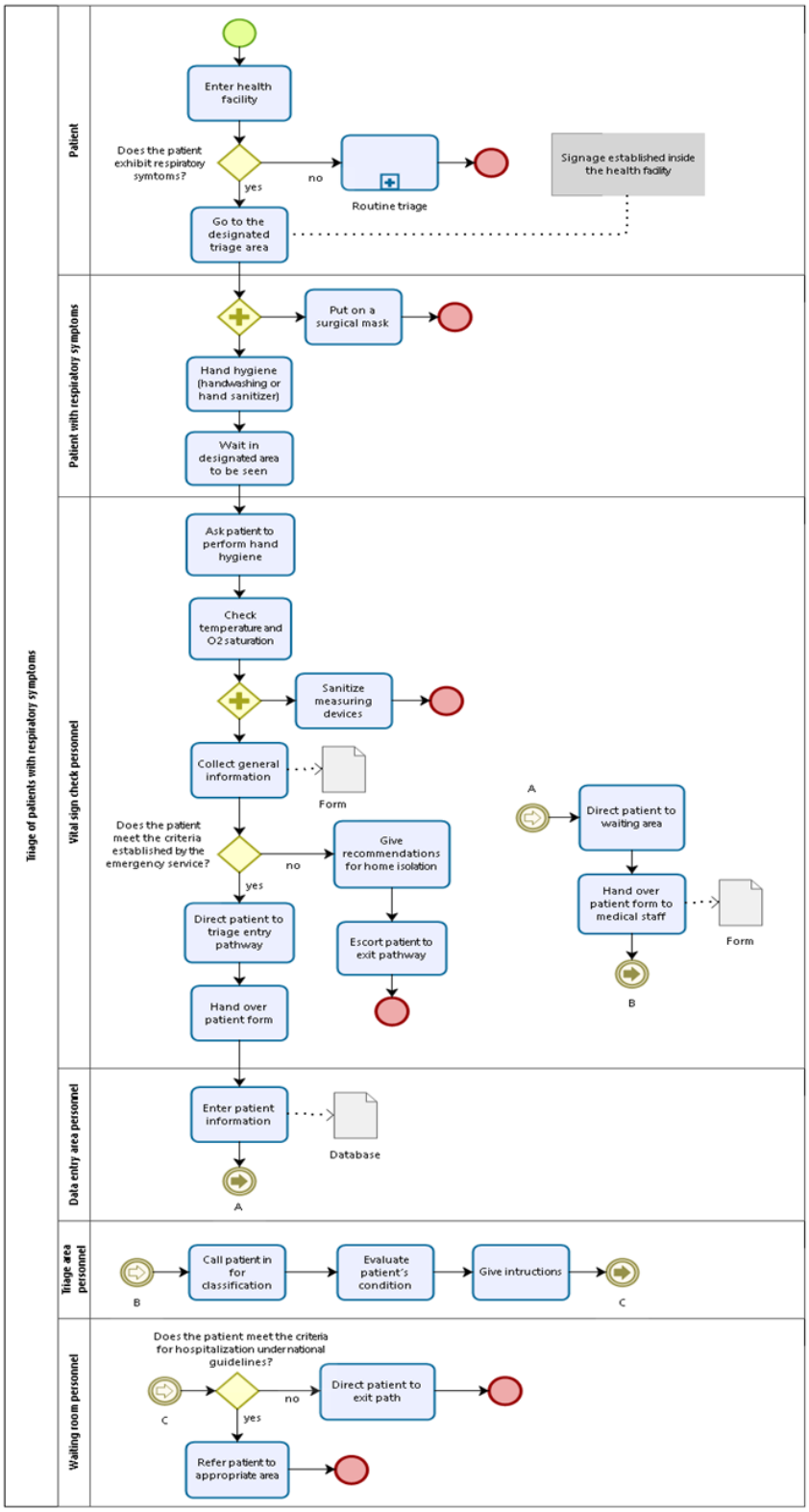
Staff

In order to ensure correct decision-making and streamline the process, triage of patients with symptoms respiratory should be performed by personnel with education, training, and experience in the management of this type of patient. Table 2 shows the recommended personnel by area.

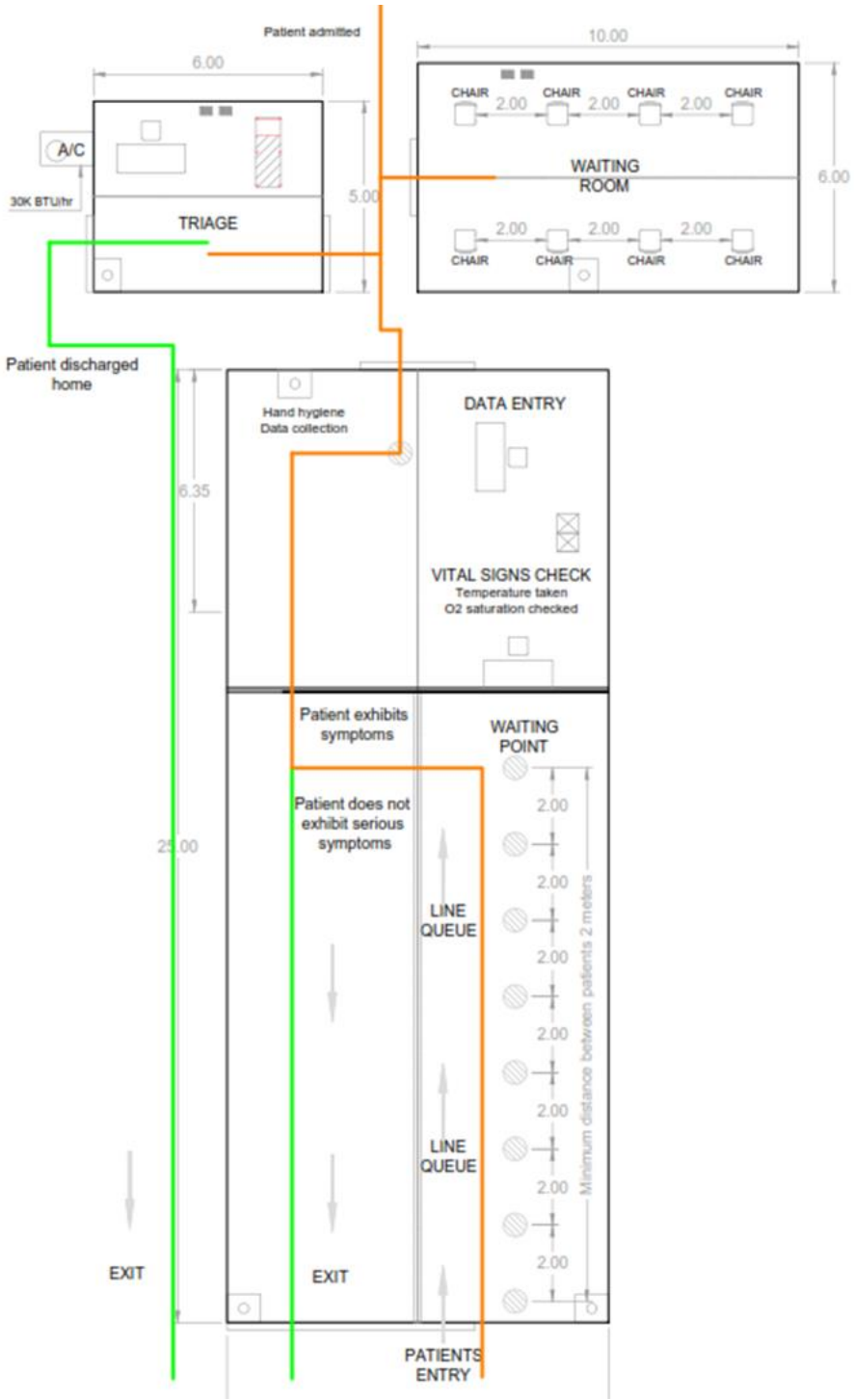
Table 2. Suggested personnel per shift for the triage of patients with respiratory symptoms, by area.

Area	Personnel
Vital sign check	1 nurse 2 nursing auxiliaries/health technicians
Data entry	1 administrative staff member
Triage	At least 1 nurse and/or physician
Waiting room	1 nursing auxiliary/health technician

Anex 1. Patient care flowchart



Anex 2. Patient flow and triage area floor plan



Annex 3. Suggested equipment for triage of patients with respiratory symptoms

Area	Equipment
Vital sign check	Desk Chair Infrared thermometers Pulse oximeters Biohazardous waste container Wheelchair
Data entry	Desk Chair Computer Biohazardous waste container
Triage	Desk Chair Computer Stretcher Infrared thermometers Pulse oximeters Phonendoscope Digital sphygmomanometer Diagnostic lamp Triage labels Biohazardous waste container Sink
Waiting room	Individual chairs (located 2 meters apart) Biohazardous waste container Wheelchair

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