



COVID-19

Recommendations for medical surge capacity and deployment of emergency medical teams

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BACKGROUND

The purpose of this document is to issue recommendations to facilitate the medical surge capacity and the deployment of emergency medical teams in order to guarantee the response to high numbers of patients that could overwhelm the capacity of the integrated health services network in communities or areas where COVID-19 is circulating.

Based on the data from a large cohort of COVID-19 patients, 40% of patients will have a mild case of the disease and mainly require symptomatic treatment but not hospitalization; around 40% will have a moderate case that could require hospitalization; 15% will be in severe condition and require oxygen therapy among other hospital interventions; and around 5% will be in critical condition and require mechanical ventilation.

Monitoring of the outbreak's trajectory in some countries has also shown that cases are doubling every 3 days, with a higher proportion of severe and critical cases, creating an urgent need to augment the capacity to expand health systems to prevent the exhaustion and burnout of health workers and the rapid drawdown of biomedical supplies key to the response.

CONSIDERATIONS FOR THE SURGE CAPACITY AND DEPLOYMENT OF EMERGENCY MEDICAL TEAMS

Scalability

Countries may be faced with one or more epidemiological situations and will need to tailor their response to the unfolding case scenario.

C1 NO CASES	C2 SPORADIC CASES	C3 CLUSTER	C4 COMMUNITY TRANSMISSION
<p>Health services maintain their routine organization, but are buttressed with early detection and infection protection and control measures. EMS's have a call protocol and enough ambulances for the transfer of cases.</p> <p>No changes in personnel and supplies</p>	<p>Health service facilities have dedicated areas prepared to care for COVID-19 cases, including a pre-triage area. The EMS establishes a system for the medical referral and transfer of COVID-19 patients.</p> <p>Possibility of staff under quarantine, and local supply chain activated</p>	<p>At a minimum, hospitals in the cluster area have a response team for triage and referral of COVID-19 patients at the hospital entrance.</p> <p>In COVID-19 hospitals, the entire facility or sections of the building are devoted to these patients, with no mixed management of patients</p> <p>Need for professionals to cover shortages of medical personnel due to illness or quarantine; national supply chain activated</p>	<p>Reorganization of the health services network and expansion of hospital capacity for severe and critical cases who will need oxygen therapy and critical care. It may be necessary to deploy emergency medical teams and authorize alternative care sites.</p> <p>Substantial increase in professional staff to cover the expansion; activation of contingency plans to ensure the availability of critical and essential equipment.</p>

National response

Due to travel restrictions and because the majority of regional response medical teams will be supporting their national health systems, every country is expected to focus its response primarily on reorganizing its own health services, identifying local emergency medical teams, and strengthening the capacity to create additional emergency medical teams (EMTs) that can supplement the available national resources.

Most countries have professionals trained as EMT coordinators who can also support information management and the coordination of response teams during the different phases of capacity expansion.

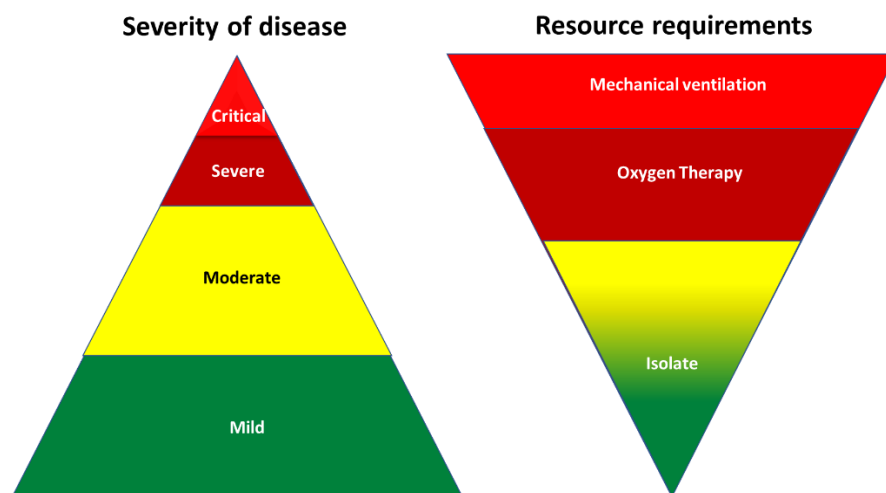
Some regional EMTs, or teams from other regions with a lower peak of care, may be available on a limited basis for some type of deployment, but much of their collaboration will be in the form of virtual technical support in the following areas:

- Clinical and operational requirements for the creation and installation of EMT structures or mobile hospitals.
- Clinical guidance through telemedicine services for facilities with a limited number of professionals
- Technical guidance on infection prevention and control measures during patient care
- Technical guidance on the use of tools for information management and coordination of the EMT response, and the creation of alternative sites for clinical care (medical coordination and information cell [CICOM] methodology).

Types of resources necessary

Based on the experience acquired and the cohort of patients treated to date, the need to expand the capacity for care can be divided into three types:

- Outpatient isolation of patients with mild and moderate illness who require only symptomatic treatment and monitoring from their home or lodging.
- Hospitalization with oxygen therapy capacity and pharmacological treatment for patients with moderate and severe illness
- Hospitalization with mechanical ventilation capacity and specialized intensive care for critical patients



Flexible modular response

The varying configurations of EMTs and the possibility of complementing them with alternative sites will facilitate the adoption of strategies for expanding capacity in ways that better meet the needs as case scenarios escalate.

EMERGENCY MEDICAL TEAMS

Emergency medical teams (EMTs) are teams of health professionals (physicians, nurses, physical therapists, paramedics, etc.) that provide direct clinical care to populations in disasters, epidemics, and other types of emergencies and support local health systems.

These professionals can be deployed in alternative facilities or mobilize their own temporary facilities to set up mobile clinics or hospitals with differing capacities for care. EMTs are self-sufficient, meaning that they have sufficient personnel, equipment, supplies, and logistical resources to provide adequate and timely clinical care.

These teams may be operated by the government (civilians, military personnel, or mixed) or nongovernmental organizations.

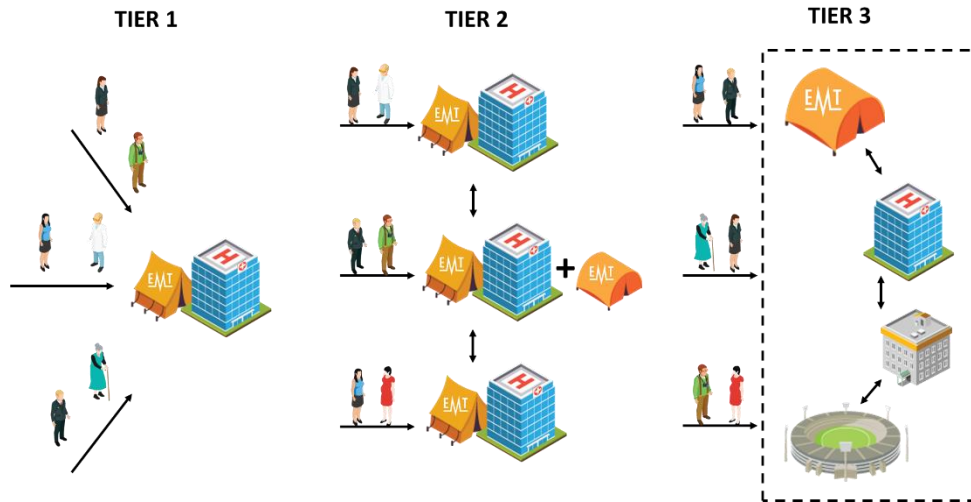
The different types of teams that could be involved in the national response and provide regional support, if needed, are:

		Technical requirements document
EMT Type 1 mobile/fixed	A team with a facility that provides triage, outpatient care, stabilization, and referral to more complex centers. The facility can be fixed for on-site care or serve as the base of operations for mobile units deployed to isolated areas or for improved monitoring of suspected or confirmed cases who are at home.	Available
EMT Type 2	A team that deploys a facility with a minimum capacity of 20 inpatient beds, laboratory and radiology services, and an operating room; focused on the treatment of patients with non-COVID-19 pathologies.	Available
EMT Type 3	A team that deploys a facility with a minimum capacity of 40 hospital beds, 4 ICU beds, laboratory and radiology services, and two operating rooms (the latter can be converted to ICUs, if necessary to turn it into a COVID-19 treatment center).	Available
EMT specializing in triage and referral	A team that operates temporary units at the entrance to emergency departments for triage and the referral of patients with respiratory pathologies, facilitating the identification of suspected cases of COVID-19 for proper management and treatment.	Available
EMT specializing in the treatment of severe acute respiratory infections (SARI)	A team that operates a facility capable of providing care for 30 critical COVID-19 patients with severe acute respiratory infections. The facility's design is modular and allows for different bed configurations, based on the needs of patients in severe and critical condition.	Provisional guide
EMT-HCMC High-Capacity Mobile Hospital	A team that operates modular units that permit the expansion of hospital capacity in modules housing 180 patients (160 moderate/severe and 20 critical). They usually operate semi-permanent mobile hospitals using containers, or they create temporary structures at alternative sites such as stadiums or large enclosed spaces.	Provisional guide

All teams should ensure that they are self-sufficient during deployment.

SURGE CAPACITY TIER RESPONSE

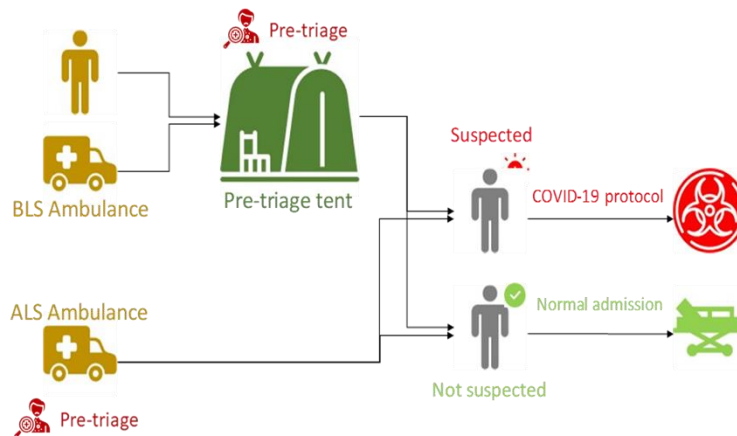
Three tiers have been established to expand capacity to meet the needs created by the exponential increase in the demand for care and to prevent the health services network from collapsing under the number of patients.



Tier 1 Strengthening facilities

At the health facility level, it is necessary to ensure that an organizational structure is in place that can act as an incident command system (known in some countries as a “Hospital ICS or HICS”). This will enable the facility to reorganize its personnel, resources, and services to meet the demand for care.

During this reorganization, triage areas should be set up outside the entrance to the emergency department or in separate areas to ensure that all respiratory patients can be assessed using appropriate ICP measures and that COVID-19 patients can be sent to the correct area or center. These “pre-triage” teams can be managed by emergency medical teams or hospital staff.



Nearly 80% of patients can be managed on an outpatient basis. Strengthening primary care is therefore essential. Pre-hospital emergency medical services, as well as type 1 emergency medical teams, can help with outpatient monitoring and access to laboratory, radiology, and other services.

Tier 2 Strengthening the network

This tier focuses on optimizing the use of resources and services to ensure the highest possible number of staff and the greatest possible hospitalization capacity. Good mapping of bed and resource availability in both the public (civilian and military) and private sector is vital, as is the creation of a medical coordination committee or cell within the national health coordination mechanism. This will facilitate interhospital patient transfer and the management of information on the availability of beds in the network or additional beds that the emergency medical teams can provide.

EMTs specializing in the treatment of SARI can be deployed in health care facilities as an initial way to increase the number of beds for patients in critical and severe condition.

For better patient referral, it is important know which hospitals can receive COVID-19 patients and which are reserved for patients with other pathologies (obstetrics, oncology, etc.).

Tier 3 Expansion to alternative sites

Before the network reaches its maximum capacity for care, alternative sites can be identified, including medicalized hotels for outpatient management of mild and moderate cases, and stadiums or large enclosed spaces for the installation of high-capacity mobile hospitals (HCMHs). These teams can deploy in tents and/or containers or install prefabricated structures to build a mobile hospital in an enclosed facility.

EMT types 1 and 2 can support the conversion and management of medicalized hotels and other facilities for mild and moderate cases.

The use of stadiums and colosseums for the hospitalization of asymptomatic and moderate/severe cases should be considered the last resort when expanding capacities. This should be done only when all other resources, such as reorganizing health services and/or scaling up capacities through the deployment of EMTs (types 1 and 2 and EMTs specializing in triage and the treatment of SARI), have been exhausted, to permit better management and self-sufficiency in the response. It should be kept in mind that additional beds will be of no use without sufficient staff and supplies.

It is therefore important to focus expansion planning on increasing the capacity for patient care rather than increasing the number of beds without having adequate staffing and self-sufficiency to make care and operations feasible.

EXPANDING CAPACITY IN PREHOSPITAL MEDICAL EMERGENCY SYSTEMS

Human Resources

- Consider the possibility of modifying or extending the shifts of staff in prehospital EMS.
- Maximize transport capacity, deploying no more than 2 professionals per vehicle.
- Evaluate the possibility of including fast vehicles (fly car or motorbikes) with a single person to assess the patient before sending the ALS/BLS ambulance.
- Ambulance services can include drivers with basic training, freeing up EMS personnel to focus exclusively on caring for the patient during transfer.
- Limit the immediate response strategies commonly used in daily EMS activities, which involve multiple respondents at the scene.
- Mild cases can be assessed and referred to places other than hospitals to free up ambulances and emergency departments for the most severe and critical cases.
- A human resources plan should be prepared so that the dispatch center can handle the increase in calls; this plan should include training for new personnel.

Equipment

- Before selecting any equipment and technology, EMS administrators should identify equipment needs, based on their agency's response objectives.
- Minimize contamination of the equipment, ensuring that cabinet doors in the EMS response vehicle are closed; use only what is absolutely necessary for patient care

Space

- A centralized system should be established to coordinate patient transport and the use of additional EMS resources to keep the integrated health services network from collapsing.
- The majority of patients with mild COVID-19 symptoms can be managed at home, with space in emergency departments and hospitalization reserved for the most severe cases.

System/partnership

- Establish integrated responses by the local, state, and national health services, forging partnerships with public, private, volunteer, and community agencies.
- Continue evaluating and modifying the interventions included in COVID-19 plans and keep EMS personnel up to date, involving other partners in the process. Planning should be flexible, dynamic, scalable, timely, and capable of speedily adapting to new information and the evolution of COVID-19.
- Integrating communication strategies with other call centers and technical assistance is vital so that 911 centers are not rapidly overwhelmed with non-emergency calls. Establishing regional agreements on call centers (for example, poison control centers) or EMS call centers in neighboring communities can help relieve saturated or overwhelmed communication systems.

IDENTIFICATION OF ALTERNATIVE SITES

Setting up alternative sites to increase hospital capacity is essential for operations during the third stage of the response.

It is essential form an “alternative site planning team” that includes the right people in the evaluation and subsequent design and medicalization of the facility. The members of the team should not be limited to health professionals but should include engineers, logistics personnel, security officials, etc. Members of the emergency medical team can provide essential support based on their experience setting up mobile hospitals in austere conditions and remote areas.

Structures that can serve as alternative care sites can include closed hospitals, areas in airports, stadiums, military hangars, fairgrounds, etc.

At the start of the planning process, an exhaustive evaluation of potential facilities should be conducted and the following factors should be considered:

- The facilities must be located near hospitals to facilitate patient transfer and so that resources such as laboratory and diagnostic functions can be shared
- Different types and quantities of existing communications (landline telephones and high-speed Internet)
- Ambulances have adequate access and are able to move, with adequate parking and loading ramps
- Availability of electricity, ventilation, heating, air conditioning, water, and plumbing systems
- Capacity to divide open space in order to separate patients, or the availability of separate rooms with ample space.
- Sufficient bathrooms for men and women and showers for patients and staff
- Kitchen facilities
- Waste disposal capacity
- Facility-wide access for wheelchairs/gurneys
- Fire safety and protection equipment
- Refrigeration/cold storage for medical supplies and food
- Limited number of secure entrances and exits
- Support area for laundry and general supplies
- Rest area for staff
- Space for command and communications center.
- Cadaver storage area separate from the treatment area at the alternative care site

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