Cerner COVID-19 Surge Capacity Guide

Executive Summary

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As the coronavirus disease 2019 (COVID-19) pandemic spreads across the globe, providers, governments, and other stakeholders are developing strategies to prepare for and respond to the surge of testing and treatment demands associated with the virus.

As Cerner interacts with health systems around the world, who are in various stages regarding COVID-19-specific response, most are following strategies aligned with the *Plan, Build, Supply and Staff, and Operate* framework across different venues of testing and care. The framework is described as follows:

- **Plan**: Anticipate needs for testing surge and begin planning.
- **Build**: Build the necessary infrastructure to meet the response, such as facility modifications, technology, computing environments, and systems.
- **Supply and Staff**: Equip the organization with the appropriate equipment, supplies, and staff members.
- **Operate**: Support operations and the continuous evolution of workflows, staff, and systems to support real-time learning and adjustments to address the changing dynamics your teams will experience.

In support of this framework, Cerner has created our support strategies to align with this approach. These strategies are rapidly evolving as the pandemic progresses throughout different parts of the world as will Cerner's efforts evolve to support client needs. Cerner encourages you to share additional strategies

and workplans you find effective in the COVID-19 Client Collaboration Forum in *uCern Connect*. Together, we can share this knowledge and help others who are working to combat the pandemic across their communities.

General Surge Expansions Considerations

Assumptions

The following assumptions are made with the general surge expansion considerations:

- The organization has activated their Incident Command System (ICS) as part of their emergency response to COVID-19 as a public health crisis.
- The organization ICS includes the combination of facilities, equipment, personnel, procedures, and communications designed to aid in the management of resources during the incident response.
- Health systems, as a participant in your regional emergency operations centers addressing the COVID-19 crisis, will receive value from a standardized supply and demand data set to track their progress in meeting the needs of their communities and their workforce.
- The organization recognizes the importance of standardizing operational and patient impact metrics for response to regulatory or public health agency requests.
- The following assumptions are made in regard to electronic health record (EHR) configuration for surge capacity:
    - Cerner-recommended configuration guidelines are being used based on early client experiences. These configuration recommendations continue to evolve and are published on the COVID-19 Recommendations page on Cerner.com.
    - For location configuration, the organization will start with a copy of an existing unit and modify the unit as needed.
    - The existing naming structure will be used to minimize downstream affects. Consider adding a naming convention that is easily identifiable so that you can remove it later.
    - Billing addresses currently used will be the same as existing addresses.
    - Existing interfaces will be used when possible for the location build (many can accommodate additional beds to an existing unit).

Planning

Technology Considerations

Workforce Management

Laboratory

Pediatrics

Learning Recommendations and Considerations

COVID-19 Specific Recommendations

Field Screening and Testing Surge

Assumptions

The following assumptions are made with the field screening and testing surge:

- Enhance patient and provider safety by limiting exposure and maximize resource utilization.
- Maintain compliance with EMTALA regulations while implementing new screening and testing capabilities.
- Options for screening and testing can include drive through and alternative field testing sites to decrease risk of exposure to others.

Planning

Technology Considerations

Resourcing and Staffing

EHR Build Considerations

Other Operational Considerations

Emergency Department Unit and Potential Onsite Expansion

Assumptions

The following assumptions are made with the ED unit and potential onsite expansion:

- Current capabilities are inadequate for the testing surge.
- ED surge rooms and beds are built in the EHR under the existing ED configuration.
- Aimed at unburdening the ED during high surge events of low-acuity patients who do not need emergency care.
- The goal is to get ambulatory and potentially infectious patient screened and segmented and identify patients with acute or emergent conditions for care in the ED.

Planning

Technology Considerations

Resourcing and Staffing

EHR Build Considerations

Other Operational Considerations

Acute Care Capacity Expansion

Assumptions

The following assumptions are made with the acute care capacity expansion:

- All non emergent use of critical care capable beds has been discontinued.
- All surgery requiring postprocedural critical care recovery should be discontinued.
- As bed critical care needs intensify, all elective surgery bed discontinued to preserve PPE/ventilators and operating rooms that could house multiple cohort COVID-19 positive critical patients.
- All surge expansion plans are predicated on some analysis modeling time frame and numbers projected.

Planning

Technology Considerations

Resourcing and Staffing

EHR Build Considerations

Other Operational Considerations

Create New Field Hospital

Assumptions

The following assumptions are made with the consideration of an acute field hospital site:

- If no connectivity is available, downtime procedures are in place.
- The goal is to unburden the hospital during high surge events of low acuity patients.

- Locations may vary from tent, hotel, parking structure, vacant hospital, convention center, and so on.
- Locations should be specified for stable COVID-19 versus non-COVID-19 based on surge needs.
- Field site should have dedicated space for respiratory resuscitation and stabilization needs.
- Staffing plan is completed in advance of the care to be delivered.
- Equipment is secured in advance of care delivery.
- Security is onsite for assistance and safety.
- Variation may exist due to items such as network availability and timing of the go live.
- Consider balance of integration with health system versus wanting to keep documentation from impacting client environment.

Additional assumptions to consider for an emergency department (ED) field hospital are as follows:

- Maintain compliance with EMTALA regulations for any new locations https://www.cms.gov/files/document/qso-20-15-emtala-requirements-and-coronavirus-0311-updated-003pdf.pdf-1
- The current capabilities are inadequate for surge events.
- ED, surge rooms, and beds are built out in the EHR under the existing build.
- The goal is to unburden the ED and hospital during high surge events of low-acuity patients who do not need immediate care.
- Additional goals include getting the ambulatory and potentially infectious patients screened and segmented and identify patients with acute or emergent conditions to be cared for in the ED or hospital.

Many models are under consideration. The two primary models are listed below, but Cerner recognizes that a mix of models exist throughout the country.

Health System Operated Free Standing Hospital (Not Government Sponsored)

- Single Incident Command Center.
- Primarily reliant of own resources.
- Primarily internal referrals, diversions, and transfers in the same health system.
- An expansion of the current Cerner EHR footprint.

Independent Free Standing Field Hospital (Government or Other Entity Sponsored)

- Single Incident Command Center and management to coordinate with multiple stake holders.
- Likely shared resources and staffing beyond a single health system.
- Referrals, diversions, and transfers can be across many health systems.

- FEMA is authorized to federalize civilian volunteers to work in these centers.
- Development of a new Cerner EHR footprint or extension of current EHR footprint

Examples:

- The United Kingdom's Nightingale 4000 bed hospital pulls patients, staff, equipment, and Army involvement from in and outside of the Trust. A Cerner EHR domain was extended from St. Bart's to support the field site.
- Arena to Healthcare Concept (A2HC), US Army Corp of Engineers.
- Hotel to Healthcare Concept (H2HC), US Army Corp of Engineers.

Cerner Client Examples of Free Standing Field Hospitals				
Operated By	Government	Cerner Client	Government	Cerner Client
EHR Approach	Extension of existing EHR Footprint	Extension of existing EHR Footprint	Extension of existing EHR Footprint	New Cerner EHR Footprint
Locations Operating	United Kingdom	Michigan	Missouri	New York

Planning

Technology Considerations

Resourcing and Staffing

EHR Build Considerations

Other Operational Considerations

Virtual Health NEW

Assumptions

Acute Care

The following assumptions are made with the acute workflows during a virtual health surge:

- Virtual beds may be used for the following scenarios:
  - Acute care bed capacity is insufficient and can be expanded with virtual beds.
  - Minimize staff exposure to potential infection vectors.
- Staffing ratios may be changed.
- Patients will be triaged and dispositioned to the appropriate unit based on acuity and care requirements.
- Virtual acute care beds will be built in the EHR under the existing facility configuration.

Ambulatory

The following assumptions are made with the ambulatory workflows during a virtual health surge:

- Clinical personnel appropriately staff video visits.
- Patients and providers have audio and video capabilities that have adequate internet and network connectivity.
- Health care providers are using their digital properties (such as a website and portals) to communicate COVID-19 recommendations.

Planning

Technology Considerations

Resourcing and Staffing

EHR Build Considerations

Other Operational Considerations

Ambulatory

Assumptions

The following assumptions are made with the continued operation in an ambulatory care setting:

- The organization has an existing ambulatory network that it owns and manages.
- Ambulatory clinics are discouraging patients with known or possible COVID-19 from scheduling appointments in the typical manner to mitigate potential spread.
- A patient population who require ongoing care for chronic and acute conditions unrelated to the pandemic
- Face-to-face visit volumes will tend to decrease.
- Revenue will tend to decrease.
- Workforce fluctuation will occur as workers may be directly affected by pandemic (such as they have the disease or are awaiting results) or indirectly affected (such as they are flexed to other areas of the health system and not available for ambulatory work).

Planning

Technology Considerations

Resourcing and Staffing

EHR Build Considerations

Other Operational Considerations

Post Acute and Home Care

Assumptions

The following assumptions are made with long-term post-acute care considerations:

- The organization recognizes the importance of standardizing operational and resident impact metrics for response to regulatory or public health agency request.
- Cerner-recommended EHR configuration guidelines are being used based on early client experiences. These configuration recommendations continue to evolve and are published on the COVID-19 Recommendations page on Cerner.com
- For transfer from the Post-Acute Setting: CDC guidance recommends keeping residents in the nursing facility unless the care cannot be provided outside of the acute hospital.
    - Facilities should follow the CDC guidance for COVID-19 for all positive or presumptive cases in long term care and working with state disaster planning agencies, consider designated units, floors, or specialized nursing centers.
    - Facilities should implement consistent staffing to ensure the same staff work with designated COVID-19 units or non-COVID-19 residents to minimize the opportunity for spread of the infection.
    - If a resident requires skilled services such as IV fluids, oxygen, and other treatments due to their respiratory symptoms, facilities can provide Medicare covered skilled services to eligible beneficiaries without the three-day acute stay typically required.
    - The three-day stay waiver also permits providing Medicare covered skilled nursing services from other settings, such as ambulatory medicine or home if all other coverage requirements are met.
    - Facilities should have conversations with residents and their families about the risks of hospitalization during this COVID-19 pandemic period. Advance directives should be updated after the discussions.
    - Assisted living centers and independent living centers are encouraged to shelter in place, limit admissions without negative COVID-19 testing, and quarantine the new admission for 14 days. Outside medical appointments should be avoided and use of telehealth recommended.
- For discharge to a post-acute setting:
    - As the COVID-19 crises continues and residents progress through the various phases of their illness, some if not many, may require additional care beyond what is standard for the routine med-surg discharge. Identification and coordination of these care needs will be critical to avoid clinical deterioration readmission.
    - If the discharged patient originated from a post-acute setting (such as an inpatient rehabilitation facility, skilled nursing facility, assisted living facility, or independent living facility), those facilities may not be able to receive the resident post-discharge due to a variety reasons.

- Unless organizations own these post-discharge resources, collaboration with and organization of the post-discharge community will play an important role in freeing up acute care capacity.

Planning

Technology Considerations

Resourcing and Staffing

EHR Build Considerations

Other Operational Considerations

Alternative Care Site Monitoring

Assumptions

- *CareTracker* can help unskilled and possibly nontraditional caregivers to monitor isolated, undiagnosed populations.
- In a variety of scenarios, a need exists to isolate certain undiagnosed populations of individuals and monitor them for a period to screen for the possibility of COVID-19 infection. This identification and monitoring can reduce the likelihood of community spread from asymptomatic individuals.
- This strategy is being deployed in several settings; for example, relocating homeless populations to hotels or convention centers, and quarantining cruise ship passengers in their cabins for several weeks at a time.
- To capture data on these individuals, monitoring agencies need the ability to stand up lightweight documentation solutions to capture basic social and demographic data, vital signs, and basic observational screening data. This data can be collected on a regular basis by nontraditional caregivers that may have little or no knowledge of traditional EHR solutions.
- Organizations need a portable solution that can collect this basic information and recognize individuals who are at greater risk of infection. Higher risk individuals then can be more frequently monitored for infection and for the possible need to transfer them to a higher acuity facility.

Planning

Technology Considerations

Resourcing and Staffing

EHR Build Considerations

Other Operational Considerations

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