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All-Hazards COOP for Medical Facilities

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Introduction

Spartanburg Regional Healthcare System[1] (SRHS) was confronted with a situation that had been followed over several days and on February 16, 2011; the scales tipped requiring activation of medical surge.[2] This resulted from a combination of two internal dynamics. The first was a saturation of patients with longer than usual length-of-stays and the second, patients with higher acuity than usual. On that day, 35 critical and some non-critical patients were being treated in the emergency center. EMS ambulance response calls and self-reporting patients had continued to fill the emergency room. The hospital had reached a 94-97 percent saturation rate (red capacity alert). SRHS was out of space to treat low-acuity patients or those that required crisis care.

Surge plans included a number of mechanisms to free-up beds but this situation occurred at a time when those hospitalized could not be discharged. As a result, SRHS set into motion two actions, one immediate and the other short-term. SRHS activated its diversion platform and deployed the state's SCMed2[3], a mobile medical facility (MMF). The rationale for expanding internal space (diversion) was to decompress the immediate situation in the emergency center while establishing an offsite triage and treatment capacity (SCMed2) in the event the patient load did not decrease. The mobile facility could deliver a "treat and street" service that would help free the emergency room for critical care patients. The response by SRHS to saturation illustrates how quickly facilities must be prepared to surge space, staff and/or critical supplies.

SRHS averages 90 percent census rate, not unlike most hospitals in the United States, a situation that has pushed surge planners for a range of strategies to activate when saturation hits red. It was confronted with a dilemma in which patient surge had exceeded its daily patient care capacity. The nature of this crisis and one that most medical facilities confront raises a threefold question: "Is your facility prepared for medical surge; what is the trigger for medical surge; and what is the response?" Planning for medical surge is not unlike continuity of operations planning (COOP) and these answers become the basis for a facilities COOP plan.

The June 2009 issue of *The Journal* described COOP for biological incidents whether natural, accidental or Bioterrorism and introduced the basic elements.[4] It emphasized the distinguishing characteristic of COOP for biological events, to protect and manage the workforce for a biological event. This article will consider an additional COOP element, alternate facilities but in the context of medical surge this is referenced as alternate care areas. It will look at how medical facilities can prepare for medical surge by using several tools that have been developed, introduced and deployed by state and federal partners.

Planning: Continuity of Operations

What is continuity of operations planning? A Continuity of Operations Plan (COOP) for a medical facility establishes policy and guidance to ensure the execution of essential patient care functions in the event that a community-wide medical emergency threatens or incapacitates medical operations and requires the reconfiguration of space and/or relocation of selected personnel and functions. Specifically, the plan is designed to:

a. Ensure that a medical facility is prepared to respond to emergencies that threaten the delivery of conventional emergency care and recover from the emergency.

b. Ensure that a medical facility is prepared to provide critical services in an environment that is threatened, diminished, or incapacitated.

The activation of medical surge to increase space for patient care illustrates one of the key elements of continuity of operations planning, operation of alternative facilities or alternative care areas. Traditional COOP planning for alternative facilities mobilizes space for offsite relocation where desks, office supplies and communication equipment can be setup for operation within twelve hours. But for medical facilities, this takes on the added dimension of patient care but under circumstances that could alter the standard of care. In addition to space, plans must consider the level and scope of care that will be delivered in this

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space, what medical staff and technical staff are required as well as those specialty supplies needed such as gases and pharmaceuticals. The critical nature of this planning necessitates a layered strategy for making space available given the licensed bed capacity.

Planning for surge, whether internal or external, plugs nicely into a medical facilities COOP plan that targets space and facilities. Medical facilities that have developed a COOP plan will find that those plans have addressed surge issues for staffing and supplies as well.

Triggers: Crisis Standards of Care

The introduction of the Hospital Preparedness Program (HPP) in South Carolina brought together hospitals, public health and key community partners to address region-wide mass casualty planning. A common question asked by the SC Mass Casualty Sub-Committee of plan writers and that challenged them was "what are the triggers that would activate the plan?" While there was much discussion, there was little consensus on "triggers" due to the unique characteristics of regions, distance among medical facilities and strategies adopted by planning coalitions. Numbers used in one region were not appropriate in another region due to variation in population density, facility size (bed capacity) and trauma level types served within the region.

Since the introduction of HPP, the United States has been confronted with medical emergencies that have challenged many of those early planning assumptions. These medical emergencies include the response to Hurricane Katrina, the Severe Acute Respiratory Syndrome (SARS) outbreak, the H5N1 Avian Flu Pandemic and recently the 2009 H1N1 pandemic. In fact, it was the outbreak of the novel H1N1 influenza in which the American College of Emergency Physicians published a national strategy for emergency departments that described the critical inclusion of triggers in the pandemic planning process.[5] But in a pandemic, while staff attrition is one trigger for continuity of operations activation, in an all-hazards incident such as mass casualty, the trigger in all likelihood will be an overwhelmed emergency department.

In a review of hospital surge capacity checklists and strategies, Hick concluded that there are "few good benchmarks or planning frameworks" for determining situations when patient surge plans should be activated.[6] He introduced a surge taxonomy for medical facilities that conceptualizes space requirements and appropriate responses. Three categories of surge are described in the taxonomy as conventional, contingency and crisis capacity. This framework is useful and builds on current hospital surge plans while supplementing medical surge plans for space, staffing and supply requirements.

- Conventional capacity – The spaces, staff and supplies used are consistent with daily practices within the institution. These spaces and practices are used during a major mass casualty incident that triggers activation of the facility emergency operations plan.
- Contingency capacity – the spaces, staff and supplies used are not consistent with daily patient care practices but provide care that is *functionally equivalent* to usual patient care practices. These spaces or practices may be used temporarily during a major mass casualty incident or on a more sustained basis during a disaster (when the demands of the incident exceed community resources).
- Crisis capacity – Adaptive spaces, staff, and supplies are not consistent with usual standards of care but provide sufficiency of care in the setting of a catastrophic disaster. (i.e., provide the best possible care to patients given the circumstances and resources available). Crisis capacity activation constitutes a *significant* adjustment to standards of care.

This framework offers a layered strategy to view COOP for medical surge events. In a recent series of workshops by the Institutes of Medicine (IOM) on the topic of "Crisis Standards of Care"[7] the taxonomy was described as a continuum of patient care delivery during disaster events that runs the gamut from conventional through crisis. It contrasts conventional standards of care versus crisis standards of care for the key COOP elements, space, staff and supplies.

The goal in mass casualty planning is to maintain equilibrium in the healthcare response using surrounding hospital networks, state and regional medical assets (SCMed and RMATs (Regional Medical Assistance Teams) and even federal assets such as Federal Medical Stations and the Disaster Medical Assistance Teams (DMAT). The challenge is the time it takes before these assets arrive and become operational. Time is required for team assembly, asset deployment, arrival and setup. As a result, time can further marginalize patient care and an array of strategies should be considered along the crisis continuum.

Response: Space Expansion

The South Carolina Hospital Association and SC DHEC, in cooperation with federal partners have been engaged in the development of several strategies for addressing patient surge in medical facilities, especially hospitals. These strategies or tools have included use of additional beds under license for emergency events, establishing guidance for the establishment of alternative care sites (ACS) and the deployment of mobile medical facilities. These tools are consistent with the continuum of crisis standards of care discussed in the previous section.

A SC DHEC Bureau of Health Facilities Regulation memorandum[8] delineates internal versus external medical surge during emergencies. It defines *internal* medical surge as "an emergency situation when a facility needs to set up and utilize beds beyond its licensed bed capacity in an area within the licensed inpatient facility building(s)." Addressing internal surge is a planning requirement for a facility license and includes facility policy and procedures. The definition for internal medical surge by the Bureau is consistent with Hicks' taxonomy for conventional and contingency capacities introduced in the previous section.

A national survey of hospital plans for onsite surge listed the most frequently used strategies for internal expansion.[9] Elective cancellations was the most frequent strategy followed by the use of non-clinical space, inpatient hallways, ICU conversion and decommissioned ward space as those components referenced most often. While these results illustrate typical strategies used by ambulatory care centers, they also represent strategies that any health care facility could use for surge whether a medical office, nursing home or long-term care facility. SRHS activated its diversion platform which represents, yet another strategy to decompress patient surge.

The Bureau of Health Facilities Regulation defines *external* medical surge as "providing medical care services in an area outside of the licensed inpatient hospital building(s). For purposes of External Medical Surge, these locations are called Alternate Care Sites." Under the definition set by the Bureau, an Alternate Care Site (ACS) includes onsite, fixed sites or mobile facilities.

But medical facilities also plan for utilizing offsite space/facilities with partners such as SRHS and the urgent care center through a memorandum of agreement. When it activated its diversion platform, two actions were taken. The first was EMS ambulance diversion and the second was diversion to urgent care centers. The urgent care center diversion served as an offsite, external surge solution and one not requiring regulation by the Division of Health Licensing.

This example further illustrates that public private partnerships are essential to the deployment of these options. Nationally, 64.0 percent of hospitals surveyed had plans for regional coordination when the standard of care would be altered by a mass casualty incident or pandemic.[10]As response to the incident shifts patient care along the continuum from conventional to crisis, the dependence increases on state and federal partners to assist with deployment options. It underscores the essential nature of partnerships to support and maximize patient care under crisis conditions as the impact of the incident spreads beyond the capabilities of a single medical facility.

The Bureau of Health Facilities Regulation incorporates alternative care sites under a hospital's licensed capacity but offers other options as well. The previously mentioned DHEC SCMed mobile medical facility is another tool and plans are also underway in cooperation with the Center for Disease Control and Prevention for the use of Federal Medical Stations[11] or what might be called mega special medical needs shelters. These tools provide options to expand space when addressing patient surge but also require the cooperation of emergency management partners and public health in the event of a mass casualty incident to support medical response and should include staffing, supplies, logistics and planning. The Bureau encourages activation of medical surge for space within a medical facilities licensed bed capacity whether internal or external using an array of tools available when emergency conditions threaten the standard of patient care.

Alternate Care Sites (ACS)

In cooperation with the South Carolina Hospital Association, SC DHEC has incorporated the concept of alternate care sites that allows hospitals to expand bed capacity under existing licensed bed capacity. ACS may be offsite but typically facilities are located on the hospital campus such as wellness centers, urgent care centers or large, conference rooms.

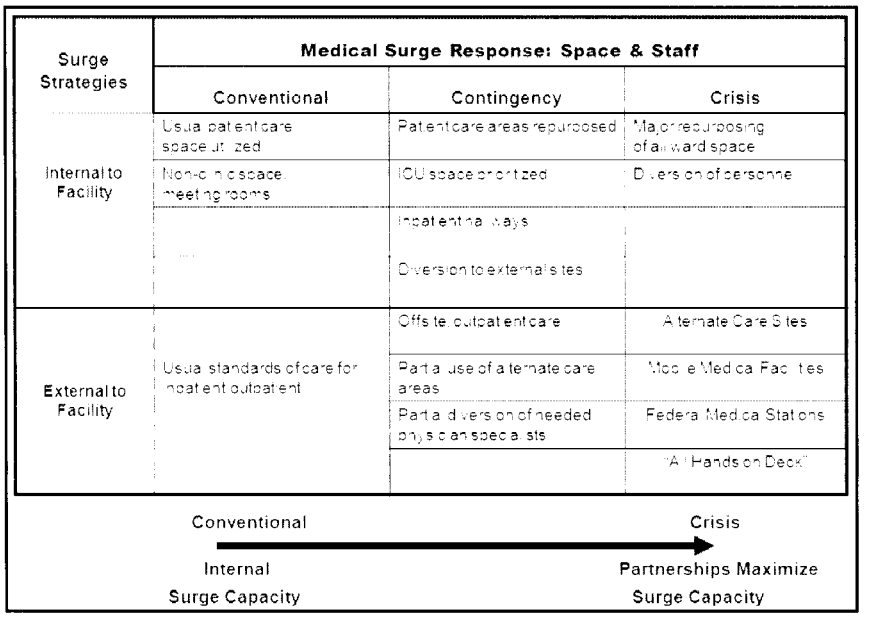
The Bureau published the "Hospital Alternate Care Site Planning Guide" to assist facilities with the many considerations for site selection, and completion of the site assessment form. Once the documentation is in place, public health review teams conduct a site visit. Most hospitals with an ACS have exercised the implementation of protocols to transform a site (e.g., wellness center) into a patient care center.

Of the 64 HPP hospital awardees in the state, only five have completed an ACS review process. Patient capacity of these ACSs ranges from 25 up to 75 patients and includes wellness centers, gymnasiums, National Guard armories, colleges with nursing schools, churches and offsite medical complex facilities. In contrast, Two-thirds of hospitals in the NHSR survey use "alternate care areas" for mass casualty or pandemic incidents.[12]Of particular curiosity is the underutilization of the ACS concept for external surge capacity among South Carolina hospitals. This comes three years after the publication of the Bureau's memo and emphasis by the SC DHEC's Hospital Preparedness Program. The numbers suggests the lessons of SARS, Hurricane Katrina, and the 2009 H1N1 pandemic have yet to reach South Carolina's medical facilities.

Mobile Medical Facilities (MMF)

Mobile medical facilities are of two general types and each has advantages and disadvantages. SCMed is a long-term facility with a robust infrastructure while "pop-up" tent structures offer immedi-

Figure 1. Continuum of Crisis Care Standards Matrix for South Carolina



acy but lack the structure for long-term deployment.

SC DHEC invested in six mobile medical facilities and the agency has continued to expand and train with the units. When compounded into a single facility, SCMed provides a 10,500 square foot facility that can support multiple missions. These missions include triage, screening and treatment; special medical needs shelter and other medical missions. Each of the six units are located throughout the state and assigned to DHEC Public Health Regions. Each unit is 1350 square feet and can be configured to support a single mission. A single SCMed unit comes equipped with 50 cots or when SCMed compounded can host 300 cots.

The question to hospital emergency planners is if your only external surge option is a mobile medical facility, such as SCMed, can your facility wait 4-6 hours and does your facility have capacity to hold patients before they can be transferred to a mobile medical facility (MMF)? The dependency on SCMed as an MMF may not be a viable option due to its logistics support requirements. The deployment of the SCMed2 mobile unit required three hours for setup and another hour before operational. At the time for SRHS, deployment served as a contingency option in the event medical surge did not subside.

Several hospitals in the state have partnered with their Public Health Region and established an alternative mobile "pop-up" capacity that offers an immediate, short-term solution and can be mobilized in 30 minutes to an hour depending on the efficiency of the setup team. For example, Public Health Region 7 (Charleston region) in cooperation with area hospitals uses a Western Shelter system. However, the use of these mobile, portable facilities is not limited to hospitals or for field-based operations but equally could support office-based medical surge. The key is pre-planning with public health partners.

Figure 1 depicts a matrix that references internal versus external strategies along the crisis of care continuum from conventional through crisis for both space and staff. At the base of the matrix, the continuum shows that as a medical facility addresses patient surge from conventional to crisis the greater the dependency on public private partnerships for filling surge gaps, whether pre or post incident. Several health and medical organizations have published guidance that states effective partnerships be established prior to a disaster.[13] Disasters do not confine themselves to the doorsteps of hospital emergency departments. Rather, mass casualty incidents have demonstrated that they overflow to other health and medical facilities as well. As a result, surge planning should not be limited to hospitals but should include nursing homes, community health centers and medical offices, essentially any medical facility where people will go to seek medical care following a disaster.

Summary

Medical emergencies can quickly overwhelm a medical facility's surge capacity and compromise the *usual* standard of care. Incidents of this nature require public private partnerships with plans for space, staff and supplies that are adequately resourced to address a crisis situation. This article has described a number of strategies that provide a layered approach to address medical surge. Planning is essential to maximize readiness and minimize a disaster that strikes twice. It also requires preparation, training and a staffing plan that is equally resourced.

Medical facilities of all types should develop staffing plans for internal surge options. As described, any facility could be confronted with an incident that may expand to its doorsteps and therefore should be proactive prior to such incidents. Planning for additional space and additional medical personnel for such responses are essential for operation under crisis conditions.

Several programs have been established to register and prepare medical personnel for responding to *local* disasters. In its National Strategy, ACEP called for an assessment of the need for medical

and non-medical volunteers depending on plans for the alternate care strategy. Mass casualty incidents have also demonstrated that, depending on the type of disaster, response may require different types of medical specialties and in various quantities. Earthquakes may well require a number of orthopedic surgeons while epidemics require general practitioners.

ACEP also suggested that a process be established for rapid credentialing along with just-in-time training. South Carolina has established the Medical Reserve Corp (MRC) that works to pre-register medical volunteers and has readied hundreds of medical professionals for disaster duty. About one-half of hospitals in the national survey had plans for the advanced registration of outside healthcare professionals,[14] but in South Carolina, less than 5 percent of hospitals have integrated MRC medical volunteers into surge plans. The American Medical Association has demonstrated its commitment to disaster preparedness in cooperation with the National Disaster Life Support Foundation. The Foundation educates and readies physicians and allied health professionals for disaster conditions.[15]

Disasters happen when communities fail to plan for known threats. The National Health Security Strategy calls for "community resiliency" to minimize the effects from threats with the "potential for large-scale health consequences, including disease outbreaks, natural disasters, and terrorist attacks."[16] It also calls for "commitment of, and cooperation among, all segments of society: government, the private sector," and local communities. All-hazards COOP is prudent planning for a medical facility. But to protect the institution and maintain the standard of care under crisis conditions, requires public private partnerships to maximize the cooperation of all community resources that can be directed toward an incident and minimize the potential for an unmitigated disaster.

References

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