

**GEEERC Medical Advisory Group
Subgroup #5: Healthcare Staffing**

Crisis Standards of Care for Healthcare Staffing

Background & Overview

Prior to the COVID-19 crisis, healthcare systems were confronted with challenges related to maintaining a sufficient pool of experienced health care workers to face the increased demand in chronic disease as well as an aging population. The current pandemic imposes additional short-term and long-term strains on the system. The short-term challenge pertains to filling the workforce gap to face the increased demand during a surge, while the long-term objective would be to build resilience and sustain clinical effectiveness in order to maintain quality patient outcomes.

Following the spring 2020 surge, many hospitals expanded their medical-surgical and ICU bed capacity, PPE and ventilator supply, and prepared for the inevitable “second wave.” Many hospitals converted non-critical care spaces into auxiliary ICUs, increasing the total ICU capacity. Hospitals also worked to “train up” nurses and other clinicians from the less busy general medical-surgical units and community care clinics to critical care levels.

Additionally, in spring 2020, surges were sporadic across the U.S., and nurses, physicians and respiratory therapists could travel between peak communities of need, going where care was needed most. With the current spread nationwide, that flexibility has diminished and the market for healthcare staff is highly competitive – and expensive. Moreover, rising positivity rates and greater community spread has led to a higher proportion of nurses and other healthcare providers unable to work on any given day due to personal illness, family illness, exposure and need to quarantine. Competing family demands (for children being home schooled), staff burnout and crisis fatigue is further reducing the pool of available nurses and other essential healthcare personnel.

Staffing Limits as a “Hard Ceiling”

Staffing is too often viewed as a flexible variable in the equation that dictates total healthcare capacity. The number of ventilators is clearly a hard ceiling above which caring for more patients in need of a ventilator is not possible. A similar fact is true about physical hospital beds. At some point there may be more patients than physical beds. However, when considering essential staff shortages, simply asking a nurse or respiratory therapist to care for more patients during a shift is clearly not the solution. Spreading these critical resources too thin will increase the risk to safe patient care and could rapidly exhaust the pool of available professionals as individuals fall ill from being overworked or become burnout and leave the field. At the same time, in a true crisis, the only firm alternative may be to deny patients access to care.

It is absolutely critical that staff also be viewed as having a hard ceiling that cannot stretch endlessly, especially during a sustained mass casualty event like a global pandemic. Staffing is limited and can become so scarce as to require a change in the expectations of the standard of care

that can be provided during the pandemic. To that end, crisis standards of care must contemplate severe staffing shortages and plan for their activation.

The COVID-19 pandemic response requires an altered health care delivery system that changes the ways healthcare professionals and facilities care for all patients, including the prescribing of drugs, the ordering of tests, the performance of any evaluation, treatment, surgery or procedure, or the decision to forego any of the preceding; the measures taken to preserve personal protective equipment and ventilators; and, the settings of care through telehealth, changes in hospital units, drive-up testing sites, makeshift triage centers, and other modalities.

These crisis standards of care (CSC) may be activated as described in the Colorado Crisis Standards of Care Plan. Upon activation, these CSC may be implemented to best manage the influx of patients. These CSC will, by necessity, involve the Health Care Workers (HCWs), their employers, and health care facilities, and will require modifications to the usual procedures and protocols utilized.

The public health objectives of a Crisis Standards of Care for Health Care Staffing are to:

- Expand the availability of HCWs and health care resources to combat the COVID-19 pandemic and to address non-COVID-19 cases;
- Confirm for HCWs and health care facilities the need for altered healthcare delivery for both COVID-19 patients and those with other conditions without requiring any new laws;
- Assure that guardrails and supports are in place to optimize workplace safety, HCW resilience in the face of moral and physical stress, patient safety, and health outcomes of COVID-19 and non-COVID-19 patients;

Considerations for Health Care Entities, Facilities & Workforce

The following guiding principles should be prioritized by HCWs, health facilities, and other care settings as Crisis Standards of Care are evaluated and deployed. These guidelines apply not only to acute care institutions, but also long-term care facilities and home care services, including hospice:

- Aim to optimize and prioritize both patient care and HCW safety.
- Monitor and respond to HCW fatigue with strategies to promote resilience, health, and wellbeing.
- Support coordination by ensuring staffed bed and resource counts through EMResource are accurate, and educate frontline providers on the methods through which statewide and inter-facility coordination is happening.
- Ensure consistent communication between front line HCWs, executive leaders, governing board, state agencies, and local communities to ensure all facilities and HCWs are aware of the rapidly changing demands, standards of care, and distribution of resources.
- Enhance communication channels in a manner that supports HCWs to be able to elevate patient care concerns without fear of retaliation.
- Provide educational opportunities, current published research pertaining to the pandemic, and support for communication and implementation of best practices during the pandemic.

- Recognize that staffing solutions will not be one-size-fits-all, and decisions related to workforce staffing and patient care delivery should be made by institutional clinical leaders, including frontline caregivers.
- Rapidly evaluate and implement new technology in care facilities that could decrease staffing burdens and improve patient care related to the pandemic.

Protection from Liability

Consistent with the protections afforded by C.R.S. § 24-33.5-711.5(2), these Crisis Standards of Care, upon activation, will apply as follows:

The conduct and management of the affairs and property of each hospital, physician, health insurer or managed health care organization, health care provider, public health worker, or emergency medical service provider shall be such that they will reasonably assist and not unreasonably detract from the ability of the state and the public to successfully control emergency epidemics that are declared a disaster emergency. Such persons and entities that in good faith comply completely with board of health rules regarding the emergency epidemic and with executive orders regarding the disaster emergency shall be immune from civil or criminal liability for any action taken to comply with the executive order or rule. C.R.S. § 24-33.5-711.5(2).

Entities formally enacting Crisis Standards of Care shall notify CDPHE using this [linked form](#).

Crisis Standards of Care Continuum & Alternative Strategies

The Institute of Medicine (2012) describes the “duty to plan” for surge capacity based on resource availability and the demand for health care services. The continuum of resource demand is typically described as “Conventional”: normal operating conditions and standards of care; “Contingency”: modified use of resources, yet functionally equivalent care; and “Crisis”: extreme operating conditions requiring substantial changes in roles and responsibilities and ability to provide care. The National Academies of Medicine (2020) describes the relationship between Contingency and Crisis as follows:

The goal is to maximize conventional and contingency capacity, avoiding crisis. When crisis conditions exist, the goal is to “gracefully degrade” services to the minimum degree needed to meet the demands, maintaining the maximum patient and provider safety. Of these surge elements, staff is the most elastic (i.e., staff can be “stretched” to provide coverage in a number of different ways).

Crisis decision-making will often occur at the bedside, and it is imperative that clinicians are able to elevate issues for action with the goal of being able to return to contingency status as quickly as possible. The following table offers an example of factors to consider as the health care delivery system moves in and out of CSC. All efforts should be made to return to Contingency status as quickly as able in support of patient outcomes. The table illustrates the continuum between Conventional and Crisis standards, alongside possible staffing standards that could be implemented by a facility utilizing staffing crisis standards of care.

As described above, staffing crisis standards may be necessitated by staff shortages, staff illness, staff workload, or staff burnout among other reasons. It is also important to acknowledge that staffing is a finite resource that could potentially be fully overwhelmed. In this scenario, health facilities should be guided by their ethical and legal obligations (e.g., state law and EMTALA

requirements for hospitals to provide emergency care within the “capability and capacity” of the facility), as well as balancing the importance of maintaining access to patients in need of care with the finite constraints of the facility and HCWs. Using patient diversion and transfers to balance patient loads across hospitals is the best method to ensure adequate care without overwhelming a particular facility; however, this is beyond the scope of this CSC.

Within this CSC, depending on the resources available in a given community or facility, some or all of the following measures may be implemented. In general, the same types of strategies are used in Contingency and Crisis Standards of Care. However, in Crisis, these strategies are deployed more extensively – across more clinical areas, throughout more shifts, and/or with more workload placed on fewer workers. ***The key differentiating factor between Contingency and Crisis is the degree to which these strategies are collectively deployed. As such, a facility may also implement more strategies, or the same strategies to a greater degree, depending on whether that facility is in contingency or crisis levels of care.***

Appendix A provides additional strategies and examples of how Contingency and Crisis strategies can be used in a clinical setting to ameliorate staffing-related issues.

Category	Conventional	Contingency	Crisis
Staff and Supply Planning	<ul style="list-style-type: none"> • Assure facility has process and supporting policies for disaster credentialing and privileging - including degree of supervision • Encourage employee preparedness planning (www.ready.gov and other resources). • Cache adequate personal protective equipment (PPE) and support supplies. • Educate HCWs on institutional disaster response. • Educate HCWs on community, regional and state disaster plans and resources. • Develop facility plans addressing HCWs' personal support needs 	Same as Conventional, with strategies executed to reflect changes under the Contingency Standard of Care	Same as Conventional, with strategies executed to reflect changes under the Crisis Standard of Care
HCW Roles: Focus Staff Time on Core Clinical Functions	Usual HCWs on units	<ul style="list-style-type: none"> • Minimize meetings and relieve administrative responsibilities during the defined crisis. • Reduce documentation requirements for HCWs. • Cohort patients to conserve PPE and reduce staff PPE donning/doffing time and frequency. • Restrict elective appointments and procedures. • Adjust staff schedules to minimize fatigue and promote resiliency. • Cross-train and/or upskill HCWs from other units • Utilize temporary/external staffing resources 	<p>Same as Conventional, but deployed to a greater extent or more strategies used, plus:</p> <ul style="list-style-type: none"> • “Step up” HCWs that do not usually care for patients of current acuity/ requirements
HCW Roles: Focus HCW Expertise on Core Clinical	No alternative staffing models	<ul style="list-style-type: none"> • Alternative staffing models generally introduced as a complement to offset increased workload 	Same as Conventional, but deployed to a greater extent or more strategies used, but

<p>Needs/Alternative Staffing Models</p>		<ul style="list-style-type: none"> • HCWs with specific critical skills (e.g., ventilator, burn management) should concentrate on those skills; delegate specified job duties that can safely be performed by other clinical or non-clinical staff. • Have specialty HCWs oversee larger numbers of less-specialized HCWs and patients (e.g., using tiered staffing; team-based care; functional staffing; less experienced staff supervised by normal unit staff in a “pyramid” model) • Consistent with applicable surge plans, develop a process by which non-emergent and non-urgent laboratory, radiographic, and other studies and procedures can be postponed to the extent necessary to redeploy HCWs into emergency duties. 	<p>adequate patient care is dependent on alternative staffing models</p>
<p>Use Supplemental or Alternative Personnel to Minimize Changes to Standard of Care</p>	<p>Supplemental or alternative personnel not used</p>	<ul style="list-style-type: none"> • Secure external staff to meet clinical needs (e.g., burn or critical care nurses, Disaster Medical Assistance Team [DMAT], other health system or Federal sources if available). • Cross train and/or upskill HCWs including HCWs working in administrative positions (e.g., nurse managers). • Adjust HCW schedules (longer but less frequent shifts, etc.) if this will not result in skill/PPE compliance deterioration. • Augment telehealth or virtual visits and remote consultations, particularly to improve coordination among sites and staff. • If appropriate, use family members/lay volunteers to provide basic patient hygiene and feeding – releasing HCWs for other duties. • Use less trained HCWs with appropriate mentoring and just-in-time education (e.g., healthcare trainees or other health care workers, 	<p>Same as Conventional, but deployed to a greater extent, more strategies used, and adequate patient care is dependent on supplemental or alternative personnel</p>

		<p>Medical Reserve Corps, retirees; physicians, physician assistants, and advance practice registered nurses from other specialties).</p> <ul style="list-style-type: none">• Use less trained HCWs to take over portions of skilled staff workload for which they have been trained.• Provide just-in-time training for specific skills.• Redeploy HCWs to emergency duties including within in-hospital sites or assisting public health at external clinics/screening/dispensing sites.• Use volunteer HCWs for direct patient care in supportive roles	
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Triggers – Indicators of Change in Status from Conventional to Contingency to Crisis

As opposed to situations where there is a shortage of supplies (ventilators, personal protective equipment, etc.), there is not a bright red line to mark an obvious change in status with regard to healthcare staff shortages. The gradual and progressive silent deterioration of working conditions due to staffing issues may result in adaptation to worsening conditions until there is sudden, catastrophic failure in the system. We list here some manifestations of those worsening conditions, which when present in rare occurrences would indicate development of contingency status, but when multiple manifestations exist or are present consistently, would indicate progression to a crisis status. The extent of and tolerance to these manifestations will vary amongst institutions and may vary dynamically over time.

- Lack of hospital clinical staff due to resignations, illness, quarantine and Colorado-mandated increased hospital bed capacity resulting in:
 - Medical/surgical unit nurses having to work in intensive care units without usual training and mentoring.
 - New nursing graduates with limited patient care experience hired and put immediately in positions of patient care that exceed their level of training and experience.
 - Recalibration of admission criteria into acute or intensive care units or discharge criteria into acute or subacute care causing ICU-level patients to be treated on medical/surgical units where nurses have not been trained to care for that severity of illness.
 - Staffing and alternative care models moving staff-to-patient care loads to abnormally high levels and higher patient acuity loads.
 - Nurse-extenders (such as nursing aides) working beyond their normal level of skill, sometimes with only a single registered nurse on a medical/surgical unit to supervise multiple personnel.
 - Other staff reassignment to units or settings outside of their usual practice setting such as outpatient-based providers now supplying care on inpatient units.
 - ICU patients requiring dialysis often not receiving continuous dialysis (Continuous Renal Replacement Therapy – CRRT) which requires 1:1 nursing. If this 1:1 nursing is not possible due to staffing shortages, the patients may then instead receive less desirable intermittent dialysis alternative renal replacement therapies that may be less optimal or differ than standard pre-pandemic care. Additionally, in some situations these patients may also receive less attentive 1:2 level nursing care, a deviation from pre-pandemic standards.
 - Changes in frequency and/or duration of outpatient hemodialysis sessions of chronic renal insufficiency patients from 4 hours three times a week to 3 hours 3 times a week or 4 hours twice a week.
- Similar staffing issues in skilled nursing and long-term care facilities:
 - Reports of lack of resident/patient assistance in basic activities of daily living which includes personal hygiene, grooming, dressing, toileting, transferring, ambulating and eating.
 - Reports of lack of resident/patient assistance in instrumental activities of daily living (IADL) which reflect on a person's ability to thrive which includes

companionship, mental support, communication with; families, supportive agencies, counselors, chaplains, and hospice and palliative care staff.

- Medications doses being given late
- Wound care treatment delays
- Staff having to work prolonged shifts without breaks or staff relief.
- Exclusion of visitors who would normally provide required caregiving for complex needs of disabled or demented patients.
- Impacts on Telemedicine:
 - Due to increasing numbers of dying and chronically ill patients, palliative care physicians are needing to volunteer to provide peer-to-peer palliative care consultations to other care providers who normally do not provide palliative care. These remote consultations are outside the normal scope of palliative care practice since the patient cannot be examined and the medical record cannot be reviewed. These remote consultations may be within a healthcare system, but also may extend between healthcare systems.
 - Due to healthcare system loading issues and transfer difficulties, peer-to-peer telemedicine consults are being provided for patients in other specialties when these patients would normally be transferred for specialized care.

APPENDICES

APPENDIX A: Additional Suggestions for Health Care Entities, Facilities & Workforce

The following inventory was generated from SG#5 to describe current efforts by Colorado hospitals, long term care facilities, and community providers to mitigate workforce shortages and enhance patient flow and to provide best practices to help augment staffing flexibility and workforce support. This list is not intended to be exhaustive or prescriptive, but to prompt further solutions and serve as a resource for organizational decision-making.

Workforce Flexibility & Cross Training

- Maximize the utilization of available EMTs and Paramedics as authorized in SB19-052 allowing EMTs and Paramedics to deliver care within their scope of practice under the supervision of an on-site physician, APRN, PA, or RN.
- Partner with schools to access students with competencies to enhance workforce.
 - Respiratory Therapy, Nursing, Physical Therapy, Medicine;
 - Examples: Externships, Nurse-Techs.
- Eliminate the burden of non-clinical demands on staff, (e.g. “Disaster or Crisis Charting Standards”, Scribes and Smart Technology) to maximize staff ability to provide clinical care.
 - Remote and aggregate monitoring; Positioning of IV drips/Ventilator adjustment platforms outside patient room;
 - Auto-connect and sync technology to charting systems, such as syncing ventilator changes directly to the electronic documentation patient record eliminating the step of making ventilator adjustments and then entering into patient record separately;
 - Increase remote monitoring and intervention capabilities to impact patient outcomes including reduction of ventilator days, PPE demands, and total length of stay.
 - Utilize quarantined skilled staff as remote monitors and available consultants to staff in clinical delivery settings.
- Cross training and “upskilling” of staff from less acute practice settings to critical care to create agility in the workforce, which may include, but is not limited to:
 - Certified Nurse Assistant “sitter” roles replaced with unlicensed patient safety attendants with rapid training.
 - Clinical students, EMTs, LPNs utilized on care teams
 - Retired workforce encouraged to re-engage in patient care
 - Clinical employees redeployed to serve as helping hands or on a care team; may be redeployed within a health system; or may be shared across health systems (similar to current PRN clinical employees)
 - Non-clinical employees redeployed to function in support roles (e.g. runners, unit clerks, stocking, screening, transport)
 - Clinical leaders assigned to care for patients and/or serve on a care team

Care Models and Patient Transfers

- Intensivists collaborate with hospitalists and triage patient management.

- Students and cross-trained staff partner with an experienced health care worker for ready consults (phone a friend).
 - Hospitalists and Intensivist collaborate and share patient workloads relying on hospitalists to care for the more stable critical care patients and freeing up the intensivist to respond to urgent/emergent patient care needs;
 - Physical therapist, EMT, Paramedic and dentist cross training to assist with routine respiratory care of patients in collaboration with licensed respiratory therapist;
 - Nursing student externs partnered with an experienced nurse;
 - Outpatient and medical surgical nursing staff partnered with experienced critical care staff.
- Discussion of shared call or coverage of essential staff between hospital facilities.
- Skilled critical care resource nurses made available to triage and support critical procedures and/or emergency responses throughout hospital.
- Redeploy ambulatory care staff to more urgent and emergent care centers. Many of these individuals have been “furloughed” offering opportunity to support the delivery of care in ICUs.
- Augment telehealth or virtual visits and remote consultations to expand access to needed care and/or retain conventional standard of care
- Exploring methods of utilizing available licensed staff in remote or consultation support roles.
 - Deploy medical and licensed health care professionals to provide consultation for care management for staff in all care facilities; examples include redeployment of Certified Nurse Midwives, Certified Registered Nurse Anesthetists, Nurse Practitioners, and Physician Assistants.

Workforce Stamina and Resilience Support

- Steps to take away employee burdens while at work:
 - Provision of free meals, coffee, hairdressing services, auto care services, childcare;
 - Community support
 - Poster thank yous, sidewalk messaging;
 - Rather than bring food, donate to fund hospital/facility Food and Nutrition Services to keep that staff employed.
- Incentivize healthcare staff as much as possible rather than simply mandating.
- Destress and Employee Wellness Support Programs.
 - [CDPHE Support Resources Website](#)
 - [Supportive Resources for Colorado Health Care Workers](#)
 - [Denver Health Rise Program](#)
 - [Safe at Hopkins](#)
- Providing pre- and post-shift briefings to manage emotional wellbeing and fatigue. This could mitigate PTSD resulting from vicarious trauma factors such as fear, heightened anxiety as a result of being separated from family, concerns regarding lack of PPE and encountering aggressive patients.

APPENDIX B: Other GMAG Staffing-related Recommendations

SG#5 also made the following recommendations that are related to, but not part of, these CSC:

Recommendations for State Actions to Provide Continued Support for Workforce Protection, Workforce Expansion, Best Use of Existing Workforce, and Improvement in Hospital Throughput

- Direct DORA (Professions and Occupations Division) to ensure licensee protections under Crisis Standards of Care related to staffing inadequacies.
- Continue temporary licensing and certifications per Executive Orders and provide fast-track services responsive to urgent workforce or facility needs.
- Advocate to ensure ACLS, PALS, & BLS Certification deadlines are waived or extended for the duration of the state or national emergency (whichever is later).
- Consider additional publication of and additional funding resources for employee wellness, resilience, and crisis fatigue, including debriefing and post-pandemic recovery – See Appendix A for specific resources
- Support rapid expansion of non-licensed healthcare workforce through innovative training programs (Certified Nurse Assistants, EMTs). Partner with DORA and CDPHE to fast track training and certification.
- Activate the Colorado Medical Reserve Corps and Colorado National Guard for non-clinical positions (e.g. security, entry screening, testing and contact tracing, sitters, environmental/janitorial, courier/transport). Note that the CNG should not be activated for clinical positions, as this is likely to deprive hospitals of essential personnel.
- Streamline transfer and discharge criteria and acceptance policies.
- Suspend or scale back state regulatory surveys as much as possible during CSC period, as surveys often divert significant staff and leadership time away from patient care.
 - CDPHE should consider reducing or limiting regulatory survey burden by narrowing their focus to the complaint or delaying surveys until the surge subsides, and use their discretion to consider complaints on an individual basis and balance whether the complaint or the crisis should be prioritized while CSC are deployed.
 - Advocate with Centers for Medicare and Medicaid Services for the potential suspension of surveys throughout the duration that CSC are necessary.
 - This should not impact the ability of patients, families, or HCWs to file a complaint with CDPHE.

APPENDIX C: The Importance of Staffing to Overall Hospital Capacity

Importance of Monitoring Staffed Bed Capacity

The Agency for Healthcare Research and Quality (2005) Public Health Emergency Preparedness published work done in partnership with Denver Health describes standardized hospital bed definitions that can clarify staffed bed availability. The definitions described then remain relevant today for hospital systems, emergency responders, and public health policy decision makers in assuring a consistent approach to address real capacity for patients and how that impacts access to care and Crisis Standards of Care thresholds. Note that these definitions may differ from data inputs used in EMResource, which are detailed in Appendix D.

- **Licensed Beds:** The maximum number of beds for which a hospital holds a license to operate. Many hospitals do not operate all of the beds for which they are licensed.
- **Physically Available Beds:** Beds that are licensed, physically set up, and available for use. These are beds regularly maintained in the hospital for the use of patients, which furnish accommodations with supporting services (such as food, laundry, and housekeeping). These beds may or may not be staffed but are physically available.
- **Staffed Beds:** Beds that are licensed and physically available for which staff is on hand to attend to the patient who occupies the bed. Staffed beds include those that are occupied and those that are vacant.
- **Unstaffed Beds:** Beds that are licensed and physically available and have no current staff on hand to attend to a patient who would occupy the bed.
- **Occupied Beds:** Beds that are licensed, physically available, staffed, and occupied by a patient.
- **Vacant/Available Beds:** Beds that are vacant and to which patients can be transported immediately. These must include supporting space, equipment, medical material, ancillary and support services, and staff to operate under normal circumstances. These beds are licensed, physically available, and have staff on hand to attend to the patient who occupies the bed.

The number of staffed beds available changes from day to day as different numbers of nurses and other essential personnel (i.e., respiratory therapists) can change for a variety of reasons, and how beds or units are staffed can be very fluid. The availability or lack of staffing can constrain the total number of beds available for the care of patients. As such, hospitals are required to report twice daily on a number of the bed and staffing metrics described above – please see Appendix B: Current EMResource Data Collection Elements (12/3/2020) for a more thorough description of current hospital reporting requirements. State policymakers and hospitals track this data very closely to have an accurate picture of local, regional, and statewide capacity and potential risk areas.

APPENDIX D: Current EMResource Data Collection Elements (Updated 12/3/20)

Below are the data elements being collected from hospitals twice daily by CDPHE that pertain to COVID emergency response.

EM Resource Field	Definition
# Confirmed COVID-19	Number of patients currently hospitalized for confirmed COVID-19 (use “comment” box as needed).
# COVID-19 PUIs	Number of patients currently hospitalized for suspected COVID-19, but who have not received confirmed test results.
# COVID-19 Discharged	Number of patients hospitalized for confirmed COVID-19 who were discharged or transferred to a lower level of acuity due to improvement of health status in the last 24 hrs (Note: This field resets 24 hours after last update; use “comment” box as needed).
Total # of ICU Capable Beds	Total # of ICU capable beds on your hospital campus, including 1) all currently staffed beds and 2) all surge areas that could be equipped and staffed for use within 24 hours (exclude neonatal, use comment box as needed).
Total # of Staffed ICU Beds	Total number of ALL staffed ICU beds in hospital (exclude neonatal; use “comment” box as needed).
ICU Bed Availability (current)	Number of beds immediately available for ICU level care.
ICU Bed Shortage (anticipated)	Does your facility have/anticipate a ICU bed shortage (under current or surge conditions) in the next week (use “comment” box as needed)?
Total # of Acute Care Beds	Total number of ALL staffed acute care beds in hospital, including overflow and surge/expansion beds used for inpatients. Includes all ICU, NICU, Psych, etc. beds; excludes any outpatient beds (e.g. OBS beds; use “comment” box as needed).
Med/Surgical Bed Availability (current)	Number of beds immediately available for Medical/Surgical level care (Note: Medical/Surgical beds = Acute Care Beds - ICU Beds).
Med/Surgical Bed Shortage (anticipated)	Does your facility have/anticipate a Medical/Surgical bed shortage (under current or surge conditions) in the next week (Note: Medical/Surgical beds = Acute Care Beds - ICU Beds)?
Adult Critical Care Vents - Total	Total number of working CRITICAL CARE ventilators for adults on your premises (use “comment” box as needed).
Adult Critical Care Vents - In-use	Number of CRITICAL CARE ventilators for adults that are in use (use “comment” box as needed).
Adult Non-Critical Care Vents - Total	Total number of working NON-CRITICAL CARE ventilators for adults on your premises (use “comment” box as needed).
Adult Non-Critical Care Vents - In-use	Number of NON-CRITICAL CARE ventilators for adults that are in use (use “comment” box as needed).
Ped Critical Care Vents - Total	Total number of working CRITICAL CARE ventilators for Peds on your premises (do NOT double count any you reported for adults) (use “comment” box as needed).

Ped Critical Care Vents - In-use	Number of CRITICAL CARE ventilators for Peds that are in use (do NOT double count any you reported for adults) (use “comment” box as needed).
Ped Non-Critical Care Vents - Total	Total number of working NON-CRITICAL CARE ventilators for Peds on your premises (do NOT double count any you reported for adults) (use comment box as needed).
Ped Non-Critical Care Vents - In-use	Number of NON-CRITICAL CARE ventilators for Peds that are in use (do NOT double count any you reported for adults) (use comment box as needed).
Ventilator & Treatment Medications	Does your facility have enough critical care meds to care for COVID patients for the next 2 weeks? Includes those required for safe ventilation (e.g. paralytics, analgesics and sedatives) and others used in the care of these patients (e.g. bicarb, insulin, TPN, etc.) (Note: If ‘no’, use “comment” box as needed).
PPE	Considering your current standards of care, does your facility have enough PPE to meet demand for the next week? This includes N95s, reusable respiratory protection and associated filters, eye protection, gloves, gowns (NOTE: Choose the answer that BEST describes PPE use in your facility and the supply of PPE using those practices).
PPE (explain)	If “No” to previous (‘PPE’), please explain the shortage type.
Staffing (anticipated)	Are you anticipating staffing shortages within the next week (use “comment” box as needed)?

APPENDIX E: References & Additional Resources

Agency for Healthcare Research and Quality (2005). *AHRQ Releases Standardized Hospital Bed Definitions*. Retrieved from: <https://archive.ahrq.gov/research/havbed/definitions.htm>

Agency for Healthcare Research and Quality (2007). *Bioterrorism and Other Public Health Emergencies Tools and Models for Planning and Preparedness; Project XTREME Model for Health Professionals' Cross-Training for Mass Casualty Respiratory Needs*
<https://www.aarc.org/wp-content/uploads/2014/11/01-project-xtreme-model-for-health-professionals.pdf>

ASPR TRACIE (2020). Crisis Standards of Care and COVID-19: What's Working and What Isn't. <https://asprtracie.hhs.gov/COVID-19>

Colorado Department of Public Health and Environment (2018). *CDPHE All Hazards Internal Emergency Response and Recovery Plan, Annex B: Colorado Crisis Standards of Care Plan*.
<https://cha.com/wp-content/uploads/2018/10/Crisis-Standards-of-Care-05102018-FINAL.pdf>

Institute of Medicine (2012) *Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response*. <https://pubmed.ncbi.nlm.nih.gov/24830057/>

National Academies of Sciences, Engineering, Medicine (2020). *Rapid Expert Consultation on Staffing Considerations for Crisis Standards of Care for the COVID-19 Pandemic*.
<https://www.nap.edu/read/25890/chapter/1>

Society of Critical Care Medicine (2020). *United States Resource Availability for COVID-19*.
<https://sccm.org/getattachment/Blog/March-2020/United-States-Resource-Availability-for-COVID-19/United-States-Resource-Availability-for-COVID-19.pdf?lang=en-US>