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## Improving Healthcare Sector Interoperability

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One of the most significant aspects of the U.S. healthcare system is choice. “Customers” – i.e., patients – can select providers from within a specific medical specialty or across a broad range of specialties. Electronic Medical Records (EMR) systems now offer the quick and easy portability of patient information between various providers, thus reducing the redundancy of medical tests and record keeping – while lowering overall medical costs. This compatibility within the healthcare sector is commonly understood as interoperability.

However, there is still no general consensus across the sector governing the integration of communications during disaster operations between and among hospitals within the same region – and how the public health definition of interoperability should be achieved.

Most U.S. hospitals are accustomed to working within their service area, but the Hospital Preparedness Program (HPP) guidance developed by the U.S. Department of Health and Human Services (HHS) directs a shift from facility-centered preparedness to a community-centric approach for medical emergency response and recovery operations.

Hospitals must accommodate both public and private ambulance services and serve as the intended destination of patients requiring any type of emergency medical care – whether transported by vehicle, aircraft, or on foot. As a result, communication needs within and between hospitals are now more complicated than ever before.

In addition to managing their own internal communications networks, hospitals must also integrate those networks with: (a) an external patchwork of local providers; and (b) a veritable maze of both state-of-the-art and outdated communication systems and devices. Incident commanders, hospital command groups, and other public health response partners therefore face the dual challenge of: (a) quickly alerting medical facilities of mass-casualty incidents (MCIs) in the area when such incidents occur; and (b) preparing treatment facilities for potential patient surges – without burdening triage officers with additional tasks and electronic devices.

### **The Healthcare Coalition Dilemma**

This “communications dilemma” has been experienced by many healthcare coalitions during incidents, tabletop and full-scale exercises. More specifically, the same dilemma caused the following question to be raised by the coastal South Carolina Region’s healthcare coalition: “What is the solution needed to alert the entire network of hospitals *immediately and simultaneously* that would support medical surge, including partners such as public health?”

Experienced emergency medical personnel understand that it is not practical to require the Emergency Medical Services’ (EMS) triage officer not only to call each hospital in the area but also to provide situational updates – particularly during an already chaotic incident scene where there is urgency to triage, treat, and transport patients. The hospitals in the area also, in most cases, have limited notification time to surge the staff, supplies, and other resources needed to cope with an emerging MCI. Therefore, the collective goal and challenge is to have medical treatment facilities as ready as possible for the “golden hour” – i.e., a limited period of time when the victim’s survival probability is maximized. Ideally, a system and procedure already should be in place that both serves day-to-day operational needs and expands, if and when necessary, to accommodate a major medical crisis that necessitates a surge of medical resources.

*What if any communication systems are available to alert the entire network of hospitals in a large community and to improve medical surge capabilities in other ways? A healthcare coalition in South Carolina is looking into several ways to answer that question.*

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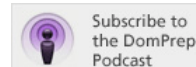
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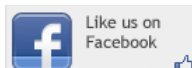
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The South Carolina coalition, recognizing the challenge involved in passing information from the incident scene to a hospital command group, focused on the capabilities provided by interoperable communications systems such as those spelled out in the HHS/HPP guidance. To better understand the numerous factors involved, the coalition also: (a) studied the various technologies available that could provide the interoperability needed; and (b) reviewed the *Capabilities Assessment Guide* included in the U.S. Department of Homeland Security's (DHS) 2010 National Emergency Communication Plan (NECP). The 2010 NECP was designed to provide the guidance needed for assessing interoperable communications capabilities.

The coalition itself completed an informal assessment of current capabilities by using the elements in the NECP Guide to determine: (1) what DHS means by "interoperable" – defined in the Guide as the capability to "develop, refine, and sustain redundant interoperable communication systems"; and (2) where the state's coastal region ranks on the overall NECP continuum.

#### ***In Real Time & When Needed***

Here it should be noted that much already has been written on the topic of interoperability and how it applies to public safety and the traditional first responder workgroups. Perhaps the best known resources currently available are: (a) the DHS's SAFECOM interoperable emergency communications system and the DHS's NECP; (b) the U.S. Department of Justice's 2006 *Tech Guide for Communication Interoperability*; and (c) various state public safety plans that include other operational definitions. (The SAFECOM definition describes interoperability as: "The ability of public safety agencies to talk across disciplines and jurisdictions via radio communications systems, exchanging voice and/or data with one another on demand, in real time, when needed, and as authorized.")

A more limited Statewide Communications Interoperability Plan (SCIP) charts a state's structure and provides the user guidelines for the public safety 800 MHz radio infrastructure. However, although the 800 MHz infrastructure offers access, its ability to integrate a local jurisdiction's medical response beyond EMS is sometimes rather limited. The greater flexibility provided by the HPP permits building on the public safety infrastructure by defining the project capabilities that are the most likely to develop and sustain region-wide capabilities. After the specific details have been defined, approved, and authorized, the HPP will support healthcare sector projects that can not only build on the existing communications architecture but also achieve or improve region-wide capabilities.

#### ***Determining the Project Scope & Objectives***

As a result of the study process spelled out above – which was complemented by a number of discussions with coalition partners – the overall project scope and objectives were identified more clearly and used to guide system selection. The goal throughout, of course, was to identify an interoperable communications solution that addresses the communication limitations previously identified in mass-casualty after-action reports and improvement plans.

The project scope was defined, geographically, to be the tri-county jurisdiction that borders the northeast coast of South Carolina. That area includes, among other infrastructure components: three county-operated EMS service agencies; five hospital systems (that collectively manage eight emergency departments); and a public health region the jurisdiction of which encompasses all three of the counties. The specific objectives finally recommended included requirements that the system:

- Must possess a routine daily operations capability, but also have the capacity to scale upward to meet MCI response needs;
- Must network with a broad spectrum of medical response partners (hospitals, EMS, and public health agencies), enabling simultaneous communications during emergency medical operations;
- Should *not* assign additional field operational burdens to EMS triage supervisors;
- Must be able to provide region-wide alert notifications simultaneously and in real time; and
- Should improve overall situational awareness by immediately notifying the network of any incident that has region-wide implications and might soon require mutual aid support.

A general consensus also was reached that the solution must: (a) contribute to daily operations by improving the efficiency of communications of EMS units and hospital emergency departments; (b) be able to network those who have a role in community-wide responses – but without burdening EMS triage operations; (c) have the capability to not only provide *immediate and simultaneous* alert notifications but also to sustain such communications indefinitely – and provide situational updates from the incident

scene; (d) alert response partners to other surge events; and (e) know when to reduce surge requirements to begin the post-operational demobilization of resources.

### **Five Critical Steps to Success**

Agreeing on a technological solution for improving interoperability is only one of the five critical “success factors” spelled out in the NECP continuum. Other factors include such umbrella topics as: governance; standard operating procedures; training and exercises; and usage. (Another objective of the interoperability project described above, of course, is day-to-day application to ensure that the usage factor will be met.)

In short, governance can be achieved by integrating the current governing structure within a healthcare coalition – i.e., by developing an operations plan and including the governing guidelines. The use of standard operating procedures that support the operational plan will be critical to the success of the system – with multiple agencies and multiple disciplines networked across the three-county jurisdiction. Finally, the project comes full circle with perhaps the most critical success factor – training and exercises. The MCI exercises mentioned earlier first underscored the communications difficulties that persisted then demonstrated that the current structure was not delivering “operational value” to either responders or the public.

That situation has now changed considerably with the coalition completing the first phase of its three-phase implementation plan. It has already initiated discussions about a functional exercise – intended to be conducted within the next year – and has incorporated in its plans a regularly scheduled “call-down drill” to ensure that each communications link is fully operational.

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