

PAHO



Pan American
Health
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World Health
Organization
REGIONAL OFFICE FOR THE
AMERICAS

Prehospital
Emergency
Medical Services



Prehospital Emergency Medical Services Readiness Checklist for COVID-19

Instructive

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Acronyms

ALS: Advanced life support

BLS: Basic life support

CPR: Cardiopulmonary resuscitation

CRUE: Emergency Medical Dispatch Center (Spanish acronym)

D.I.R.: Detect – Isolate - Report

EMS: Emergency medical services (pre-hospital)

MERS: Middle East Respiratory Syndrome

PPE: Personal protective equipment

SARS: Severe Acute Respiratory Syndrome

Glossary

Ambulance: Vehicle designed to transport sick or injured people, with technological resources and human talent trained to provide health care appropriate to the level of complexity.

Ambulance station: A structure or area reserved for parking vehicles and storing equipment and supplies. It may also have facilities for ambulance maintenance and/or cleaning, as well as designated areas for communications and operations, and for workers to rest.

Emergency Medical Dispatch center (aka CRUE in Latin American Countries): Operations center (that does not provide care or treatment) responsible for coordinating and regulating the provision of both pre-hospital emergency medical services and the transfer of patients between health care facilities.

911 Call Center: also known as Public Safety Answering Point (PSAP). It is a center where 911 calls (or some other 3-digit number) are received and then routed to the proper emergency services, such as police, fire department or prehospital EMS.

HEPA (High Efficiency Particle Arresting) air filter: A device capable of filtering 99.97% of airborne particles as small as 0.3 µm in diameter.

Receiving hospital: Health facility with the appropriate resources, specialties, capacity, and availability to receive and treat the patient.

Pre-arrival instructions: Guidance that 911/emergency dispatch workers provide to callers (witnesses, family members, first responders, etc.). It can be general advice (on safety, facilitating access to the ambulance, etc.) or specific instructions (on control bleeding, choking, providing CPR, or assisting with childbirth, among other situations).

Pre-arrival Hospital notification: A communication procedure aimed at facilitating hospital transfers when more detailed information on patients' health condition is required which will alert the staff of the receiving service to take the appropriate measures to provide health care.

Point of entry: a passage for international entry or exit of travelers, baggage, cargo, containers, conveyances, goods and postal parcels, as well as agencies and areas providing services to them on entry or exit.

Post-dispatch Information Protocol: A mechanism that facilitates warning, advice and/or assistance to units responding to the emergency through the operator/dispatcher or the physician/nurse regulator. The objective is to enable pre-hospital emergency personnel to take appropriate care and preventive measures to deal with specific cases.

First Responder: First person present at the scene of an accident or emergency, usually a police officer, firefighter, or witness with training in first aid.

Integrated health services network: a network of organizations that provides, or makes arrangements to provide, equitable, comprehensive, integrated, and continuous health services to a defined population and is willing to be held accountable for its clinical and economic outcomes and the health status of the population served.

Cardio-pulmonary resuscitation (CPR): an emergency lifesaving procedure performed when the heart stops beating.

Basic life support (BLS): a variety of noninvasive emergency procedures performed to assist in the immediate survival of a patient, including cardiopulmonary resuscitation, hemorrhage control, stabilization of fractures, spinal immobilization, and basic first aid.

Advanced life support (ALS): Definitive care and specialized transportation of injured or sick people that can include invasive procedures such as intubation orotracheal, venous access, the use of medication and defibrillation.

Medical transportation: A means of transporting a person with a health disorder. This is done in specially equipped vehicles.

Primary transportation: Transfer of a patient from the site of an emergency (e.g., public place or residence) to a health care facility.

Interhospital (or secondary) transportation: Transfer of patients between health facilities, usually to provide a higher level of care or to carry out specific procedures that are only available at the receiving hospital.

Rapid intervention vehicle: Vehicle to transport doctor and/or nurse or paramedic trained in ALS and their equipment but not equipped for patient transportation. For example, fly car or aid car.

Note: Terms related to COVID19 definitions and case management can be found at the PAHO webpage:
<https://www.paho.org/covid-19>

Background

Introduction

Pre-hospital emergency medical services (EMS) facilitate initial care through basic life support (BLS) and/or advanced life support (ALS) and the transfer of injured or sick patients from the site of the emergency to the health facility where they will receive definitive care. EMS can also transfer patients from a health care facility to another higher-level or more complex facility, in what is known as an interhospital transfer.

Ambulance services is the best-known component of EMS and can be provided through different institutions including fire departments, volunteer organizations, university services, or hospitals that have their own ambulance service to cover their patients.

Prehospital EMS also include other components such as 911 call centers (aka public safety answering point PSAP) or emergency medical dispatch centers, and first responder programs. All of these should integrate with the health services networks to ensure continuity of care for injured or sick patients.

During public health emergencies, pre-hospital EMS may be overwhelmed by the number of calls or the demand for medical transfers. It is therefore important that the agencies and/or organizations that provide pre-hospital care have the necessary tools and mechanisms not only to continue with daily activities but also to adjust their capacity in order to respond to specific scenarios such as COVID-19.

In this context, pre-hospital EMS are urged to implement readiness actions for the response to COVID-19 and to work in a coordinated and integrated manner with the health authorities in charge of the covid-19 response.

Readiness

Preparedness for health emergencies is the result of continuous improvement activities, which are essential for prehospital emergency medical services to function at maximum capacity and mount a timely and effective response to health emergencies, regardless of the threat.

Readiness is basically the interface between preparedness actions and the immediate response to any emergency, i.e., the action and effect of being ready or prepared and/or being ready to respond.

Once readiness has been verified, it is necessary to set priorities in order to address identified gaps in areas that endanger patients' lives and health workers' well-being, while keeping in mind that leadership is a key factor in the success or failure of the emergency response.

After this prioritization, solutions should be implemented immediately (not in the medium or long term), designating who is responsible for each action and who their alternates are, as well as deadlines for completion.

Finally, the readiness process must be constantly monitored, so that appropriate corrective measures or decisions can be taken.

Purpose

The purpose of this tool is to help countries confirm the readiness of their pre-hospital emergency medical services to respond to COVID-19, identifying immediate and priority actions aimed at responding to the emergency in an efficient and timely manner.

Target audience

- Managers of 911 centers, especially in the health sector
- Managers of emergency dispatch centers
- Managers of ambulance services, both for primary and interhospital transportation
- Managers of first responder programs
- Offices of pre-hospital care (Ministries of Health)

Methodology

This instrument has been developed based on the experiences of pre-hospital emergency medical services during the responses to Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS), and influenza outbreaks.

The checklist is focused on four components of the pre-hospital emergency medical services:

- Access to a single number for emergency and call dispatch services
- First responders
- Transfer of patients to a referral center, including BLS and ALS.
- Administration (including medical direction, human resources, and training)

Once the structure was designed, objectives were established for each component and, in order to meet each objective, proposals of actions (items) were reviewed and identified.

The items on the list are designed for dichotomous confirmation, i.e., whether or not they have been met or achieved. If the activities have been initiated but have not yet been implemented and tested, they should be noted as “in process”. This makes it possible to monitor each activity.

The criteria for each verification level are:

COMPLETE	The EMS has developed, validated, and implemented the procedure/protocol. It has the recommended equipment.
IN PROCESS	The EMS has developed a procedure/protocol but has not yet implemented or validated it. The equipment is being purchased but has not yet been received.
INCOMPLETE	The EMS does not have the procedure/protocol and/or recommended equipment.

It is advisable to form a working team that includes professionals with responsibilities for each component and that can work jointly to ensure that the prehospital emergency system can provide an integrated response that is aligned and coordinated with the health authorities in charge of the response to COVID-19.

Prehospital Emergency Medical Service Readiness Checklist for COVID-19

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Evaluation date:	Country:
Name of department/organization:	
Type: <input type="checkbox"/> Government <input type="checkbox"/> Private <input type="checkbox"/> Volunteer <input type="checkbox"/> Other	
Level: <input type="checkbox"/> National <input type="checkbox"/> State/Regional/Provincial <input type="checkbox"/> Indicate which: _____ <input type="checkbox"/> Local <input type="checkbox"/> Indicate which: _____	
Emergency telephone number:	Call management: <input type="checkbox"/> Dispatch <input type="checkbox"/> Triage/regulation
Mobile resources: <input type="checkbox"/> Non-urgent transport vehicles (number: _____) <input type="checkbox"/> Basic life-support ambulances (number: _____) <input type="checkbox"/> Advanced life-support ambulances (number: _____) <input type="checkbox"/> Medical helicopters (number: _____) <input type="checkbox"/> Medical boats (number: _____) <input type="checkbox"/> Rapid-intervention vehicles (number: _____) <input type="checkbox"/> First-response motorcycles (number: _____)	
Personnel: <input type="checkbox"/> Basic emergency medical technicians (number: _____) <input type="checkbox"/> Intermediate emergency medical technicians (number: _____) <input type="checkbox"/> Paramedics (number: _____) <input type="checkbox"/> Nurses (number: _____) <input type="checkbox"/> Physicians (number: _____)	
First-responder program: <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Police <input type="checkbox"/> Fire Department <input type="checkbox"/> University <input type="checkbox"/> Other (indicate which): _____	
Name of the person completing/participating in the survey:	
Name of the evaluators:	

COMPONENTS	OBJECTIVE	ENROLMENT ACTIONS	COMPLETE	INCOMPLETE	IN PROCESS
CALL MANAGEMENT	Ensure that calls are properly routed to 911 or other emergency medical dispatch centers to activate EMS resources	Availability of a technological platform for correct classification of alerts, call management, and information management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Identified and established mechanisms for communication/coordination with authorities at health services and points of entry, for case reporting and transportation of patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		The call protocol has an up-to-date questionnaire that includes COVID-19 symptoms and risk factors for (e.g., history of travel to affected areas), based on case definition.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Pre-arrival instructions are in place so that family members or first responders wait for ambulance services (The survey or instructions must not delay immediate advice on life-threatening situations).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Existence of a COVID-19 pre-arrival protocol (Post-dispatch Information Protocol) for responding units to ensure the appropriate use of personal protective measures and equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Availability of a mechanism to regulate and coordinate interhospital transfers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FIRST RESPONDERS	Facilitate system activation and initiation of treatment by first responders or the caller	Identified and established protocol/procedure for communication with 911 and emergency medical dispatch centers and/or EMS in order to inform emergency medical personnel of a possible case of COVID-19	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Basic Life Support procedures for suspected cases, established in coordination with the corresponding EMS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Procedure for the disposal of biological/infectious waste after the response, established with the ambulance service or the integrated health services network	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MEDICAL TRANSPORTATION (INCLUDING PRIMARY AND INTERHOSPITAL)	Establish safe treatment (including basic and/or advanced life support) and ensure	Hospital Pre-arrival notification procedure established with the integrated health service network to confirm the reception and to facilitate the emergency department preparation for the arrival of the suspected or confirmed case.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

COMPONENTS	OBJECTIVE	ENROLMENT ACTIONS	COMPLETE	INCOMPLETE	IN PROCESS
	appropriate patient transport to the receiving health facility	Identified and established mechanisms for communication/coordination with health authorities in order to report ambulance in route and patient transfer	○	○	○
		Mechanism for interhospital transfer identified and established with 911 and/or emergency medical dispatch center centers and the integrated health services network	○	○	○
		Identification and location of ambulances with compartmentalized separation between the driver's cabin and treatment area, and/or a HEPA filter in their ventilation circuits	○	○	○
		Availability of adequate hand hygiene resources in the ambulance	○	○	○
		Availability of an adequate, clearly indicated area for the disposal of biological/infectious waste in ambulances	○	○	○
		Availability of a care protocol for the management and transportation of suspected and confirmed cases	○	○	○
		Availability of a protocol for airway management and ventilation, including all techniques with risk of aerosol production	○	○	○
		Availability of manual ventilation devices with HEPA filters in vents	○	○	○
		Review and confirmation of filtration capacity of the ventilators used in ambulances and their effect on positive pressure ventilations	○	○	○
		Review and updating of the forms used to report ambulance interventions in order to include all aspects relevant to suspected cases (type of care provided and information on contacts), to be delivered to the receiving hospital and health authorities	○	○	○
		Established procedure for hygiene of ambulance workers and cleanliness treatment area in the ambulance	○	○	○
		An identified, designated area in the ambulance station and/or referral hospital to decontaminate and disinfect materials and the ambulance	○	○	○

COMPONENTS	OBJECTIVE	ENROLMENT ACTIONS	COMPLETE	INCOMPLETE	IN PROCESS
		Established procedure for the final disposal of biological/infectious waste after the response or after the ambulance shift	○	○	○
		Established procedure for management of deaths on the scene or in route	○	○	○
		Hospital Pre-arrival notification procedure established with the integrated health service network to confirm the reception and to facilitate the emergency department preparation for the arrival of the suspected or confirmed case.	○	○	○
911/EMS ADMINISTRATION	Ensure proper operation of 911/emergency medical dispatch centers and ambulance services	Trained, sufficient, and available personnel to cover call management posts and ambulance staffing.	○	○	○
		Protocol developed, implemented, and tested for risk exposure assessment and management of professionals exposed to COVID-19	○	○	○
		Protocol developed and implemented for medical leave for quarantined emergency personnel	○	○	○
		Periodic updating and maintenance of all EMS procedures for COVID-19 response	○	○	○
		All EMS personnel trained in the Detect – Isolate – Report (D.I.R) conduct	○	○	○
		Members of the first-responders program are trained in initial management of suspected cases	○	○	○
		All ambulance staff are trained in assessment and initial medical care of suspected and confirmed cases of COVID-19	○	○	○
		All ambulance staff are trained in the use of PPE and aware of COVID-19 transmission mechanisms	○	○	○
		All ambulance staff are trained in decontamination and disinfection procedures of vehicles and equipment	○	○	○
		The system for communication/coordination with 911, points of entry, the integrated health services network, and health authorities involved in case management remains operative	○	○	○
		Official spoke person designated and coordinated with health authorities	○	○	○

Bibliography

1. World Health Organization, International Health Regulations second edition (2005) WHO 2005. 104 pp. Available at : https://apps.who.int/iris/bitstream/handle/10665/43883/9789241580410_eng.pdf?sequence=1 (Accessed on: 25 February 2020)
2. World Health Organization. Global Surveillance for human infection with coronavirus disease (COVID-2019). Interim Guidance (2020) WHO 2020. Geneva. 2 pp. Available at: [https://www.who.int/publications-detail/global-surveillance-for-human-infection-with-novel-coronavirus-\(2019-ncov\)](https://www.who.int/publications-detail/global-surveillance-for-human-infection-with-novel-coronavirus-(2019-ncov)) (Accessed on: 25 February 2020)
3. World Health Organization. Clinical management of severe acute respiratory infection when Novel coronavirus (2019-nCoV) infection is suspected: Interim Guidance (2020) WHO 2020. Geneva. 11 pp. Available at: [https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected) (Accessed on: 25 February 2020)
4. World Health Organization. Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected. Interim Guidance (2020) WHO 2020. Geneva. 5 pp. Available at: [https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-\(ncov\)-infection-is-suspected-20200125](https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected-20200125) (Accessed on: 25 February 2020)
5. World Health Organization. A checklist for pandemic influenza risk and impact management: 2018 update. 55 pp. Available at: https://www.who.int/influenza/preparedness/pandemic/PIRM_Checklist_update2018.pdf (Accessed on: 25 February 2020)
6. World Health Organization. Prehospital Trauma Care System. Available at: <https://apps.who.int/iris/bitstream/handle/10665/43167/924159294X.pdf?sequence=1> (Accessed on: 25 February 2020)
7. World Health Organization. Guidelines for Trauma Quality Improvement Programmes. Available at: <https://apps.who.int/iris/rest/bitstreams/52394/retrieve> (Accessed on: 25 February 2020)
8. World Health Organization. Health systems: emergency-care systems. WHA60.22. Available at: https://apps.who.int/iris/bitstream/handle/10665/22596/A60_R22-en.pdf?sequence=1&isAllowed=y (Accessed on: 25 February 2020)
9. World Health Organization. Emergency care systems for universal health coverage: ensuring timely care for the acutely ill and injured WHA72.16. Available at: https://apps.who.int/gb/ebwha/pdf_files/WHA72/A72_R16-en.pdf?ua=1 (Accessed on: 25 February 2020)
10. Center for Disease Control and Prevention. Interim Guidance for Emergency Medical Services (EMS) Systems and 911 Public Safety Answering Points (PSAPs) for COVID-19 in the United States. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-for-ems.html> (Accessed on: 25 February 2020)
11. Office of the Assistant Secretary for Preparedness and Response. HHS. EMS Infectious Disease Playbook. Available at: <https://www.ems.gov/pdf/ASPR-EMS-Infectious-Disease-Playbook-June-2017.pdf> (Accessed on: 25 February 2020)
12. Occupational Safety and Health Administration. Best Practice for Protecting EMS responders. Available at: <https://www.osha.gov/Publications/OSHA3370-protecting-EMS-respondersSM.pdf> (Accessed on: 25 February 2020)