

Alternate Care Systems: Stratification of Care

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Catastrophic disaster, resultant from natural events or terrorist consequence, may rapidly lead to an overwhelming requirement for healthcare service delivery. Communities across the nation must be prepared to manage such a surge in demand for patient care services, and might be faced with the prospect of having to implement an “alternate care system” that incorporates a stratification of care ranging from home health service delivery to hospitalized care.

The last decade of planning for catastrophic disaster response in the United States has led to the development of a number of surge response capabilities supported by the Federal Government, particularly the Departments of Health and Human Services (HHS), and the Department of Homeland Security (DHS). These efforts have mostly been focused in the provision of necessary staffing, supplies, equipment and pharmaceuticals that might be required to support a large scale disaster response, particularly one in which available local and state resources have been depleted, or are in short supply.

However, it has become increasingly clear that much more planning at the local and state levels is required in order to implement a meaningful response to the expected surge in demand for healthcare services that will arise in times of crisis or catastrophe. The CDC has adopted such an approach to surge capacity planning, emphasizing the importance of coordinating public health and healthcare related planning for pandemic influenza under the umbrella of a Community Alternate Care System (ACS), comprised of select community partners who are essential to delivering care in the setting of a surge response to disaster. The components of an ACS are built around the stratification of care model, with an important emphasis on developing consensus based community wide agreement on the use of triage algorithms, particularly those that relate to the ethical and legal implications of allocating scarce resources in a disaster event. Such a comprehensive system of development emphasizes the inclusion of many groups heretofore not significantly or consistently involved in the planning process for a community’s response to overwhelming surge in demand for care.

Implementing a Model of Stratified Care in a Disaster

Increasing attention is being given to the need to broaden surge capacity planning to include the full spectrum of patient care delivery capabilities in a disaster impacted community. Much of this work started with a focus on alternate care facility planning for extension of hospital-like services in an unregulated, non-healthcare setting. Examples of this include the establishment of federal medical shelters during the responses to the

multiple Florida hurricanes in the summer of 2004, Hurricanes Katrina and Rita in 2005, and Hurricanes Gustav and Ike in 2008.

The initial concepts for such planning came from work conducted for the US Army Soldier Biological Chemical Command (SBCCOM) in the late 1990's. These efforts focused on a combination of out-of-hospital capabilities divided between Neighborhood Emergency Help Centers (NEHC) and Acute Care Centers (ACC).^{1, 2} The NEHC is intended to function as a community care station that provides a combination of functions including victim triage, and serves as a distribution point for medical countermeasures. The ACC, similar to the FMS concept, serves as an out-of-hospital medical treatment facility for patients requiring a lower acuity level of care than that provided in a hospital critical care setting, but who are not well enough to be managed at home. Additional work in this arena has continued to focus on the spectrum of care delivery options, broadening the focus to a stratification of care model which was elucidated in the *Mass Medical Care with Scarce Resources: A Community Planning Guide* publication in 2007.³ Pandemic influenza planning has galvanized many communities to adopt such an approach to surge capacity planning, largely based on this theoretical framework.⁴ So, while some very excellent work has commenced, particularly with regards to healthcare facility surge and designation of an out-of-hospital approach to patient care delivery, more work remains to be done.

The components of a stratified model of healthcare delivery, implemented in order to meet a surge in demand for healthcare service delivery in a disaster event, can be subdivided into the following four broad categories.

Delivery of Hospital and Healthcare Facility Services

The foundation of any community's healthcare surge planning must be based upon solid, fundamental healthcare service delivery at the hospital. Recognizing the importance of maintaining essential medical services, the hospital surge plan is the basis upon which patients in the community will continue to receive as high a level of hospitalized care as will be possible under disaster conditions.

Community Based Triage

In order to limit the burden on the hospitals, outpatient medical settings, and the private medical community, community-based triage capabilities that provide easy access to information and evaluation of the population at risk will be important. A network of 'virtual' and 'on-site' community-based triage stations could be implemented across any given community in order to assess the health needs of the population, determine level of appropriate medical care to be delivered, and issue relevant health information that will inform the public's decisions regarding health care needs. Examples of such 'virtual' capabilities include internet and phone based triage programs to identify "at risk" patients in need of additional care or more thorough evaluation.

In addition, ‘on-site’ locations to provide “Main Street” triage need to be incorporated into a comprehensive alternate care system. These may be comprised of existing ambulatory care sites (large group practices, urgent care centers) or may be expanded to include pharmacies, schools or other sites that could be used in such a triage function. Such an approach, focusing on a very basic initial triage and evaluation of patients, leading to discrete disposition decisions built into the assessment algorithm (return to home for self care; report to designated ambulatory care network facility – outpatient site; report to the hospital for evaluation, stabilization and treatment).

Alternate Care Facility Services

An out-of-hospital healthcare delivery option is a very important component of the community alternate care system, and will serve as both a means of decompressing an overburdened, filled-to-capacity hospital, as well as serve as a destination for patients who receive initial screening and evaluation via one of the community triage options – ‘virtual’ or ‘on-site’ – and are deemed too sick to return to home, but not sick enough to warrant the full scale inpatient level of services provided at the hospital.

The level of services to be provided at such a facility ought to be relatively simple and straightforward, but such decisions have to be established by consensus agreement with participation of the local medical community. The rate limiting step for level of services provided, and total number of beds developed, will largely be governed by availability of staffing. Staffing models will need to include a combination of resources including hospital staff, MRC staff, public school RNs, and staff from a select number of urgent care facilities in the community. Implementation of an out-of-hospital solution to surge capacity also requires resolution of legal and financial impediments currently limiting such efforts.

Home Health Care

The ability to care for oneself or one’s family in the home setting will be a foundational component of any response to a large scale disaster, particularly when access to the healthcare system may be compromised or capacity for additional care delivery simply unavailable. Based upon basic triage criteria, it is expected that many patients seeking evaluation and treatment during a disaster event may be stable for return to home. The anthrax attacks of October, 2001, the novel H1N1 influenza outbreak occurring in April, 2009, and numerous other infectious disease emergencies have demonstrated that disease in the community, even mild in virulence and limited in morbidity, will spark tremendous fear and promote the visit of both the “worried well” (individuals who are concerned about their potential exposure to disease) and the “worried sick” (patients who seek evaluation and reassurance). Self care guidelines and a communication strategy for those patients deemed stable enough for home care will need to be developed, along with a follow up plan for further evaluation if clinical conditions deteriorate.

In addition, catastrophic disaster may result in overwhelming numbers of patients who may be too ill to receive prolonged hospital based care. Based upon implementation of

strategies to guide the delivery of care in the context of a scarcity of critical resources, such patients may also require home care, with an emphasis on receipt of palliative care. It will be fundamentally important to instill confidence in the community that these are not patients who have been abandoned by the medical system. Expansion of home health services will be vital to the success of these efforts.

Moving Medical Surge Capacity Planning Beyond the Hospital

The implementation of surge capacity strategies has mostly focused on how to get more patients into the hospital. These efforts have revolved around a graded approach that take into account a variety of potential strategies that can be used to expand capacity over discrete time frames. Based upon 'supply and demand' definitions of healthcare facility surge capacity management, research efforts examining the creation of additional care capacity in the hospital have been conducted, particularly focused on strategies meant to expedite early patient discharge.⁵ There are also a number of steps that can be taken to supplement the delivery of care to an increased volume of high acuity patients. Space to deliver care, clinical staffing availability, and the judicious use of selected supplies will all contribute to the surge response implemented.

Similar efforts, matched to a 'supply and demand' formula for surge capacity development, need to be expanded to these community-based efforts. One framework which readily lends itself to such work may be a concept currently proposed to further categorize healthcare facility surge response along a continuum of required actions. Conventional, contingency, and crisis surge capacity strategies, along with corresponding conventional, contingency, or crisis standards of care, may be one such way to mark the triggers required to implement a community based approach to surge response.⁶ Delineating such levels may allow for response planning based upon the recognition that not all disaster events will require the same degree of response, thus suggesting a scaled approach to surge capacity implementation in the hospital and surrounding community. For example, there are a number of decisions that can be taken to support conventional care that are outside the normal operations of daily patient care delivery, such as doubling up beds in single patient rooms and canceling elective procedures, that have minimal impact on patient outcomes. Likewise, ensuring continuation of basic services in the outpatient setting should be managed with little difficulty. In the middle of this spectrum of care, delivery contingency solutions may be implemented in the hospital setting, including the expanded use of clinical areas such as post anesthesia care units to provide continuous critical care. At the community level, shifting to a contingency approach may include the use of certain physician practices as streamlined triage centers and the transition of 911 call centers to include basic triage information regarding the need for further evaluation and diagnostic assessment. At the far end of this spectrum, the delivery of crisis care, might involve the placement of patients in hallway or other non-conventional treatment settings and the opening of alternate care facilities. It might lead to an expanded use of community based triage resources, and might include provisions to deliver palliative care in the home setting.

This same framework works well for EMS service utilization, also. Conventional response utilizes all available ground transport units, although transport destinations may involve the closest hospital rather than hospital of preference, for example. Contingency response implies that the triage of 911 calls will be based solely on medical priority, suggesting that pending calls that are not perceived as life threatening will not be responded to after exceeding the threshold of a certain call volume. Under crisis surge response, even 911 calls that are potential or apparent life threats will likely not be responded to under existing timeline guidelines. EMS responders may be given wide discretion for leaving patients at scene, or limiting the selection of those transported to the hospital based upon community consensus driven guidelines derived under planning efforts focused on the implementation of crisis standards of care.

A deliberate framework for planning for such patients must be developed and prepared for prior to the onset of an event. Such efforts must include clearly delineated plans for the step-wise expansion of healthcare service delivery that maximizes available resources within the hospital, and creates capability outside of the traditional hospital setting in a way that provides the highest level of service care delivery sustained over as long a period of time as possible.

Potential Areas of Future Funding Priorities

Commitment to planning, increased costs for additional materiel stockpiling, training and staffing, existing regulatory, legal and financial impediments and the overarching complexity of coordinating such operations are but some of the barriers to getting this accomplished.

How can healthcare facility surge capacity planning be linked to daily operations?

Hospitals are straining to manage the existing caseload of patients on a daily basis, let alone under the stresses of a disaster response. Provide incentives for grant funding tied to reduction of overcrowding and limitation of ED diversion hours during daily operations. Success in this arena would demonstrate commitment to “fixing” some of the inefficiencies in patient flow, and might be indicative of improved efficiencies in the response to large numbers of patients in a disaster.

How can community based triage be incorporated into surge capacity planning?

Promote integration of traditional first responder community, the private physician community, the private sector and emergency management into planning process via grant funding. Fire stations, urgent care centers, private doctors offices and even pharmacies can play the important role of providing medical triage in the community. However, in order to do so, grant funding must extend to support such efforts, and emergency management will play an important role in convening the parties under the auspices of governmental authority, particularly in the context of a declared public health emergency.

What mechanism needs to be implemented in order to coordinate the stratification of care in the community? How will the decisions for patient triage, management and information be integrated across the community?

This is likely the most complicated aspect of the creation of a stratification of care model of response in disaster. The importance of coordinated incident management, at the jurisdictional level, or more importantly, at the regional level, cannot be overstated. The developing role of regional hospital coordination centers, those that coordinate the complex tasks of health operations must be incentivized in the federal grant process. There is also a deep need to take advantage of telemedicine and telehealth solutions to provide real-time medical surge capability medical oversight. Developing an expanded information management platform that permits for medical information exchange, “just in time” training modalities, and direct patient care delivery should be a part of future grant funding opportunities.

How can the stratification of care model be supported by existing capabilities within the Department of Veterans Affairs and Department of Defense (Northcomm)?

With over 150 Veterans Affairs Medical Centers (VAMC) and approximately 70 DOD medical treatment facilities (MTF) on military installations across the United States, there exists a critical healthcare infrastructure that has largely been “off limits” to civilian surge response planning. Contrary to conventional wisdom suggesting that these facilities would not be available to respond to disaster in the community, most VAMC and MTF would likely play a central role in such a response. However, current restrictions regarding the grant funding process restrict closer coordination in planning with the private healthcare community. It is important to identify the manner by which such coordination, including access to available resources, could be maximized in the event of the need to implement surge capacity strategies.

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