Region III Health and Medical Coalition

Implementation Plan for Medical Surge and Crisis Standards of Care Guidance Document (Second Draft, August 27, 2018)

Abstract

This implementation plan will assist the Coalition and its private/public health partners to identify their respective surge capacity and surge capabilities in response to mass casualty incidents. This plan, when implemented, will increase organizational readiness, staff proficiency, and patient health outcomes.

Witt O'Brien's Project Team and Region III Work Group

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About the Region III Work Group

The Region III Work Group was assembled by the Region III Health and Medical Coalition to represent them and their respective sectors to collaborate with the Witt O'Brien's project team to develop the key components and priorities of the implementation plan for the Region III Medical Surge Capacity and Crisis Standards of Care Guidance Document.

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About Witt O'Brien's

Witt O'Brien's, LLC is a global crisis and emergency management consulting firm headquartered in Washington D.C. The company works with several sectors including healthcare, government, energy, transportation, education, and technology. Healthcare sector experience includes working with hospitals in the D.C., Baltimore, and New Jersey regions on regional readiness; comprehensive emergency management planning for public health and hospitals throughout Hawaii; and developing regional and statewide plans to address highly contagious infectious disease in Texas, currently being used to fight Zika. ***Note**: Witt O'Brien's is not a law firm. The legal and liability sections were developed from work outside of Witt O'Brien's or extracted from the literature.*

Executive Summary

Disasters happen, despite our natural human propensity to avoid thinking about them. Maryland could face a disaster that overwhelms its resources so that the State's healthcare system cannot provide the normal standard of patient care that we take for granted day-to-day.

While we hope this never happens, a quick look at recent history reminds us that we must prepare for the worst. In the past decade, catastrophic disasters have killed hundreds of thousands of people around the world. While it can be argued that the population in the United States is less vulnerable than the populations in Haiti, Indonesia, Turkey, Nepal, etc., we cannot claim to be immune to disasters. Since 2000, the United States has had to contend with multiple complex disasters, both natural and human caused, that have killed thousands of people and injured or displaced several times more. Though Maryland does not face as severe threats as some states, Maryland is by no means invulnerable to disasters, as flooding, hurricanes, mass shootings, and other incidents have repeatedly shown.

During most mass casualty incidents (MCIs) or disasters, the sick and injured can be cared for by the existing hospital and/or healthcare system, sometimes augmented by local and state agency resources, without major alterations to the standards of care.

However, some incidents or disasters can be large enough to overwhelm all available medical resources for a time. During such incidents, there may not be enough resources to provide care and assistance to all who need help. To better address this resource shortfall, first responders, hospitals, healthcare systems, and appropriate agencies must have the ability to access additional resources, including space, beds, staff, supplies, equipment, etc. to care for the influx of casualties caused by the disaster.

Careful planning and detailed preparations may help to avert the need for mutual aid or diversion of patients to other hospitals. Strategies for expanding medical treatment capacity include, but are not limited to:

- Describing the rationale for increasing medical surge capacity (MSC) and developing crisis standards of care (CSC) as well as highlighting key issues and possible challenges.
- Developing a permanent formal committee and subcommittee structure as well as establishing a process to routinely review MSC and CSC needs.
- Developing a process to create, activate, and maintain additional acute and critical care capabilities (beds, staff, and other required resources) when an incident exhausts existing inpatient beds.
- Identifying other facilities that may be able to provide patient care during MCIs and disasters.
- Integrating CSC into efforts to create MSC for a range of contingency and crisis target levels to enable facilities to implement an appropriate surge level depending on the number of casualties received and resources available.
- Identifying ways to preserve essential operations (i.e., patient care services) and associated services for patients who cannot be discharged during a disaster.
- Addressing the implications of MSC and CSC in relation to legal concerns and liability protection.
- Developing and implementing mutual aid agreements and/or memoranda of understanding to provide/receive space, staff, and/or resources from other facilities and/or public and private partnerships.

- Establishing pathways to transfer current patients or divert incoming ones from your hospital to other facilities that have additional surge capacity and capabilities.
- Successful management of an MCI or disaster requires planning and preparedness initiatives to develop, coordinate, and implement pre-established processes, plans, and procedures in an efficient and effective manner. Doing so will serve to minimize loss of life while also allowing facilities to maintain control while also averting, or at least delaying, the implementation of mutual aid, diversion, and CSC efforts to allocate scarce medical resources.
- This implementation plan describes how to increase MSC. It also describes why hospital executives, department leaders, and others should make a sincere commitment to identify, formalize, and fund the maximum amount of additional resources possible at each hospital. This necessity directly applies to trauma-based hospitals. Clinicians (i.e., trauma surgeons, intensivists, anesthesiologists, critical care nurses, hospital epidemiologists, infection control practitioners, etc.) realize the importance of medical surge since they are directly impacted when existing resources are used up and they need additional surge resources to care for more casualties. These clinicians should then communicate this importance to their leaders and executives to seek approval to establish as much medical surge as possible. However, this commitment also extends to community hospitals since MCIs can occur anywhere. Therefore, all hospitals and agencies need to be better prepared and "at the ready" to respond to disasters as it is not possible to develop plans or create surge resources once an MCI or disaster occurs.

Introduction

This Implementation Plan outlines the current situation regarding creation and adoption of MSC and CSC across Region III. It also establishes a roadmap for implementation of CSC both in hospitals and other healthcare organizations, as well as by public health and EMS agencies, in conjunction with the Maryland Department of Health (MDH) and the Maryland Institute for Emergency Medical Services Systems (MIEMSS). The plan further describes indicators to be monitored as well as triggers for activation of crisis standards of care. Finally, it outlines current standards of care in Maryland and provides recommendations for implementing more robust crisis standards.

Situation

Background

Emergency management staff in public health agencies and hospitals (whether a trauma designated[1] or community hospital) can state that they, as first responders or first recipients, have responded to localized disasters that mirror disasters which occur nationally or somewhere in the world.

After the disaster has ended, emergency managers, planners, and coordinators debrief, internally reflect, and discuss their views with colleagues: Could we have handled the MCI or disaster if it occurred on our grounds or campus?

They ask themselves this question while still serving as responders or recipients for the injured, as well as maintaining their continuity of essential operations at their respective organizations.

In Appendix E, local and national-based MCIs and disasters have been compiled to permit your emergency management committee(s) to reassess your response procedures. Based on these types of disasters, the focus or refocus on medical surge capacity (MSC) and crisis standards of care (CSC) are warranted to help hospitals, public agencies, and coalitions to be better prepared and increase their competence in responding to disasters or MCIs. This belief serves as the basis for this project – Implementation Plan for the *Region III Medical Surge and Crisis Standard of Care Guidance Document*[2].

Although we have a sense of threats and potential consequences, it is difficult to be able to predict the extent/impact of a disaster (e.g., number of casualties) especially for no-notice or warning incidents. Therefore, having the most MSC and resources will allow responders and recipients to better respond and prepare.

Before the emergency managers, et al proceed to describe how their hospital will speak to the scope and its components for the plan, they should review the definitions of the key concepts (surge capacity, surge capabilities, crisis standards of care, and allocation of scarce resources) in Appendix B and the efforts undertaken by Region III in Appendix C.

[1] Appendix A: Trauma Centers in Maryland, MIEMSS Website
[2] Medical Surge & Crisis Standards of Care Guidance Document, Reg. III Health & Medical Coalition, 2017

Medical Surge and Crisis Standards of Care Process Flow

The Medical Surge and CSC Process Flow in the Region III Medical Surge and Crisis Standards of Guidance Document provides a framework for coordination among various entities in a mass casualty incident (e.g., pandemic influenza, emerging infectious disease outbreaks) or other types of catastrophic incidents affecting hospitals within Region III and other Maryland regional coalitions. This response flow process complements existing emergency procedures, mutual aid agreements, and medical surge capacity targets.

To develop an all-inclusive and extensive Crisis Standards of Care framework, the CSC indicators and triggers must be established using the following tactics[3]:

- Develop situational awareness.
- Assess the situation relative to the available resources.
- Advise on strategies.
- Anticipate any resource deficits (recommend obtaining necessary supplies, staffing, etc.).
- Implement adaptive strategies (conservation, substitution, adaptation, and reuse).
- Allocate/reallocate resources based on deliberate triage decisions.
- Analyze at regular intervals as part of the disaster response planning cycle.

**Overall, the triggers will indicate a point of crisis standards of care which the surge capacity and/or capabilities require a transition from conventional to contingency to crisis response level. Once the crisis response level has been reached, implementation of the decision framework to allocate scarce medical resources would begin.*

The CSC Flow Process
Provides a framework through three levels of crisis standards of care from which healthcare agencies can develop action plans:

- **Conventional Standards of Care:** A healthcare facility may activate their emergency operations and business continuity plans and operate under Conventional Standards of Care, when they utilize the space, staff and supplies[4] as they do on a daily basis.
- **Contingency Standards of Care:** A healthcare facility activates Contingency Standards of Care if they are using their spaces, staff, and supplies in a way that is not consistent with daily practices, but the facility is able to provide care that is functionally equivalent to usual patient care (plus a small to moderate influx of casualties).
- **Crisis Standards of Care**: Under CSC, healthcare facilities respond to a catastrophic disaster (e.g., major mass casualty event or large influx of casualties), while providing the best possible care to

[3] Medical Surge & Crisis Standards of Care Guidance Document, Reg. III Health & Medical Coalition, 2017
[4] Space refers to acute care, intensive care unit, etc., and supplies refer to stockpiled ventilators, personal protective equipment, etc.

patients given the circumstances and resources available. Facilities may adapt spaces, staff, and supplies to provide sufficiency of care. Crisis capacity activation constitutes a significant adjustment to standards of care. [5]

Overview

During an MCI or a disaster, the resources of Region III or the entire state may be overtaxed, and Region III may need to implement CSC to help address the resource gap and provide the best care possible to the most patients given the patient surge and resource limitations resulting from the incident. Strategies to decompress overtaxed medical systems include accessing additional resources from within the Region, (including surge resources for affected organizations as well as resources from non-affected jurisdictions in the Region), resources from other Maryland jurisdictions outside the region, State resources, or resources from outside the State.

Purpose

This implementation plan describes how to increase MSC using CSC. It describes why healthcare organizations (hospitals, EMS, public health, etc.) must work to develop realistic and effective CSC and MSC to ensure that the Region is as prepared as possible for an MCI or disaster that overwhelms a hospital, health system, local jurisdiction, and the Region's capabilities.

The plan identifies roles and responsibilities of different organizations, agencies, and entities both in the MSC/CSC planning and implementation phase, as well as during the response to an MCI or disaster that requires the activation of MSC/CSC.

This Implementation Plan and the MSC/CSC supplements existing EOPs with a focus specific to support the jurisdictional, Regional, and State hospitals and healthcare systems in the event of an MCI or disaster that overwhelms existing resources. It uses an all-hazards approach designed for use in both a "notice" event, such as an epidemic, and a "no-notice" event, such as an active shooter or hazardous materials release.

[5] Institute of Medicine of the National Academies. Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response – Introductions and CSC Framework (2012). 1-40.

Scope and Objectives of Implementation Plan

This implementation plan focuses on helping healthcare and public health organizations in Region III to develop and implement MSC and CSC plans, as well as provide training, exercise, and ongoing improvement to the plans. The plan includes:

1. Processes, procedures, and recommendations for hospitals to develop the maximum amount of surge capacity and surge capabilities;

Recommendations on how best to staff MSC beds with the appropriate level and mix of clinical staff;
Identification of which local and state agencies have responsibilities for supporting hospitals in developing MSC and CSC;
Processes, procedures, and recommendations for public health agencies to develop their surge capacity, including staffing and resources;
Processes, procedures, and recommendations for EMS providers to develop their surge capacity; and
Suggestions on how best to achieve "buy in" to MSC and CSC planning and implementation efforts from healthcare and public health organizations and entities.

This plan will help the Regional Health and Medical Coalition to meet overarching needs for the entire region, as well as to provide a "bottom up" approach that provides healthcare and public health organizations and agencies with building blocks to support their MSC/CSC planning needs and the overarching Regional needs.

The following tasks and projected timeline will help develop the "building block" concept at each hospital.

1. Contingency, Conventional, and Crisis Levels of Medical Surge Capacity (2-3 months)
2. Posting MSC levels onto Region III MSC Survey (1 week)
3. Posting MSC levels in central repository (1 week)
4. Surge Capabilities (2-3 months)
5. Staffing Models, Staffing Levels, and Staff Mix (3-4 month)
6. Surge Capacity Plan, including Operational Procedures (up to 4 months)
7. Coordinating interdependent procedures with public health agencies (2-3 months)
8. Integration of Surge Capacity Plan with appropriate disaster response plans (e.g., trauma, pandemic influenza, bioterrorism (1 month)
9. Surge Capacity Plan: Receive Endorsement from Medical Board, Key Clinical Department Leaders, Emergency Management Committee (up to 2-3 months)
10. Surge Capacity Plan: Receive endorsement and approval from executive leaders (schedule as soon as possible since the executives have very busy schedules, up to 2 months)
11. Make any revisions received from stakeholder to surge capacity plan (1 month)
12. Follow through with completing risk management cycle as described on page 56

Rationale for Scope of Implementation Plan

Key stakeholders (executives, directors of ICUs, trauma surgeons, nursing directors, chairs of emergency medicine, emergency management planners, and their emergency management committees or

equivalents) ask themselves if they have enough space/beds, staff and stuff to handle medium to large MCIs and disasters[6] - that is, an event such as the 1918 Avian influenza occurring in Maryland today (e.g., that will need all hospitals to have 116% more acute care beds, 715% more ICU beds, and 752% more ventilators) beyond current bed capacity? Or the pipe bombs exploding at the Boston Marathon taking place in the Inner Harbor (e.g., emergency room slots and beds for 280 injured)?

If the answer is no or not sure, the hospital would need to develop medical surge capacity or redefine existing MSC levels to better respond to these types of disasters. For other examples, review Appendix E: Maryland and National Mass Casualty Incidents and Disasters to Further Enhance your MSC Readiness.

To support this project or review, this implementation plan will facilitate this project or reassessment so that Region III can aggregate the MSC target levels from each hospital to determine the total amount of MSC for Region III in response to an incident occurring within its region.

Benefits and Value of Developing MSC

By defining the MSC at three levels (e.g., conventional, contingency, and crisis), the following rationale and its benefits and value should convince executives and leaders in medicine, trauma, emergency management, and infrastructure departments to step up to develop these capabilities for their hospital and community as one of their top priority projects.

1. The department incident command center (DICC) and/or the hospital ICC (HICC), as well as medical/surgical specialties, will be able to determine the most appropriate MSC level to coordinate, activate, and implement in response to the MCI at hand.

If the scope involves only Region III, the MSC and CSC Guidance Document would rarely be fully implemented unless the MCI or disaster is large enough to cover most of the Region III hospitals and local agencies.
The coalition can then determine which responsibilities need to be activated and coordinated to support their members.
The comprehensive scope chosen should differentiate acute MCIs/disasters versus intermediate/long term MCIs/disasters so that appropriate level of surge capacity, capabilities, and staffing can be coordinated and implemented.
There is a myriad of MCIs that can occur and vary for each community hospital and hospital designated trauma centers[7] which therefore correlate to their availability of ICU and acute care beds for their adult and/or pediatric patient populations.
Examples of MCIs include major accidents (i.e., automobile crashes, chemical spills/hazmat, shootings, gang fights, etc.) that can occur every day thereby impacting local hospitals and local agencies in each of the five counties and Baltimore City in Region III.

[6] Salinsky, Eileen, Strong as the Weakest Link: Medical Response to a Catastrophic Event, National Health Policy Forum, The George Washington University, Background paper – no. 65 August 8, 2008
[7] Appendix A: Trauma Centers in Maryland

Both MCIs and disasters may require additional MSC at each hospital and at local agencies, as first recipients and first responders, respectively.

It is important to formalize as many mutual aid agreements or memos of understanding (MOU) to support each hospital especially when there can be insufficient MSC, supplies, and staff when the MCI or disaster escalates.

Since 9/11 (2001) inadequate surge capacity has been a concern to effectively respond to the growing impact of hazards/disasters over the past 17 years (i.e., the increased volume, type, and intensity of terrorism attacks; the increased frequency and magnitude of active shooter incidents events; etc.).

The individual hospital and group of hospitals within the same community and their respective agencies, as well as in neighboring counties, have repeatedly questioned themselves during debriefings and evaluations if they have enough surge capacity and resources to handle more impactful incidents in a timely manner.

If a hospital/health system is, or is perceived as, a prominent healthcare provider, as well as an essential member of its community, it needs to step up to develop MSC; purchase the appropriate level of surge capabilities; and develop appropriate staffing levels and staff mix to implement these capabilities so that they are more ready to care for incoming casualties.

Having these capabilities and being able to operationalize them will allow the hospital and health system to be more independent and delay the activation of diversion-based procedures, mutual aid plans, and bypass procedures.

Based on the varied types of disasters, trauma surgeons, intensivists, critical care team members, and emergency planners should be more mindful, concerned, and motivated to be more deliberate regarding whether their hospital has enough MSC to effectively respond.

To reiterate, significant areas for hospitals to better prepare for and respond to are surge capacity, surge capabilities, and staffing to implement these capabilities so all staff can implement them when planned or unplanned disasters occur. Planning and training will play an essential role in how efficient and effective the incident command team members and staff respond to disasters. The better the plan, especially for unplanned or spontaneously occurring disasters, the better the results will be.

Discussion of medical surge begin in the mid-2000s. However, even today, not only are MSC and CSC a leading and contemporary topic/issue for hospitals and their designated staff to undertake, but also for the regulatory agencies [e.g., Joint Commission[8], ASPR[9], HBDSS[10], MDH[11] and CMS).

> CMS has stated, in its 2016 requirements[12], "Facilities must develop strategies for addressing emergency events that were identified during the development of the facility- and community-based risk assessments. Examples of these strategies may include, but are not limited to, developing a staffing strategy if staff shortages were identified during the risk assessment or

[8] Elements of Performance, Emergency Management Chapter, The Joint Commission, 2016

[9] HPP Measure Manual: Budget Period 3 (BP3) Implementation Guidance for the HPP Program Measurement Activities, HPP Cooperative Agreement, July 2014 – June 2015

[10] Alcorta, Rick, MD., Dynamic EMS System Status Score and Hospital Based Demand Scoring System (HBDSS), August 20, 2013

[11] Medical Surge Capacity Goals and Metrics, State of Maryland, pg. 12, version 2, 2013

[12] Medicare and Medicaid Programs; Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers, Centers for Medicare & Medicaid Services (CMS), HHS, Federal Register 2016

developing a surge capacity strategy if the facility has identified it would likely be requested to accept additional patients during an emergency."

In addition, the Institute of Medicine has also strongly recommended this effort by actively lobbying all disciplines and developing scientific and authoritative guidance[13] on how to achieve MSC results and advanced planning efforts in the emergency management field.

In summary, hospitals are the only group that can develop additional beds or surge capacity, especially those beds associated for critical care or intensive care. Hospitals with trauma center designations are obligated to create MSC and CSC since they are the only ones that can treat victims with surgery, burn treatment, and more intensive medical treatment. At the same time, all other hospitals need to commit to developing additional beds for major infectious disease outbreaks since we need an "all hands-on deck" approach given that there are already insufficient inpatient beds, especially critical care beds, at all hospitals to respond to pandemic influenza.

[13] Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response, Institute of Medicine of the National Academy, 2012

Implementation Plan for Hospital Sector

The Region III Work Group and Witt O'Brien's Project Team have developed plans and processes for hospitals to maximize surge capacity and surge capabilities through a sequence of actions from Appendix F to Appendix M described below.

Hospitals: Processes, Plans, Infrastructure

1. The logistics (processes, planning, methods, etc.) to develop the major components and their subcomponents of medical surge capacity and surgical capabilities for medical, surgical, and psychiatric specialties.

The description of the needed infrastructure to direct and coordinate the activation and implementation of the identified surge capacities and capabilities.

Suggested tasks for a work flow are listed below to activate MSC as needed (e.g., conventional level is nearly used up so that units, bed, staff, infrastructure can set up additional beds):

a. Additional critical care and/or acute care beds are needed for influx of adult and/or pediatric casualties.
b. Implement reverse triage or early discharge procedures to increase availability of the current complement of inpatient beds.
c. Activate and, if indicated, alert bed management staff to identify available inpatient beds, in conjunction with the intensivist and anesthesiologist leaders from medicine, surgery and pediatrics, to facilitate admissions.
    i. Bed management should develop a "shadow" system to identify which acute care beds will be converted to ICU beds in their applicable software. When these beds are activated, as an ICU bed, it will notify the appropriate ancillary and infrastructure departments to provide the established levels of service (i.e., nutrition, pharmacy, etc.).
    ii. Triggers should be identified to activate additional acute and critical care beds in response to the MCI or disaster. The following are examples of these triggers[14]:
        1. Develop criteria for inpatient bed overflow between adults and pediatrics.
        2. Implement the criteria by which a PICU patient would be transferred to the adult ICUs.
        3. Patients greater than 15 years of age with weights greater than or equal to 40 kg are acceptable to all adult ICUs (surgical and medical) or have the medical, surgical, and pediatric intensivists identify the appropriate age/weight.
        4. Admission to an adult ICU of adult patients with weights below 30 kg and/or with problems that have been traditionally solely within the scope of pediatric practice should trigger a pediatrics nursing expertise or PICU consult.

[14] Admission Process - Adults: Appendix B: Surge Plan, pg.6, Johns Hopkins Hospital, June 2017

5. If a pediatric patient "boarding" in an adult ICU has need of ongoing critical care and monitoring, they should be transferred to the PICU as a high priority patient when beds become available.
6. Pediatric patients "boarding" in the adult ICUs should be transferred to pediatric wards when they have no need for further ICU care.
7. The pediatric Rapid Response Team should be called for patients of less than 30 kg. They can respond anywhere in the hospital.

iii. If the activated beds represent a different level of care (e.g., acute care to ICU), bed management or designee should contact MDH OHCQ (Office of Healthcare Quality) to inform them of this temporary change in status to respond to the MCI or disaster.

Creating MSC of Acute Care and Critical Care Beds

The proposed procedures to identify the most surge capacity beds possible from each hospital's existing inpatient bed volumes for all staffed and licensed beds[15] are:

1. Implement reverse triage.

Stop non-urgent electives (i.e., admissions, surgeries, procedures, transfers, etc.).

Once all MSC for inpatient beds is used up, bed management or the designee will activate the following:

Emergency Department (ED) requests to go on bypass[16].
ED initiates diversion procedures for new incoming patients if all beds are reserved and/or used up.
Request mutual aid through established memos of understanding (MOU).

a. Activate all signed agreements and MOUs: Contracted vendors, health system OEM, sister hospitals, coalitions, local agencies, state agencies, neighboring states, federal government.

When all resources are totally used up and mutual aid does not provide any more surge resources, activate the following:

Activate triage team to assess level of MSC and, if indicated, implement established tracking process and hospital's framework to allocate scarce resources (or state-wide allocation of scarce resource framework, if declared by the Governor or his/her designee).

b. Triage team will serve as a separate team that dually reports to the Vice President of Medical Affairs and the HICC through the Medical Control Chief or designated subject matter expert (SME) to make decisions within your hospital instead of the attending physician for inpatient beds and specific resources [unless another committee or group has been identified to handle their respective shortage (i.e., antibiotics, drugs in short supply, etc.)].

[15] Gwon, H., Senior Director and Project Consultation, Johns Hopkins Office of Emergency Management, JHH Surge Capacity Policy, 2017

[16] The Emergency Department may independently request to go on bypass prior to or after the inpatient hospital activates their own bypass procedures

c. Develop a retrospective review process to determine the level of compliance for assigned team and external partners.

Implement process to provide liability protection for clinicians/providers once ASR framework has been implemented. This protection needs much time for approval so start this request as soon as possible with your legal counsel and risk management department.

Creating MSC in the Emergency Department

The Emergency Department represents the major access to the hospital for any MCI or disaster. Depending on the incident's severity and/or duration, your ED (or equivalent area) may need to consider expanding capacity (and rapidly) to cope with incident-related patient volume.

The NYC Department of Health and Mental Hygiene, Office of Emergency Preparedness and Response developed EDCET (Emergency Department Capacity Expansion Tool)[17] as an all-hazards tool with an emphasis on helping hospital Emergency Departments manage high patient volume through capacity expansion while keeping the ED uncontaminated during a mass casualty incident such as an influenza pandemic. EDCET is designed to assist leaders in emergency medicine, emergency managers, and hospital administration prepare for and respond to unexpected increases in patient volume.

Alternate Care Sites

In the event of a disaster or public health emergency, existing healthcare organizations may become overwhelmed with the number or acuity of patients; in these situations, the total capacity of healthcare systems and diversion procedures to care for patients must be increased and reevaluated. Alternate Care Sites (ACS) are temporary medical systems that may be created to add capacity. They enable healthcare providers to care for injured or sick patients or distribute vaccines and other types of prophylaxis. These ACS may include other patient care sites on a hospital campus or an offsite community location (e.g. school, sports facility, etc.) or they may include facilities like mobile field hospitals.

Hospitals should develop an alternate care site plan that addresses the following:

- Criteria and rapid decision-making processes for determining the need to activate an ACS;
- Provision of appropriate supplies, equipment, and staffing;
- Provision of adequate communications and information technology capability; and
- Notification of local emergency medical services of location, type, and acuity of patients to be diverted to the ACS from region hospitals.

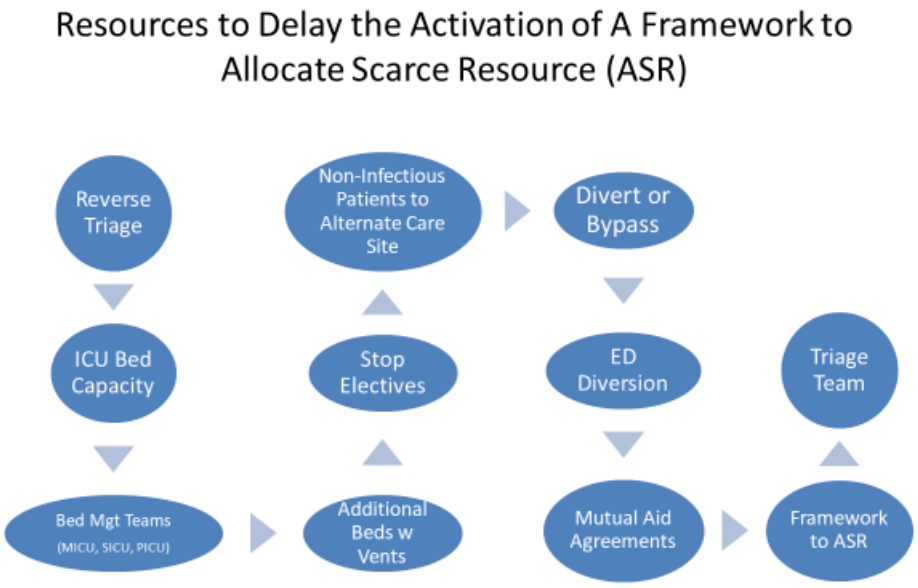
[17] Emergency Department Capacity Expansion Tool (EDCET), NYC Department of Health and Mental Hygiene Office of Emergency Preparedness and Response, 2013

Other Competing Operational Priorities When Implementing MSC

This section will focus on the solutions needed to resolve various competing operational priorities and challenges (i.e., operational, infrastructure, governance, political, commitment, etc.) in hospitals that may impede or prevent the implementation of surge capacity in response to MCIs or disasters. Major areas of focus include, but are not limited to: business continuity, staffing models, procedures once surge capacity is exhausted, executive approval, legal issues, and liability protection.

1. Business Continuity Plans. The processes and procedures that are necessary to support medical surge capacity and surge capabilities during an MCI and, at the same time, preserve continuity of essential operations for patients that need to remain in the hospital (Appendix M).

Staffing Models. Adding ICU medical surge capacity requires a tiered staffing model to address the inadequate number of critical care clinicians (e.g., intensivists, critical care nurses, respiratory therapists, pharmacy, etc.). Guidelines and recommendations are described in Appendix J.
How to activate alternative procedures to treat additional casualties and how to obtain them once capacity and resources (Appendix N) are used up are depicted below[18].



Executive Approval. To influence executives, emergency management and key leaders (e.g., physicians and nurses), need to address the following challenges and hurdles:

[18] Maryland framework for the allocation of life-sustaining medical resources in a catastrophic public health emergency, Allocation of Scarce Resources Project Team, pg. 34, August 31, 2017

a. Prioritization of planning and the development of an operational plan.
b. Funding for surge preparedness and readiness to increase readiness in response to MCIs or disasters caused by man-made and natural disasters that may not occur or rarely occur.
c. Planning within and across sectors to develop local, regional, and state-wide plans in conjunction with each hospital's plan.
d. Continuity care for current patients. Not only should hospitals and their staff plan and prepare how to treat and care for incoming casualties and walk-in victims affected by these disasters, the hospital must simultaneously continue to care for the current hospitalized patients (Appendix M). By preparing business continuity plans[19] at the department level and hospital-wide, it will allow clinical staff to better maintain patient care responsibilities for their inpatients and patients from EMTALA (Emergency Medical Treatment Active Labor Act) via other hospital emergency departments. Under certain circumstances, sanctions for violations of EMTALA obligations may be waived for a hospital; however, this waiver is not easily approved[20]. To expedite the receipt of a waiver, emergency planners should seek assistance from their legal team in advance to identify the necessary steps. In addition, by adopting the four phases of emergency management (e.g., preparedness, mitigation, response, and recovery), it will facilitate the development of operational procedures that will place all staff in a better position to implement and coordinate them.

Legal implications of medical surge and the implementation of a CSC Process Flow. See next section for more detail.

Legal and Liability Protection

Note: Witt O'Brien's is not a law firm. This section was developed from work outside of Witt O'Brien's or extracted from the literature.

To reiterate the legal concerns, and challenges from the MSC and CSC Region III Guidance Plan, in conjunction with the Institute of Medicine Crisis Standard of Care Framework, please review the salient parameters described below to identify the key areas of focus and the associated recommendations.

To further validate the Region III Guidance Plan and IOM CSC framework, Courtney et al.[21], attorneys who are immersed in this aspect of the law, published a manuscript supporting the IOM CSC framework through legal principles and their implications to MSC, CSC, and the healthcare sector's response to disasters.

[19] Tosh, P., Feldman, H., Christian, M., Devereaux, A., Kissoon, N., Dichter, J., Business and Continuity of Operations Care of the Critically Ill and Injured During Pandemics and Disasters: CHEST Consensus Statement. Chest 2014; 146 (4_Suppl): e134S-144S.
[20] ASPR Tracie: https://asprtracie.s3.amazonaws.com/documents/aspr-tracie-fact-sheet-emtala-and-disasters.pdf
[21] Courtney, B., Hodge, J., Toner, E., Roxland, B., Penn, M., Devereaux, A., Dichter, J., Kissoon, N., Christian, M., Powell, T., Legal Preparedness Care of the Critically Ill and Injured During Pandemics and Disasters: CHEST Consensus Statement. Chest 2014; 146 (4_Suppl): e134S-144S.

Medical Standards of Care

The original guidance warns us that changes in medical standards of care during a disaster may not be reflected in the corresponding legal standards of care, a disconnect that can lead to potential liability exposure for healthcare practitioners, volunteers, and entities during their response efforts.

To better protect your clinical providers from liability exposure, this I-Plan for MSC and CSC is not recommending any changes in medical practice or scope of practice. In fact, this I-Plan informs hospitals just to expand infrastructure capabilities (e.g., MSC, new staffing models, surge capabilities, etc.) and recommends that clinical staff implement their existing treatment protocols and patient care plans within their established scope of practice.

If this guidance is accepted by hospitals and appropriate documentation is created related to the development and approval of disaster response plans by the appropriate committees, there should be little or no real concern from a legal perspective for clinical staff and the hospital.

To reduce liabilities, CSC must function the same way as legal standards of care, but litigation must take into greater consideration the situation/environment in which the hospital, facility, and clinical staff carried out medical treatment and patient care procedures. Generally, medical care standards and disaster response plans will inform and substantiate medical malpractice decisions during litigation.

Operating during a mass casualty incident and/or disaster provides its own inherent protections:

- Studies show there are few malpractice cases arising out of disaster.
- Criminal prosecutions also rarely arise.

No Standard Definition for Crisis Standards of Care

When implementing CSC Process Flow, one must understand that definitions for medical standards of care and legal standards of care are distinct from each other. Once grasped by clinicians, legal counsel, and risk managers, they will be more willing to immerse themselves in developing MSC and CSC, and liability protection.

Medical standards of care "describe the types and levels of medical care dictated by professional norms, professional requirements, and institutional objectives"[22] whereas, legal standards of care are the "minimum amount of care and skill a healthcare practitioner should exercise circumstances based on what a reasonable and prudent practitioner would do in similar circumstances"[23].

It is imperative to delineate that crisis standards of care are more in line with the requisite legal standards of care because medical standards of care vary across different hospitals, medical facilities, and providers. In addition, legal standards of care do not necessarily attach strictly to medical activities

[22] Institute of Medicine citing AHRQ, 2005; Hick et al., 2009; Pegalis, 2009), p. 55.
[23] Institute of Medicine citing Mastroianni, 2006, p. 56.

but dictate a rule of proof in medical malpractice cases: the plaintiff has the burden to present expert evidence that the respondent did not satisfy a certain standard, which a specific incident needed[24].

For example, during normal operations, an emergency department has standard operating procedures that dictate how staff will carry out their daily roles and responsibilities as it pertains to medical care. When operations transition to non-normal conditions, such as during a medical surge, it is practical to say that procedures carried out day-to-day may not apply because the situation calls for a deviation from standard operating procedures due to a sharp increase in patients and the need to allocate scarce resources. The legal standards of care attach to activities, which any reasonable person would deem to have been necessary in a moment in time, based on the environment, regardless of what the medical standard is for that specific emergency department – for instance, the specific equipment used to provide medical care, the placement of patients on non-standard hospital beds or any other decisions made because of the non-normal conditions.

When implementing CSC Process Flow, policies and procedures must clearly delineate that activities implemented in conjunction with the process flow are those not confined to the same medical standards of care for daily operations (Conventional Standards of Care). Of course, this does not mean that the provider is lowering standards or preemptively stating that they will not be able to provide adequate medical care. It simply means that when CSC Process Flow is activated, non-normal operations have occurred, and typical resources may not be readily available, but that the provider will make every effort necessary to provide patients with the best medical care with current resources. However, with appropriate planning resulting in operational procedures in place to activate when indicated (e.g., surge capacity, surge capabilities, and appropriate level of staff levels and staff mix), the hospital will be able to minimize a stray from conventional standards and thereby only a very little deviation from normal scope of practice.

The duty of hospitals and the healthcare community to appropriately plan for and respond to severe disasters and pandemics is widely accepted. Hospitals, public health agencies, and clinicians have an obligation to develop comprehensive, vetted plans for MCIs involving critically ill or injured patients. Such plans should also address processes for evacuation and limited appeals and reviews of care decisions. To legitimize response procedures, deter independent actions, and trigger liability protections, mass critical care (MCC) plans should be formally activated when facilities and practitioners shift to providing MCC. Adherence to official MCC plans should contribute to protecting hospitals and practitioners who act in good faith from liability. Finally, to address anticipated staffing shortages and unavailable staff mix during severe and prolonged disasters and pandemics, hospitals should develop approaches to formally expand the availability of qualified clinical staff, especially critical care nurses, so that the MSC can be implemented and maintained for the duration of the MCI. In conclusion, a fundamental element of healthcare and public health emergency planning and preparedness, the law underlies critical aspects of disaster and pandemic responses. Effective responses require comprehensive advanced planning efforts that include assessments of complex legal issues and authorities. Recent disasters have shown that although law is a critical response tool, it can also be used to hold healthcare stakeholders who fail to appropriately plan for or respond to disasters and pandemics accountable for resulting patient or staff harm. Claims of liability from harms allegedly suffered during

[24] Dobbs Law of Torts. Ch. 25 §292: The traditional medical standard of care.

disasters and pandemics cannot be avoided altogether. However, appropriate planning and legal protections can help facilitate sound, consistent decision making and support response participation among healthcare entities and practitioners.

Emergency Declarations and Requisite Authority

When daily, normal operations are intact, standing laws, policies, and procedures provide the necessary guidance for hospitals and medical providers. Conversely, during non-normal conditions, such as during an MCI, large-scale emergency or disaster, existing guidance may not be applicable. One major reason existing guidance may not be applicable is because during declared emergencies, whether through the highest authority at the hospital or declared by government (local, state or federal), an array of non-traditional powers is triggered. Most non-traditional powers stem from emergency laws, which provide governments with enough flexibility to respond by waiving specific regulatory requirements; encouraging response efforts by limiting liability; authorizing interstate recognition of healthcare licenses; allocating healthcare personnel and resources; and, permitting other non-traditional ways of providing medical care and public healthcare services.[25]

Carefully consider all emergency laws when implementing the CSC Process Flow. Because the CSC Process Flow is a relatively new concept in medical surge capacity, no standing or emergency law adequately addresses it explicitly. However, emergency laws and other requisite authority may very well protect activities carried out because of utilizing CSC Process Flow during non-normal conditions. At the minimum, hospitals and medical providers that implement CSC Process Flow (or have mutual aid agreements with providers utilizing it) must incorporate language in policies that explicitly state the use of CSC Process Flow and under what conditions. In addition, with hospitals using the Incident Command System and established organizational structure to direct and coordinate their response to disasters, they have been delegated the unilateral authority to declare when a hospital activates their response to disasters, including MSC and CSC procedures, if developed. This experience in declaring a disaster over many, many years have gained them credibility, trust, and more importantly competence on when, who, how, etc. to declare their response to the myriad of MCIs and disasters that may affect their hospital.

Legal and Liability Protection

Note: Witt O'Brien's is not a law firm. This section was developed from work outside of Witt O'Brien's or extracted from the literature.

Tort Claims

In the State of Maryland, there have been no reported cases in which a medical tort claim was brought against a hospital or medical provider because of utilizing CSC Process Flow.[26] Liability, as discussed in the next section, is of great concern not only with CSC Process Flow but also with the provision of medical care in general. Specific to liability concerns, hospitals and medical providers lack access to best practices or lessons learned to follow when implementing CSC Process Flow. This creates uncertainty

[25] Institute of Medicine citing Courtney et al., 2010; Hodge et al., 2009, p. 57.
[26] Search was done on Thomas Reuters Westlaw Legal Research Online. No cases nationwide specific to CSC.

and apprehension in implementing CSC Process Flow, especially with the challenges associated with implementing any new procedure, in general.

To date, since the publication of the IOM CSC framework and the work completed by hospitals, cities and states across the United States (e.g., Boston, Chicago, Maryland, Minnesota, New York), more information has been forthcoming on how to develop and compare procedures to CSC and thereby reduce the mystery to develop the equivalent scope of practice and lessen the gap between conventional standards and contingency/crisis levels in relation to scope of practice at a given hospital.

Use of Scarce Resources and Liability Protection

Under the Catastrophic Health Emergencies Act, the Governor or his/her designee can "control, restrict, or regulate the use, sale, dispensing, distribution, or transportation of anything needed to respond to the medical consequences of a catastrophic health emergency" by rationing or using quotas. This action in and of itself would alter standards of care.

MD Law in 1993 enacted **§3-2A-02(c) into the Article of the MD Code** which was revised to **3-2A-02 (c) (1)**. It reads: "In any action for damages filed under this subtitle, the healthcare provider is not liable for the payment of damages unless it is established that the care given by the healthcare provider is not in accordance with the standards of practice among members of the same healthcare profession with similar training and experience situated in the same or similar communities at the time of the alleged act giving rise to the cause of action."

Perhaps by using the powers of the Governor under the Catastrophic Health Emergencies Act during a declared state of emergency and using the Article of the MD Code 3-2A-02(c)(1), one might successfully defend a healthcare provider in a lawsuit concerning altered medical standards of care.

Immunity from Liability[27]

Commentators have underscored the importance of robust legal protection for healthcare providers called upon to implement rationing of scare resources. One article, for example, noted that, even in conditions of scarcity, providers would face potential civil and criminal liability were they to withdraw care against the wishes of a patient or surrogate.[28]

Recognizing that assuaging liability fears is essential to an effective response to a catastrophic health emergency, the Maryland General Assembly provided a broad grant of immunity: "A healthcare provider is immune from civil or criminal liability if the healthcare provider acts in good faith and under a catastrophic health emergency proclamation."[29] As the Attorney General put it, "The purpose of this immunity provision is to ensure that clinicians can comply with the Governor's orders and act to save lives during a public health emergency without fear of liability."[30]

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[27] Maryland framework for the allocation of life-sustaining medical resources in a catastrophic public health emergency: Life Cycle Response Flow, Allocation of Scarce Resources Project Team, Pg. 24, August 31, 2017

[28] Mareiniss DP, Levy F, and Regan L. ICU triage: the potential legal liability of withdrawing ICU care during a catastrophic event. Am J Disaster Med 2011:6:329-338.

[29] § 14-3A-06.

[30] Opinions of the Attorney General. Public Health Emergency Preparedness – State's Authority to Ration Ventilators during Pandemic – Physician Immunity. 2015; 100:160-189. Retrieved 7-21-2017 from

Liability Protection[31] for Clinical Staff at Your Hospital

Individual hospitals, especially self-insured hospitals, can secure liability protection from their insurance companies if requested by their legal counsel or risk management department for all their clinical staff and if a policy for allocating scarce resources is developed and approved.

Conclusion

All would hope that MSC and CSC will not be needed. However, the frequency of MCIs and disasters caused by man-made and natural incidents unfortunately seems to be escalating. This reality informs us that MSC and/or planning to increase MSC are needed to increase readiness, improve proficiency, and improve patient health outcomes by having the appropriate levels to treat and care for patients.

That is why the development of this implementation plan is essential for the Region III Medical Surge and Crisis Standard of Care Guidance Plan. If this same situation occurred at your hospital and an approved surge capacity and ASR policies exist, it is best to implement the plan(s) when indicated even if your sister hospitals within your jurisdiction have not implemented them.

This document must be a living document as emergency management and medical technologies evolve, new scientific research is published, and best practices emerge that improve your ability to determine prognosis in critically ill or injured patients, as well as how to better prepare and respond using the evolved phases and concepts of emergency management and disaster response plans.

http://www.marylandattorneygeneral.gov/Opinions%20Documents/2015/100oag160.pdf.
http://www.marylandattorneygeneral.gov/Opinions%20Documents/2015/100oag160.pdf.

[31] Courtney, B., Hodge, J., Toner, E., Roxland, B., Penn, M., Devereaux, A., Dichter, J., Kissoon, N., Christian, M., Powell, T., Legal Preparedness Care of the Critically Ill and Injured During Pandemics and Disasters: CHEST Consensus Statement. Chest 2014; 146 (4_Suppl): e134S-144S.

Appendices

Appendix A: Trauma Centers in Maryland*

Injured patients need treatment at the hospital best staffed and equipped to meet their special needs. Maryland's system of care ensures that patients promptly get to the most appropriate hospital to decrease morbidity and mortality.

The trauma centers serving Maryland include:

Primary Adult Resource Center

R Adams Cowley Shock Trauma Center/University of Maryland Medical System, Baltimore City

Pediatric Trauma Centers

Pediatric Trauma Center/The Johns Hopkins Children's Center, Baltimore City
Pediatric Trauma Center/Children's National Medical Center, Washington, DC

Level I Trauma Center

The Johns Hopkins Hospital Adult Trauma Center, Baltimore City

Level II Trauma Centers

The Johns Hopkins Bayview Medical Center, Baltimore City
Prince George's Hospital Center, Cheverly
Sinai Hospital of Baltimore, Baltimore City
Suburban Hospital, Bethesda

Level III Trauma Centers

Meritus Medical Center, Hagerstown
Maryland Regional Medical Center, Cumberland
Peninsula Regional Medical Center, Salisbury

(If necessary, MIEMSS can also use trauma centers in neighboring states to supplement those trauma centers in Maryland)

*Note: Source of Information from MIEMSS Website (http://www.miemss.org/home/hospitals/trauma-centers)

Appendix B: Glossary

Allocation of Scare Resources (ASR) is the determination of how to equitably and fairly use scare medical resources available in a crisis care environment. "Scarce resources" is defined as medical care resources that are likely to be scarce in a crisis care environment. Potential medical care resources that may become scarce during a disaster or emergency include physical items (e.g. medical supplies, drugs, beds, equipment) services (e.g. medical treatments, nursing care), and healthcare personnel (e.g. physicians, nurses, psychologists, laboratory technicians, EMS providers, and other essential workers).[32]

Crisis standards of care (CSC) are defined by the Institute of Medicine's (IOM) Committee on Guidance for Establishing Standards of Care for Use in Disaster Situations as a "substantial change in the usual healthcare operations and the level of care it is possible to deliver…. justified by specific circumstances and…formally declared by a state government in recognition that crisis operations will be in effect for a sustained period."[33] CSC planned and implemented in accordance with ethical values are necessary for the allocation of scarce resources. Public health disasters justify temporarily adjusting practice standards and/or shifting the balance of ethical concerns to emphasize the needs of the community rather than the needs of individuals. The goal for the healthcare system is to increase the ability to stay in conventional and contingency categories through preparedness and anticipation of resource needs prior to serious shortages, and to return as quickly as possible from crisis back across the continuum to conventional care.

Put simply, the development of CSC plan is the means to mount a response to an incident that far exceeds a community's or an individual hospital's usual health and medical capacities and capabilities.

Disaster is a sudden event, such as an accident or a natural catastrophe, that causes great damage or loss of life

Medical surge capacity refers to the ability to evaluate and care for a markedly increased volume of patients—one that challenges or exceeds normal operating capacity. The surge requirements may extend beyond direct patient care to include such tasks as extensive laboratory studies or epidemiological investigations.

Mass Casualty Incident (often shortened to MCI and sometimes called a multiple-casualty incident or multiple-casualty situation) is any incident in which emergency medical services resources, such as personnel and equipment, are overwhelmed by the number and severity of casualties

Surge capability is the ability to manage patients requiring unusual or highly specialized medical evaluation and care. Surge requirements span the range of specialized medical and health services (expertise, information, procedures, equipment, or personnel) that are not normally available at the location where they are needed (e.g. pediatric care provided at non-pediatric facilities or burn care services at a non-burn center). Surge capability also includes patient problems that require special

[32] U.S. Department of Health and Human Services. Public Health Emergency. Allocation of Scarce Resources during Mass Casualty Events.
[33] Ibid

intervention to protect medical providers, other patients, and the integrity of the medical facility (ASPR, 2010a).[34]

Surge capacity can be defined as the ability to evaluate and care for a markedly increased volume of patients – one that challenges or exceeds normal operating capacity. The surge requirements may extend beyond direct patient care to include such tasks as extensive laboratory studies or epidemiological investigations (ASPR, 2010a).[35]

[34] Ibid

[35] Institute of Medicine of the National Academies. Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response – Introductions and CSC Framework (2012). 1-40.

Appendix C: Region III Health and Medical Coalition MSC and CSC Efforts

In 2016, the Region III Project Subcommittee surveyed hospitals in the Region to determine their respective MSC and gauge their compliance with the MDH and ASPR 20% surge capacity target for hospitals.

The results of the Region III Work Group Hospital MSC Survey are:

- 3 hospitals did not respond to the survey
- 6 hospitals reported no surge capacity
- 16 hospitals reported having at least 20% surge capacity

Of the 16 hospitals that reported at least 20% surge capacity:

- 4 reported that they had 35% surge capacity
- 1 reported having > 70% surge capacity
- 6 reported that their surge beds were not part of the existing inpatient bed complement

In summary, 16 of the 21 hospitals in Region III have achieved 20% MSC in compliance to the MDH and ASPR standard. Hospitals can decide to apply this 20% target as their contingency target level if it meets the MSC capacity when they respond to their most common MCIs.

However, if they decide to do so, they should then determine if this imposed contingency target will be enough to meet the extent/impact of MCIs or disasters that their hospital has identified on their hazard vulnerability assessment (HVA) by frequency and medical impact[36].

The 20% target will probably not meet their MSC needs for many of the historical MCIs that have affected their hospital in the past or occurred nationally. The 20% target will probably also not suffice to meet their MSC needs based on the recent incidents related to terrorists using trucks or incendiary devices, or the surge likely from medium to large scale active shooter events that can easily exceed the current complement of ICU beds at their hospital. Finally, even a less severe epidemic could overwhelm critical care capacity given that ICUs operate at greater than 65% occupancy on average, with ICU occupancy (i.e., MICU, SICU, PICU, etc.) at larger hospitals running much higher.

Based on the reported levels of MSC beds according to the survey, the Implementation Plan recommends that hospitals refocus and prioritize their effort to create additional MSC to better respond to MCIs and disasters.

In early 2017, the Region III Health & Medical Coalition developed a plan[37] to revisit each hospital's effort to increase MSC and identify the Region's crisis target level using the IOM CSC framework. This

[36] Rubinson, L., et al: Definitive Care for the Critically Ill during a Disaster – A Framework for Optimizing Critical Care Surge Capacity, Chest 2008, 133: pp.18-31

[37] Maryland Region III Health & Medical Coalition: Medical Surge and Crisis Standards of Care Guidance Document, February 21, 2017

project will allow all 21 hospitals within the 6 jurisdictions in Region III to use the same process to identify the hospital's MSC, as well as the crisis target level for each jurisdiction.

In June 2018, Region III contracted with Witt O'Brien's to create this Implementation Plan by developing, recommending, and compiling guidance, processes, procedures, etc. that will help the Region and each hospital and agency in the region to complete the following objectives in the Region's MSC and CSC Guidance Document:

1. Confirm the new minimum (e.g., contingency level) if it already exists.

Develop contingency level, as well as the maximum amount (e.g., crisis level) MSC for medical and surgical specialties to serve its adult and pediatric patient populations.
Develop staffing models to deploy the appropriate levels of staff mix and associated skill sets when surge capacity beds are activated.
Implement the established emergency management procedures for casualty influx and cancel and/or reduce non-urgent business so incoming casualties can be cared for by the designated staff.
Preserve and maintain essential patient care services during the disaster or mass casualty incident.

The Region III Work Group and the Witt O'Brien Team will develop the Region's CSC Implementation Plan, which will encompass:

1. The development of processes, procedures, and recommendations for each hospital to develop the maximum amount surge capacity, surge capabilities, and crisis target level for Maryland Region III. This framework will allow each hospital to develop its maximum number (e.g., crisis target level) of surge capacity beds and surge capabilities/resources to ensure that first receivers can provide the most appropriate level of response (e.g., emergency, trauma, medical, surgical, etc.) and level of care (emergent, acute, critical care, etc.) for their patient populations based on the stage of the MCI or disaster at-hand. Adoption of the IOM CSC Framework will result in establishment of MSC target levels (i.e., conventional, contingency, and crisis).
2. Development of processes and recommendations for staffing MSC beds with the appropriate level and mix of clinical staff.
3. Identification of which local and state agencies have responsibility for supporting hospitals in developing MSC and CSC.
4. Suggestions on how best to achieve "buy in" to MSC and CSC planning and implementation efforts from healthcare and public health organizations and entities.
5. Identification of alternative procedures when the MSC is all used up and, therefore, not available to handle any more casualties.
6. Processes, procedures, and recommendations for public health agencies to develop their surge capacity, including staffing and resources.
7. Processes, procedures, and recommendations for EMS providers to develop their surge capacity.

This plan will help the Regional Healthcare Coalition to meet the overarching needs for the Region, as well as to provide a "bottom up" approach that provides healthcare and public health organizations and agencies with the ability to support the Region's overarching needs in response to various types of MCIs and disasters.

Appendix D: Maryland, National, and International Mass Casualty Incidents and Disasters

Historical MCIs and Disasters Affecting Maryland

1. Active shooter at the Annapolis Capital Gazette office in Annapolis involving the Anne Arundel Medical Center and Shock Trauma on June 28, 2018
2. Active Shooter in Harford County and Edgewood in Baltimore City killing 3 and wounding 2 individuals on October 13, 2017 involving Shock Trauma
3. Concerns from travelers to Sierra Leone and returning to Maryland between 2014 and 2016 that raised concerns regarding exposure to Ebola which then convinced all hospitals and public health agencies in the country, including Maryland, to prepare for possible patient influx with this virus
4. Americans, in Sierra Leone, with the Ebola virus were transported to established U.S. biocontainment units (BCU) for treatment which raised concerns that the virus may spread outside of the BCU to patients, visitors, and staff in their hospital between 2014 and 2016 at Johns Hopkins Hospital and the University of Maryland Medical Center
5. Train derailment and explosion in Rosedale, in Baltimore County, causing a spillage of sodium fluoride that impacted Franklin Square Medical Center on April 30, 2013
6. Active Shooter at the Johns Hopkins Hospital (JHH) on September 16, 2010. The Senior Director of Security Services and Incident Commander stated “fortunately the hospital and security department had their respective plans to help them respond to that incident. Without a plan we, as first responders or first recipients, know that we would not have been able to respond and handle the incident efficiently or effectively or not at all.”
7. Earthquake, in Virginia, with a magnitude of 5.8 and a maximum perceived intensity of VII (Very strong) on the Mercalli intensity scale on August 23, 2011 affected all 21-hospitals in Region III and others throughout the state. The incident commander and the incident command team did not handle it as well as the active shooter event, since JHH did not have a response plan in place to prepare them prior to it or guide them during or after the earthquake
8. H1N5 epidemic in 2009 impacted the United States, including Maryland communities, the healthcare sector, and public health agencies
9. High levels of admissions caused by the annual influenza that require additional acute care and critical care/ICU beds
10. Daily occurrences of critically injured caused by violent crime, drug trafficking, and gang members affect all 21-hospitals in Region III
11. Frequent occurrences of Level 1 and Level 2 patients caused by automobile and bus accidents bringing casualties to many of the 21 hospital emergency departments in Region III

Historical MCIs and Disasters Occurring Nationally and Internationally

There are many natural and man-made disasters that can affect hospitals, especially trauma centers. Hospitals should therefore seriously review their readiness level in responding to these MCIs or disasters by formally reviewing their Hazard Vulnerability Assessment process, planning/preparedness efforts, and response procedures.

Examples include infectious disease outbreaks and MCIs caused by active shooters, terrorism, violent crime, major traffic accidents, building collapses, hospital closures[38], etc.

Infectious Disease Outbreaks (Pandemic influenza or novel viruses, Ebola)

- Update: Severe Acute Respiratory Syndrome --- Toronto, Canada[39], 2003: Severe acute respiratory syndrome (SARS) was first recognized in Toronto in a woman who returned from Hong Kong on February 23, 2003 (1). Transmission to other persons resulted subsequently in an outbreak among 257 persons in several Greater Toronto Area (GTA) hospitals. After implementation of province-wide public health measures that included strict infection-control practices, the number of recognized cases of SARS declined substantially, and no cases were detected after April 20th
- Novel Viruses: Influenza A (H1N1) **virus**[40] is the subtype of influenza A **virus** that was the most common cause of human influenza (flu) in 2009, and is associated with the 1918 outbreak known as the Spanish Flu. As part of the state-wide ASR framework developed by the ASR Project Team, Eric Toner, M.D., who is a Senior Associate at the Center for Health Security, Johns Hopkins School of Public Health, determined the MSC needed to address the 1918 influenza. If it were to re-emerge again in Maryland we would need 116% more acute care beds, 715% more ICU beds, and 752% more ventilators.
- Ebola outbreaks[41] occurred between 2013 and 2016. West Africa suffered the most severe outbreak of Ebola ever recorded. In Guinea, Sierra Leone and Liberia, a total of 29,000 patients were diagnosed with the disease. More than 11,000 people didn't survive. The Center for Disease Control transported American patients to the designated biocontainment units in the United States for treatment.

Active Shooter Incidents

Major incidents involving mass shootings around the country caused hospitals, EMS, and MIEMSS to plan, prepare, and exercise accordingly. They include, but are not limited to:

1. Aurora Theatre in Aurora, CO (June 20, 2012): 12 dead & 70 injured with 58 wounded by gunfire
2. Baptist Church in Sutherland Springs, TX (Nov. 5, 2017): 26 dead, 20 wounded
3. Las Vegas Strip, NV (Oct. 3, 2017): 59 dead and 527 wounded

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[38] Adalja, A., Watson, M., Wollner, S., Rambhia, K., Toner, E., Response to the Sudden Closure of St. Vincent's Hospital: Learning from a Real, No-notice, Prolonged Surge Event, Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science Vol. 9, Number 2, 2011

[39] CDC Website: **mmwrq@cdc.gov**

[40] Wikipedia.org

[41] Science Daily, *Source:* KU Leuven, June 11, 2018

4. Marjory Stoneman Douglas High School in Parkland, FL (Feb. 14, 2018): 17 dead and 14 wounded
5. Navy Yard in Washington, D.C. (Sept. 16, 2013 @ 8:16 AM): 12 died and 3 wounded
6. Norway Plus Car Detonation via bomb (July 23, 2011): 77 and 8 dead respectively and 110 wounded
7. Pulse Night Club in Orlando, Florida (2016): 60 dead and 57 wounded
8. San Bernardino, CA (Dec. 2, 2015): 14 dead and 17 wounded
9. Sandy Hook Elementary School in Newtown, CT (Dec. 14, 2012 @ 9:35 AM): 28 died and 2 wounded
10. Virginia Tech in Blacksburg, VA (Oct. 31, 2013): 32 died and 17 wounded

On February 14, 2018, the Washington Post published an article titled "Eighteen years of gun violence in U.S. schools, mapped" by Philip Brown. He reported that the Everytown for Gun Safety reported there have been 18 school shootings in the United States this year (e.g., a shooting every 2.5 days). Using a stricter standard, there have been at least seven (7) shootings just in 2018 – more than one each week.

Since 2000, using data compiled by Wikipedia and evaluated by type of school and type of incident, there have been more than 130 shootings at elementary schools, middle and high schools, and 58 others at colleges and universities.

At high schools, including data from the Parkland, FL shooting, there were 70 people killed and nearly 200 wounded. At elementary and middle schools, about 60 people have been killed and about 60 wounded.

Terrorism incidents around The World

1. Boston Marathon (April 5, 2013): Two terrorists used pipe bombs that were left in knapsacks in the crowds causing 6 deaths and injured 280.
2. Trucks seem to be the weapons of choice for terrorists to-date according to an NBC News analysis[42] conducted along with the Global Terrorism Database, an organization that researches recent terrorist attacks.
3. August 17, 2017, Barcelona, Spain — A van plowed into pedestrians in the Las Ramblas tourist area, killing 13 and injuring more than 100, according to officials.
4. June 3, 2017, London, England — A van was driven into crowds on London Bridge, after which the attackers left their vehicle and stabbed several people in the area. Seven people were killed and nearly 50 injured.
5. April 7, 2017, Stockholm, Sweden — A truck was driven into a Swedish department store, killing four people.
6. March 22, 2017, London, England — An SUV drove into crowds in London near Parliament. Four people were killed by the vehicle, and one police officer was stabbed after the driver left the vehicle.
7. December 19, 2016, Berlin, Germany - A truck was driven into crowds at a Christmas market, killing 12 people.
8. July 14, 2016, Nice, France — A truck was driven into crowds on Bastille Day, killing 86 people.

[42] Sam Petulla at NBC News / Jun.07.2017 / 5:57 PM ET / Updated Aug.17.2017 / 2:32 PM

Appendix E: Medical Surge Capacity Checklist, California Hospital Association[43]

Please Note: Those items that are marked "TBD" indicate additions to this checklist and that the Region III Work Group and the WOB Project Team have deemed as a necessary component in the implementation of an MSC plan.

Overview

Purpose: The purpose of the Hospital Surge Plan Checklist and Resources is to assist hospitals in developing and/or updating their plans for response to a significant surge event, as well as to provide tools, examples and guides to assist with plan development and implementation.

Definition of Surge: As defined by the State in consultation with healthcare providers throughout the state, a working definition is:

A Surge Event is a significant event or circumstances that impact the healthcare delivery system resulting in excess demand over capacity and/or capability in hospitals, community care clinics, public health departments, other primary and secondary care providers, resources, and/or emergency medical services. Note: A surge event needs to differentiate between acute/short term from and intermediate/long event (i.e., an active shooter event from a pandemic influenza event or major automobile or school bus crash from a patient with Ebola)

This definition does not take into consideration the scope of the event or the time between the onset of surge and a local or statewide proclamation of a disaster and/or issuance of gubernatorial executive orders waiving specific licensing and scope of practice requirements. Therefore, hospital planners need to consider the following in Surge Plan activation:

No gubernatorial waiver of existing regulations: Local or regional event that may require mutual aid from outside the region. Hospital activates plans to create and expand capacity within existing licensing and other regulatory requirements (e.g., discharge or transfer patients, cancel or delay admissions), or, seeks program flex approval from State Licensing and Certification for short-term expansion of capacity (e.g., surge tents, ED beds, altered/expanded use of inpatient facilities).

***Gubernatorial Waiver of existing regulations**: Multi-area or statewide event(s) that require mutual aid from outside the region*. Hospital activates plans to create and expand capacity and capability using alternative treatment areas, modified/expanded use of licensed facilities, and waiver of selected regulatory requirements (e.g., altered/expanded use of inpatient facilities, nursing ratios, isolation areas, surge tents, clinics, cafeterias, auditoriums, etc.). For planning purposes, hospitals should assume that there will be a prolonged community-wide surge of ambulatory and inpatient cases that will overwhelm existing resources.

Surge Plan Options: A hospital's Surge Plan may be incorporated into its Emergency Operations Plan (EOP), be an addendum to the EOP, or may include a series of policies, procedures and protocols

[43] Surge Planning Checklist, CHA Hospital Surge Planning Resources, August 19, 2013 and additions from Gwon, H., July 12, 2018.

referenced in the EOP. Many of the elements that should be addressed in developing Surge Plans may already be included in the EOP or other hospital plans, policies, procedures or protocols. It is not intended that these documents be duplicated in the hospital's Surge Plan, but that surge be addressed in the EOP and other documents and the documents themselves be referenced in the Surge Plan.

Surge Plans and policies/procedures should address internal and external communication regarding current emergency status for surge levels, regulatory status, the type, scope and expected duration of an event, and escalation and de-escalation as new information is received. The strength of a good plan is to have adequate detail to allow implementation by staff that may not be very familiar with the plan. Job action sheets, task checklists and other tools for activating and implementing the surge plan can be developed for this purpose. Policy and background documentation should be referenced and available but should not serve as primary resources providing direction at the onset of a surge event.

Using the Checklist: The individual(s) responsible for disaster planning should review the Hospital Surge Plan Checklist to ensure that their plans incorporate each item listed. It may be helpful to the user to note where the specific item is addressed (e.g., EOP chapter 3, Surge Plan, Section 2, P&P Credentialing, etc.).

This checklist should be used as one of several tools for evaluating current plans or in developing a surge plan, including State of California Surge Standards and Guidelines. Plans should be consistent with your hospital's role in local emergency management plans for disaster response. Hospitals should ensure that their plans comply with applicable state and federal regulations and with standards set by accreditation organizations, such as The Joint Commission. Resources to assist in surge planning and with specific items are listed on the last page of the document.

This checklist has been organized into five main sections that cover key aspects of a comprehensive surge plan—Command and Management; Creating Surge Capacity; Personnel; Supplies, Pharmaceuticals and Equipment; and, Important Considerations along with a list of resources.

Note the status of plan elements in the "Status" columns (C-Completed, IP-In Progress, NS-Not Started) and the Location (e.g., EOP, Safety Management Plan, Infectious Disease Plan, etc.).

1. Command and Management

Status*	Location	Plan Elements
		Plan identifies triggers and decision-making processes for activating the Emergency Operations Plan (EOP) and surge plan in response to a surge event.
		• Initial assessment of the event type, scope and magnitude, estimated influx of patients, real or potential impact on the hospital, and special response needs (e.g., infectious disease, hazardous materials).
		• Activation of the Hospital Incident Command System (HICS) and determination of appropriate positions to be activated. Utilize incident specific HICS Incident Response Guide (IRG) where appropriate.
		• Activation of the Hospital Command Center (HCC).

Status*	Location	Plan Elements
		• Notification to appropriate local governmental point of contact (e.g., health and medical coalitions, local health department, local emergency medical services agency, Medical and Health Operational Area Coordinator) of the surge status and activation of the EOP and surge plan.[44] The EOP identifies the local government points of contacts and 24/7 contact numbers, alternate contacts and appropriate notification priorities and processes.
		• Internal notification/communications and staff call-back protocols (e.g., call trees, contact information, etc.).
		• Processes, procedures and paperwork for contacting local or regional licensing authority (e.g., California Department of Public Health Licensing and Certification) for potential or actual request for temporary permission to exceed staffing ratios or utilize non-traditional patient care delivery areas (e.g. tents). Include the licensing authority's contact information in the plan, templates and checklists.
		• Memoranda of Understanding (MOU) with local government, area hospitals, long term care facilities and other health providers to accept or receive patients and share resources as appropriate and possible. Within hospitals in same jurisdiction and then across other jurisdictions, as well as between private and public partnerships, in proximity to region, state-wide, neighboring states, and federal government. H&M Coalitions will assume responsibility for coordination of mutual for its members, as well as use of public health infrastructure that allow public health agencies and hospitals can access, maintain, and update for preparedness and response efforts.
		• Establish ongoing communications with local governmental point of contact to report: o Patient census and bed capacity using standardized reporting terminology (e.g., HAvBED or as established by your local government point of contact). o Hospital status, critical issues and resource requests.

[44] Local government point of contact is used in this document to represent the local health department, local emergency medical services agency, Medical Health Operational Area Coordinator (MHOAC) or other local contact responsible for coordinating disaster medical response in your hospital's operational area.

Status*	Location	Plan Elements
		• Activation of resource management system including inventory, tracking, prioritizing, procuring and allocating of resources. Ensure that there are diversion plans and procedures in place once all jurisdictional capacity and/or capabilities are used up. Once diversion is no longer available, does a jurisdictional and/or state-wide allocation of scarce resource framework exist? If not, is there a hospital ASR framework in place to activate?

* C-Completed IP-In Progress NS- Not Started

2. Creating Surge Capacity

Status*	Location	Plan Elements
		Immediate Response[45]
		Triage: Plan to activate and operate additional/alternate triage area(s) during a surge event.
		• Activation triggers for establishing alternate/additional triage areas are defined. Note: Also discuss process for EMS field triage to efficiently and effectively transport patients to most capable hospital with open capacity
		• Set-up checklists and operations plan.
		• Identifies primary and alternate triage areas (e.g., consider external triage areas, event type, and facility damage).
		• Responsibility and processes for set-up and operation of triage area(s) are defined.
		• Communications plan for communications between triage areas, Emergency Department, other key departments and the HCC (e.g., landlines, handi-talkies, radios).
		• Staffing of the alternate triage sites, as well as acute care beds, procedure areas, etc. converted to ICU or critical care beds. Be sure to establish staffing models, their appropriate staffing levels and staff mix to address skill set needed to carry out assigned responsibilities, especially for ICU beds
		• Provision of supplies and equipment for the triage area considering scope and type of event, based on the facility HVA. Note: Ensure that stocked par levels are available for use for at least 10 days. Make attempts to standardize most commonly used medical supplies, especially critical care supplies in response to mass casualty incidents
		• Infectious and/or exposed patient triage area(s) and protocols (e.g., standard precautions, staff Personal Protective Equipment, ventilation, infection control protocols for staff and patients).
		• Flow of patients to and from the triage area(s).

[45] In the absence of gubernatorial orders waiving specific licensing and regulatory requirements, use of facilities outside of existing licensure should trigger notification/requests to appropriate State licensing and regulatory agencies.

Status*	Location	Plan Elements
		• Signage for directing patients to triage area(s).
		• Communication with the HCC to identify available community resources (e.g., checklist with level of care capability and contact information).
		• Triage protocols for internal and external patient disposition (e.g., minor care, delayed care, holding, hospital or local government alternate care sites, etc.).
		Decontamination: Plan to activate and perform decontamination, as necessary.
		• Plan for set-up (checklist) and operation of holding and decontamination area(s) (list individuals responsible).
		• Plan for segregation and prioritization of contaminated individuals for decontamination.
		• Methods for directing patients to decontamination area(s) (e.g., signage, stations, cones, etc.).
		• Primary and alternative decontamination areas (consider external areas, event/agent, and facility damage potential).
		• Communications protocols within the decontamination area(s) and between other units.
		• Staffing plan.
		• Equipment and supplies.
		Holding Areas: Plan for activation and operation of holding areas for patients awaiting triage, decontamination, treatment, admission, discharge or transport to lower levels of care.
		• Responsibility for set-up and operation of holding area(s) (identify by area).
		• Map and signage, using appropriate languages, for directing staff/family and patients to holding area(s).
		• Set-up checklists and operations plan.
		• Primary and alternate holding area(s) while considering type of event, capacity, level of care, infectious disease, facility status.
		• Communications between treatment areas, with HCC.
		• Staffing plan considering scope and type of patient (level of care, infectious

Status*	Location	Plan Elements
		disease, etc.).
		• Equipment and supplies.
		Treatment Areas: Plan for activation and operation of additional treatment areas to include identification of sites, signage, capacity, responsibility, communications, staffing, equipment and supplies, patient tracking/medical records, etc., to allow the Emergency Department to focus on higher acuity patients.
		• Minor care area(s).
		• Delayed care area(s).
		• Additional immediate care area(s), if available or necessary.
		• Infectious disease care area that is specific to type of contagion.
		Security – Facility Access: Plan(s) for securing and limiting facility access during a surge event.
		• Security assessment with plans to address vulnerabilities.
		• Plan for activating traffic control measures for access to facility (pre-planned traffic control measures, tools, etc.).
		• Road map outlining ingress, egress and traffic controls during surge event that is coordinated with law enforcement.
		• Specific staffing assignments and instructions for traffic control that includes who, what, and how during a surge event.
		• Plan for initiating facility lock-down and/or limited access and entry.
		• Identification/diagram of all access points in facility.
		• Identification of limited access points for entry and procedures for monitoring/managing staff.
		• Criteria and protocols for entry and exit to/from facility(ies) --including staff, volunteers, patients, family and other individuals (e.g., who, identification requirements).
		• Staffing plan for monitoring closed entrances (which will only be locked for external entry).
		• Communication between security, manned access points and HCC.
		• Special considerations following a terrorist attack/active shooter event (e.g.

Status*	Location	Plan Elements
		creating a secure perimeter, restricting access to adjacent parking areas, increasing surveillance, limiting visitation, etc.).
		• Training for staff who may be utilized in security roles including protocols, handling abusive behavior, etc.
		• Plan and mutual aid agreements for assistance with hospital security (e.g. hospital labor pool, local law enforcement, outside agencies, etc.). Note: Find out if supplementary staff resources are available from the State which may serve as a volunteer pool for hospitals. Other resources from public health agency resources or private sector other than temporary agencies.

* C-Completed IP-In Progress NS- Not Started

Status*	Location	Plan Elements
		Direct Patient Care Areas [2]
		• Specific protocols for creating surge capacity to care for a significant surge of disaster patients. Note: Also include ACS (Alternate Care Sites) and associated type of beds created, i.e., Step down beds for ICU patients and PACU slots can also serve as additional ICU beds. Any beds from public health agencies in Region III
		• Plan for immediate cancellation/delay of scheduled/non-emergent admissions, identify average amount of non-emergent admissions or electives to determine the number of available inpatient beds, specifically ICU and ICU step down beds; PACU slots and ORs), procedures and diagnostic testing.
		• Inpatient admissions including scheduled surgeries/procedures).
		• Clinic visits.
		• Outpatient surgeries and procedures (e.g., GI, Catheterization, Radiologic).
		• Diagnostic/Ancillary services (e.g., Imaging, Neurology).
		• Protocols for rapid and periodic review of patients for admission, discharge or transfer by teams of physicians, nurses and discharge planners for:
		• Also implement early discharge or reverse triage protocols; early discharges with home care support to increase volume of additional surge bed capacity
		• Emergency Department (ED).
		• Inpatients by unit or service.

Status*	Location	Plan Elements
		• Outpatient surgery and procedure areas (e.g., Colonoscopy)
		• Clinics
		• For potential terrorist or criminal event, chain-of-evidence for law enforcement is addressed.
		• Communication and coordination with HCC regarding activated and available community resources to triage, discharge or transfer to. The plan should include checklist with location, level of care and contact information.
		Capacity Plan Contents: Specific protocols for expanding ambulatory and inpatient capacity beyond licensed capacity.
		• Identify how ED, inpatient units, clinics, clinical areas and other hospital areas (e.g., cafeteria, auditorium, conference rooms, surge tents, open spaces, etc.), will be utilized to expand surge capacity. Address all key elements for use including forms and protocols for each area.
		• Capacity and use, considering cohorting of patients (e.g., inpatient, minor care, holding).
		• Activation including definition of responsibility and activation process.
		• Management and operation of the area (describe responsibilities and procedures).
		• Equipment and supplies (including re-supply).
		• Staffing (identify requirements and staffing plan). Note: Must also include staffing models for appropriate levels and mix, and resources to staff additional beds
		• Management of special needs patients (e.g., mobility impaired, hearing impaired, etc.).
		• Method of triage to/ discharge from area, including transport method(s).
		• Work with local fire officials and OSHPD in preplanning and deployment of surge tents. (See “Utilization of Surge Tents” in resources)
		• Inpatient Capacity: Specific plans for increasing bed capacity to care for surge of inpatients, including expanding beyond licensed capacity on inpatient units and use of alternative care areas (e.g., dialysis, outpatient surgery, recovery, etc.) while maintaining continuity of operations and care for current patients who cannot be discharged or transferred.1

Status*	Location	Plan Elements
		• Trauma (assume all hospitals will receive trauma cases when trauma center capabilities are exceeded)
		• Critical care (expand bed capacity in existing units, use of other areas/units).1
		• Burn (assume all hospitals will receive burn patients when burn center capabilities are exceeded).
		• Isolation plan that identifies specific hospital unit(s) or areas for negative pressure or isolation through independent ventilation if event involves contagious/infectious disease.
		• Medical/Surgical acute care
		• Pediatric (assume all hospitals will receive pediatric cases when pediatric center capabilities are exceeded). Note: Especially PICUs since there are inadequate beds in jurisdictions and state
		• Neonatal Intensive Care Unit (includes disaster victims and/or continuity of operations).
		• Maternity (assume continuity of operations).
		• ***Ambulatory Care Capacity:*** Specific plans for expanding capacity to care for surge of emergency/ambulatory patients, including use of ambulatory care centers, and opening Alternative Treatment Areas (e.g., surge tents, clinics, other hospital areas and facilities).[2]
		• **Ancillary and Support Services**
		• ***Ancillary Services:*** Specific plans have been established for increasing capacity and capability for ancillary/diagnostic services during a surge event.
		• Laboratory services, including communication and reporting to and from county public health.
		• Imaging services (including MRI, CT, Ultrasound, etc.).
		• Other ancillary and diagnostic services.
		• ***Mass Fatality Management:*** Plans have been established for management and disposition of deceased patients. (See CHA Mass Fatality in resources)
		• Plans are consistent and coordinated with Operational Area Mass Fatality Management Plan such as the Medical Examiner/Coroner Plans.
		• Includes mortality estimates by type of event to anticipate and secure supply needs (e.g., body bags, shroud packs, visquine, twine, etc.).

Status*	Location	Plan Elements
		• Plan for expanding decedent storage capacity, including alternative hospital areas, that identifies current and prospective capacity.
		• Agreements with external agencies for additional decedent storage capacity, consistent with local plans that include contacts and capacity.
		• ***Medical Waste***: Plans have been established for storage and/or disposition of increased medical waste during a surge event.
		• Expansion of storage facilities and/or disposition capabilities.
		• Agreements with vendor(s) to increase medical waste pick-up.

* C-Completed IP-In Progress NS- Not Started

3. Personnel

Status*	Location	Plan Elements
		Staffing: Specific plans for staffing during a significant surge event using hospital staff, contracted pools, and mutual aid resources, taking into consideration type and scope of event.
		• Identification of staffing needs by staff type, service area, and status of regulatory waivers regarding staffing ratios, licensure and scope of practice.
		• Contingency staffing plan identifies minimum staffing needs and prioritizes critical and non-essential services.
		• Maintain up to date staff contact information and ensure availability to HCC and individuals responsible/systems used for making staff contacts.
		• Staff disaster response assignments/roles (e.g., labor pool, specific units/areas, etc.) considering type of event.
		• Staff notification and call-back protocols, including responsibilities. Multiple methods identified and automated if possible.
		• Agreements with staffing agencies (assume multiple organizations have agreement with the same agencies).
		• Protocols for requesting and receiving staff resources (e.g., volunteers, special needs/teams, etc.) through HCC to local government point of contact.
		• Cross-training and reassignment of staff to support critical/essential services.
		• Establish Just- in-Time (JIT) training for key areas to allow staff to be assigned where most needed (e.g., Pediatrics, Burn, Respiratory, Security, Critical Care areas).
		• Address shift change, rotation, rest areas and feeding of staff.
		• Protocols for shift changes and rotation of staff (consider type of event)
		• Specific areas designated for staff respite and sleeping that (identify areas, responsibilities).
		Volunteers: Plan includes utilization of non-facility volunteers including policies and procedures for accepting, credentialing, orienting, training and using volunteers during a surge event.
		• Volunteer check-in protocols including staffing of check-in location (e.g., single entry).

Status*	Location	Plan Elements
		• Registration, credentialing and privileging protocols, including use of local Medical Reserve Corps (MRC) and Disaster Healthcare Volunteers (DHV).
		• Systems to collect, track, and maintain volunteer information (e.g., HICS form 253 Volunteer Staff Registration).
		• Issuance of identification badge and other means of identification (e.g., colored/printed armband).
		• Protocols for assignments and roles by type of volunteer (consider buddy systems as appropriate).
		• Just-in-Time (JIT) training as appropriate to volunteer role(s).
		Staff/Family Needs: Specific plans for addressing staff needs, family and domestic concerns during a surge event.
		• Internal or external arrangements for dependent care to include, if necessary, boarding, food and special needs to remove barriers that may prevent staff from coming to work (e.g., encourage staff to have family disaster plan and to pre-arrange, if possible).
		• Internal or external arrangements for pet care and (encourage staff to pre-arrange).
		• Protocols and specific assignment of appropriately trained professionals to monitor and assess staff for both stress-related and physical health concerns.

* C-Completed IP-In Progress NS- Not Started

4. Supplies, Pharmaceuticals and Equipment

Status*	Location	Plan Elements
		Plan addresses supplies, pharmaceuticals and equipment (SPE) for patients and staff for a significant surge event. • Essential SPE have been identified and summarized (consider type of event and patient age).
		• Equipment and furnishings (e.g., beds, cots, ventilators, IV pumps, etc.).
		• Supplies.
		• Personal Protective Equipment (e.g., masks, respirators, gowns, gloves, hand hygiene products).
		• Pharmaceuticals (including prophylaxis for inpatients, staff and family members).
		• Food and water for patients, staff, families and volunteers.
		• Plans to meet SPE needs/requirements have been established including who, how, and where.
		• Standard hospital resources/supplies.
		• Hospital caches, including pallets, trailers and methods for transportation/delivery.
		• Agreements with vendors for surge SPE (list of contacts and deliverables) and list of alternative vendors (assume multiple organizations have agreements with the same vendors).
		• Agreements with local pharmacies and stores including list of contacts and deliverables.
		• Community/government caches that includes list of cached items.
		• Other resources
		• Security needs during transport, delivery and storage of SPE.
		• Needs and plans have been shared with local government point of contact and planning partners.
		• Describe responsibilities and protocols for providing, requesting, accepting, distributing and tracking mutual aid resources including who, where, and how.

Status*	Location	Plan Elements
		• Strategies/protocols included for how priorities would be established if there is a need to allocate limited patient equipment, pharmaceuticals and other resources.
		• Identified reporting process on status of SPE resources available and/or needed, and urgency of needs to local government point of contact.

5. Important Considerations

		Healthcare Coalitions: Hospital participates in local Healthcare Coalitions for surge planning and community risk assessment/needs activities. Note: Also determine what is emergency management role of local and state agencies, especially to support hospital planning and response
		Communication: Plan describes primary and back up internal and external communication systems, assigned frequencies and uses, maintenance and equipment locations (e.g., internet, telephone, cell, internal radios, satellite, HAM radio, ReddiNet, EM System, Command Aware, Live Process, WebEOC, Vocera, CAHAN, etc.).
		Behavioral Health Needs: Plan addresses how behavioral health needs of staff, patients and family members will be met. Have printed and electronic resources available. Identify any community resources that may be available. (See CHA Mental/Behavioral Health in resources)
		Media Communication: Plan includes protocols for communication with the media in coordination with county and other healthcare providers.
		• Protocols for communication with media and identifying media spokesperson(s).
		• Coordination with county Emergency Operations Center/Joint Information Center (JIC) to establish common messaging and information dissemination.
		• Pre-prepared templates for issuing press statements that consider key event types, common statements and facts.

* C-Completed IP-In Progress NS- Not Started

Documentation – Patient Tracking: Plan includes minimum patient documentation requirements for use during a surge event and protocols for patient tracking (e.g., HICS form 254 – Disaster Victim Patient Tracking Form) and reporting to appropriate agencies (e.g., county, American Red Cross). Identify systems in place that address community wide patient tracking. Consider activation of a hospital-based Family Information Center (FIC) to assist in reunification. (See Family Information Center plan in resources). Note: Ensure that Patient Tracking system established is supported by local agency or state-wide patient tracking system, especially from field and family reunification purposes and how it is coordinated with hospital systems so that one system can be used to represent established jurisdictions and/or across state

Status*	Location	Plan Elements
		Information Sharing: Plan addresses release of patient information to appropriate entities and individuals for patient/family reunification. (See Information Sharing in resources)
		Continuity of Operations: Hospital has Continuity of Operations Plan which identifies and plans for maintaining critical/essential functions and services during a disaster or significant surge event. Manual backup processes and forms are identified. (See CHA Continuity Planning in resources)

Status*	Location	Plan Elements
		Prioritization of Resources: Hospital has protocols for prioritization of resources during a surge event when demand exceeds available resources.
		Care Requirements for Services not Normally Provided: Plan addresses protocols and resources for providing services not normally provided by hospital (e.g., infants and children, maternity, burn, trauma).
		• Care area(s) identified.
		• Equipment resources or adaptations identified (inventory lists).
		• Supplies identified with appropriate supply on hand (inventory lists).
		• Protocols (e.g., adapting adult beds to pediatric beds, handling burn cases).
		• Clinical expertise and Just-In-Time resources
		• Protocols for transfer of patient to a facility with appropriate capabilities when they become available.
		Prophylaxis/Vaccination Plan: Hospital has plan and, as available, pharmaceutical and other resources to prophylax or vaccinate staff, staff family members, volunteers and patients.
		Crisis Standards of Care: Hospitals are encouraged to develop policies and procedures specific to their organization that address allocating scarce resources during mass casualty events. Hospital incorporates state and local level planning efforts into plan. (See IOM guidance in resources). Note: Plus, ASR (allocation of scarce resource) framework exists and in place once all surge capacity is all used up
		Recovery: Utilize HICS Incident Response Guides for recovery activities. Plan refers to EOP recovery activities. (see Recovery in the Resources section)

* C-Completed IP-In Progress NS- Not Started

Resources

California Hospital Association (CHA) Emergency Preparedness website (www.calhospitalprepare.org)

- MOU samples (www.calhospitalprepare.org/memoranda-understanding)
- Hospital Incident Command System (HICS) resource websites (www.calhospitalprepare.org/hics-0, www.emsa.ca.gov/hics/ www.hicscenter.org)
- The Joint Commission, Emergency Management Chapter www.jointcommission.org/standards_information/standards.aspx

CHA Hospital Surge Planning Resources (www.calhospitalprepare.org/healthcare-surge)

- Medical Surge Capacity and Capability: A Management System for Integrating Medical and Health Resources During Large-Scale Emergencies, www.ncdhhs.gov/dhsr/EMS/aspr/pdf/mscc.pdf
- Surge Hospitals: Providing Safe Care in Emergencies (The Joint Commission 2006) www.jointcommission.org/assets/1/18/surge_hospital.pdf
- Operational Area Medical-Health Emergency Management/Surge Plan (Secure from OA/LEMSA) (www.calhospitalprepare.org/EOM)
- CDPH Standards and Guidelines for Healthcare Surge During Emergencies (calhospitalprepare.org/post/california-department-public-health-standards-and-guidelines-healthcare-surge-during)
- Academic Emergency Medicine 13 (11), pages 1087 - 1253. [All Surge Articles] http://onlinelibrary.wiley.com/doi/10.1197/acem.2006.13.issue-11/issuetoc
- Utilization of Surge Tents www.calhospitalprepare.org/sites/main/files/resources/Surge_Tents_Guidance.pdf
- EMTALA Requirements and Options for Hospitals in a Disaster (www.calhospitalprepare.org/document/centers-medicare-medicaid-services-cms)

Prioritizing Resources and Care during a Surge Event (www.calhospitalprepare.org/category/content-area/planning-topics/altered-standards-care-/-crisis-care)

- IOM Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations http://www.iom.edu/Reports/2012/Crisis-Standards-of-Care-A-Systems-Framework-for-Catastrophic-Disaster-Response.aspx AND www.iom.edu/Reports/2009/DisasterCareStandards.aspx
- CHEST Definitive Care for the Critically Ill During a Disaster, May 2008 http://chestjournal.chestpubs.org/content/133/5_suppl

CHA Hospital Pediatric Preparedness Resources (www.calhospitalprepare.org/category/content-area/planning-topics/vulnerable-populations)

- Hospital Guidelines for Pediatric Preparedness www.nyc.gov/html/doh/downloads/pdf/bhpp/hepp-peds-childrenindisasters-010709.pdf
- AHRQ Pediatric Hospital Surge Capacity in PH Emergencies www.ahrq.gov/prep/pedhospital

- CHLA (Children's Hospital Los Angeles) Pediatric Disaster Resource and Training Center www.chladisastercenter.org
- Pediatric Surge Pocket Guide www.lapublichealth.org/eprp/docs/Emergency%20Plans/Pediatric%20Surge%20Pocket%20Guide.pdf

CHA Mass Fatality Resources www.calhospitalprepare.org/category/content-area/planning-topics/mass-fatality-planning

CHA Pandemic Influenza Planning Resources (www.calhospitalprepare.org/category/content-area/planning-topics/infectious-public-health-diseases/pandemic-influenza**)**

- Hospital Pandemic Influenza Planning Checklist www.flu.gov/professional/hospital/hospitalchecklist.html
- Pandemic Influenza Preparedness and Response Guidance for Healthcare Workers and Healthcare Employees (OSHA 2009) www.osha.gov/Publications/OSHA_pandemic_health.pdf

Mental/Behavioral Health Resources (www.calhospitalprepare.org/mental-behavioral-health)

Family Information Center Resource (www.calhospitalprepare.org/FIC**)**

Information Sharing (www.calhospitalprepare.org/InfoSharing**)**

CHA Continuity Resources (www.calhospitalprepare.org/continuity-planning)

CHA Recovery Resources (http://www.calhospitalprepare.org/recovery-1)

Appendix F: Medical Surge Capacity Components

Maximum MSC/Crisis Target Level: The proposed procedures to identify the most surge capacity beds possible from each hospital's existing inpatient bed volumes for all staffed and licensed beds[46] are:

1. Cancel elective admissions, surgeries and procedures thereby freeing up slots and inpatient beds (e.g., acute care, ICU, ICU step down, etc.) to create MSC.

   Quite often, there is a shortage of critical care beds for adult and pediatric patients when an MCI occurs. To increase their availability, convert or repurpose ICU step down beds, PACU slots/stretchers, and acute care beds that can also be converted to an ICU bed.

   A critical care or ICU bed is defined as a bed supported by electrical outlets to plug in 4-6 pieces of equipment, back up electrical power and able to provide medical air, oxygen, and suction.

   Specialty type beds in obstetrics, gynecology, oncology, neurology, can also be used to care for casualties needing medical or acute care beds.

2. Reverse triage or rapid/early discharges involves two types of patients. Triage these patients to designated rooms so they can wait for their family members to take them home. Waiting areas should accommodate stable inpatients or those patients that can be discharged with follow up care from home healthcare staff.

   i. Early discharges without additional care

   ii. Early discharges with follow up care from home healthcare companies

   Reverse triage is defined as a system of categorizing patients in a mass casualty situation to which they can be discharged rather than be on priority for treatment.[47]

   A simple method to estimate bed availability through reverse discharge is by having inpatient units by specialty request attending physicians to determine which of their inpatients can be discharged 1-2 days early when requested by the hospital incident command center (HICC) through its notification system to the department incident command centers (DICC). This task can be initially performed as an announced exercise once education and training are provided to physicians, residents, nursing staff, clinical team members, and their managers and supervisors. Once the first exercise is completed, additional exercises can be conducted unannounced since this task is already a normal part of physicians' daily duties. Exercises should be conducted on day or early evening shift with the actual inpatients on the unit. However, exercises are not recommended on late evening or night shifts since it would be impractical to expect family members to come pick up their loved ones that late. Using actual patients will simulate the actual responsibility when "real" MCIs occur for the clinical staff to produce efficiently and effectively without hesitation.

[46] Gwon, H., Senior Director and Project Consultation, Johns Hopkins Office of Emergency Management, JHH Surge Capacity Policy, 2017

[47] Hick, J.L., Barbera, J.A., and Kelen, G.D. (2009, June). "Refining surge capacity: Conventional, contingency, and crisis capacity." ***Disaster Medicine and Public Health Preparedness*** 3(Suppl 1), pp. S59-S67.

This exercise should involve, but not be limited to:

i. Test all acute care and critical care units.

ii. The intensivists in their respective ICUs should determine if their patient can be transferred to step down units.

iii. The physicians, assigned to the stepdown units, should determine if they can discharge their patients. If they cannot discharge them, determine if they can transfer their patients to specialty units that do not normally care for incoming casualties (i.e., oncology, neurology, etc.). If these units do not exist, determine if they can be transferred to other acute care units since step down beds are more essential in response to an MCI than an acute care bed.

iv. The exercise should contain a start time and end time since the information is essential to determine how many available beds are available to admit casualties from the emergency room. If the type of bed is not available, the ED may need to transfer the patient to other hospitals after the patient is stabilized or after life sustaining procedures are carried out by the emergency department and trauma surgeons respectively.

v. Primary care nurses or designees should work with their colleagues in home healthcare companies to determine if they can care for their patients if they are discharged.

vi. Social workers or designated staff who are normally responsible for coordinating discharges after the physician writes the discharge order should also take part in the exercise to demonstrate they can expedite the requested discharge in a much more rapid fashion.

vii. Home healthcare company liaisons to their respective hospital(s) should also participate in these exercises to test their ability to assume responsibilities for follow up care for early discharge patients.

viii. Develop a survey for the nurse manager or charge nurse to record and report the inpatient unit results and then forward to the DICC or designated location for review and assessment.

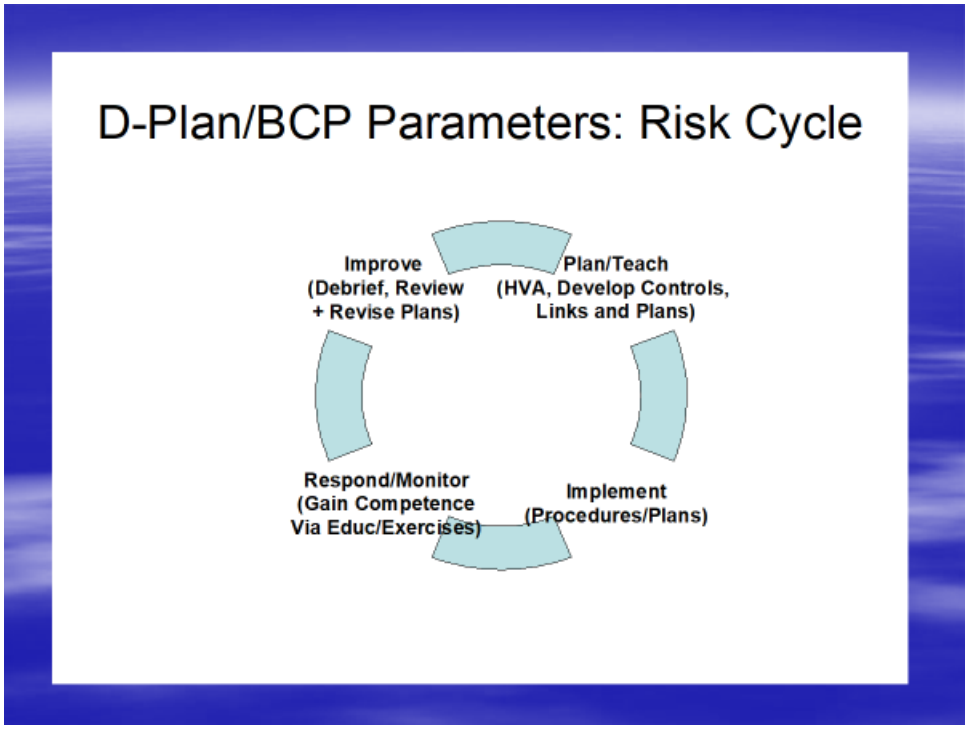
ix. The DICC should then aggregate the data for their respective department, separated by the established categories (e.g., acute care, stepdown, and ICU). The DICC should ideally forward their aggregated results to the HICC as soon as possible or within 30 minutes after the exercise. Reports not received should be followed up with the charge nurse by the DICC within 45-60 minutes after the end of the exercise or actual request.

x. The HICC should determine the total amount of discharges for the hospital and provide this information to bed management so they can coordinate admissions with other departments.

Training and Exercise are important to conduct with staff on off-shifts (e.g., evenings, nights, weekends and holidays) so they become as proficient in carrying out their disaster-related roles and

responsibilities as their colleagues on day shifts. Using a risk management cycle depicted below will facilitate the accomplishment of this goal.

A MSC vehicle/tool is available from the Johns Hopkins CEPAR (Center for Emergency Preparedness and Response) in their PACER Suite: **www.pacerapps.org** to predict the potential casualties that may occur for whatever disasters that are programmed into this software which could help plan out exercises for hospital departments and the incident command team and the appropriate level of surge capacity to respond to for the selected scenario.



Alternative Care Sites (ACS) that can house additional beds or stretchers, not part of your inpatient bed complement (i.e., procedure beds/stretchers, PACU, open space set up with infrastructure support (i.e., utilities, gases, IT capability, medical and biomedical equipment, portable ventilators, etc.).

> Please note that most hospitals have not created their MSC outside of their licensed or staffed inpatient bed complement, procedural areas, and PACU slots since it requires financial investment for construction; purchasing equipment to stockpile, etc. In addition, it is very cumbersome to maintain and store these beds, equipment, etc., and have them ready once they are needed by an actual MCI.

However, Region III[48] has established a 50-bed ACS, for its members to use when indicated. In addition, roles and responsibilities for hospitals and the key public health agencies have also been identified.[49] The space for the ACS is available but the staff and stuff are the responsibility of the hospital(s) that will occupy the ACS.

It may be more prudent to determine if nursing homes, assisted living facilities, and public health agencies that can serve as ACSs to support hospitals, instead of a hospital establishing its own ACS. To free-up their existing beds, another possibility is for hospitals to transfer their non-casualty inpatients to these healthcare facilities, so they can then treat additional casualties.

[48] Alternative Care Site – Patient Care Annex, and Alternate Care Site and Training Center at Greater Baltimore Medical Center Plan, Maryland Region III Health & Medical Coalition, 2015

[49] Region III ACS Planning Recommendations, and ACS Checklists, Form Templates, and Sample Layouts, 2015.

Appendix G: Surge Capability Components

Objectives for key surge capability resources[50] are:

1. Select a standardized group of common supply items for use across all hospital departments and then increase individual supply par level.

Adopt centralized decision-making framework instead of individual physician/provider autonomy and authority.
Strictly limit stockpiling of supplies except as deemed critical by the SCC or centralized departments.
Have a maximum of 3 infusion lines per patient.
Adopt Critical Care POE software portability plus ICU bed identification, usage flow, computer equipment, networks, etc. for additional beds created.
Personal Protective Equipment (e.g. N95 masks): Establish "Just in time" testing team rather than test everyone annually.
Pharmaceuticals: Establish "Medication Management Program"

a. Manage hospital-wide drug use in "real time" based on the available inventory.
b. Use similar processes used for drug shortage or antibiotic management.
c. For high-demand drugs (i.e. antibiotics, antivirals, bronchodilators, vasopressors) identify alternative(s) for standardized use.

Inventory par levels for surge resources should be established for at least 10 days for current inpatient beds, the SCC committee should identify routinely used acute care and critical care medical supplies and then increase existing par levels. If there are too many sizes of a specific medical supply, request physician committee members to standardize the use of this item. Of course, standardization should be differentiated for adults and pediatric patients. If incremental medical supplies are needed due to an escalating MCI, order more as soon as possible when it is realized.
Stockpiles: In the event there are unique medical supplies for casualties needed, place them in your stockpile and develop "just-in-time" training or a quick-reference for stockpiled equipment and a recycling and replacement program to keep the stockpile up-to-date.
Other key resources [e.g., drugs (4 days); food (6 days); potable water (5 days); oxygen cylinders (3 days) if you have another reserve tank to supplement your primary tank; and linen (3 days, etc.] par levels should also be assessed and, if necessary, increase them based on historical response experience after re-assessing the restocking capability and reserves that your vendors have in place.
Resource/Surge Capabilities:

d. Ventilators
e. Stockpiled Drugs
f. Existence of Disaster Plan/Annexes (e.g., Surge Capacity Plan, established conventional, contingency and crisis target levels defined)

Utilities are a key and irreplaceable resource to maintain continuity of operations for hospitals. Be sure to identify your utility redundancies or back up utilities at your hospital and campus. The major utilities in question are: electricity, water, HVAC, oxygen, medical gas, vacuum, generator fuel, telephone, and IT

[50] Einav S, Hick J, Hanfling D, Erstad B, Toner E, Branson R, Kanter R, Kissoon N, Dichter J, Devereaux A, Christian M. Surge capacity logistics, Care of the critically ill and injured during pandemics and disasters: CHEST consensus statement. *Chest* 2014; 146 (4_Suppl): e17S-e43S)

servers and their closets so that your HICC and facilities department can plan accordingly if there is an outage during or after a disaster.

If resources or surge capabilities are nearly or totally used up, request mutual aid through the Region III MOU[51]. As a preparedness task, hospitals should formalize mutual aid agreements and Memos of Understanding[52] and make sure they are still up-to-date with external partners [e.g., health system affiliates, hospital sector, Region III, local and public health partners (e.g., region wide health departments, emergency management agencies (EMA), and state agencies]. It would also be prudent to conduct semi-annual or annually table top exercises, at minimum, to ensure responsibilities can be carried out efficiently and effectively.

[51] Region III Resource Management Plan, Version 6.0, Region III Health & Medical Coalition, Oct. 2017
[52] Baltimore City Consortium & Region III Health & Medical Coalition MOU, 2016

Appendix H: Surge Capacity Committees and Their Responsibilities

Establishment of Committees

Health system offices of emergency management (OEM)[53] should lead these efforts or, at minimum, with their respective emergency managers and clinical colleagues. Doing so will:

1. Increase surge capacity and surge capabilities over existing targets of 20% to achieve the highest levels possible for the health system and each of their hospital affiliates.
2. Support each hospital's efforts and provide counsel when indicated to maximize results.
3. Produce more effective preparedness and operational plans to determine who, what, when, and how to better provide mutual aid across the enterprise.
4. Minimize the challenges with this complex topic on how the health system staff would approach and address the issues at hand. Also, it is necessary to ask what previous lessons they have learned and how they were resolved so they can be applied if the same issues reappear. These same hurdles apply to all disciplines (e.g., emergency management, intensivists, nursing leaders, et al) so it is important to reach out and talk with counterparts at sister hospitals and schools of medicine to solve them together.
5. Allow affiliates to speak with one voice when meeting with the executives and physician leadership to gain approval and advocacy respectively to support the proposed operational plans, necessary resources, and staffing for the approval of MSC and financial support to implement them.

The health system OEM, if it exists at your hospital, should take the lead, along with key affiliate incident commanders, emergency planners, and/or subject matter experts, when ready to meet with executive leaders to present your requests for endorsement and administrative approval (i.e., surge capacity, new resources/capabilities, and staffing needs to implement MSC). In addition, the health system OEM and approved management staff should use their electronic notification systems and newsletters to communicate with the c-suite executives and leaders to keep them up-to-date regarding significant emergency management issues and challenges and how the various affiliate OEMs are resolving them. It would also be beneficial to use this principle to keep the hospital's external partners up-to-date as well (i.e., Maryland Hospital Association, local and state executives and operational and infrastructure leaders, etc.).

Experienced emergency planners and incident commanders use these same principles with their executives and receive advocacy, support, and approval for their requests. They should also remind their colleagues, department leaders, executives, etc., that we do not choose which disasters or MCIs we will demonstrate success and credibility. The event will ultimately choose us! Therefore, control your destiny by carrying out advanced planning so you can increase your competence over time to be more prepared when you are called upon to respond, especially for those unplanned disasters that require more MSC and resources.

[53] Medicare and Medicaid Programs; Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers, Centers for Medicare & Medicaid Services (CMS), HHS, Federal Register 2016

When hospitals undertake creation of surge capacity and surge capabilities,[54] and identify staff to implement and maintain the surge capacity, planners should consider the following:

1. Set up a separate committee, if possible, since most Emergency Management Committees and Safety Committees have many emergency management topics to address each time they meet. A separate, distinct committee or subcommittee, called a Surge Capacity Committee (SCC), under the supervision of the Emergency Management Committee, can focus fully on just MSC and CSC to be more productive. Facilities should also establish separate committees for adult, pediatric, and psychiatric patient populations.
2. The SCC should adopt a serial planning process since the major areas of focus require data from other subcommittees before they can address and complete their responsibilities. Major topics include: Surge Capacity to Surge Capabilities to Staffing to Allocation of Scarce Resource Framework to Liability Protection.
3. Differentiate the process for medical versus surgical departments/divisions, as well as their respective beds (i.e., trauma, operating rooms, ICUs, ICU step down beds) and their distinct patient populations (adult vs. pediatric).
4. It is important to note that many hospitals that have undertaken planning for MSC/CSC require nominal investment since many of the MSC and CSC already exist at their hospital. The major investment will be for portable ventilators and physiologic monitoring equipment for critical care services, and possibly stepdown units, as well as for the additional ICU beds created for adults and children patients needing critical care treatment.
5. Members of the SCC should include:
    a) A Chair or Co-Chairs. Consider the emergency management coordinator as first chair and add intensivists (one for medicine and one for surgery) as the other co-chairs. The expertise of the intensivist for critical care services and treatment requirements will be invaluable for identifying the major topics that will need to be addressed, such as infrastructure, ancillary clinical and support services, equipment, medical supplies, physician staffing, etc. Ideally, there should be as many intensivists on the SCC as possible since each intensivist has varied levels of expertise on operation of the hospital operates, integration of emergency management with clinical departments in planning for additional space, staff and other resources, etc.
    b) A project coordinator to manage administrative and secretarial tasks. An essential responsibility of this position will be to take copious notes of discussions and meeting minutes at each SCC meeting to track progress, monitor results, keep track of deadlines, and support policy and operational procedure development.
    c) Senior leader to provide guidance (e.g., vice president of medical affairs, director of medical or surgical critical care, chief operations officer, etc.) to the co-chairs.
    d) Nurse managers from medicine, surgery, and pediatric ICUs; step down units; acute care units representing medicine, surgery, and pediatrics; nursing administration; subspecialty intensivists; directors of critical care, hospitalists, emergency medicine physicians and nurses; bed management; pharmacy; and respiratory therapy.

[54] Emergency Mass Casualty Committee, Johns Hopkins Hospital: Operations Manual, June 2013 version 4

e) A psychiatrist and psychiatric nurse manager to lead a separate subcommittee that reports to the SCC and operates in a parallel manner since they will focus on psychiatric surge.

6. The chair or co-chairs should get initial approval for the SCC. Once the entire surge capacity plan is completed, the chair or co-chairs, in conjunction with the health system OEM (if it exists), should obtain approval from executive leadership to support and approve all deliverables (e.g., operational, financial, and staffing models/full time equivalents) when indicated.
7. Getting medical board support and approval is essential to gain advocacy for this project. This project is one of the few areas that should get their attention.
8. Note that a 2-3-month focused effort by the Surge Capacity Committee or designated committee to identify the maximum number of surge capacity beds is needed. Once completed, record the surge capacity onto the survey developed by Region III and then the other identified topic areas should then begin.

Appendix I: Psychiatric Surge

Technical Elements

The following recommendations represent the technical elements to identify potential MSC for emotionally disturbed patients requiring admission. Technical elements[55] include, but are not limited to:

1. Possible role of psychiatric subject matter expert for all crisis events
    a. Consult and planning with leadership
    b. Communication with Incident Commander
    c. Guidance on department communication
    d. Group facilitation or briefing
    e. Facilitated crisis appointments (individual)
    f. Psychological First Aid (on-site)
    g. Resources (handouts, links)
2. Determine where psychiatry will care for non-infectious inpatient cases if infected patients are admitted.
3. Determine when psychiatry will begin treatment plans and/or consults for acute psychiatric symptoms with their colleagues in other specialties if another specialty is caring for infectious inpatients.
4. Determine if existing procedures would be enough to minimize the spread of the virus to other patients if a patient were discovered to have symptoms of pandemic influenza after admission to the psychiatric service. If existing procedures would not be enough, determine what procedures need to be put into place. Request assistance from infection control, infectious disease, and/or the appropriate staff in the department of medicine to help develop the appropriate procedures.
5. Determine what inpatient capacity can psychiatry maintain for the duration of the 6 – 12 weeks for first and second cycle of a Pan Flu event.
6. Determine what outpatient capacity psychiatry can maintain during the same period. If the departments receive permission to cancel ambulatory appointments, use this space and staff to support emotionally disturbed patients that do not require admission.
7. What additional resources would psychiatry need for this same duration?
8. Can psychiatry establish alternative care units for inpatients or outpatients?
9. What mitigation procedures need to be put in place to lessen the consequences of exposure to the infectious disease or novel virus to non-infectious patients and staff?
10. What additional procedures from a psychiatric perspective need to be developed to care for a psychiatric patient population (inpatients, day hospitals, domiciliary and outpatients) in relation to ASR?
11. How and what will staff levels, and staff mix resemble for psychiatric MSC?

[55] Putnam, PhD, A., Director, Faculty Assistance and Staff Assistance Program, Johns Hopkins Hospital and Johns Hopkins Health System, Presentation to JHH Emergency Mass Casualty Committee, July 9, 2015

12. Will there be an impact to the various levels of service (e.g., inpatient, emergency room, outpatient, etc.) from an abundance of patients who are psychologically affected but not medically injured if the emergency department and outpatient clinics that are near capacity with these affected patients?
13. What contingencies are in place for the various psychiatric satellites to continue business? Are mitigation procedures in place to minimize the consequences from a P-Flu or an infectious disease outbreak?

Proposed Procedures for Psychiatric Surge

1. Include a psychiatrist as part of the triage team in the emergency room to determine any influx of casualties with emotional disorders
2. Goals of Care
    a. Triage and stabilization of psychological functioning
    b. Mitigation of psychological stress
    c. Return of acute adaptive psychological functioning
    d. Facilitation of access to continued care
3. Assess the Event
    a. What is event?
    b. What is severity?
    c. What is impact?
    d. Number of people?
    e. Potential "ripple effect"?
    f. Off-site locations?
    g. Group facilitation needed?
    h. Who are contact people on site?
4. Introductory Statement and Purpose of PEOP (Psychiatric Emergency Operations Plan)
    a. Provide framework for continuing operations during a crisis
    b. Organize into five levels of operations and response protocols, as described in next section
    c. Levels are determined by severity and scope of incident by designated leader or Psychiatry to determine level of surge capacity to activate
    d. Collaboration among internal and external mental health providers likely in large scale disasters
5. Triage potential patients for assessment to determine level of acuity after patients' medical issues have been addressed. See Response Levels below.
6. Develop at least 2 separate areas for follow up care (e.g., group therapy vs. 1:1 (therapist/psychiatrist to patient)
7. Identify logistical areas, infrastructure support, and procedures based on volume of casualties

Response Levels

Level 1 Response

1. Duties by assigned department or division operates as usual, providing full-range of services.
2. Call center assesses incoming calls as related to incident.
3. Additional on-call clinicians identified to triage, as needed.
4. Clinicians assist internal departments as needed for Psychological First Aid (PFA) and other psychological or psychiatric services and responsibilities.
5. Clinicians provide group facilitation, as requested.
6. Internal communication plan enacted.
7. On-call responses tracked.
8. Duties by assigned department or division communicates with Hospital and Department Incident Commanders.

Level 2 Response

1. Duties by assigned department or division splits work time between normal operations and MCI response
2. Duties by assigned department or division director slows the scheduling of non-emergent cases
3. Call center assesses incoming calls as related to incident
4. Additional on-call clinicians identified to triage, and schedules cleared, as needed
5. On-call clinician coordinates urgent appointment requests with field response
6. Duties by assigned department or division may collaborate with internal and external providers, as needed (Infection Control if related to contagion)
7. Clinicians assist internal departments as needed PFA and other psychological or psychiatric services and responsibilities
8. On-call responses tracked
9. Duties by assigned department or division director or designee communicates with Hospital Incident Commander or one of the specific HICC Chiefs

Level 3 Response

1. Duties by assigned department or division duties split between normal operations and incident response, more focus on latter
2. Person-in-charge stops the scheduling of non-emergent cases and non-emergent appointments cancelled, if needed
3. Person-in-charge gives direction to move to crisis response appts.
4. Call Center uses templated language to inform callers of community resources
5. Call center assesses incoming calls as related to incident; waitlist started
6. Additional on-call clinicians identified to triage urgency of call and schedules cleared, as needed
7. On-call clinician coordinates urgent appointment requests with field response and assesses need for group briefings
8. Duties by assigned person-in-charge remains in contact with Risk Management Team and HICC
9. Duties by assigned person-in-charge contacts community providers to alert them of increased referrals due to crisis incident
10. Duties by assigned person-in-charge activates internal communication process
11. Clinical staff checks email from home

12. Clinical staff dedicate time for phone consultations for those who can't be seen
13. Duties by person-in-charge assists other internal departments (i.e., PFA and debriefings)
14. Department or Division Director temporarily re-assigns staff to various locations, as needed
15. Department or Division Director considers increasing the hours of staff to expand department/division capacity to respond
16. On-call responses tracked

Level 4 Response

1. Department or Division services shift to field response and remote delivery
2. Person-in-charge stops the scheduling of non-emergent appointments and existing appointments cancelled
3. Normal business operations halted for non-emergent clients; Clinicians utilize phone consultations for urgent clients
4. Person-in-charge give direction to move to shortened crisis response and stabilization appointments
5. Call Center uses templated language to inform callers of community resources and to manage distressed callers
6. Person-in-charge distributes on-call responsibilities based on staffing and demand
7. On-call clinician triages all emergent cases to determine the clinical plan
8. All callers will be directed to other internal and external community resources
9. On-call clinician coordinates urgent appointment requests with field response and assesses need for debriefings
10. On-call responses tracked
11. Clinicians generate "hot list" of clients to ensure that at risk clients are connected
12. Duties by person-in-charge begin daily operations briefings
13. Duties by person-in-charge communicates with Incident Commander
14. Duties by assigned person-in-charge status communicated to clients, to internal providers, and to stakeholders via phone messages and website; Community providers listed on website

Level 5 Response

1. If needed, duties by assigned department or division operates completely in remote capacity until it is safe and possible to return to Level Four
2. Duties by person-in-charge shifts to phone appointments and consultation, electronic and telecommunication for case management
3. Person-in-charge coordinates response to requests for on-site field assistance and group facilitation
4. Duties by person-in-charge continue daily operations briefings
5. On-call responses tracked
6. Clinicians generate "hot list" of clients to ensure that at risk clients are connected
7. Duties by person-in-charge communicates with HICC or appropriate HICC Chief
8. Duties by person-in-charge communicates status to clients, to internal providers, and to stakeholders via phone messages and website; and community providers listed on website

Appendix J: Staffing Models, Staffing Levels and Staff Mix

Staff Model Guidance[56]

Once surge capacity and surge capabilities have been defined, the SCC should then focus on staffing components (e.g., models, mix and levels) to activate and maintain the activated beds in the following order – ICU, step down, and acute care beds – for the hospital's respective adult and pediatric populations. Please note that ICU beds will require the most work. Acute care units usually do not need incremental staff unless they are redeployed to the ICUs or stepdown beds. MSC, incremental capacity or ACS beds are worthless if staff is not available to implement these additional beds when needed. This non-availability of MSC once all their slots are used up will then force the ED to request to go on bypass, implement diversion, etc. and/or the hospital to activate its mutual aid agreements and/or MOUs.

Focus Areas

The SCC or subcommittee should address the following (among other topics):

1. Key disciplines to involve: hospitalists or attendings, intensivists, residents, nurses, and other members of the clinical team for the activated beds. Areas of focus by discipline (physicians, intensivists, nursing, respiratory therapy, pharmacy, etc.):
    a. Staff models (i.e., tiered model) to use, specifically for nurses
    b. Number of staff per bed or per number of assigned beds
    c. Staffing resources to supplement permanent full time and part staff
        i. Define the skill set needed (e.g., by staff who will staff the additional beds, particularly those assigned to the ICUs)
        ii. Delegate the basic skills of care for casualties to reassigned nurses and nursing staff, provider extenders or non-ICU or non-critical care nurses and leave the more complicated responsibilities to nurses that have already been trained, specifically critical care or ICU nurses
        iii. Assign critical care responsibilities only to critical care or ICU nurses, and not to provider extenders
        iv. Develop education and training courses (including "real time" training} to familiar and/or enhance skill sets of deployed staff. Also develop leadership training for ICU or critical care nurses if they will lead tiered staffing models or teams composed to care for designated amount of beds and patients (i.e., move from a 1:1 model to a team handling up to 6 patients)

Resources to Identify Nursing Staff

Resources to identify nursing staff to deploy to implement and maintain additional beds (in priority order) specifically for MCIs of intermediate and long-term duration (i.e., pandemic, Ebola, novel virus,

[56] Refer to nursing standard references on page 54

etc.) that should cancel non-urgent inpatient and outpatient business and therefore free up nurses and nursing staff in these areas:

1. For ICU Beds: From stepdown inpatient units If respective beds are not converted to ICU beds; PACU; operating room; and other inpatient units caring for higher level of acute care patients
2. For Acute Care Beds: From outpatient procedure areas and from outpatient or ambulatory clinics
3. For Supplementary Staff: Temporary agency nursing staff, travelling nurses, nurses from research areas; nursing students, and nurses who have volunteered and can be credentialed before allowing them to volunteer
4. Other Possible Sources for Supplementary Staff
    a. Develop a MOU, especially with those academic medical centers (AMC) that are affiliated with their schools of medicine, nursing, public health, etc. so their faculty, staff, and students who have had medical experience or appropriate level of skills can supplement AMC or hospital staff
    b. If a health system organization is in place, it can also supplement the impacted hospital with supplementary staff.
    c. Reassign non-clinical staff with previous clinical skills or appropriate skill set to the clinical or ancillary units
    d. Activate exclusive contracts with temporary agencies, if they exist. These contracts are more able to provide supplementary staff than non-exclusive contracts agencies since other hospitals within your jurisdiction and region will compete for the same supplementary staff from these agencies.

Note: Short term or acute based MCIs normally do not need additional nursing staff since there is insufficient time to assemble them to activate surge capacity beds. Staffing plans will therefore have to depend solely on staff-on-duty to implement the surge beds.

Resources for Key Staff

Resources for key staff, who are an integral part of the ICU clinical team (pharmacy, physicians, respiratory therapy, etc.) from non-nursing departments:

1. Reassign staff & extenders after postponing non-essential services
2. Convert from 8 to 12-hour shifts for all staff, particularly those assigned to ICUs
3. Use supplementary staff or extenders and team up with permanent staff
4. Identify supplemental staff from other departments (i.e. Occupational and Physical Therapists to team up with respiratory therapy to assume responsibility for basic skills and free up respiratory therapist to maintain more complex duties only a respiratory therapy can carry out
5. Plan to have respiratory therapists (RTs) assigned to the ICUs to oversee a group of supplementary staff to help them provide ordered services to an increased workload of patients. This increase in patients is assigned because there is insufficient RTs in-house

Basic Critical Care Competencies (Minimum skill set requirements for non-critical care nurses participating in the care of critically ill patients)

- Infection control procedures

- Physical care activities (e.g. patient turning + cleaning)
- Suctioning and artificial airway maintenance
- Vital signs monitoring
- Foley catheter care and management of bodily waste
- Delivery of medications and nutrition

Nurse Staffing Model Plan Guidance[57]

1. Charge for nursing work group, with consultation and counseling from chairs of SCC:
    d. Create surge staffing plan for nursing workforce in adult critical care since additional acute care beds can use established guidance from existing units
    e. Focus on acute, spontaneous MCIs that involve trauma, gunshot wounds, fires, major accidents in which trauma services and emergency departments need to respond immediately
    f. Focus on gradual ramp-up of bed capacity for intermediate and long-term needs (i.e., major infectious disease outbreaks, such as pandemic influenza, Ebola, and novel viruses)
    g. Develop plans for addressing patients with emotional or psychiatric disorders
    h. Review needs (short, intermediate, and long term) for both adult and pediatric patient population
2. Key departments include:
    a. Interprofessional group: providers, nursing, pharmacy, respiratory, IT/Information Systems, HR
    b. Interdepartmental representation: Surgery, Medicine, Adult and Pediatric Emergency Medicine, Pediatrics, Psychiatry
3. Surge Capacity Processes and Tasks[58]:
    a. Stepwise cascading increase in adult and pediatric critical care monitored/vent bed count for incoming infected patients
    b. Includes both ICUs and select acute care units
    c. Identify Conventional/contingency/crisis target and implementation phases
    d. Evaluate elective surgeries, procedures, other routine clinical operations
    e. Established pod model should open gradually on select ICU and acute care units; transition critical care nurses to partner with acute care nurses in pods
    f. Selected pod model ramps up on acute units, customary ICU care model adjusts to established pod model
    g. Allocate direct care staff resources according to stepwise patient flow or designated units
4. Use IOM's Crisis Standards of Care Systems Framework to address:
    a. Conventional Phase
        i. Space, staff, supplies consistent with daily practice

[57] Nurse Staffing Subcommittee, JHH Emergency Mass Casualty Committee: Planning and Meeting Notes, Rohde, J. and Gwon H., 2016 – 2017 January
[58] Surgery Nurse Staffing Subcommittee, JHH Emergency Mass Casualty Committee: Planning and Meeting Notes, Earsing, K., 2016 – 2017 January

ii. Short term triggering of emergency plan
iii. Normal ICU care standard (2:1 or 1:1 patient to nurse ratio) considering increasing demand for monitor/ventilator support still consistent with daily practice

b. Contingency Phase
   i. Resource demands accelerate beyond daily practice; begin to impact usual care practices
   ii. Appropriate discharge, downgrade or triage placement of non-infected critical care patients to designated ICU and acute care beds

c. Crisis Phase
   i. Adaptive resources exceed usual care standard but provide sufficient care in a catastrophic disaster
   ii. Stepwise implementation of ICU and acute care bed-pod models
   iii. Use, designated isolation rooms or Biocontainment Unit (BCU) if they exist

Guidelines for Nursing Work Force

Guidelines for Nursing Work Force, and Labor/Payroll Related Issues include, but are not limited to:

1. Max work hours rules apply (i.e., no more than 16 hours straight; not to exceed 80 hours in a 7-day rolling period per nursing pay model)
2. "Home unit" charge nurse role retained [i.e., One charge RN per unit per shift of his/her "home unit" whose role includes monitoring of clinical workloads and associated assignments and liaison with the unit nurse manager, the Department Incident Command Center (ICC) and Hospital ICC]
3. Adult 6-patient pod model: 1 ICU RN supervises 3 acute care nurses (e.g., One critical care RN supervises care at 6:1 patient-to-nurse ratio and directs implementation of complex clinical interventions such as drip titrations and care of ventilator patients)
4. Non-ICU RN's provide direct care at 2:1 patient-to-nurse ratio with the critical care RN supervising care of 6-patient pod
5. Each direct care clinician will work one added 12-hour shift per week.
6. Clinical technicians partnered in care model pods
7. Capacity bed coordinators organize stepwise patient placements, pod flow, etc.
8. Bed Coordinators in the Capacity Command Center coordinate patient placements and pod flow.
9. Bed coordinator essential functions to be added here – anticipated to involve patient placement, cascade of monitored/vented bed flow during surge, deployment of clinical care teams to specific nursing units and care pods
10. DON's, ADON's, NM's support bed placement/shift coordinator/Dept. Incident Command Center roles as needed
11. PACU and procedural nurses are assigned to provide IMC-level care on select units.
12. Outpatient clinical nurses, research nurses, university affiliated nurses supplement care in unlicensed direct care roles and clinical unit front desk operations
13. Nurse orientee assignments contingent on progress in orientation timeline/ skill validation

14. During a surge event, nurse orientees remain on their home units and receive clinical or non-clinical assignments based on competency level and extent of orientation time completed to date:
    a. Completed 1 to 2 orientation weeks – serve as Clin T or in an indirect support role
    b. Completed 3 to 4 weeks – assigned direct care in a pod as a Clin T or acute care nurse
    c. Completed 5 to 6 weeks – assigned direct care in a pod as Clin T or acute care nurse
15. Proposed procedures to activate staffing models, levels, and mix in response in 3-stages to an acute MCI impacting trauma and surgical ICUs:
    a. Staff all physical surgical ICU beds (open and closed)
    b. Decrease occupancy in current occupancy for other surgical ICUs. Maintain staff for these beds to manage inflow of patients from acute event
    c. ICU RNs to staff surgical acute care beds and units in a normal ICU staffing model. Nurse managers or charge nurses will have to determine feasibility of this procedure if already staffing all physical ICU beds
    d. Implement Pod model once exhausted ICU RN staffing levels, or the designated surge capacity beds reach maximum occupancy
    e. Determine RN resources available that are not used in traditional staffing models:
        i. ICU orientees with inpatient floor experience will work in pod models as inpatient RNs
        ii. New graduate ICU RN orientees will work as Clinical Technicians
        iii. PACU RNs
        iv. Nurse educator resources to assist with staffing
        v. Determine feasibility of using BCU self-referral staff to see if other depts. are willing to support deployment
        vi. Use temporary agency staff
        vii. Use all availability call shifts
16. Credentialing for Clinicians: Expedite the process for medical volunteer licensure verification. Also, hospitals should strive to have the legislation approved surrounding (UEVHPA).
    a. Credentialing staff from other hospitals: Use the same process and procedures by discipline or profession as established at each hospital to credential medical and other clinical staff for clinical staff and non-clinical volunteers
    b. For clinical staff from sister hospitals, the Baltimore City and Region III states "personnel being offered must be fully accredited or credentialled by the facility providing the staff and must have documentation to that effect,"[59] if they are willing to supplement your full and part-time clinical staff
    c. The **Uniform Emergency Volunteer Health Practitioner Act (UEVHPA)** is a national movement that has not yet been adopted in Maryland. UEVHPA establishes a system whereby healthcare facilities and disaster relief organizations in affected states (working in cooperation with local emergency response agencies) can use registered professionals (health professionals in Maryland would register with Maryland Responds) to confirm registrants are appropriately licensed and in good-standing. Properly registered professionals would have their licenses recognized in affected states for the

[59] Baltimore City Consortium and Region III Health & Medical Coalition MOU, 2016

duration of emergency declarations, subject to any limitations or restrictions that host states determine may be necessary.

Appendix K: Key Data Elements for Categorizing Various Types of MSC

Profile/Repository of Identified MSC

Once these beds are created, please separate them by:

1. Patient population (adults, pediatrics, etc.)
2. Specialty (medical, surgical, step down, critical care, etc.)
3. Availability level (acute, intermediate, and long-term)

Record the approved surge capacity beds by inpatient unit[60] and service in a central repository so this information can be used during an MCI and exercise. These volumes can then be directly or indirectly shared to help public health agencies plan out their responsibilities and next steps especially for intermediate and long-term MCIs.

Disaster or MCI that are assigned to the most appropriate medical specialty to treat and admit the incoming casualties. Once the primary specialty can no longer admit casualties, the other specialties inpatient beds can serve as "boarding" units to admit new casualties.

- Medical (i.e., infectious disease outbreaks, novel viruses, Ebola, etc.)
- Surgical (trauma, chemical and radiation exposure, burns, etc.)
- Psychiatric (groups or inpatients). Normally these patients cannot be boarded in the other medical specialties since their respective clinical staff are not properly trained and the requisite infrastructure is not in place for their inpatient beds or on their unit

Determine the feasibility to establish "two" separate wings or hospitals for major infectious disease outbreaks to separate infectious patients from non-infectious patients to minimize exposure to non-infectious patients

Repository: Once surge capacity beds and surge capabilities have been approved, this data should be posted in an identified repository, such as HAvBed.[61] This information will then be useful for all responders and recipients to plan and respond accordingly when concerns related to MSC arise.

[60] Medical Surge & Crisis Standards of Care Guidance Document, Region III Health & Medical Coalition: Medical Surge Capacity Survey II, pp. 29-32, 2017

[61] HAvBED is a federally-mandated program that requires states to collect and report local hospital available bed data. HAvBED data helps identify healthcare system capacity and demand during a public health emergency or mass casualty incident

Appendix L: Incident Command System Responsibilities for Region III and Region III Members

As with other hospital response procedures, the MSC and CSC Guidance Plan and its implementation plan should be directed and coordinated through the HICC and DICCs. The significant processes and procedures, as they related to MSC and CSC, are as follows:

1. Hospital Incident Command Center (HICC)
    a. Use established HICC system and structure. No need to use an alternative to direct and coordinate response procedures for MSC. It is directly correlated with how your departments would request support for more resources when they are almost out
    b. Create checklists of critical decisions that should be developed to minimize the oversight of tasks in response to mass casualty incidents
        i. Situational awareness process should be in place to know that there is an upcoming or actual MCI
        ii. Established communication process and triggers should be used routinely to notify partners with advanced notification, when possible, or to activate readiness and/or response
        iii. Implement immediate actions established for surge capacity once alerts are received. Be sure to get status reports on when MSC will be ready for use
        iv. Review applicable operational procedures and other policies/plans to determine which ones should be implemented
        v. Send out alerts to department contacts to activate their preparedness and operational procedures in response to actual MCIs
        vi. Implement appropriate operational procedures once incoming casualties arrive at your hospital
        vii. Monitor future alerts and situational awareness to implement appropriate actions and tasks
        viii. Monitor outcome of implemented actions to determine if they are adequately addressing the situational awareness or issue
        ix. Monitor used up capacity and resource capabilities to determine when to activate contingency and crisis levels of surge capacity and stockpiled resources
        x. Monitor pre-established inventory par levels at scheduled intervals restocking needs and, if not possible, determine when to request them through mutual aid
        xi. If internal resources are all used up and external resources are no longer available, implement bypass procedures, patient triage, patient diversion, et al procedures to seek follow up care for new patients once they are stabilized in the emergency department in conjunction with EMS and MIEMSS to allow them to transport casualties to other hospitals with surge capacity and essential resource capabilities. A proposed response flow[62] (Appendix E) by specialty

[62] Gwon, H., Member of ASR Project Team: Maryland framework for the allocation of life-sustaining medical resources in a catastrophic public health emergency, August 31, 2017

(e.g., medical, surgical, and psychiatric) for adult and pediatric patient populations would include:

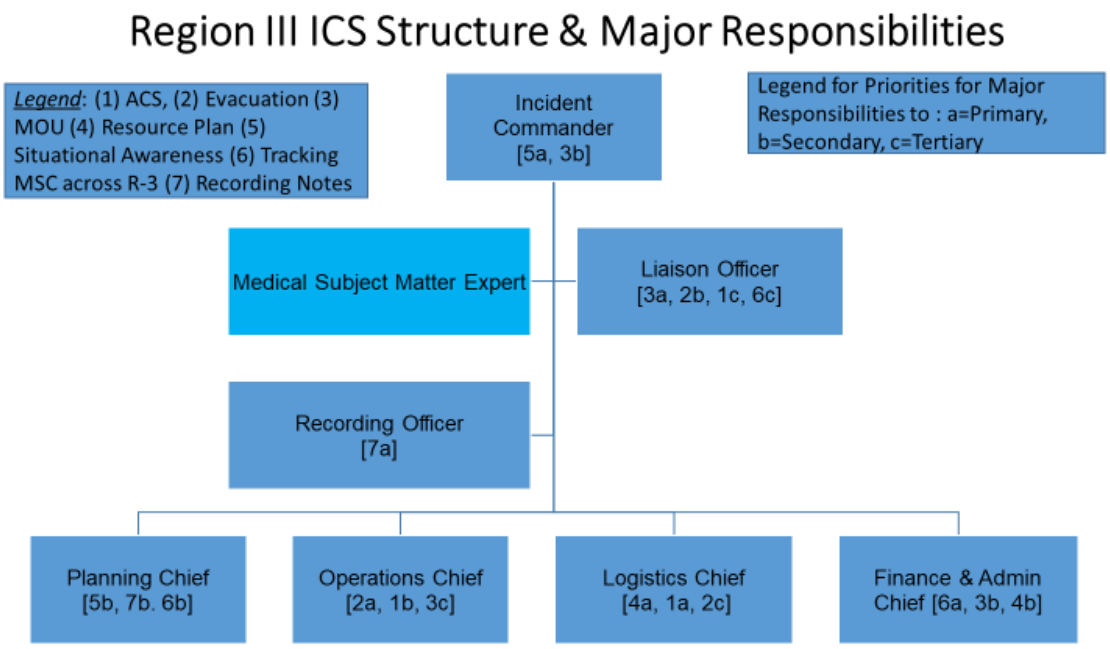
1. Reverse Triage or Early Discharge
2. Acute care and/or ICU bed capacity
3. Bed Management Teams, especially ICUs in each specialty (Medical, Surgical, Pediatrics)
4. Additional beds with vents
5. Stop electives
6. Cohort infectious patients from non-infectious patients
7. Bypass status
8. ED diversion
9. Decision framework to allocate scarce medical resources
10. Triage Team

2. Region III Incident Command Center (RICC)[63]
    a. Currently an incident command system and structure does not exist for Region III. It will be essential to determine what type of incident command system (e.g., role, scope of responsibilities, operational procedures, etc.) moving forward. The selected RICC will be dependent on the availability of individuals to staff the various positions of the selected ICS since there are limited Coalition members that have to focus on their primary work place responsibilities before they can support the Coalition.

    Members of the coalition should use their existing and established procedures (e.g., through their health system, MOUs, local health departments, WebEoC, etc.) until Region III is ready to supplement your requests for space, staff, and stuff.

    A MAC (Multi-Agency Coordination) or Unified Command System may be possible approaches to serve as the incident command system for Region III. However, if inadequate staff levels and mix exist, at minimum, the RICC should assume responsibilities focus on being liaison officers, situational awareness process; and providing their members to external partners to obtain needed resources.
    In addition to the added operational components listed below, please refer to Section VIII. Region III Overall Response Flow Process through its Incident Command System described in the Region III MSC/CSC Guidance Document.
    An organizational structure is drafted below. It represents an incident command team (ICT) with its key staff and their associated roles and major responsibilities based on those established plans that involve mutual aid (e.g., space, staff, and stuff). Priorities for these responsibilities have been designated for each staff member.

[63] Maryland framework for the allocation of life-sustaining medical resources in a catastrophic public health emergency: Life Cycle Response Flow pp. 48-51, Allocation of Scarce Resources Project Team. August 31, 2017


Region III ICS Structure & Major Responsibilities
Legend: (1) ACS, (2) Evacuation (3) MOU (4) Resource Plan (5) Situational Awareness (6) Tracking MSC across R-3 (7) Recording Notes
Incident Commander [5a, 3b]
Legend for Priorities for Major Responsibilities to : a=Primary, b=Secondary, c=Tertiary
Medical Subject Matter Expert
Liaison Officer [3a, 2b, 1c, 6c]
Recording Officer [7a]
Planning Chief [5b, 7b. 6b]
Operations Chief [2a, 1b, 3c]
Logistics Chief [4a, 1a, 2c]
Finance & Admin Chief [6a, 3b, 4b]

3. Communication by Coalition or RICC
    a. How situational awareness information will be relayed to staff?
        i. At present, briefings are scheduled. Emails are used to disseminate system.
        ii. A new suggested method/process would be to set up a page on the Region III web site to post situational awareness, instructions, information, requests for support, etc. This method would centralize information; provide information chronologically; organize information away from the abundance of emails in member mailboxes that are immersed with everyone else emails, sometimes making difficult to locate messages, etc.
    b. When to contact coalition members and partners and how to contact them?
        i. Information should be sent out when there is important information to communicate (i.e., change in status of disaster at-hand, situational awareness; seeking assistance from membership and/or for members
        ii. Determine the time intervals of communication with members at the first alert or notification and/or briefing. If there is no need for a formal update, post that message/status or send that communication out so members are aware and up-to-date
        iii. If there is an emergent or urgent matter, send it out immediately prior to the next scheduled communication
    c. Organization of hospital-based staff based on the MCI and creation of teams and their job duties and which type of staff should be assigned to each team in response to MSC.
        i. Teams: No need to set up any new teams outside of the HICC and DICCs. However, the role and responsibilities for MSC is part of the Implementation and Challenge Sections (Sections III & IV respectively)
        ii. All procedures and responsibilities mentioned in these sections should be assigned and delegated to the members of the HICC and DICCs accordingly using the established organizational structure in the approved Emergency Operations Plan, Hospital Surge Capacity Plan, and/or Annex
        iii. However, there should be a new team, led by a Medical Control Chief or its equivalent (e.g., Triage Team) to direct and coordinate the responsibilities associated with implementing the framework to allocate scarce resources
    d. Patient Tracking
        i. Use existing software and established procedures by designated family information center and bed management in each software
        ii. Also use existing system (e.g., MEMRAD) if your patients need to be discharged and transferred to receiving hospitals. If not, update accordingly.
        iii. Hospitals and identified agencies should ensure that their internal patient tracking system, at minimum, major tasks are aligned with MEMRAD capabilities, if possible. If not, explicitly state these differences so that staff are aware of them and can act accordingly

    e. Family Reunification: Managing MSC calls from the public (family reunification)
        i. Not for RICC since they do not provide services to the public

ii. Hospitals should use their family reunification or family information centers to respond to inquiries from the community or public. Again, there is no need to create a new center.

f. Financial Management
   i. As with other responses to disasters, accounting for additional costs, over and above day-to-day routine costs, staff time, and other expenditures should be compiled to support response and recovery efforts and potential reimbursements from FEMA, those organizations that have requested and received resources; and ensure that organizations return borrowed equipment. Costs should be aligned with specific tasks by cost center and accounting codes by division/department to generate reports and respond to questions from executives, finance, reimbursement agencies, etc., and serve as an audit trail to satisfy internal controls

   ii. Revenue losses to the hospital and public health agencies should also be compiled, if applicable, to potentially obtain loss revenue through the HSCRC

g. Resource Requests for MSC
   i. Use established processes as developed by local jurisdictions between hospital and local agencies. There is no need to create new ones just for MSC
   ii. Use the same established process to escalate the request to mutual aid agreements (e.g., health system, sister hospitals, external partners, including Coalition, designated state agencies and federal government)

h. Creation of a Call Center to Communicate with Public re: MSC
   i. Use established call center if it already exists. No need to create another one. Determine the feasibility to create one. Otherwise your HICC will have to assume this responsibility
   ii. Develop frequently asked questions and answers, as script for staff or volunteers (after screened by designated group) staffing the call center
   iii. Call center staff should triage calls using a designated email address mailbox so subject matter experts (SME) authorized to access this mailbox can review and respond to those inquires not part of the assembled generic questions and associated answers. In addition, this new mailbox will allow those individuals not answering the question to review these questions and their responses by the most appropriate SME to potentially be used when carrying out their assigned duties

i. Patient Transportation
   i. If hospitals are requesting EMS transport for their patients to alternate facilities or patient discharge transports, they should use the process and procedures established in the appropriate plans (i.e., internal plan, the established procedures with their local EMS or private sector ambulances, the Region III Evacuation Operations Plan, etc.)

j. Medical Volunteer Management

i. Use your existing procedures as well as what has been developed in conjunction with the regulatory agencies (e.g., Joint Commission LIP Standards, CMS, and others)
ii. There are really no MSC related tasks that a non-hospital, or non-clinical volunteer should assume. However, if the volunteer has clinical or hospital-based experience, it is recommended that they assume an extender role in their respective discipline to assist permanent primary or part-time staff once their demographics and skill set has been validated or verified

k. Triage Procedures
iii. Establish one or two separates entrances (one for walking wounded and one for EMS transport)
iv. Whatever entrances are set up at each hospital should address how they will accept casualties.
v. Unless there is some exposure (i.e., biohazard, chemical, or radiation), the respective procedure or annex64 should be implemented for these casualties, including family members, first responders, and visitors.

l. Staff Safety
i. There are no direct safety related issues with MSC or surge capabilities
ii. However, train staff to know what personal protective equipment (PPE) is required and donned before they report to their respective work stations in response to the MCI at hand
iii. The managers, supervisors, and leads at the hospital entrances, triage areas, and areas providing treatment/care to the incoming casualties to ensure existing and deployed staff have the correct PPE

[64] Christian, M., Sprung, C., King, M., Dichter, J., Kissoon, N., Devereaux A., Gomersall, C., Triage Care of the Critically Ill and Injured During Pandemics and Disasters: CHEST Consensus Statement. Chest 2014; 146 (4_Suppl): e61S - e74S.

Appendix M: Continuity of Operations/Business Continuity Responsibilities

While the emergency and designated departments and groups are responding to the MCI, the rest of the hospital needs to ensure preservation and maintenance of essential operations. Continuity of operations procedures need to be implemented and the following processes and procedures should be activated:

1. How to work with MIEMSS to efficiently and effectively receive permission to go on bypass? If yes, MIEMSS and EMS will activate divert routine emergent and urgent cases to other hospitals

Even though **MIEMSS and EMS** may divert routine patients to other hospitals, the impacted hospital(s) will still have to be ready to treat walk-in casualties
If not, implement appropriate processes and procedures to handle both routine patients and influx of casualties
ED should be ready to treat and care for walk-in casualties. ED should request to go on bypass (yellow alert, red alert, reroute, and/or trauma bypass). Please note that if an MCI involves multiple hospitals or extends into neighboring jurisdictions MIEMSS may deny the request to go on bypass.
Expedite disposition of patients currently in emergency room(s), including pending admissions with the receiving inpatient unit through bed management and/or nurse shift coordinators so that the clinical and administrative staff can prepare for incoming casualties
Hospitals also need to determine ability to maintain non-urgent cases while responding to the mass casualty event
Do procedures exist for cancelling scheduled admissions and non-urgent electives for the day or days if beds and services are dedicated for incoming casualties?
Should or can the hospital also postpone arranged transfers from other hospitals; canceling and rescheduling non-urgent electives, etc.)?
Activate procedures for early discharges and early discharges accompanied with home health/care vendors
Other hospitals will, therefore, need to prepare for diverted patients to the affected hospital(s) when bypass procedures are approved

Appendix N: Operational Procedures once MSC Is Used Up

Totally used up MSC capacity (e.g., acute care and/or critical care beds) at your hospital:

1. Initiate the tracking process and procedures to monitor the availability of beds, medical supplies, equipment, drugs, etc.

Alert the members of the triage team once MSC and resources are nearly used up, so they can begin to prepare, track, and assess the situation to determine when to activate the ASR framework or alternative procedures
Implement procedures to conserve specific medical supply/product, drug, etc.
Substitute an alternative or equivalent for medical supply/drug in question
Activate alternative procedures or activate, if it exists, the approved or even draft framework to allocate the scarce medical resource (e.g., MSC and surge capabilities) for new casualties once your hospital has used up MSC or have inadequate clinical employees to staff additional beds
Activate mutual aid agreements or MOUs through your local health department and Region III ICS
Request infrastructure support (communication and central data repository) from local Emergency Management Agency through local health department and/or from MIEMSS via MIEMSS Software "MEMRAD (Maryland Emergency Medical Resource Alerting Database). MEMRAD is a software package that tracks patients and assets in emergency management and healthcare industries. MEMRAD for Maryland consolidates the County Hospital Alert System (CHATS) and the Facility Resources Emergency Database (FRED) into a single system. It also adds new features, like the County Hospital Request System (CHRS), and the Electronic Patient Tracking System (EPTS).

Summary of References

Note: References used in this plan are listed below to serve as a quick summary. The references used as footnotes in the main document support the respective narrative.

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Annex A: Emergency Medical Services Crisis Standards of Care

Table of Contents – EMS Sector

Emergency Medical Services Crisis Standards of Care

Introduction

This section outlines the role of the Maryland Institute for Emergency Medical Services Systems (MIEMSS) during crises or catastrophic incidents. It differentiates between no warning events and slow developing crises such as pandemic influenza. The document further describes indicators to be monitored as well as triggers for activation of crisis standards of care. Finally, the document outlines current standards of care in Maryland and provides recommendations for implementing more robust crisis standards.

Background

Since the 1990s, the state of Maryland has undertaken a systematic approach to emergency planning. The three agencies involved in emergency response, MIEMSS, the Maryland Emergency Management Agency (MEMA), and the Maryland Department of Health (MDH) have worked cooperatively to develop robust responses plans for crisis incidents.

MIEMSS is the lead state agency for Emergency Medical Services (EMS) and has statutory authority over EMS providers, EMS provider standards of care, EMS operational programs, EMS education programs, EMS regions and regional programs, EMS communications systems, designation of trauma and specialty referral centers, and commercial ambulances.

MIEMSS Pre-Incident Role

- Supports planning and coordination for health and medical preparedness for mass casualty incidents, and unusual or catastrophic events.
- Support local, state, federal, and private partners in areas of health and medical preparedness.
- Operates the Emergency Medical Resource Center (EMRC), which is the central location for establishing medical consultation for EMS field providers. The EMRC can also be accessed by local and 800 service dial telephone and a tie into the Region III area medical facilities.
- Communicates with all medevac helicopters transporting patients to or from medical facilities within Maryland via the Systems Communications Center (SYSCOM).
- Operates the EMS telephone network (EMSTEL) which connects fire and ambulance dispatch centers, medevac helicopter bases, trauma centers, specialty referral centers, and other emergency resources to the EMRC/SYSCOM communications center.[65]
- Monitors all EMS system activity.

[65] MIEMSS.org: EMSTEL serves as a back-up to the public service dial telephone system. EMSTEL is used to 1) call SYSCOM to request and coordinate med-evac helicopter response; 2) arrange communications with hospitals in adjacent counties or other regions; and 3) coordinate inter-county mutual aid efforts. MIEMSS is currently deploying the next generation Voice-over-Internet Protocol (VOIP) replacement EMSTEL system known as DEMSTEL for Digital EMS telephone

- Participates with MDH and MEMA in assessing the scope, jurisdiction, and authority of existing state and regional EMS infrastructure for CSC planning and implementation.
- Participates with MDH and MEMA, and their respective legal counsels, to develop an inventory of applicable federal, state, and local legal and regulatory authorities and protections, including those related to EMS personnel and provider agency liability, licensing, credentialing, and mutual aid agreements.
- Provides risk-based information to EMS organizations and hospitals.
- Partners with MDH in participating in the Strategic National Stockpile (SNS) Program and the SNS' Chempack Program, which strategically pre-place federally-owned caches of nerve antidote agents in the state.
- Staffs and coordinates the Governor's Emergency Management Advisory Council, Health and Medical Committee, which is responsible for the planning and coordination of all health and medical preparedness activities in Maryland.

Monitoring System Indicators

MIEMSS monitors EMS activity and provides real-time data to hospitals, EMS operational programs, and other public safety and health agencies on system activity and resource availability.

- The County/Hospital Alert Tracking System (CHATS) is a real-time computerized monitoring system of hospital and EMS system status throughout Maryland. The system identifies hospital emergency departments that are temporarily unable to accept ambulance-transported patients due to overcrowding or hospital overload so that ambulances can divert to other, less crowded ED facilities.
- The Facilities Resource Emergency Database (FRED) is used to gather information on hospital status and EMS staffing and status as well as provide hospitals, public health, and EMS systems information on changes in system status and provides for the effective use of available resources during emergency events and exercises. "HAvBED" is used to determine, in real-time, bed availability across the state.
- The web-based Hospital Hub is used by hospitals to access ePCR (electronic patient care record) from ambulance services in PDF format for patients as they arrive, providing notice to prepare space and treatment. This Hub connects with EMS providers at local, statewide, or even multi-state levels using electronic "bridges".

Tables 1 and 2 below illustrate samples of indicators and triggers to alter standards of care.

Table 1: Indicators and triggers for no notice events[66]

Contingency Indicators	Contingency Triggers	Crisis Indicators	Crisis Triggers
• Increased patient encounters by EMS, multiple casualties, active shooter	• Significantly elevated number of dispatch requests or patients identified through ICS	• Patient care demands exceed the EMS resources, including mutual aid • Overwhelming number of patients without staff to meet the demand for triage, treatment, and transport • Multiple hospitals closed	• Mutual aid partners not able to answer calls involving potential life threats
• EMS report of toxic exposure • Multiple patients	• Nerve agent attack or organa-phosphate exposure • Chempack deployed to scene • Chempack activated at hospital(s)	• Multiple deaths reported • Emergency departments report insufficient antidotes	
• Multiple explosions reported in Region III	• Complex Coordinated Attack (CCA) confirmed • Improvised explosive devices (IEDs) • Multiple casualties confirmed • Mutual aid requested • Priority 1 patients with blast injuries triaged to trauma centers via ambulance and helicopter • Priority 2 and 3 patients	• Patient care demands exceed the EMS resources, including mutual aid • Overwhelming number of patients without staff to meet the demand for triage, treatment, and transport • Multiple hospitals closed	• Hospitals and trauma centers saturated

[66] Adapted from "7: Toolkit Part 2: Emergency Medical Services." Institute of Medicine. 2013. Crisis Standards of Care: A Toolkit for Indicators and Triggers. Washington, DC: The National Academies Press.

Contingency Indicators	Contingency Triggers	Crisis Indicators	Crisis Triggers
• Compromised communications systems (911, public safety)	• Emergency medical dispatch overwhelmed by call volumes and unable to answer all calls • 911 system compromised	• Operational or structural collapse of the communication centers	• Inability of high-acuity patients to access the emergency response system

Table 2: Indicators and triggers for slow onset incident: Pandemic Influenza[67]

Contingency Indicators	Contingency Triggers	Tactics	Crisis Indicators	Crisis Triggers	Tactics
• Reports of increased cases of influenza	• Significantly increased data registry entries from state or regional electronic prehospital patient care record systems	• Implement Dynamic EMS System Status Score and Hospital Based Demand Scoring System	• Surveillance data are impacted due to overwhelmed healthcare providers, public health, or collapse of data entry • Confirmation of increased virulence of the strain of influenza	• Patient care demands exceed the available hospital resources • Multiple hospitals closed to EMS • Alternate care sites reaching capacity	• Alternate care sites • Treat, no transport • Flu advice line

[67] Adapted from "7: Toolkit Part 2: Emergency Medical Services." Institute of Medicine. 2013. Crisis Standards of Care: A Toolkit for Indicators and Triggers. Washington, DC: The National Academies Press. EMS Standards of Care

Contingency Indicators	Contingency Triggers	Tactics	Crisis Indicators	Crisis Triggers	Tactics
• Increased sick calls • Members of the emergency medical dispatch workforce are within the at-risk population for influenza	• Emergency medical dispatch taxed by increased call volumes	• Activate the Pandemic Flu Modified EMD Plan	• Significant number of the EMD workforce are incapacitated by the flu and are unavailable to respond	• EMD overwhelmed by call volumes and unable to answer all calls	• Use prerecorded messaging to filter calls that require direct EMD staff contact • Use emergency broadcast system and media outlets • Implement call triage models to target highest priority calls for response

Contingency Indicators	Contingency Triggers	Tactics	Crisis Indicators	Crisis Triggers	Tactics
• Members of the EMS workforce are within the at-risk population for influenza	• Loss of 10% or more of the workforce	• Activate Pandemic Flu EMS On-Scene Protocol • Decline transport of assessed patients without significant injury or illness • Reduce staffing for ambulances to one EMS provider	• Significant number of the EMD and EMS workforce are incapacitated by the flu and are unavailable to respond		• Use public and private mass transportation resources for patients with minor injuries or illnesses • Integrate transportation resources from other states and through the Emergency Management Assistance Compact (EMAC) or National Disaster Medical System • Secure federal, state, regional, and local EMS staffing resources and non-EMS staffing resources

Table 3: Indicators and triggers for slow onset Incident: weather incidents

Contingency Indicators	Crisis Triggers	Tactics	Crisis Indicators	Crisis Triggers	Tactics
• Weather conditions cause delays in ambulance response or transport	• Ambulances delayed		• Emergency vehicles unable to respond		
• Compromised communications systems (911, public safety)	• Emergency medical dispatch overwhelmed by call volumes and unable to answer all calls • 911 system compromised		• Operational or structural collapse of the communication centers	• Inability of high-acuity patients to access the emergency response system	
• Members of the EMD and EMS workforce are unable to report for duty due to: • Impassable roads incapacitated personal vehicles, or other direct effects • Injury, or physical entrapment in residences	• EMS crews are at or approaching minimal staffing • Loss of 10% or more of the workforce		• Significant portion of the EMD and EMS workforce are: • Suffering fatigue due to extended work shifts and incident stress • Disaster victims or incapacitated by the disaster and are unavailable to respond	• EMS and medical personnel are becoming victims of criminal activity	

MIEMSS Coordination During an Incident

- Works with MDH and MEMA to ensure coordinated response to mass casualty and unusual incidents.
- Facilitates communication via EMSTEL/DEMSTEL, EMRC, and SYSCOM.
- Assists hospital command with coordination of patient transportation.
- Coordinates vehicles, ambulances, and other resources between local jurisdiction(s) and hospitals[68] in the event of an evacuation.
- Facilitates the use of commercial units in the event of a hospital-wide evacuation and/or a large mass casualty incident.
- Assesses available transportation resources including ambulance buses and Medevac.
- Advises on the need for additional support through the Emergency Management Assistance Compact (EMAC) and the Federal Ambulance Contract.
- Coordinates with EMAs, local fire departments, MIEMSS Office of Commercial Ambulance Licensing and Regulation, and Maryland Transit Administration (MTA) for staging and movement.
- Deploys a liaison to the sending healthcare facility to facilitate transportation of evacuated patients to the recipient hospitals, as well as establishes their own incident command center (ICC) to assist the identified liaison in expediting transportation needs. If the scope of the incident is too large, MIEMSS may not be able to provide a liaison to the healthcare facility.
- Works with sending and receiving healthcare facilities to transport evacuated patients.
- Supports patient tracking and liaison with family reunification services in coordination with DHR (Department of Human Resources).
- Deploys Strike Teams consisting of medical personnel and ambulances to rapidly send to jurisdictions in the event of an emergency.

Maryland Standards of Care for EMS Providers

The Institute of Medicine's Systems Framework for Catastrophic Disaster Response identifies the levels of EMS care: conventional care, contingency care and crisis care.[69]

The conventional standard of care is the routine, protocol-driven practice of pre-hospital care which occurs daily across Maryland for both public service and commercial ambulances. Contingency standards of care are defined in mass casualty protocols as well as jurisdictional operating procedures.

While significant discussion has occurred throughout the state on crisis standards, to date only the contingency protocols have been adopted. These include:

[68] The request must be made through EMAs and LHDs first, and then the EMAs will coordinate with the Maryland Emergency Management Agency (MEMA) and MIEMSS as necessary

[69] Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response, Institute of Medicine of the National Academy, 2012

- Multiple Casualty Incident / Unusual Event (protocol 31)
- Potentially Volatile Environment with Life-Sustaining Interventions (protocol 32)
- Emerging Infectious Diseases (protocol 33)

Table **4**: Current Maryland standards of EMS response care

Routine or Conventional	Mass Casualty or Unusual Incident Contingency
• CHATS monitor hospital status, diverts patients from hospitals needing to decompress.[70,71] • EMS may request Blue Alert, transporting to nearest hospital. Usually occurs during weather emergencies.	• MCI declared[72] • Incident command activated, mutual aid requested
• EMS providers consult with base station physicians on Priority 1 and some Priority 2 patients	• EMS Providers operate on standing orders without consultation unless providing extraordinary care
• Facilities Resource Emergency Database (FRED) alerts hospitals, public health, and EMS of changes in system status.[73]	• Transport patients to the closest appropriate facility • Transport to alternate care sites • Use Ambulance Buses for transport of stable patients to distant facilities • Alter staffing levels for ambulances

Considerations for Developing Additional Crisis Standards of Care for EMS Response

Patient Transport Standards

Under conventional standards of care in Maryland, all patients are transported to a hospital or freestanding emergency center based on protocol. When the EMS system is stressed by either a "no notice" or "slow onset" event, personnel and transportation resources must be managed to ensure that the most critical patients receive priority. The table below reflects current practice in both day-to-day (conventional standard of care) operations and mass casualty/unusual incident (contingency standard of care). The third column, crisis standards, reflects recommended additions to Maryland Protocols to account for catastrophic events.

[70] "The County/Hospital Alert Tracking System (CHATS) is a real-time computerized monitoring system of hospital and EMS system status throughout Maryland. Hospital emergency departments that are temporarily unable to accept ambulance-transported patients due to overcrowding or hospital overload are identified so that ambulances can be diverted to other, less crowded ED facilities.

[71] Alert Status System Region III, 2005

[72] Protocol 31

Table 5: Protocol guidance for patient transport

Conventional Standards	Contingency Standards	Crisis Standards (Recommendations)
• Patient choice if not a priority 1	• Transport patients to the closest appropriate facility (rather than the facility of the patient's choice)	• Assess patients and decline to transport those without significant injury/illness (according to guidance from EMS medical director)
• Alternate Destination Pilot Protocol in place	• Transport to alternate care sites	• Treat and release - limitation of care to on-scene treatment without transport
	• Use Ambulance Buses • Alter staffing levels for ambulances	• Use alternate transport methods including transit buses, vans, etc.

Emergency Medical Dispatch Changes for Public Safety Answering Points

Emergency Medical Dispatch (EMD) Protocols should be reviewed to ensure that they address catastrophic or crisis incidents adequately. Guidance for infectious diseases was provided by the Center for Disease Control (CDC) in 2011 and updated in 2015. These were integrated into Maryland EMD protocols.[74] In 2013, some suggested that because Maryland EMD protocols were developed for use in pandemic influenza, they would not be as effective during "no notice" catastrophic events.[75] Therefore, additional adaptations of EMD protocols for "no notice" catastrophic events should be developed to include:

- Use of initial automated answering systems during spikes of high call volume for medical emergencies
- Decline response to calls without evidence of threat to life (requires medically trained EMD[76]) or refer to an established medical help line.

[74] Interim Guidance for Emergency Medical Services (EMS)Systems and 9-1-1 Public Safety Answering Points (PSAPs) for Management of Patients with Confirmed or Suspected Swine-Origin Influenza A (H1N1) Infection, 2015 http://www.cdc.gov/swineflu/guidance. 2015

[75] Dynamic EMS System Status Score and Hospital Based Demand Scoring System, Alcorta, R., MIEMSS, 2013

[76] Toolkit Part 2: Emergency Medical Services." Institute of Medicine. 2013. Crisis Standards of Care: A Toolkit for Indicators and Triggers. Washington, DC: The National Academies Press. P.153

Modification of Dispatch Resources

Dispatch Priority Level (match vendor or call center based dispatch protocol/tiered algorithm)	**Response** (Standard Operating Mode)	Dynamic System Status Category 1	Dynamic System Status Category 2	Dynamic System Status Category 3
Classification 1 (*Echo) Confirmed Cardiac Arrest (Not Breathing, Unresponsive per 911 call) (MPD cards- 2, 6, 9, 11,15, 31)	Closest AED Unit and Closest 1st Responder and Closest ALS Ambulance	Closest AED Unit and Closest 1st Responder and Closest BLS Ambulance if available	-Closest AED Unit and -Closest 1st Responder if available	- Closest AED Unit if available - If no unit available, no response
Classification 2 (*Delta) Life Threatening Emergency/Potentially Life Threatening/Confirmed Unstable Patient(s)	Closest 1st Responder and Closest ALS Ambulance	- Closest 1st Responder and Closest ALS Ambulance if available; - BLS ambulance if ALS unit not available	Closest 1st Responder and Closest Ambulance available (ALS or BLS)	-Closest 1st Responder and -If available Closest Ambulance available (ALS or BLS)
Classification 3 (*Charlie) Non-Critical/Currently Stable Patient(s) Requiring ALS Assessment	Closest ALS Ambulance	Closest Ambulance available (ALS or BLS)	Closest Ambulance Available (ALS or BLS)	- Closest 1st Responder if available or -Closest stand-in responder unit
Classification 4 (*Bravo) BLS Assessment for unknown/possibly dangerous scenes	Closest 1st Responder and Closest BLS Ambulance	Closest 1st Responder and Closest BLS Ambulance if available	Closest 1st Responder	- Trauma Closest 1st Responder - Medical **Referral to Nurse or Health Department Advice Telephone service** if available; or self-transport advice to Alternate Care Site
Classification 5 (*Alpha) BLS Treatment	BLS Ambulance	Alternate Care Referral	Alternate Care Referral	Alternate Care Referral
Classification 6 (*Omega) Non Ambulance Care	Alternate care such as Poison Control Center; Police/Fire service call, etc	Alternate care such as Poison Control Center; Police/Fire service call, etc	Alternate care such as Poison Control Center; Police/Fire service call, etc	Alternate care such as Poison Control Center; Police/Fire service call, etc

Illustration 1: Modification of dispatch resources

EMS Providers Perform Functions Not Normally Carried Out by EMS Personnel

EMS providers may be required to perform outside their scope of practice during a crisis. This may include functioning in extraordinary settings like medical tents, alternate care sites, and shelters or caring for patients for longer periods of time than normal. EMS personnel may also be needed to provide vaccinations and other medical care that is not included in the conventional standard of care or expand use of that care. The Maryland Vaccination and Testing Program allows paramedic personnel in approved EMS services to perform selected immunization and Purified Protein Derivative (PPD) testing. This optional program must be approved by MIEMSS subject to standards outlined in protocol and requires a memorandum of understanding between the EMS service and local health department. Only public safety personnel as described in the protocol are eligible to receive immunization or testing by a Vaccination and Testing Officer (VTO).

Table 6: Addition of functions not normally carried out by EMS personnel

Conventional Standards	Contingency Standards (Recommendations)	Crisis Standards (Recommendations)
• In approved EMS Services jurisdictions, vaccinations and PPD testing administered to public safety personnel	• Expand eligibility to local government of jurisdiction personnel	• Provide mass immunizations under non-medical model
	• Provide just in time training to expand program to additional jurisdictions	• Consider expansion of scope of practice to meet crisis needs and provide just-in-time training
	• If needed, add immunizations not included and provide just-in-time training	

Discontinuing Life Saving Treatment per Maryland Protocol

Discontinuing lifesaving treatment is the most difficult decision that EMS providers face. Maryland EMS Protocols clearly define when treatment can be discontinued as indicated in Table 6. In mass casualty incidents, EMS providers may discontinue life saving measures on pulseless, apneic patients except if secondary to hypothermia or submersion, or if patient is an obviously pregnant female. It is recommended that under crisis standards, those exceptions be removed.

Table 7: Discontinuation of Lifesaving Treatment

Conventional Standards	Contingency Standards	Crisis Standards Recommended
• Decapitation	• Pulseless, apneic patient in a multi-casualty incident where system resources are required for the stabilization of living patients	• Pulseless, apneic patient with an injury not compatible with life, even if obviously pregnant female
• Rigor Mortis		• If arrest is believed to be secondary to hypothermia or submersion
• Decomposition		
• Dependent lividity		
• Pulseless, apneic patient with an injury not compatible with life		

Current Improvement Efforts

Communications Upgrade

MIEMSS is a participant in Maryland's statewide project to construct the necessary infrastructure to support a public safety 700 MHz communications network which began in 2000. This project includes the replacement of the 25-year-old MIEMSS analog microwave system with new digital equipment which improves statewide emergency communications. This project is nearing completion and includes the update of EMSTEL to the Digital EMS Telephone System which can connect to the statewide radio network, Firstnet.[77]

Improvement in Patient Information Flow

Maryland is working toward integrating the electronic patient care record (ePCR) data into the state's health information exchange Chesapeake Regional Information System for our Patients (CRISP)). This will be done through agreements between Emergency Medical Services Operational Programs (EMSOPs) and CRISP. If this is accomplished, it will improve patient care by providing access to patient medical information at the sending and receiving facility.

Family Reunification

The state Department of Human Resources (DHR) is working to gain access to CRISP information during an emergency or a disaster. This would enable DHR to access hospital registration information and locate patients as part of their family reunification role.

Efforts to Reduce Emergency Department Overcrowding

Maryland experiences some of the worst emergency department overcrowding in the nation. MIEMSS and the Health Services Cost Review Commission (HSCRC) have proposed a new model for EMS delivery that includes EMS reimbursement for new models of healthcare delivery: These models are dependent on changes to the reimbursement for EMS services which currently ties reimbursement to transport to a hospital.[78]

1) Mobile Integrated Health (MIH) The Mobile Integrated Health (MIH) model focuses on frequent users of the 9-1-1 system who have non-emergency or chronic medical conditions. It is aimed at reducing the number of EMS transports of high users of 9-1-1 EMS services who have chronic or low acuity conditions by partnering with other healthcare providers to conduct home visits to assess, treat and refer patients to needed services outside the emergency department. MIH is capable of linking patients to preventative health services, reducing 9-1-1 EMS call volumes, and improving the continuity of care from the hospital to the home in order to reduce complications for patients and avoid unnecessary hospital readmissions.

[77] MIEMSS Communications Department
[78] Joint Chairmen's Report on Emergency Department Overcrowding, Maryland Institute for Emergency Medical Services Systems, Health Services Cost Review Commission, 2017

2) EMS transport to alternative destinations. 9-1-1- patients with low acuity conditions are transported to an urgent care or similar care environment, instead of to a hospital emergency department.
3) EMS treatment with no transport. EMS responds to a 9-1-1- call and provides treatment to the patient at the patient's home, or other location, without further transporting the patient to a hospital ED or alternative destination. [79]

[79] Maryland Emergency Medical Services: New Care Delivery Models for EMS: MIEMSS website

Ongoing Efforts and Approaches to Consider

Implementation of the Dynamic EMS System Status Score and Hospital Based Demand Scoring System

These scoring systems will maximize EMS system operations during pandemic influenza. Using these will also assist each hospital, hospitals within each jurisdiction, and within each region to identify their respective medical surge capacity standards for conventional, contingency, and crisis levels in response to mass casualty incidents and disasters.[80]

Training and Exercise Plan

The Region III Healthcare Coalition should partner with the Region III EMS Advisory Council, MIEMSS, MDH, and MEMA to develop a comprehensive Training and Exercise Plan to build and sustain the

Region's Crisis Standards of Care. The Training and Exercise Plan should identify capabilities that the Region needs to improve, as well as training and exercises that will help to build and sustain these capabilities. It should lay out a combination of progressively complex exercises, along with associated training requirements, that address the capabilities identified. A progressive, multi-year exercise program will enable partner organizations to participate in a series of increasingly complex exercises, with each successive exercise building on the previous one and increasing the Region's capabilities.

Figure 2: HSEEP Exercise [81]

Framework to Allocate Scarce Resources

[80] Dynamic EMS System Status Score and Hospital Based Demand Scoring System, Richard Alcorta, MD, 2013
[81] Homeland Security and Exercise Program website

Assist the Maryland Department of Health to implement this framework, when requested, to support healthcare care facilities in using the existing infrastructure capabilities within MIEMSS and EMS.

Develop a Medical Coordination Center Component in EMRC

A medical coordination center (MCC) functions as a clearinghouse for information and resource requests communicated within the healthcare system throughout the region, as well as a point of coordination between the local public health agencies and the Department of Health. While an MCC is in the Region III Med Surge Plan (2016) it is not currently operational. The Emergency Medical Resource Center performs some but not all the associated responsibilities. As the Region III exercise in May indicated, more coordination of patient placement is needed and could be an added component to EMRC operations during an MCI etc. This would be a cost-effective approach of using existing communications infrastructure while adding the important medical decision-making component to the system.

Emergency Management and Crisis Standards of Care

The Federal Emergency Management Agency (FEMA) defines emergency management as "the managerial function charged with creating the framework within which communities reduce vulnerability to hazards and cope with disasters."[82,83]

[82] FEMA
[83] Crisis Standards of Care Toolkit for Indicators and Triggers, 2013.p.18

Local Emergency Management

In Maryland, when a healthcare facility activates its contingency or crisis standards of care plan, it is required to notify EMRC and its regional partners. At this point, it is also supposed to inform the local emergency management agency, which will then begin to integrate emergency response functions through activation of the emergency operations center (EOC), through which public health, law enforcement, and other agencies will share information and coordinate response and resource allocation. When the incident exhausts local capabilities, state activation is requested.

State Emergency Management

When local resources are exhausted by an incident and the local jurisdiction requests state activation, the State of Maryland will provide the needed resources and coordination to help mitigate the incident by protecting health and safety, restoring essential services and providing emergency relief. The State of Maryland Emergency Management plan is based on the following:

Facts

- The State of Maryland is susceptible to a variety of threats/hazards, which have the potential to have negative consequences for citizens of and visitors to Maryland.
- The Governor has overarching authority for consequence management operations in Maryland.
- The Maryland Emergency Management Agency (MEMA) has authority and responsibility for activation of the Maryland Emergency Response System (MERS)
- All State Departments/Agencies and associated external partners in the private sector have a role in consequence management operations.

Assumptions

- An impact from a threat/hazard may require a multi-agency response at multiple levels of government and the private sector, especially the healthcare sector.
- In a major disaster, local resources may become overwhelmed quickly. If this situation occurs, the Governor may need to authorize a declaration to implement the established framework to allocate scarce resources
- The impact from a significant incident may last days, weeks, months, or even years.
- Federal disaster aid may or may not be available to support operations.
- Assistance from other states and federal government may or may not be available to support operations.[84]

[84] Maryland Consequence Management Operations Plan September 2017, p.12

The chart below illustrates the Maryland Emergency Response System

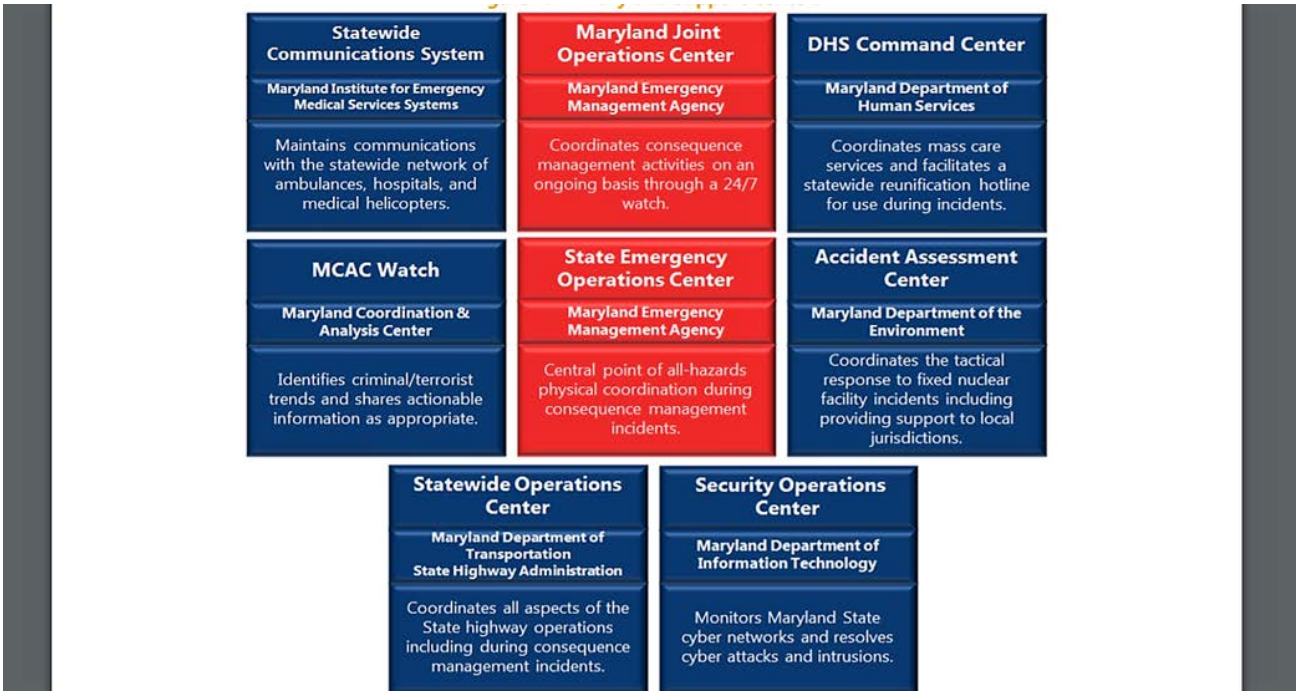

Figure 3: Maryland Emergency Response System[85]

Levels of Disaster Declarations

A declaration of a state of emergency allows for expedited resource procurement, waivers of regulations, and other mechanisms aimed at resolving the issue as quickly as possible. A state of emergency can also release emergency disaster funding and may make federal resources available to support the response.

Local State of Emergency

A local jurisdiction declares a local state of emergency when an incident/event is/will impact their community. A declared local state of emergency enables jurisdiction-to-jurisdiction resource sharing outside normal mutual aid through the Maryland Emergency Management Assistance Compact (MEMACS).

State Level State of Emergency

When a threat may occur, or an incident occurs, the Governor may declare a state of emergency for a single jurisdiction, several jurisdictions, or for the entire State of Maryland. A state of emergency declaration gives the Governor the authority to take necessary action to protect life and property, including allowing MEMA to acquire out-of-state resources through the Emergency Management

[85] State of Maryland Consequence Management Operations Plan September 2017

Assistance Compact (EMAC) when additional support is needed but is unavailable within Maryland and authorizing the Governor to deploy the National Guard under the State Active Duty designation.

Presidential Disaster Declaration

When the magnitude of an incident exceeds the State's capability to respond and supplemental federal assistance is necessary to support response activities, the Governor may request a Presidential disaster declaration. Additionally, in the absence of a specific request, the President may provide federal assistance if it is necessary to save lives or prevent severe damage.

Emergency Management and the Healthcare Facilities

During both local and state activations of the Emergency Operations Center, the Department of Health will coordinate with the healthcare facilities to determine resource needs and assist in planning and coordination. *See Public Health Crisis Standards of Care section*

Annex B: Public Health Support for Hospitals

Table of Contents: Public Health Support

Public Health Support

Introduction

Public health surge is the sudden increase of public health resources to prevent or mitigate the effects of a disaster or an emergency. Initially, a medical surge event likely will impact one or more healthcare facilities. If the situation escalates beyond the ability of currently available resources, the healthcare facility(ies) shall use the local public health or government agencies to assist in coordinating the response. Using established processes as developed by local jurisdictions between hospital and local agencies, the first step in this process is to reach out to the local health department as the primary local point of contact. Healthcare facility members may also include their respective health system, and external partners, as well as their regional coalition, in the future, when they have formalized their mutual aid agreements and incident command system. Public health agencies collaborate with the local emergency management agency (EMA) and/or emergency operations center (EOC) regarding the acquisition of necessary resources to respond to the surge event, mass casualty incident (MCI), or disaster. In addition, once the regional coalitions have completed their implementation mutual aid agreements and response plans and procedures, they will need to be added to the established contact/alert rosters, so they can also support their healthcare facilities.

Overview

Should resource or coordination requirements exceed local capabilities, the use of the Medical Coordination Center (MCC) may be necessary. The MCC functions as a clearinghouse for information and resource requests communicated within the healthcare system throughout the region, as well as a point of coordination between the local public health agencies and the Maryland Department of Health. Once the incident impacts multiple healthcare organizations, there may be multiple requests for the same resources; without effective regional coordination of the overall request process, available resources could be diminished rapidly. [86]

If the medical surge event evolves beyond Region III, the response shall then be considered a statewide medical surge response. A medical surge event within Region III or throughout the state may involve the following:

- Activation of the State Emergency Operations Center (SEOC); and
- A State of Emergency declaration by the Governor may be considered.

The Maryland Emergency Management Agency (MEMA) will coordinate the State of Maryland's resources in the event of a disaster. The SEOC serves as the state's direction and control mechanism

[86] Maryland Region V Emergency Preparedness Coalition Medical Surge Plan, 2016

during large disasters for the assignment of resources and the coordination and approval of all requests for assistance from the state's local jurisdictions. If the surge event moves beyond the region and becomes a statewide incident, the local healthcare facilities will still use the local public health department as their primary point of contact. However, the local/county EOC will now be communicating requests for assistance or resources to the State EOC for fulfillment if they cannot be met locally. Therefore, additional layers of situational awareness and reports will also be necessary to assist State decision makers to determine the appropriate response actions. All requests for resources will continue to be fulfilled at the lowest level of government but shall be forwarded to higher jurisdictions as necessary. [87]

Similarly, the State of Maryland may need to request assistance from the Federal Government through FEMA when the event is, or will be, greater than the state's capabilities to adequately respond to and manage the incident. FEMA assistance is available before, during, and after an emergency. Under the Stafford Act, prior to requesting federal assistance, the Governor must declare a State of Emergency, and the State of Maryland must commit all available resources to the incident. [88]

Early Detection of a Possible Surge Incident

Ideally, a surge incident would be identified as early as possible, so that appropriate response mechanisms could be implemented immediately to minimize the impact of the incident on the public and on the essential services for the affected facilities. One method for early detection is public health surveillance, which is the ongoing, systematic collection, analysis, and interpretation of health-related data, along with the dissemination of that data to people or groups responsible for preventing and controlling disease outbreaks and minimizing the effects of a bioterrorism event.

Epidemiologists in MDH's Office of Preparedness and Response (OP&R) perform the following functions to reduce the impact of these types of incidents:

1. Review disease activity for evidence of unusual cases or clusters;
2. Investigate natural, intentional, or simulated outbreaks; and
3. Respond to natural disasters, weather-related threats, and any other public health emergencies.

Maryland's ESSENCE (Electronic Surveillance System for the Early Notification of Community-based Epidemics) program is part of this effort to identify threats as early as possible. Key successes of the ESSENCE system include the following: [89]

1. Maryland is among the first states in the nation to connect all its acute care hospitals to a public health syndromic bio surveillance system (ESSENCE). All 49 Maryland hospitals and

[87] Maryland Department of Health and Hygiene Emergency Support Function 8: Public Health and Medical Surge Capacity and Capability Incident Response Annex
[88] Maryland Region V Emergency Preparedness Coalition Medical Surge Plan, 2016
[89] Maryland Governor's Office of Homeland Security: Accomplishments for Core Goal #5: Biosurveillance. http://gohs.maryland.gov/biosurveillance_accomplishments/

freestanding emergency departments contribute real-time patient chief complaint and discharge data from emergency departments into the system.
2. All 24 public school systems in the state report daily school absenteeism data into ESSENCE. This data provides critical indicators to a potential public health event, especially during flu season, because children are often the first carriers of new viruses.
3. Over 300 pharmacies in Maryland provide data into ESSENCE about sales of over-the-counter medications and thermometers, which could indicate the emergence of a public health threat.

Provision of Healthcare During a Medical Surge or Crisis Incident

Healthcare organizations, as well as public health entities, must plan for a rapid influx of patients resulting from a medical surge or crisis incident by having the ability to quickly respond to an increased demand for medical care. Healthcare delivery systems are affected by and must plan for the five key components of surge planning specific to the provision of healthcare:

1. Bed Capacity
2. Staffing
3. Continuation of Essential Medical Services
4. Alternate Care
5. Behavioral Health Support

Maryland consulted the ASPR healthcare preparedness capability for medical surge. One component of the medical surge capability is bolstering surge capacity by ensuring a 20% or more increase in acute bed availability. [90] In this regard, medical surge and bed availability can best be increased through three general types of action. These are defined as the three pillars of surge, which include the ability to:

- Increase capacity/capability;
- Decrease strain; and
- Enhance coordination.

MDH has identified seven components of medical surge that help accomplish the three pillars and has identified specific projects to enhance Maryland's response to an incident that causes a public health and medical surge. [91] The seven components are:

1. Bed Availability and Alternate Surge: The ability to increase the total capacity of healthcare systems to care for patients.
2. Fatality Management: The ability to coordinate with other agencies to ensure proper handling, recovery, identification, transportation, tracking, storage, and disposal of human remains.
3. Information Sharing and Situational Awareness: The ability to exchange public health, bio surveillance, and medical information for situational awareness between and among the healthcare system and government entities.

[90] Medical Surge Capacity Goals and Metrics, State of Maryland, March 2013.
[91] Ibid.

4. Patient Transport and Tracking: The ability to develop, refine, and sustain protocols for patient transport decisions that will assist with disaster triage, transport, documentation, treatment during mass casualty incidents, and family reunification.
5. Resource Sharing and Medical Materiel Management: The ability to acquire, maintain, transport, distribute, and track resources critical to a public health and medical response.
6. Training and Exercising: The ability to ensure that public health first responders and clinicians have adequate expertise in public health preparedness core capabilities.
7. Volunteer Management: The ability to identify, recruit, register, credential, train, engage, and retain volunteers to support public health and healthcare organizations' response to incidents.

Planning for increased need in these seven areas will help ensure that Maryland is best prepared for incidents requiring extraordinary capacity by the public health and healthcare systems. Even though there is a 20% target imposed by MDH and ASPR, hospital emergency planners need to reassess how much surge capacity they can develop in response to their daily MCIs/disasters, as well as historical local, national, and worldwide incidents to better prepare themselves.

Alternate Care Sites

Region III Alternate Care Site [92]

The Maryland Department of Health (MDH) can request the activation of the Region III Alternate Care Site and Training Center (ACSTC) at Greater Baltimore Medical Center (GBMC) as a temporary medical facility, a staging area, a Regional Coordination Center (RCC) facility, or a mass fatality management site. MDH and GBMC, in consultation with other agencies, have the final authority on the activation of the ACSTC @ GBMC, and can also directly request its activation upon recognition of events that will exceed the healthcare surge capacity as well as the existing regional response and recovery capacity. The Secretary of MDH, his/her designee, or hospitals may directly request activation of the facility from the agency. Please see the "Maryland Region III Alternate Care Site and Training Center at Greater Baltimore Medical Center Plan, 2015" for additional information.

Vaccine and/or Antiviral Distribution

Public health entities, as part of the Emergency Operations Center and response teams, will coordinate with Incident Command and the CDC on the need for vaccine and/or antiviral clinics. If appropriate and there are enough supplies to offer these clinics, public health entities will open and staff Points of Distribution (POD) as needed, depending on the needs of the community.

To augment or replace vaccine and antiviral supplies within the state of Maryland, public health may activate the Medical Countermeasures (MCM) Plan and request additional material from the federal Strategic National Stockpile (SNS) program. See "Resource Sharing and Medical Materiel Management" below for more on SNS and MCM.

[92] Maryland Region III Alternate Care Site and Training Center at Greater Baltimore Medical Center Plan, 2015.

Fatality Management [93] [94]

CDC defines fatality management as "the ability to coordinate with other organizations (e.g., law enforcement, healthcare, emergency management, and medical examiner/coroner) to ensure the proper recovery, handling, identification, transportation, tracking, storage, and disposal of human remains and personal effects; certify cause of death; and facilitate access to mental/behavioral health services to the family members, responders, and survivors of an incident." [95]

There is not a minimum number of fatalities for an MCI or surge incident to be considered a mass fatality event. Rather, the designation is dependent on the capabilities of local resources; If there are more bodies than the local jurisdiction can manage, it is considered a mass fatality event.

The Governor has tasked MDH with responsibility for mass fatality management at the state level. However, no single agency in Maryland has complete authority for mass fatality management, nor can any single agency handle the full responsibility of it, whether those fatalities are naturally occurring or are the result of human actions. In either situation, there will be multiple disciplines involved in the management of a mass fatality incident at both the state and local levels, and a coordinated response will be necessary.

Maryland has a centralized, Medical Examiner system, which means that deaths resulting from injury, homicide, suicide, under unusual or suspicious circumstances, or when the death of an apparently healthy person is not attended by a physician, including those that may be related to a possible public health threat, are investigated by the centralized Office of the Chief Medical Examiner (OCME). OCME death cases represent about 25% of total deaths in Maryland under normal circumstances. Deaths that occur because of natural causes are managed by the local law enforcement agency, Emergency Medical Services (EMS), treating physicians, healthcare systems, funeral directors, cemetery or cremation owners, and individual families.

Under the Maryland Emergency Management Act, the Governor may delegate mass fatality authority to local and county jurisdictions, but this authority generally rests with the State of Maryland and not in the local jurisdictions.

Deaths due to a pandemic infection are NOT under the jurisdiction of the OCME. In a pandemic situation, deaths will occur outside of hospitals and may place additional stress on local responders in the field (i.e., EMS and law enforcement). The number of deaths may also overwhelm hospitals and the death care industry resulting in a delay of transport, storage, and final disposition of the decedents. In this type of mass fatality incident, local jurisdictions may implement their emergency operations plan to manage the situation. It is the responsibility of the local jurisdiction to organize the response to a mass

[93] Maryland Department of Health and Mental Hygiene: Mass Fatality Management Plan, March 2012
[94] ASPR TRACIE Tip Sheet: No-Notice Incidents: Fatality Management.
https://asprtracie.s3.amazonaws.com/documents/no-notice-incidents-fatality-management.pdf
[95] CDC Public Health Preparedness Capability 5: Fatality Management.
https://www.cdc.gov/phpr/readiness/00_docs/capability5.pdf

fatality incident in accordance with local operations plans. Hospitals and healthcare facilities may experience a surge in fatalities that occur in their facilities and should plan for an increase in the number of bodies that could require storage due to the likelihood of delays in transporting bodies to funeral homes or temporary storage sites. Local health departments and partner agencies should coordinate with hospitals, healthcare facilities, and the local death care industry to form public/private partnerships to address fatality management and surge capacity issues.

Certain aspects of fatality management must be adhered to, even in mass fatality incidents: [96]

- The processing of individual human remains must be respectful and dignified and cannot be rushed.
- Specific industry health and safety standards must also be maintained.
- Religious and cultural beliefs are to be respected. The appropriate and respectful treatment of decedents is a moral obligation and will be of significant psychological impact to the affected families and the community. In a mass fatality incident, local and state resources may be overwhelmed; in these situations, it may be advisable to work with religious and cultural leaders to create strategies to manage the increased number of deaths. Customary funeral/memorial practices may need to be adapted. Some options that have been considered are abbreviated or group funerals, rapid burial/cremation with postponed memorial services, and the like.

The Region should address the following mass fatality planning activities, among others:

1. Prepare contact lists with fatality management contacts for the region, hospitals, and health departments. This should include 24/7 contacts.
2. Analyze current mass fatality plans considering a surge and/or crisis incident. Add planning considerations where necessary to augment current plans:
    a. Consider alternate mortuary space that may be used in surge or crisis situations. The two primary options for additional capacity are the Office of the Chief Medical Examiner (OCME) and the State Anatomy Board.
    b. Include plans for additional cremation and burial capacity if needed. The Maryland State Funeral Directors Association may be able to assist with this.
    c. Consider transportation needs for the bodies. During a mass fatality incident, persons who are clearly dead should not be transported to a hospital. Decedent remains are part of the official investigation and doing so may overwhelm the system if it is already stressed.
    d. Augment 911 or other call centers with processes for receiving and handling reports of deaths.
    e. Document and disseminate recommendations on funeral / memorial practices to reduce the spread of disease.
3. Develop and regularly review MOUs and other resource sharing agreements regarding supplies, equipment, staff, and facilities for mass fatality management.

[96] Maryland Department of Health and Mental Hygiene: Mass Fatality Management Plan, March 2012

Information Sharing and Situational Awareness

Communication Structure

One of the most critical roles that public health entities can serve in a disaster is information sharing – in the forms of situational awareness and data, incident progression, medical and public health guidance, public education, and services offered. At the core of this focused effort is the regular and structured communication with response partners – hospitals, other healthcare organizations, elected officials, first responders, federal partners (FEMA, CDC, etc.), and Incident Command. This regular communication should be an ongoing focus and may lead to early detection of a surge or crisis incident. Like passive surveillance, early detection can lead to better planning, as well as staff and resource readiness.

Once a surge or crisis incident has been identified, public health representatives should meet with response partners to determine structure and frequency of regular communications and situation updates as well as to determine effectiveness of implemented actions. To save time and resources, determine which data elements and qualitative data will be communicated in each meeting or update, and which elements only need to be included if they change or if resources are needed. Establish mechanisms for scheduled communications or meetings, and other mechanisms for immediate messaging. Whenever possible, use established communications systems to maintain and monitor situational information management, provide instructions, answer questions, and escalate or deescalate response when indicated; if new communications systems are used, take care to provide all partners information on the systems and instructions on their usage.

Through the Healthcare Coordination Center (HCC), establish a new or use an existing centralized communications group that receives or develops the messages, approves or coordinates approval of messages, oversees document and version control, and maintains storage of documents as well as records of review and approval.

It is recommended that some of this structure, including the website structure and location, templates for communications, storage and approval processes, be established prior to any surge or crisis event.

External Communications – Public

Externally-focused messages should be documented and provided to anyone who may interact with the public. This could include phone scripts, answers to frequently asked questions, flyers or posters, radio messages, posting key information on websites, etc. All public-facing communications should be provided in Spanish and English, and other languages as appropriate. Depending on the incident, it may be appropriate to set up a call center, to which calls can be forwarded from other information lines.

Maryland has shown its commitment to informing the public about health-related matters. Continuing periodic engagement sessions with the public via focus groups, news reports, press releases, and other outreach mechanisms provides a way to reduce public panic if a crisis arrives.

Stakeholder Communications

Communication with partner and stakeholder groups should provide information related to the incident, as well as response tasks and coordination. All messages should include a link to the online repository of information, so that partners can have access to the full scope of communications.

One of the ways in which Maryland meets this objective is through the Maryland Health Alert Network (HAN), which is a secure communication system capable of rapid distribution of health alerts and important documents such as clinician letters, as well as collaboration within and between agencies throughout Maryland. The HAN system alerts consist of an initial email, followed by automated, direct phone calls within minutes if the person did not click on "Message Received" in the original email.

Additionally, situational awareness calls and meetings are held regularly, increasing in scope or frequency in a surge or crisis incident; meetings include bimonthly calls with hospital and healthcare system partners and stakeholders, monthly forums with regional healthcare coalitions, etc.

The audience for stakeholder communications could include, but is not limited to, the following:

- Local Health Departments and other public health entities
- First responders
- Healthcare professionals and organizations, including federally qualified health centers (FQHC) and other community health centers
- Other Maryland regions
- Elected officials

Topics may include:

- Situational awareness updates
- Surveillance and other data
- Resource request process
- Implementation plans and tactics
- Problem resolution
- Incident-specific health and medical guidance
    - Disease-specific guidance (diagnosis, treatment)
    - Lab testing protocols
    - Prioritization of groups to receive vaccine
    - Guidance on the use of antiviral medications as prophylaxis
    - Prioritization of groups to receive antiviral medications.

Data / Dashboards

Real-time data are critical to respond to any disaster effectively and efficiently but are particularly important to a surge or crisis incident. Each organization involved in the incident has one or more pieces of the data puzzle, which presents a challenge to the overall situational awareness. A recommended approach is to create dashboards comprised of data collected from multiple organizations and

presented in situation updates, communicated in regular messaging, or provided to appropriate officials on a continual basis through a secure system such as WebEOC. Data could include:

1. Region-wide bed availability data
2. Inventory of surge and infrastructure capabilities
3. Surveillance data from Region III, as well as other Maryland regions
4. School absenteeism data; increases may be a signal that healthcare systems could see increased patient loads

MDH maintains the Maryland HAvBED system (Hospital Available Beds for Emergencies and Disasters), a program which allows the aggregation of bed availability and resource data at a regional and state level. Incorporating this data into WebEOC allows for a more seamless access process.

Clinician Guidance

The Department of Health can create clinician letters (examples of Zika clinician letters can be found here: https://phpa.health.maryland.gov/pages/zika-clinician-guidance.aspx) and Health Officer Memos and send them to clinicians in Maryland on the topics of medical guidance, public health threats, lab testing protocols, and/or processes related to medical surge.

Surveillance

Surveillance systems like ESSENCE and NEDSS (National Electronic Disease Surveillance System), as well as other surveillance techniques, monitor disease, injury, and death trends. ESSENCE, as mentioned above, is a syndromic surveillance system that receives and houses data on symptom trends in hospital emergency departments, like chief complaints for various syndromes, for example. [97]

The National Electronic Disease Surveillance System (NEDSS) is a web-based infrastructure for public health surveillance data exchange between CDC and the 50 states. The system connects hospitals with the health department, and then to the CDC, communicating data on infectious disease and environmental health, among others.

If surveillance systems identify a spike or unusual trend, additional data collection and dissemination may be appropriate. Some trends that would precipitate further investigation might be Category A agents, anthrax events, spikes in disease counts, symptom trends, etc.

Lab Testing Protocols

Laboratory testing will be a component of the response efforts if the disaster is related to an existing or emerging disease, or possibly even a CBRNE event. During the Zika response in parts of the United States, some private and public labs had the equipment, staff, and training required to conduct Zika testing of samples, while others did not. The CDC developed protocols regarding collection of samples, shipment and delivery guidelines, and testing, and disseminated them to states, laboratories, and

[97] Maryland Department of Health Office of Preparedness and Response: Public Health Preparedness and Situational Awareness (PHPSA) Reports. https://preparedness.health.maryland.gov/Pages/Reports_PHPSA.aspx

healthcare professionals. [98] Zika Virus Testing Recommendations for Maryland can be found here: https://phpa.health.maryland.gov/IDEHASharedDocuments/MDH%20Zika%20Test%20Guidance%2007.17.2018.pdf

In such an incident, the Maryland Department of Health will coordinate with the CDC on a regular basis to acquire updated information on these aspects of testing specimens, and then, in turn, communicate with Maryland labs (public and private) regarding specific guidance on specimen collection and submission, and testing protocols.

In surge or crisis incidents related to a disease or CBRNE event that can be tested, not everyone who wants a confirmatory diagnosis (lab test) will be able to be tested. In those situations, public health entities, with guidance from healthcare professionals, the CDC, and Maryland leadership, will need to develop protocols regarding:

- Priority levels of who can get tested, in what order;
- Specific geographies of the state that may be higher priority than others; and
- Changes to this plan as the incident progresses.

MDH opened a new public health laboratory in the summer of 2014, which allows MDH to perform testing for high consequence pathogens that can be transmitted by aerosol (e.g., pandemic influenza event and white powder bio-threat events). The laboratory design incorporates an open, flexible concept, which allows lab spaces to be easily reconfigured as testing missions evolve. The lab also has room for trainings and an all-hazards receipt facility to process specimens from threat events.

Patient Transport and Tracking

See the EMS portion of this plan.

Resource Sharing and Medical Materiel Management

In the event of a disaster or public health emergency, resources that are essential to the response, such as medicine, prophylactics, medical supplies, and equipment will likely be limited or unavailable. Public health departments, particularly the Maryland Department of Health, play a leadership role in reviewing the gap between existing and needed resources, and facilitating the request, acquisition, and management of those resources.

Initially, MDH will review information related to the event:

- Magnitude or severity of the incident (number of people affected, geographic area covered)
- The type of incident and cause (disease agent, natural causes, act of terrorism)

[98] Texas Department of State Health Services: Zika Laboratory Testing Guidance. https://www.texaszika.org/labs.htm

- The degree of response that is required (24-hour/day operation vs. day shifts only)

Next, MDH will review the statewide inventory assessment by region of health and medical assets to determine what may be available in Region III and other Maryland regions, followed by a review of resource needs for this incident. MDH will use the resulting gap analysis to develop a plan for acquiring needed resources.

Region III may have adequate resources within the region, but also might need to reach out to other regions, states, or the federal government when their stockpiled supplies are exhausted (refer to their Resource Management Plan). MDH or the Emergency Operations Center, if activated, would coordinate public health and medical resource requests, acquisition, and management, using established processes to escalate the request to mutual aid agreements (e.g., health system, sister hospitals, external partners, including Coalition, Local Health Departments, and designated state agencies and federal government). State medical resources will be maintained by MDH.

Medical Countermeasure Dispensing

Medical countermeasures, or MCM, are FDA-regulated products (biologics, drugs, devices) that may be used in the event of a potential public health emergency stemming from a naturally occurring emerging disease or a terrorist attack with a biological, chemical, or radiological/nuclear material. Examples of MCM are biologic products, such as vaccines, blood products, and antibodies; drugs, such as antiviral or antimicrobial drugs; and devices, such as personal protective equipment (PPE) or diagnostic tests. [99]

Medical Countermeasures can be provided by the SNS, which is overseen by the Centers for Disease Control and Prevention (CDC), or they can be provided through local and state caches or stockpiles.

Strategic National Stockpile

In the event of a public health emergency that requires pharmaceutical and/or medical supplies beyond the capacity of Maryland's existing resources, MDH would activate the MCM Plan. [100]

MDH would coordinate the delivery of the SNS materials to the Point of Care (POC), the Point of Dispensing (POD), or vaccination or antiviral sites. The distribution of medical countermeasures may be coordinated through established networks (for example, PODs). PODs are locations throughout a jurisdiction used to distribute medications in the event of a public health emergency.

The SNS stands ready to deliver:

- Inventory: Medicines, vaccines, and supplies used to respond to any public health emergency across the United States in 12 hours or less
- Chempacks: Pre-positioned containers which provide chemical antidotes to more than 90 percent of the U.S. population within one hour of exposure

[99] U.S. Food and Drug Administration. About Medical Countermeasures. https://www.fda.gov/emergencypreparedness/counterterrorism/medicalcountermeasures/aboutmcmi/ucm431268.htm

[100] CDC Strategic National Stockpile. https://www.cdc.gov/phpr/stockpile/index.htm

- Federal Medical Stations (FMS): Caches of beds, supplies, and medicines which provide care for 50–250 displaced people with health-related needs

CHEMPACKs

The CHEMPACK program is an ongoing initiative of CDC's Division of Strategic National Stockpile (DSNS), which provides antidotes (three countermeasures used concomitantly) to nerve agents for pre-positioning by State, local, and/or tribal officials throughout the U.S. The CHEMPACK Program was established as a sustainable resource to provide forward placement of nerve agent antidotes, so that state and local governments are better able to quickly respond to a nerve agent incident. [101] MDH, in coordination with MIEMSS, maintains this critical resource in Maryland. The activation or use of CHEMPACKs is coordinated via the Emergency Medical Resource Center (EMRC).

The use of a CHEMPACK may be considered in situations where multiple patients seem to be exhibiting signs or symptoms of a chemical nerve agent or organophosphate exposure, especially with possible exposure of large numbers of people. The hospital or incident commander should contact EMRC immediately upon this type of indication to request the CHEMPACK; information provided must include estimated number of casualties, contact name and number for delivery and acceptance of materials (pharmacist or MD for hospitals; ALS provider for EMS locations), and the destination for delivery. The EMRC will likely provide enough material to treat 150% of the estimated number of impacted people. [102]

CHEMPACKs are available in two types – EMS and Hospital.

1. EMS: Seven EMS locations in Maryland have CHEMPACK containers, for a total of 23 containers, each of which includes 454 auto-injectors ready to administer. The antidotes can be delivered by air as needed to the scene.
2. Hospital: About one-third of the 46 acute care hospitals in Maryland have CHEMPACK containers, each of which includes vials to treat 1,000 casualties. These antidotes can be delivered to other hospitals or the scene via ground transportation as needed.

Points of Dispensing

PODs are locations throughout a jurisdiction used to distribute medical countermeasures in the event of a public health emergency. The goal of this type of mass dispensing campaign is to reduce the number of people who become sick, by providing medical countermeasures to many people. The standard elements of PODs in Maryland are the following:

- Individuals must be triaged as symptomatic vs. non-symptomatic;
- Appropriate medical countermeasures are identified for each person; and
- Education is provided so that patients understand what to do with the medical countermeasure once they leave the POD.

[101] U.S. Department of Health and Human Services: Chempack. https://chemm.nlm.nih.gov/chempack.htm
[102] Maryland EMS News. August 2015. https://www.miemss.org/home/Portals/0/Docs/Newsletter/EMS_News_August_2015.pdf?ver=2015-11-12-135712-850

Speed and efficiency are critical in the establishment and management of PODs, so pre-planning for different types of incidents provides the best opportunity for positive outcomes. Identifying options for POD locations is an important element of this pre-planning; some examples include community buildings, business buildings, and hospitals (typically used for hospital personnel). [103]

There are two general types of PODs that may be considered:

1. Medical PODs – like a traditional clinic
2. Non-medical PODs – for speed, these structures provide little to no patient tracking, medically-trained staff, or screening. The non-medical option is used sometimes in a catastrophic event, when there is little time and few medical staff available. For example: During an aerosolized anthrax response, the goal might be to see a minimum of 500 people per hour per POD. There are not enough medical staff to support traditional healthcare settings plus PODs, so these PODs might use non-medical staff.

Staff to Support the Surge or Crisis

As with medical resources, a shortage of staff is likely to occur with a surge or crisis incident. This could be related to illness, inability to reach worksites, or the sheer number of patients and citizens needing care or support. MDH participates in a support or leadership role in staff augmentation activities.

Within public health services, a crisis response team may be established, to include epidemiologists. Contact lists of crisis response teams should be communicated to the EOC and healthcare organizations (contact information, 24/7 phone numbers and email addresses, alternate contacts, and appropriate notification priorities and processes).

Based on planning assessments and the MDH gap analyses referenced above, staffing needs should be reviewed, followed by the development of a staffing plan to adequately respond to the incident. Sources of additional staff could include local public health departments, healthcare organizations unaffected by the incident, or other states.

Responder Safety and Health

All staff participating in a surge or crisis incident must be provided personal protective equipment (PPE) appropriate for the specific needs of the situation. The health department with responsibility for coordinating provision of PPE (either the local or state one) must develop a PPE plan, to include the sharing and distribution of existing PPE and acquisition of additional PPE.

Training and Exercising

Oftentimes, the core groups of people who are involved with emergency response participate in related trainings and exercises. Surge and crisis incidents will tax the system and will require participation by

[103] Maryland Responds MRC Point of Dispensing (POD) Training. https://mdr.health.maryland.gov/Pages/Article_Take-the-Online-Point-of-Dispensing-(POD)-Training.aspx

larger numbers of people. For that reason, all shifts of responders, including back-up call lists, should participate in annual trainings and exercises specific to surge and crisis standards of care plans, as well as ICS and emergency response topics.

In addition to regular surge and crisis trainings and exercises, it is recommended that incident-specific, just-in-time training be provided to responders once an incident starts. All staff who might be involved are recommended to participate in the following JIT training:

1. Incident-specific training
2. Job-specific training
3. Responder safety and health topics
4. Communication systems, processes, and policies

Volunteer Management

During and immediately after a disaster or public health emergency, additional staff may be needed in the form of volunteers. Hospitals may use volunteers for staff augmentation or to help manage an alternate care site (ACS). Public health entities may need volunteers to staff a point of dispensing (POD), serve an ICS or emergency operations center (EOC) role, or provide public education and outreach as needed.

Hospitals, in planning for surge or crisis incidents, must develop a volunteer management plan to include just-in-time credentialing of individuals, in addition to volunteer recruitment, registration, training, deployment, assessment, and demobilization.

The Maryland Responds Medical Reserve Corps (MDRMRC) may be activated to support state or local emergency response personnel when local resources have been exhausted and additional help is needed. Public health agencies and/or the EOC will coordinate with the MDRMRC and other volunteer organizations as needed to provide volunteer support to the public health or medical response.

The Maryland Responds MRC Network is a community-based, civilian volunteer program that helps build the public health infrastructure and response capabilities of Maryland communities. It consists of the state MRC Program, which is part of the Maryland Department of Health's (MDH) Office of Preparedness and Response (OP&R), and 24 local units housed within Local Health Departments throughout the state. State and Local Unit Administrators work together to organize and train volunteers, preparing them for disaster response, and many other service opportunities. [104]

Maryland's Department of Health supports and promotes the Maryland Responds MRC Program through outreach and recruitment on an ongoing basis, encouraging potential volunteers to register in the system (https://mdresponds.health.maryland.gov/).

[104] Maryland Responds Medical Reserve Corps Network. https://mdr.health.maryland.gov/Pages/MRCNetwork.aspx

Local entities such as hospitals should first coordinate with the local health department in their jurisdiction to request activation of Maryland Responds MRC volunteers. Should the need surpass the local capability to respond, the local Maryland Responds Unit Administrator should escalate the request through pre-established procedures to the Maryland Responds MRC State Program Administrators.

Shelters

The Department of Human Services is responsible for directing the establishment and management of state shelters during a disaster. MDH is responsible for operating medical stations within these state shelters. Local health departments are responsible for medical stations within local shelters. A CRBNE event (Chemical, Radiological, Biological, Nuclear, and Explosives) may be a situation where community members are asked to evacuate their homes, necessitating the provision of shelters. Within a state shelter, a medical component will be included to provide basic medical care as needed, staffed with volunteers from Maryland Responds MRC.

Control Measures

Community containment measures, or control measures, are efforts to decrease contact among members of a community to limit or slow the transmission of a disease. These measures may be necessary to prevent large scale disease outbreak. Public health agencies and the State of Maryland may consider the following, depending on the severity of the incident:

1. Individual Measures: MDH will communicate with the public regarding ways to reduce the spread of a disease. Depending on the transmission type, MDH will recommend certain individual control measures such as handwashing, cough etiquette, environmental cleaning, and potentially personal protective equipment (PPE) for severe outbreaks. [105]
2. Social Distancing: MDH may recommend measures that reduce the probability of contact between persons who are potential carriers of a disease with those who are not yet exposed. Examples include cancellation of public events (concerts, sporting events, live theater, etc.); closure of recreational facilities (swimming pools, gyms, etc.); increasing telecommuting options; and closure of office buildings, stores, schools, and public transportation.
3. Controlled Movement: Individuals may be subject to limited or controlled movement or travel. They would not be permitted to travel by long distance commercial conveyances (e.g., aircraft, ship, bus, train, etc.) without express prior approval from MDH in accordance with CDC guidance. If these individuals can travel, it should be via non-commercial conveyance such as private charter or private vehicle and occur with arrangements for uninterrupted monitoring. [106]
4. Isolation: Individuals or groups showing signs and symptoms of a disease may be separated from the general population, usually in a hospital setting. Isolating symptomatic influenza

[105] CDC: Prevention Strategies for Seasonal Influenza in Healthcare Settings. https://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm
[106] Maryland Ebola Virus Disease Response Plan, June 2016.

patients either at home, or in the hospital, is the most important measure that can be taken to reduce the transmission of influenza and slow the spread of illness within a community. [107]

5. Quarantine: Separation of an individual or group NOT showing signs and symptoms of a disease but reasonably believed to have been exposed to a disease. Quarantine can take place in an individual's home, an MDH facility, or another setting determined by MDH. [108]

Voluntary isolation and quarantine are typically more effective than mandated measures. An MDH infectious disease staff member will meet with the individual(s) to discuss the recommendation for containment and ask them to sign a voluntary isolation or quarantine agreement. During the time of separation, the individual(s) would be monitored remotely via visual checks and temperature readings; a tablet computer may be provided for this purpose. In partnership with the Department of Human Services, MDH works with the affected community members to develop a comfort and care plan. Comfort and care plans include methods of communication, food and other basic supplies, leisure activities, access to mental health services, and access to thermometers and fever logs.

If necessary, the Office of the Attorney General will draft isolation or quarantine orders at the request of Maryland hospital, a local health department, or MDH. The MDH Secretary or his/her designee will then review and approve the isolation or quarantine orders on a case-by-case basis. [109]

Refer to the document "Emerging Infectious Disease, Multi-Agency Resource Support Plan (Annex F)" for information on support activities provided by partner agencies as needed.

Roles and Responsibilities [110]

Maryland Department of Health

- Provide guidance on emergency planning for potential health risks and hazards that exist in the State.
- Maintain situational awareness of the current health situation within the State and across the country to provide such information to local public health departments and healthcare organizations.
- Assist with health and medical resource procurement when needed.
- Be the conduit for health-related matters from the local health and medical agencies and organizations to the Federal Government when necessary.
- Serve as the point of contact for State government in terms of public health emergencies and provide recommendations to the Office of the Governor in terms of health-related situations and actions.
- Maintain a database of health and medical assets across the State that can be called upon during an emergency.

[107] Ibid.
[108] Ibid.
[109] Ibid.
[110] Maryland Region V Emergency Preparedness Coalition Medical Surge Plan, 2016

- Maintain the Volunteer Medical Responders and facilitate the deployment of pre-credentialed volunteers.
- Complete a statewide inventory assessment by region of health and medical assets procured with HPP/PHEP funds.
- Conduct public health and medical exercises to test public health preparedness and medical surge plans.
- Promote the MD Responds program and increase the number of volunteers in it.
- Develop and implement agreements between hospitals and federally qualified healthcare centers (FQHCs) and/or skilled nursing facilities for the referral of low-acuity patients.
- Determine the mass fatality storage needs and capacity for multiple mass fatality incidents by conducting a statewide morgue space survey and developing a gap analysis report.
- Review radio, telephone, and other communications assets annually to determine if enhancements are needed.
- Develop public health emergency phone scripts for 211 operators based upon public health and medical statewide risk assessment.
- Assist with assessment and coordination of health and medical staffing needs during a surge event.
- Facilitate the identification of Emergency System Advanced Registration – Volunteer Health Professionals (ESAR-VHP) resources as appropriate.
- Assist with the coordination of requested federal staffing capabilities through the Department of Health and Human Services' National Disaster Medical System (NDMS). Once activated, Disaster Medical Assistance Teams (DMATs) and other federal resources will be integrated in the surge response according to local plans, policies and procedures.
- Ensure protection of vital records for continuity of operations.
- Review programs that could be suspended during this public health response effort.

Local/County Public Health Departments

- Serve as the conduit between the healthcare organizations and local EMS and the local Emergency Operations Centers in coordination with MCC.
- Maintain situational awareness and common operating picture of public health within their jurisdiction.
- Assist with resource allocation and procurement when needed or make requests to the State through the local EOC when activated.
- Provide public information (in conjunction with the State, healthcare facilities, and Joint Information Center (JIC) when necessary, providing a clear and consistent message.
- Maintain documentation of the event and steps taken to mitigate or respond to a public health emergency or disaster.
- Facilitates Medical Reserve Corps (MRC) activation to augment staffing providing qualified volunteers to support the medical needs during an incident response as appropriate.
- Maintain a list of regional medical assets and assist in deployment when requested.

Ten Core Capabilities of Medical Surge for Local Health Departments and Healthcare Systems	
1	Train staff on elements of NIMS/ICS to be implemented during public health emergency response
2	Attend Strategic National Stockpile and Local Technical Assistance Review (LTAR) training and conduct LTAR on an annual basis to review mass dispensing plans
3	Establish and maintain capacity to increase regional hospital medical surge by 20%
4	Incorporate with regional healthcare coalition for multidisciplinary preparedness planning
5	Develop and maintain medical surge plans, evacuation plans, and staff safety and health plans
6	Utilize ESSENCE for disease surveillance and outbreak investigations
7	Develop, maintain and update a complete Continuity of Operations (COOP) plan
8	Develop volunteer management plan and establish protocols for the effective utilization of volunteers
9	*MIEMSS: Establish and maintain adequate supplies and medications locally to be able to treat 500 patients/million from a mass causality incident and adequate antidotes to treat the goals established based in likely scenarios*
10	*MIEMSS: Develop and maintain education programs and standard operating procedures that incorporate multi casualty and disaster response into daily operations.*

MDH Office of Preparedness and Response (OP&R)

- The coordinating liaison body for the State for public health events/activities.

MDH Office of Healthcare Quality (OHCQ)

- As part of MDH ICS response, assists in coordinating communication (sharing updated contact information) and/or help with queries
- Promote collaboration and consistency with federal partners (e.g., Department of Health and Human Services [HHS]/Office of the Assistant Secretary for Planning and Response [ASPR])
- Request or verify facility request for CMS 1135 waiver when an emergency is declared, accompanied by a situation update. State is required to verify waiver for CMS so to healthcare facilities, particularly for facilities without access to the Maryland Emergency Medical Resources Alert Database (MEMRAD) such as nursing homes or larger assisted living facilities, to accept relocated patients.
- Handle licensing and safety related issues during the response to the disaster and in the recovery phase to return hospital back to normal operations.
- Re-inspect facilities after a disaster to return a facility to normal operations.

Local Health Departments

- Work with EMAs and EMS to identify ambulance resources when requested by the hospital.
- Serve as the lead agency for ESF #8 Health and Medical response, together with EMS. LHDs will receive status information and communicate and coordinate with healthcare facilities, together with

MIEMSS and EMAs. The LHDs encourage hospitals to use their normal reporting methods/channels to report if an incident has occurred. Depending on the incident the EOCs or DOCs may already be activated and will serve as the main point of contact (i.e. LHDs EOC representative).

- Assist healthcare facilities to communicate needs and/or situational information via available communications systems in the event of MEMRAD inoperability.
- Collaborate with the Joint Information Center (JIC) and sending/evacuating hospitals in drafting public messaging.
- Monitors ESF #8 incident operations to identify current or potential problems. Provide assistance, if possible, when requested to do so (i.e. staff, space, and other resources).
- Participate in ESF #8 planning meetings, providing current resource status, including limitations and capabilities of agency resources.
- Provide general guidance on demobilization information and recovery requirements, if requested by the hospital. MDH OHCQ will help provide guidance on regulations regarding hospital reopening.
- Assist with alternate care site planning by identifying county medical surge triggers and develop a plan for establishing an alternate care site if needed.

Emergency Management Agencies

- Support healthcare organizations by providing coordination for city or county agencies through the EOC or by serving as their on-scene liaison.
- Fill requests for government services if possible, and, if not possible, refer them to the state level.
- Coordinate jurisdictional resources to assist in hospital evacuation including: Traffic control, Law enforcement, EMS assistance/Ambulance resources. Reach out to MEMA and MIEMSS as needed during hospital evacuations.
- Request transportation resources to cover gaps in emergent hospital evacuation transportation needs such as buses.
- Collaborate with the JIC and Public Information Officers from other agencies and healthcare facilities to coordinate public messaging.
- Develop processes for coordinating and facilitating resource requests and allocations (e.g., define the role of MEMA in managing requests and allocations within and across states and with federal assets, etc.).

Further Considerations

Given the inevitability of a surge incident, Region III should continue to develop and refine crisis standards of care plans and frameworks governing the allocation of scarce resources, as well as indicators and triggers for these plans and frameworks. This should include specific matrices and/or data triggers that would mandate the implementation of certain targeted actions. After developing these indicators, triggers, and matrices, Region III should work to develop detailed job aids or roles and responsibilities documents. Finally, Region III should facilitate annual training and exercises based on

these documents for emergency response, healthcare, and public health personnel, agencies, and organizations, to include all shifts and back-up personnel.

On behalf of the Emergency Preparedness, Harford County Health Department, we have included the following document “Iowa Department of Public Health: Guidelines for Hospital Surge Capacity Management” as part of this Implementation Plan for Medical Surge Capacity and Crisis Standards of Care Guidance Document.

Iowa Department of Public Health

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Attachment 11:

Guidelines for Hospital Surge Capacity Management

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Introduction

There is a general consensus that a collaborative and sustainable process is needed to develop, maintain and systematically evaluate a hospital's disaster and emergency preparedness response. Implicit in this process is the understanding that an 'emergency' is to be considered a natural or manmade event that significantly disrupts the environment of care (e.g., damage to hospital buildings and grounds from severe weather); that significantly disrupts care, treatment and services (e.g., loss of power, water or telephone due to weather, civil disturbances or accidents within the hospital or its community); or, circumstances within the hospital or in its community that results in sudden, significant changes or increased demands for the hospital's services (e.g., pandemic, terrorist attack, building collapse, airplane/train crash). With an established and functional planning process in place, there is strong evidence that hospitals and the communities they serve, will be able to craft a variety of response plans to meet the anticipated multitude of risks and hazards.

I. Pre-planning issues

A. Emergency Response Plan

1. Devise an organizational structure that gives planning and oversight of the hospital's disaster and emergency preparedness response. Include the following areas:
    a. Nursing Administration
    b. Medical Staff
    c. Plant Operations
    d. Pharmacy
    e. Laboratory
    f. Emergency Services
    h. Radiology
    i. Facilities Services
    j. Senior Leadership
2. Other considerations: The size of the hospital will likely dictate some aspects of the selection process. Where/when available, key personnel in areas of medical records administration, information systems, telecommunications, EMS/medical transportation, nutritional/food services and security are a source of key advice and counsel.

3. The selected work group should be given a 'mission statement' that establishes a clear framework within which to function. Key components of group's job description should include the following:

    a. Statement of Purpose
    b. List of Members
    c. List of Officers (e.g., chair, secretary)
    d. Meeting Frequency
    e. Reporting Lines
    f. Responsibilities
    g. Tasks
    h. Relationships
    i. Accountabilities

B. Scope of Planning Process

1. Disaster and emergency preparedness require a thorough examination of five distinct phases of assessment and analysis. The phases are:

    a. Mitigation Phase: Those activities that a hospital undertakes to lessen the severity and impact of a potential emergency.

    b. Preparedness Phase: Those activities that a hospital undertakes to build capacity and the identification of resources, both internal and external, that may be needed if an emergency incident occurs.

    c. Response Phase: Those policies, procedures and protocols that will be implemented under certain identified conditions and circumstances.

    d. Recovery Phase: Those activities that a hospital undertakes to bring hospital operations to a stable and reliable level of performance during and after an emergency incident has occurred.

    e. Evaluation and Improvement Phase: Like all planning processes, disaster and emergency preparedness planning demands an on-going effort to measure performance and implement improvements as may be necessary to meet established performance objectives.

C. External Planning Considerations

1. Collaborate and plan with a variety of community, civic, governmental and private organizations.

2. Be familiar with the County's All-Hazards Response Plan and the health and medical component presented in Annex G of the plan, which is developed by hospital, local public health, community clinics, mental health resources, and EMS.

3. Develop relationships to facilitate collaboration, coordination, and strong communication.

4. Overlay the community hospital delivery system with a variety of regional and national systems that may interact at the local level to distribute patients and supplies.

D. Surge Demand Plan

1. Each hospital will have its own unique issues and circumstances, but there are a number of common characteristics and considerations that should be addressed in preparation of a hospital's surge demand plan:

    a. Establish a defined incident management structure within the hospital and ensure that it is fully integrated with adjunct community and regional incident management structures.

        - Become competent with the National Incident Management System (NIMS).
        - Use common nomenclature.

    b. Key staff members should be assigned National Incident Management System hierarchical positions and trained to function with an incident management structure.

        - Hospitals should design their incident management structure around the operating scope and talent of the institution.
        - Training is necessary to achieve a level of familiarity that will be necessary to have an effective execution of incident management system.

    c. Reaffirm the hospital's participation in a community or regional planning process (i.e., Annex G).

        - Ensure this process includes active participation from a broad representation of the county's health, medical agencies and organizations.

    d. Review the assumptions and components of the hospital's supply chain management process to better prepare for the challenges and obstacles that may develop during a medical surge event.

        - Recognized that the *just-in-time* economic environment has reduced hospital inventories.
        - Expanding procurement contracts to increase the number of vendor suppliers may be beneficial.
        - Another option is to develop sharing/exchange agreements with neighboring hospitals and/or hospitals within a host network, like the Strategic National Stockpile (SNS).

- Procurement of drugs, medical gas and blood products may be challenging during an event. These specialized commodities require forethought and analysis to identify and capture new channels of supply and distribution.

e. Review host health network expectations to ensure that assumptions on patient referrals, transfers and admissions are consistent with corporate goals.

f. Review the procedures/protocols that have been devised by the hospital's county for activating the county's Emergency Operations Center (EOC).

- The use of Emergency Operations Center-type communication structures is integral to the National Preparedness Plan and state, regional and local response plans.
- It is important that the county's Annex G clearly delineate the health and medical component of the county's Emergency Operations Center.

g. Review the impact that activation of the National Disaster Medical System (NDMS) may have on the hospital.

h. Review patient transportation plans and assumptions with the expectation that normal and routine sources may not be available in a timely fashion.

- Moving a large number of patients may require a partnership between hospitals, EMS providers and others in order to effectively stay ahead of the surge capacity curve.
- It may be necessary to cohort border-line litter patients and transport them by unconventional means such as by buses, thereby allowing staff to be used more productively.
- Determination of which organization will take the lead in expanding transportation resources and how staffing will be achieved are best addressed as part of a collaborative pre-event planning process.

i. Identify strategies and tactics that will enable the hospital to meet its service delivery expectations with a minimum impact on the hospital's standard of care.

- Under what many may call 'battlefield conditions' as the apex of a surge event approaches, there will be an inescapable shift to doing the greatest good for the greatest number.
- Implicit are the process of triage and the resulting allocation of scarce resources.
- Development of off-site treatment centers.
- Develop a pre-event collaboration between the hospital's pathology department, county medical examiner and Office of the Iowa State Medical Examiner to deal with morgue and autopsy needs.
- Create mutual assistance pacts and inter-institutional agreements when possible.

II. Incident Command Structure

A. Identify a command staff (minimum two to three deep for each position). It is recommended that each command staff position have at least two to three personnel trained and familiar with the function of the assigned position. Some personnel may have to become familiar with more than one ICS position. Job action sheets should be available for all of the following positions:

1. Incident Commander.
    a. Gives overall direction for the direction/mitigation of incidents.
    b. One person should be dedicated to this role.
    c. Recommended for hospital administrator or management personnel most familiar with total system/facility operations. (Chief Executive Officer, Chief Operating Officer, Chief Financial Officer)
2. Public Information Officer.
    a. Provides information to the news media.
    b. Person should be skilled at dealing with public and or have experience in Public relations.
3. Liaison Officer.
    a. Functions as incident contact person for representatives from other agencies.
    b. Since supplies and transportation will be the most pressing need, consider using the materials manager in this role.
4. Safety and Security Officer.
    a. Monitors and has authority over the safety of rescue operations and hazardous conditions.
    b. Organizes and enforces scene/facility protection and traffic security.
    c. In a chemical incident, consider the facilities person for this role.
    d. In a biological event, consider the infection control person for this role.
5. Logistics Chief.
    a. Organizes and directs those operations associated with maintenance of the physical environment, and adequate levels of food, shelter and supplies to support the medical objectives.
    b. The person most suited for this position should have an intimate knowledge of supplies and available resources (Material's Manager, Director of Facility Maintenance, Security Chief, possibly Chief Operations Officer if not already assigned to Operation's division)

6. Planning Chief
    a. Organizes and directs all aspects of planning section.
    b. Ensures the distribution of critical information/data.
    c. Compiles scenario/resource projections from all section chiefs and effects long range planning.
    d. Documents and distributes facility Action Plan.
    e. Consider using a clinical person, such as the Director of Nursing, in this role since planning will require knowledge of the disease process and be able to project resource needs and consumption rates of supplies.
7. Finance Chief
    a. Monitors the utilization of financial assets.
    b. Oversees the acquisition of supplies and services necessary to carry out the hospital's medical mission.
    c. Supervises the documentation of expenditures relevant to the emergency incident.
    d. Consider using Chief Financial Officer or budget management personnel (Accounts Payable/Receivable section).
    e. Person should have authority to purchase emergency supplies or authorize expenditures as needed.
8. Operations Chief
    a. Organizes and directs aspects relating to the Operations Section.
    b. Carries out directives of the Emergency Incident Commander.
    c. Coordinates and supervises the Medical Services Subsection, Ancillary Services Subsection and Human Services Subsection of the Operations Section.
    d. One person should be dedicated to this role. Recommended for assistant hospital administrator or management personnel familiar with total system/facility operations. (Chief Executive Officer, Chief Operations Officer, Chief Financial Officer)
9. Medical Officer
    a. Organizes, prioritizes, and assigns physicians to areas where medical care is being delivered.
    b. Advises the Incident commander on issues related to the Medical Staff.

c. Organizes and directs the overall delivery of medical care in all areas of the hospital.

d. This position is usually an MD/DO; however, a PA or ANP may fill the role.

10. Other incident command positions

a. Develop a clearly understandable process to fill the other positions in the Hospital Emergency Incident Command System as necessary.

B. Emergency Operations Center Policy (activation, staffing, location, supplies/equipment)

1. Primary and secondary locations should be selected well in advance and identified within the hospital's emergency plan.

2. Location selection should focus on a space large enough to accommodate command staff with some consideration given to "over-flow" which includes outside agencies and additional appropriate positions as determined by ICS organizational chart. Location should also consider adequate distance away from ER/ED or site of possible activity to ensure separation between operations and command staff.

3. Emergency Operations Center Policy should make clear who can authorize activation of Emergency Operations Center and notification list of personnel to contact (and by what methodology) when activation is initiated.

4. Appropriate supplies should be located within Emergency Operations Center (or in close proximity and easily transported). Supplies should include at least the following:

A. Incident Command System vests
B. Job Action sheets
C. Writing material
D. Communication devices (Radios, telephones, etc.)
E. State, Regional and Local maps; blueprints of facilities, etc.
F. Computers, Television and other AV equipment
G. White boards, bulletin board, flip charts or other visual aids.

- This list is provided only as a guide to assist in the set-up of an Emergency Operations Center and not intended to act as a total needs list. Each Emergency Operations Center will have these common components, but some may need additional supplies and/or equipment based on location and specific facility.

C. Communications with command structure (e.g. portable radios).

1. Many hospitals are utilizing cell phones and/or short distance two-way radios. While this may be an effective methodology for most incidents, consider that cell towers become overloaded during large disasters thus compromising the effectiveness of this type of communication. Two-way radio systems are also marginalized by distance and building construction and should not be a primary means of communication
2. Recommended that hospitals work towards the purchase and operation of dedicated 800Mghz systems (or those ranges close to their public safety partners) that has been proven to be reliable during large-scale events.
3. Communication devices should have a written operations/ directions page for those employees not accustom to their use (a "how-to" guide).
4. A policy on use (when, where, and how) should be developed and consideration should be made for necessary preventative maintenance and routine checks for operational readiness.
5. Hospitals should be well trained on the use of the Iowa Health Alert Network.

D. Communication with response partners (e.g. Emergency Operations Center interface).

1. Policy should be developed on communicating with County Emergency Operations Center personnel or Joint Information Center (JIC). This written guide should include who is authorized (usually Public Information Officer, Liaison, or Incident Commander) and by what methodology (Radio, telephone. FAX or other means).
2. Contact lists for County Emergency Operations Center personnel should be kept current as needed.

E. Transition plan to insure continuity

1. Small incidents that have a predictable "wrap-up," or end-point (usually within 4-6 hours) and can be mitigated by current staff may not need to utilize a transition plan. Incidents that do not have a predictable stopping point or can be realistically forecasted to exceed 6 hours need to utilize a transition plan.
2. A transition plan should be determined as soon as possible identifying "who will replace whom." Some larger systems employ a "team concept" or "shift schedule" that works well for them. This preplanning may not work well for the smaller rural facilities due to staffing limitations.
3. Your facility may want to consider utilizing staff from other similar facilities in the region as relief personnel if needed (hospital administrator from the next County brought in to relieve the Incident Commander during an extended operation).

4. Transition Plan should consider a 30-60-minute overlap (or as needed) in relief personnel to adequately exchange information and determine goals and objectives for specific position.

5. Relief personnel should not be involved in other activities prior to assuming their duties when they are scheduled (this means that the Incident Commander and his/her relief should not be together for long periods of time - only the transition period). This recommendation also should include that personnel should not be utilized beyond a 12-hour cycle (if at all possible). Studies have determined that a person's effectiveness to manage in a high-stress environment is significantly influenced by fatigue and those decision-making skills become compromised. While every individual has a unique ability to cope with stress, a 12-hour maximum shift should be considered a standard with which to write a transition plan.

III. Hospital Clinical Operations

A. Patient flow plan

1. Hospitals should have a plan that clearly shows the ingress and egress of patients during a disaster.

2. Since emergency department throughput will be an issue during a disaster, consideration should be given to how this process will be expedited. This could include delaying diagnostic tests for patients that will be admitted to an inpatient floor.

3. Plans should include a discussion of how patients will be moved during a surge capacity crisis. For example, doing portable x-rays may be more time efficient than taking patients to the radiology department.

4. Work with home healthcare agencies to arrange at-home follow-up care for patients who have been discharged early and for those whose admission was deferred because of limited bed capacity.

5. Allow family members to stay with children, if possible. Consider evaluating adults and their children in the same room, if possible.

B. Diversion policy, including thresholds

1. Each hospital should have a policy that clearly defines when emergency department or inpatient diversions will take place. This could be a numerical value (more than two critical care patients housed in the ED waiting for a bed), or it could use other criteria (house supervisor determines that the available resources are not sufficient to care for more patients).

2. Thresholds should also be determined for alternate strategies in surge capacity management, such as the cancellation of elective surgeries or early discharge of inpatients.
3. The plan should clearly define who in the hospital has the authority to activate the diversion policy.

C. Notification policies

1. The plan should include a description of how staff will be notified of the disaster. This includes addressing such issues as when staff will be recalled, notification systems, and phone trees.

D. Rapid triage plan

1. Consider creating an alternative triage system when a large number of patients are presenting. This includes both trauma and medical patients.
2. Consider setting up a "telephone triage" system, which patients could call for information.
3. Consider assigning a "triage coordinator" to manage patient flow, including deferring or referring patients who do not require emergency care.
4. Consider designating a location away from the Emergency Department as an alternate triage location.
    i. If this is done, pre-designate which employees will staff the alternate triage location.

E. Off-site care facilities

1. If the hospital plans to use an off-site care facility in the community, extensive pre-planning is necessary. Further guidance for off-site medical facility planning will be distributed by the Iowa Department of Public Health.

F. Disease reporting

1. The plan should outline how disease will be reported to both local and state public health departments.

2. If revised surveillance techniques will be used (for example, daily reporting of Influenza like Illnesses), this should be included in the plan.

G. Infection Control

1. CDC Guidelines for isolation including using standard precautions on all patients and droplet, contact and airborne precautions should be utilized when indicated in health care settings.

2. Within health care settings, respiratory hygiene and cough etiquette guidelines should be developed.
3. All health care workers are expected to provide care for patients with known or suspected infectious diseases, as well as comply with personal protection equipment, infection control and public health recommendations.
4. Decisions regarding the need for escalating infection control measures will be based on disease activity and transmission risks.
5. When available, adequate personal protection equipment supplies, and equipment will be determined and maintained.
6. Educational materials related to use of personal protection equipment and supplies will be developed.
7. During a pandemic of any size, all infection control professionals will need to formally monitor and reinforce compliance with personal protective equipment measures and policies.
8. Infection control professionals will not only implement appropriate infection control measures but will also cease ineffective practices.
9. Staff members may be designated to assist infection control professionals during outbreaks (e.g. staff may be placed in patient care areas to assist with proper use of personal protective equipment).
10. Visual alerts will recommend respiratory hygiene precautions.
11. Masks should be available for patients prior to them entering the Emergency Department/outpatient facilities.
12. Patient movement.
    a. Movement and transport of patients with infectious diseases should be limited as much as possible. If a patient must be transported, adhere to the following guidelines:
        - Place surgical mask on patient.
        - Always notify recipient area prior to patient transport.
        - Follow a pre-designated alternate route designated for transport of patients with infectious diseases (separate from main traffic route).
        - Consider limiting hospital admissions, transfers, and discharges (in accordance with local/state recommendations and regulations) in the event that nosocomial infectious disease transmission occurs.
        - Visitors should be limited to reduce the likelihood of infectious disease transmission among visitors, patients, and health care workers.
13. Surveillance
    a. The hospital should have mechanisms in place to:

- Conduct surveillance in emergency departments to detect and increases in patients being seen that may indicate the presence of specific diseases.
- Monitor employee absenteeism for increases that might indicate early cases of specific diseases.
- Develop assessment guidelines for staff that may be showing signs or symptoms of disease.

IV. Staffing

A. Evaluate Workload

1. Separate essential from non-essential duties- i.e. bath and linens as needed.
2. Separate those functions that must be done by an RN – i.e. patient assessment, blood transfusions, and IV therapy.
3. Determine which patients can be moved to nursing homes and other hospitals in the region.
4. Determine what adjustments can be made for patient acuity
5. Determine what patients can be placed together
6. Determine which of your services can be downsized or shut down and those personnel reassigned.
7. Determine process to transition non-clinical workers into assuming clinical duties.
8. Consider an increase of home healthcare staff to reduce hospital admissions.

B. Policy Considerations

1. Agency support
    a. Maintain written agreements.
    b. Staffing pools
2. Consider reassigning staff from lesser acute staffing areas.
3. Consider restricting vacation policies.
4. Consider using nursing students as assistive personnel.
5. Consider reassigning Quality Management and Risk Management nurses to clinical areas.
6. Maintain staff skills in infection control.
7. Plan to protect high risk staff from complications of the disease.

C. Use of Volunteers

1. Credentialing.
    a. Consider how outside staff will be credentialed and used.
    b. Consider where this staff will present for duty, and how they will be identified (badges, etc.).
    c. Pre-designate areas where volunteer staff will be given assignments.
2. Training
    a. Predetermine what training will be needed for outside volunteers.
    b. Consider designing just-in-time training tools for volunteers.

D. Staffing support strategies

1. Consider flexible and staggered staffing as needs arise.
2. Consider written agreements with local motels to assist with sleeping arrangements for staff.
3. Consider in-hospital dependent adult and child care arrangements for staff family.
4. Consider written agreements with local veterinarians for pet care.
5. Consider using staff from affiliated hospitals if available.
6. Consider providing transportation for staff if needed.
7. Assign staff recovering from the applicable disease to care for patients affected by that disease.
8. If other staff are needed contact your local Emergency Management Coordinator for assistance.

E. Communicate with staff

1. Ensure that your staff has a family preparedness plan.
2. Provide staff with regular situational updates.
3. Recognize that a reduced standard of care may induce staff concerns.
4. Assure that adequate rest periods for staff are addressed.

F. Mental Health Issues

1. Recognize that the mental health issues related to a disaster may require additional assistance for patients and staff, such as social workers and clergy.
2. Recognize that Critical Incident Stress Debriefings may be needed.

3. Consider using Child Life Specialists or staff that are trained in comforting and educating pediatric patients during procedures.

V. Hospital Environmental Operations

A. Security

1. If the Hospital's Emergency Response or Surge Plans use the Maintenance Staff to perform Security duties, such as lock-downs and monitoring doors, consider notifying the County Emergency Management Coordinator to access additional security resources such as local Law Enforcement, Sheriff's Deputies, Department of Natural Resources Ranges, private sector security companies, etc.
2. Consider using the Hospital's vehicles (tractors, pick-up trucks, vans, etc.) to block driveways as needed. Consider preplanned, laminated, directional signs as well.
3. Consider pre-cut lengths of chain or rope to be strung across driveways with signs indicating closure due to emergency, etc. Chain can be anchored to existing posts or steel posts driven into the ground when needed. Ensure all supplies are kept together so they are available when needed.
4. Consider using students in law enforcement colleges, academies, or Boy Scout Explorer posts with a law enforcement affiliation.
5. Consider the challenges of large crowds waiting in line for services and the dynamics that can arise with these people.
6. Ensure that Security Staff has communication with the Incident Command Center.
7. Ensure that all hospital staff knows how to contact the next level of responsibility when needed (radio channel and staff title, telephone number, etc.).

B. Laundry/Linen

1. In a surge event there will be an increased need for linens and the corresponding faster turn-around in the laundry department.

2. Consider establishing agreements with local laundries or related businesses that can provide pick-up and delivery to supplement your hospital's laundry service.

3. Consider increasing your hospital's current inventory of linens to be stocked to provide the necessary early response to a surge event.

4. Ensure that all hospital staff knows how to contact the next level of responsibility when needs arise (radio channels and staff title, telephone number, etc.).

5. Remember the need to have sufficient staff personal protective equipment supplies on hand to meet the increased demands.

6. Pre-plan where incoming and outgoing supplies will be accommodated within your work area to avoid the last-minute congestion.

C.Nutritional Services

1. Develop a list of food and beverage providers in your local area that can address the need of supplies in bulk and with a quick turn-around time. Suggestions might include: grocery stores, catering businesses, restaurants, etc.
2. Are there supplies that can be purchased to increase your inventory to ease the potential early depletion of foods and beverages in a surge event? There will be less of a financial impact if the inventory is increased gradually, over time and not all at once. Stock can be rotated if needed to address any shelf-life concerns.
3. Increased inventory of bottled water will be helpful in the event of a potable water outage at the Hospital.
4. Consider establishing a contract with a local bottled water company (Culligan or other vendors) that can be called upon in an emergency to supplement your supply.
5. Ensure that all hospital staff knows how to contact the next level of responsibility when needed (radio channel and staff title, telephone number, etc.).
6. Consider the need for additional refrigeration of additional supplies-contract services or local refrigeration trucks.
7. Pre-plan where incoming and outgoing supplies will be accommodated within your work area to avoid last-minute congestion.

D. Housekeeping/Custodial Services

1. Consider:
   a. List the main areas to be serviced on a regular basis (the ED-every hour, the entrances- every two hours, the cafeteria- every four hours, etc.) Recognize that the demands may be more than one person can keep up with initially.
   b. Establish agreements with local vendors to purchase bulk supplies quickly as needed, such as cleaners, disinfectants, paper towels, brooms/mops, buckets, etc.
   c. Consider accumulating additional supplies to build up your inventory without significantly affecting the budget. This will allow you to keep up with the increased cleaning needs, deplete your supplies more slowly, and provide more lead time in procuring additional supplies when needed.
   d. Consider establishing written agreements with local cleaning agencies (SercviceMaster, AmeriClean, etc.) for emergencies.
   e. Ensure that all hospital staff knows how to contact the next level of responsibility when needed (radio channel and staff title, telephone number, etc.).
   f. Remember the need to have sufficient staff personal protective equipment supplies on hand to meet the increased demands.
   g. Pre-plan where incoming and outgoing supplies will be accommodated within your work area to avoid last minute congestion.

E.Water/Sanitation

1. If there is an interruption to the hospital or community water supply system:

a. Consider the possible duration of the interruption and the need to provide portable temporary toilets (remember to provide handicapped accessible units as well). Also, predetermine the best location of these units to coordinate with patient and staff access as well as the need for daily servicing.
b. Consider using the local fire department to provide water to a hook-up on the hospital- this will provide non-potable water for toilets, general housekeeping services and patient decontamination.
c. Determine which services in your hospital require water (radiology, lab, laundry, etc.), and determine which of these could be scaled back to conserve water in the event of an outage.

F. Parking

1. On a site map of your Hospital/Campus

   a. Pre-plan where hospital staff will park to avoid congestion/conflicts with patient/visitor parking.
   b. Coordinate the flow of staff/patients/visitors to avoid congestion and conflict- remember the need for emergency vehicle access (police, ambulances, fire, morticians, etc.)
   c. Consider the possible need to secure your staff's parking area so it remains available for rotating shifts and will not be used by patients/visitors/guest.
   d. Pre-plan for the increased parking needs of patients and visitors/guests. Consider using neighboring businesses, open lots, etc. (consider the need for potential snow removal).
   e. Provide signage at points of entry directing patients and visitors to the designated areas.
   f. Consider using Volunteers to assist with parking- Possibly Boy Scouts, Kiwanis, Rotary Clubs, etc.
   g. Plan for extended usage of flashlights and other lighting mechanisms.

G. Visitor/Guest Management

1. Establish one point for entry, registration and exit for visitors and guests.

2. Consider a sign-in and sign-out log including passes or badges for visitors and guests to better know who is in the hospital at any given time. Passes and/or badges should be returned – this is more easily monitored if there is one point of entrance and exit. With an appropriate checklist of duties, volunteers with minimal orientation or training required in an emergency could staff this position.

3. Pre-determine who will be allowed to visit patients—consider only the immediate family during a surge event to keep the number of extra people in the hospital to a minimum.

4. Ensure that all hospital staff is aware of the visitor and guest policies, including passes and/or badges, so they can assist in monitoring people in the hospital. Have a plan for assisting non-registered visitors and guests back to the registration area.

5. Consider written guidelines to be handed out to the visitors and guests after they register. Identify language-specific and reading-level appropriate materials for patients, family members and visitors.
6. Consider posting a sign(s) outside your hospital that directs people to the Visitor and Guest Registration, especially if the hospital is secured.
7. Train Intake and Registration staff to detect patients with disease signs and symptoms and to implement immediate measures to prevent transmission.
8. Post signs for respiratory hygiene/cough etiquette- provide needed supplies to enforce these protocols (mask, tissues, frequent waste basket changes, etc.).
9. Create a plan for getting translators when needed.
10. Consider assigning separate waiting areas for persons with respiratory symptoms.
11. Registration needs to keep the Incident Command Center appraised on the needs of this area especially if crowds develop that may indicate the need to change security measures or to possibly close the hospital.
12. Ensure that Registration has communications the Security.
13. Consider using volunteers to assist with Visitor and Guest Registration.
14. Consider the limited mobility issues of non-ambulatory, elderly, and special needs patients.
15. Consider the special needs of patients who may be pregnant, post organ transplant patients, and renal dialysis patients.

H. Status of Hospital/Campus Construction Projects

1. Whenever the Hospital is considering renovations or other construction projects on campus, the implementation of the Emergency Response Plan and Surge Plan should be part of the initial planning effort.
2. Things to consider:
    a. Location of contractor's office or trailer.
    b. Contractor material and staging area.
    c. Location of contractors' dumpsters, and how often are they accessed.
    d. Blocking of normal entrances and exits.
    e. Staff parking during construction.
    f. Specific areas designated in the Emergency Response Plan or Surge Plan affected by construction.
    g. Identification of contractor personnel.

I. Morgue Capacity

1. Considerations:

    a. Make sure your plan to care for fatalities is integrated into your county Emergency Management Plan. Further information is available from the State Medical Examiner's office.
    b. The season of the year may influence the morgue area chosen. An outside garage may work well in the cold winter months while a cool, lower-level room in the hospital may be better suited in warm weather. Consider the potential for increased refrigeration of deceased persons
    c. Use a hospital/campus map to plan the morgue's location with the flow of patients into and out of the hospital—also the flow of visitors/guests. Keep in mind the eventual need for access by morticians.
    d. Consider an appropriate area to expand your morgue area such as a detached garage or storage building.
    e. Plan for the increased need for paperwork and tags that go along with more fatalities.
    f. Consider providing information to morgue staff regarding identification of the local morticians and medical examiners.
    g. Remember the need for security and limited access to the morgue.
    h. Be aware of the resources that can be provided by the Disaster Mortuary Operational Response Team (DMORT) - and when to call for their assistance.
    i. Ensure that all hospital staff knows how to contact the next level of responsibility when needed (radio channel and staff title, telephone number, etc.).

VI. Supplies and Equipment

A. Supply Inventory System.

1. These procedures must include review of daily material usage to determine if increased demand warrants the activation of surge plans. Special tracking of pre-identified supplies will give a clear and advanced reading of changing situations. Close coordination with the hospital laboratory and emergency department is advantageous.
2. Evaluating the existing system for tracking available medical supplies in the hospital to determine whether it can detect rapid consumption, including items that provide personal protection (i.e., gloves, masks).
3. Improve the system as needed to respond to growing demands for resources during an influenza pandemic.
4. Utilize planning software to apply numbers to your assumptions.

B. Assessment of physical storage space.

1. Current materials management doctrine calls for minimum on hand supply quantities with the support for replenishment transferred to local suppliers who can re-supply on a daily or as needed basis. Paralleling this practice is the redistricting of former warehousing and supply rooms within the hospital.

2. Evaluate the need for increased warehouse and supply rooms.
3. Plan on introduction of a sixty to ninety-day level of supply.
4. Anticipate sporadic re-supply.
5. Temporary modular storage facilities may be beneficial and must be preplanned.
6. Conduct a “walk down” of material storage areas.

C. Assessment of medical supply inventory level/duration and order ship time.

1. Anticipate that several to all hospitals will identify the change in demand and request the same supplies from the same vendors at the same time.
2. There is a cost for being prepared. You can pay for this upfront and stockpile it now or pay for the fallout and blame for not having these supplies when needed at a later time.
3. Consider stockpiling enough consumable resources for the durations of the pandemic wave (3 to 4 months).
4. Assess anticipated needs for consumable and durable resources and determine a trigger point for ordering extra resources.

   Examples include: hand hygiene supplies (antimicrobial soap and alcohol-based, waterless hand hygiene products), disposable N95 surgical and procedural masks, face shields, gowns, gloves, facial tissues, central line kits, morgue packs, batteries, etc.

D. List of vendors for commonly needed items.

1. Update a list of primary and backup suppliers.
2. Determine their ability to support your needs.
3. Maintain written agreements.

E. Assessment of pharmaceutical inventory levels/duration and order ship time.

1. Establish contingency plans for situations in which primary sources of medical supplies become limited.
2. Consult with the local and state health departments about accessing the national stockpile during an emergency.
3. Anticipate needs for antibiotics to treat bacterial complications of influenza and determine how supplies can be maintained during a pandemic.

4. Establish an inventory and financial tracking program to identify the issue and non-cost accounting for Strategic National Stockpile material and validation of future re-imbursement.

F. Assessment of biomedical equipment inventory level/duration and order ship time.

1. Stockpiling of equipment is very costly. Review of hospital's capability and capacity is tantamount to the development of a supportive plan.
2. Cooperative community planning with neighboring hospitals will enhance your plan and make other's contributions surge multipliers.
3. Estimate the need for respiratory care equipment (including mechanical ventilators).
4. Develop a strategy for acquiring additional equipment if needed.
5. Neighboring hospitals might consider developing inventories of equipment and determining whether and how that equipment might be shared during a pandemic.
6. Critical equipment: ventilators, respiratory care equipment, beds, IV pumps, etc.

G. Access to non-traditional sources for inventory assistance

1. Assure that mechanisms are in place to obtain assistance from other hospitals in your network.

H. Assessment of laboratory inventory levels/duration and order ship time

1. Assure that your laboratory is included in supply decisions

VII. Special Considerations

A. Fiscal Issues to Consider and Plan for:

1. Incremental expenses related to the event.
    a. Payroll / salary increases.
        - Overtime expenses.
        - Additional staffing, i.e.; temp staff.
        - Ensure that all financial transactions are documented in case Federal reimbursement should become available.
    b. Increased supply purchases.
        - Balances on supplies used during the event may come due when the event is over and when the revenues (income) from interrupted operations are diminished.
        - Stockpiling supplies prior to an event is discouraged without a robust plan to rotate stock to avoid obsolescence or outdates.
2. Cash flow demands.
    a. Decreased revenue from decrease of elective procedures.
        - Consider business interruption insurance for departments, clinic, or staff (physicians) who may experience a significant loss of income due to interruptions of routine operations.
3. Coding and billing considerations.
    a. See CMS Medicare/Medicaid Fact Sheets.

B. Strategic National Stockpile Asset Documentation and Tracking

1. Strategic National Stockpile assets will arrive at one of several secure designated locations within Iowa. Based on the nature of the precipitating event and the need, the assets will be divided into shipments for distribution to one of several secure regional distribution locations (nodes) across the state.

2. Once the Strategic National Stockpile assets arrive at the regional distribution nodes, each county will be responsible for retrieving the Strategic National Stockpile assets from the regional distribution node and distributing the assets to designated treatment locations within the county (e.g. hospitals, public health departments, clinics) as may be determined by the County Emergency Operations Center and the prevailing circumstances. To preserve the security of the assets, the location of state and regional SNS distribution nodes will be unpublished and identified on a need-to-know basis.

3. Each hospital should collaborate with the emergency management and public health officials of the hospital's host county to plan for retrieving and distributing the Strategic National Stockpile assets.

4. In addition, each hospital should establish procedures to track Strategic National Stockpile assets to meet Strategic National Stockpile requirements including;

    a. No direct charge to patients
    b. Return of unused assets

C. Patient Care Documentation and Tracking

1. Use familiar systems to avoid loss in efficiency.

2. Consider/identify minimum acceptable standards for medical documentation and physician dictation to avoid bottlenecks when discharging to home or transferring to another hospital.

3. Ensure that reliable and redundant systems are in place to accurately track, account for, and report on incident victims.

D. Securing Resources Through County Emergency Management System

1. Local emergency management.

    a. Contact local Emergency Management for assistance in obtaining additional supplies, equipment and staff.

    b. Include local emergency management in planning phase to build relationships.

    c. Typically serves as liaison during large-scale event.

E. Public / Media Demands

1. Planning
    a. Methods of delivery.
        - Newspapers.
        - Television.
        - Radio.
        - Web-based.
        - Health Alert Network (HAN)
    b. Information delivered by the following people:
        - Public information officer
        - Member of hospital administrative team
    c. Information should be used to:
        - Inform
        - Direct
        - Educate
    d. Consider where media interactions should occur.
2. Joint Information Center (JIC)
    a. Work with local partners to establish a joint information center
        - Allows for the information to be collated and coordinated prior to release