



# INNOVATIONS IN COVID-19 PATIENT SURGE MANAGEMENT

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## Related Resources

- [ASPR TRACIE COVID-19 Patient Surge Management and Scare Resource Allocation](#)
- [ASPR TRACIE TA: Patient Surge Management Strategies and CSC during COVID-19](#)

COVID-19 presented new challenges for patient surge management including isolation concerns, unprecedented critical care demands, and recurring and prolonged increases in staffing needs. Lessons learned from healthcare facilities, healthcare coalitions, and jurisdictions around the country are being collected to update and revisit patient surge management for future emergencies.

This ASPR TRACIE tip sheet summarizes four healthcare executives' experience with statewide patient surge management during COVID-19 (access [the full report](#) for more information) and lessons learned gleaned from other resources. It will be updated as new information emerges. It is important to note that patient surge management strategies can be phased or layered and typically do not represent a single approach.

## General Considerations

- Use quantitative and qualitative data to help with patient transfer decision making. When a chief medical officer, for example, reports that a facility is under severe stress and is using specific strategies to compensate, that may tell you more than the actual numbers. However, regional metrics for staffing, bed utilization, and other variables (including comparison to baseline capacity) are critical to comparing impact across facilities.
- During surges, plan to collect and share data (e.g., intensive care unit bed availability, ventilator usage) on a daily (or more frequent) basis with regional partners.

- Use common terminology throughout the region to facilitate a more rapid response and efficient patient transfer (e.g., what constitutes an “available” bed).
- Prepare for concurrent events/emergencies (e.g., [civil disturbance](#), [secondary disasters](#), [cyber-attacks](#), and [natural disasters](#)).
- Exercise patient transfer processes with local, state, and regional partners. Include electronic and physical medical record transfer expectations and patient tracking when conducting exercises.
- Use an incident management system (e.g., National Incident Management System [NIMS], Hospital Incident Command System [HICS]) and standardize operational periods and documentation to ensure all staff are using the same language and metrics and receiving the same communications.
- Develop contingency plans for surge to include using backup units, addressing staff shortages, and conservation strategies for scarce personal protective equipment (PPE) and equipment.
- Develop crisis standards of care (CSC) policies that incorporate a variety of partnerships including local, regional, federal, and state such as disability law centers, independent living organizations, and other organizations in planning.
- Rapidly develop clinical and facility best practices as possible through coalition-level workgroups or just formalized information sharing strategies.
- Provide training and exercises to support staff with PPE donning and doffing, proper use of protective barriers, and proper cleaning and disposal protocols.
- Ensure point of distribution plans are up to date as they will be needed for dispensing of warehouse resources to a wide variety of locations (e.g., hospitals, long-term care facilities, and emergency medical services [EMS] agencies). Also confirm request processes and allocation policies are up to date to provide fair distribution of common resources.

## Rural Considerations

- A higher proportion of residents may have pre-existing medical conditions.
- Healthcare personnel often have multiple roles and may be more subject to stress/job role conflict.
- Be prepared to transfer patients longer distances, using air or ground transport.
- Already limited staffing can be quickly compromised by provider illness or quarantine.
- Be prepared to hold patients in rural facilities based on referral center capacity, weather conditions, and availability of EMS transport options.
- Identify ways to provide consultation and treatment via [telemedicine](#).
- Work regionally to identify alternate referral locations/options when usual tertiary centers are over capacity.
- [Consider setting up an Alternate Care Site \(ACS\)](#) at the hospital or in the community for increased patient care demands not amenable to transfers, particularly if state resources (personnel, supplies, etc.) are available. This may alleviate strain on hospitals with limited capacity. Site location, logistics, infection control and pharmaceutical considerations will need to be established.
- Consider the logistics of access to testing, vaccines, and in-home care in the rural environment where distances and barriers to access are common. Consider EMS and other solutions for provision of some in-home services (e.g., community paramedicine, and Medical Reserve Corps vaccination providers).
- Prepare for resource and data limitations/constraints (e.g., delayed access to real-time hospital data, using phone communications for real-time information instead of sharing it electronically).

## Considerations for Actions within a Single Facility

### Bed Availability Strategies

- Have a structured process to identify patients suitable for discharge and connect them with case management/discharge resources. Facilitate home health services for follow up with patients who are discharged early or must be discharged from the emergency department (ED) due to lack of inpatient resources. Consider special rounding/consult teams for the ED (particularly for cardiology and neurology services) to facilitate diagnostics and discharge plans.
- Cancel or postpone non-emergency elective surgery and non-surgical procedures as required using a scoring system for [medically necessary, time-sensitive](#) procedures.
- Increase existing bed capacity by opening closed units and staffing unstaffed beds. Employ a planned, staged “use of most to least optimal spaces and staffing” that includes options for no-notice and gradual onset events. Re-assign staff from other duties to inpatient care. Adjust staff workloads as required.
- Create checklists and other job aids to ensure that critical steps in care are not missed by less trained or fatigued staff (e.g., what time do drips run out? How often are the ventilator pressures checked?)
- Convert single rooms to double where safe/appropriate.
- Consider use of day surgery and relevant other outpatient procedure and clinic areas for inpatient use as appropriate.

### Related Resources

- [ASPR TRACIE Rural Health and COVID-19: Quick Sheet](#)
- [ASPR TRACIE TA: Preparing for and Responding to COVID-19 in Rural Areas](#)

### Expansion of Critical Care

- [Identify overflow critical care areas](#) and secure resources to support those areas (e.g., configure electronic health records for critical care in those locations; ensure additional beds, ventilators, and monitoring equipment are available).
- Provide access to expert critical care staff for consultation when novel circumstances arise or rationing of resources (e.g., dialysis) that healthcare workers do not typically provide are required.
- [Adapt staffing to expand critical care](#); include phased approach to extending staff and utilizing non-traditional staff. Create a “[team nursing](#)” [model](#) using surgical and post anesthesia care unit nurses and specialized teams to perform specific COVID-19 procedures. Expand the role of advanced practice providers for prescribing, ordering, and procedural privileges. Create unit orientation materials, checklists, and other job aids to improve staff and patient safety when working under surge conditions.
- Take [actions](#) to increase or preserve respiratory care capacity by buying or borrowing additional ventilators or augmenting supplies of non-invasive respiratory support (e.g., high flow nasal cannulas). Prepare consultation mechanisms and protocols for allocating critical resources (e.g., extracorporeal membrane oxygenation [ECMO] machines, ventilators, or connecting two patients to a single ventilator if required for temporary use).
- [Telemedicine](#) allows healthcare staff to coordinate medical resources from a distance, provides additional time for diagnosis and treatment, monitor patients from the safety and comfort of their homes, and review data from patients’ screening devices.

### Expansion of Care Locations to Non-patient Care Areas

- Use [tents or flex](#) space in areas within the facility not traditionally used for patient care, particularly for patient screening and rapid testing/minor treatment.

- [Increase staffing](#) in these locations (e.g., use alternative staff from outpatient/community practice settings). Consider how volunteers will be used.
- Explore [acute care delivery at home programs](#) for patients who qualify.

### Management of Scarce Resources

- A critical care consultation individual/team should be available to provide input on patient care decisions that involve scarce resources. This may be a facility or regional function, or both. Subject matter experts in critical care, infectious disease, nephrology, ethics, and other specialties may also need to be engaged to assist with problem-solving.
- [Guidelines](#) for adapting to scarce resource situations should be developed prior to an event for common anticipated shortfalls (e.g., dialysis, ECMO, medications) with others developed in a proactive and ideally regional/state fashion when a novel issue is identified.
- Understand the [healthcare and medical supply chain](#) and anticipate and address resource shortfalls and potential shortfalls (e.g., implementing oxygen conservation when delivery or consumption rates suggest looming shortage).

## Actions within the Community

### Patient Load Balancing

Coordinated patient distribution within the community that uses all locally and regionally available hospital beds can help ensure fair, consistent care.

- Load balancing can be coordinated at any of the following levels – sometimes tiered:
  - » Substate regions, such as healthcare coalitions.
  - » State level for load balancing across an entire state.
  - » Interstate regional level to load balance patients across multiple states.
- This may include transferring patients from tertiary centers to smaller community hospitals capable of their ongoing care.
- Create a centralized patient coordination system/ cell that incorporates hospital bed data from all facilities.
  - » A clinician with experience in critical care should assist with determining patient placement when beds are scarce.
  - » Transfers from an overloaded facility should not be subject to financial/insurance considerations, either in payment of the transfer costs or as a condition to accept the patient.
  - » Develop a mechanism that can account for both emergency transfers to a higher level of care when usual referral centers are full and load-balancing transfers from overwhelmed hospitals to other facilities.
- Incorporate the need for both critical care as well as other bed type transfers into planning.
- Liaison with EMS for pre-hospital transport and interfacility transfer coordination and prioritization.
- Establish emergency transfer rotations (where hospitals take turns accepting the next emergency transfer to a higher level of care); can diffuse the impact. This is particularly helpful for rural hospitals or stand-alone EDs because it allows them to quickly locate an accepting hospital for their emergency transfers during periods of surge.
- Maintaining awareness of the resources available at every facility can ensure patients are cared for in a hospital bed that has the most appropriate resources available for their needs.

## Use of Shuttered Facilities or Non-Traditional Healthcare Facilities

- Identify brick and mortar sites to use during patient surges (e.g., vacant medical facilities that can quickly be [retrofitted](#), or buildings that are part of a system that can be consolidated and designated for infectious or convalescent patients).
- Utilize vacant or decompressed long-term care or long-term acute care facilities as ACSs for hospital decompression.

## Alternate Care Sites (ACS) and Systems

[ACS](#) refers to any building or structure of opportunity that is temporarily converted for healthcare use during a public health emergency to provide additional health capacity and capability for an affected community. ACS areas may be established at the hospital in non-patient care areas; this proximity to medical care and operations may be superior to a community-based site. Once these resources are exhausted, sites outside the walls of a traditional established healthcare institution may be used. This may include flat-space areas such as gymnasiums and convention centers, dorms, hotels, and current or former medical facility/skilled nursing facility locations. To date, most of the community-based ACS have been under-utilized and have not significantly increased surge capacity of area systems except for two: one in an isolated metro area that could not realistically transfer patients, and one in a small community that was disproportionately affected and could not move patients fast enough to meet demand. ACS may also be very important in cases of natural disaster where existing healthcare infrastructure is damaged or overwhelmed pending patient movement (and in which case staff and resources from outside the affected area will be available).

- Augment usual means of care with alternate systems of care such as telemedicine, telehealth, community-based assessment, testing, or treatment locations, or other means of expanding the usual medical care system.
- An ACS can be established by a hospital, group of hospitals, or a jurisdiction.
- An ACS can be used for various types of hospital decompression, based on community needs and available staffing and equipment resources.
- In general, critical care should be concentrated in the hospitals, with general (floor) care patients moved to ACS.
- ACS environments are very limited in their ability to care for the frail elderly and other at-risk populations and consideration of long-term care locations and other options should be part of the planning for community ACS utilization.
- Plan for decompression of patients at community ACS. Have a designated stabilization area with appropriate staffing and supplies readily available to stabilize and transfer the patient if needed.
- Supplying and staffing an ACS is a daunting prospect. Communities should have a plan for temporary ACS sites, but also determine how regional and national assets (e.g., [Federal Medical Stations](#)) will be integrated and used.
- Clear triggers for activation of an ACS are needed – this should involve an assessment that hospital resources are overwhelmed/will be overwhelmed and that hospitals have activated their maximal capacity – including ceasing non-emergency procedures, maximizing on-site ACS options, and load-balancing to other facilities prior to utilizing community-based ACS solutions.

## Related Resources

- [Considerations for Assessing Regional Patient Load-Balancing Effects during COVID-19](#)
- [Critical Care Load Balancing Operational Template](#)
- [Medical Operations Coordination Cells Toolkit First Edition](#)