

Hospital Emergency Communication Systems

How to prepare today so your facility continues to provide optimum medical care even during an unexpected crisis

Reliable systems of redundant communication are critical to efficient, successful operations in any enterprise. This is especially true for health care institutions in emergency situations where the health, safety and lives of patients are at risk in situations where power, internet and phones are non-functional. Terrestrial based communications are subject to damage from elemental disasters and, therefore, are not entirely reliable. Satellite-based resources provide the most viable solution for maintaining communication when your land-based systems are overtaxed, compromised or have been destroyed.

Consider these three real-life scenarios that can happen at anytime and anywhere, without warning:

1. After Hurricane Katrina in 2005, electrical and communications services were disrupted by the destruction of landlines and the toppling of cell phone and radio repeater towers. The situation was particularly urgent for hospitals that lost power, communications and water/sewerage service and that couldn't resupply essentials such as drugs, blood, linens and food. Estimates from the Louisiana Hospital Association indicate that though the patients numbered just under 1,800, the number of people housed in the hospitals soared over 7,000 as families of patients and staff flocked to join their family members. ¹ Without the ability to communicate the need for supplies, the circumstances quickly escalated to tragic proportions.
2. On 9/11 when terrorists felled the World Trade Center and damaged surrounding property, much of Manhattan immediately lost landline and cellular service for days. In a 2005 interview, Mike Beavin, then Director of Government Relations for the Satellite Industry Association, stated "It may be (that) the most critical communication infrastructures need to be backed up by something that doesn't rely on an existing terrestrial network."²
3. In the aftermath of the moderate earthquake that shook the Bay Area of California in 2007, many people experienced lengthy delays in completing calls due to system overloads. Downed and damaged towers caused calls to be routed to fewer relay

stations, causing excessive connection delays as families frantically tried to check on loved ones while businesses were working to maintain continuity.³

Disasters can occur suddenly, unexpectedly and with mind-numbing consequences. Businesses, both small and large, and of all types, including hospitals and medical care centers, are at risk of experiencing a natural disaster; fires, tornadoes, floods, earthquakes and hurricanes occur every year, and man-made disasters such as terrorist attacks remain an unfortunate reality. Organizations that are prepared will survive and recover. The rest, unfortunately, become casualty statistics.

The destruction from Hurricane Katrina left almost all businesses and government agencies along the coasts of Mississippi and Louisiana and for nearly 100 miles inland at a standstill. Both electronic business and medical records were inaccessible without electric power. Paper records were damaged or destroyed by wind and water. For most people, communications were completely cut off. Without electricity there was no TV or radio. Telephone service was wiped out and cell phone towers were smashed down. Access to the Internet and e-mail was gone. Communications from government agencies and first responders to the general population, the business community, and medical care facilities was almost non-existent. In most areas it took days, or weeks, before communications systems could start being restored.

This is where business continuity planning is essential, especially for a hospital or other type of medical care facility.

USA Today reported a chilling incident at a hospital during the aftermath of Katrina that blatantly demonstrates the need for reliable, practiced plans in the face of communications breakdown.

Janet Krane, Director of the New Orleans Cancer Institute at Memorial Hospital, says a New Orleans firefighter reached the hospital command center — which had by then been moved up to the fourth floor to avoid floodwaters — to determine the hospital's needs.

When staffers asked him when more help would arrive, the firefighter told them he had no idea. He said, "We just don't know. We can't communicate." They didn't have any information about how to get people out.

At the Dallas headquarters of Tenet health care, which owns both Memorial and Lindy Boggs hospitals, officials were scrambling to get helicopters and other resources to the medical centers. But there was no reliable way to let the hospital staffs know when help would arrive.⁴

Juliette Saussy, Director of Emergency Medical Service of New Orleans, succinctly related, "We had no way to communicate except by line of sight. Our radios were not operable, most landlines and cell phones were useless and our communications centers were under water. When help arrived, we could not communicate with them either."⁵

By the time Hurricane Rita struck later that year, Tenet had already installed satellite phones in its hospitals to maintain communication.

The reality is that new technologies have enabled us to become increasingly dependent upon fewer physical structures that relay data and voice from increasingly varied locales. This dependency creates the situation in which damage to these structures leads to a crippling loss of communication, sending shock waves through communities.

It is clear that unless hospitals and health care facilities have a reliable, rehearsed plan in place, disruption of care, and potentially increased loss of life will certainly be compounded in disaster situations.

Mark Protacio, of the Department of Homeland Security, stated recently that “Interoperability and compatibility of First Responder communication systems is a mandate of the National Incident Management System (NIMS). However, as of 2009, the only interoperability systems widely in use are expensive and complicated proprietary voice-over-radio systems....This current mode of operations is not feasible in the critical first minutes and hours of an incident response.”⁵

With the Department of Homeland Security National Emergency Communications Plan mandating first responders to have redundant, interoperable communications available to respond to incidents within the first hour for urban areas and within three hours for suburban areas, satellite components for hospitals as part of disaster preparedness plans quickly become the only real, reliable solution to compliance with the mandate. Satellite phones are a viable solution.

The City of Houston learned that lesson back in June 2001, when Tropical Storm Allison cut off power and forced patient evacuations. The city responded by building a multimillion-dollar communications center and practicing emergency procedures whenever there was a big event — such as a big sporting event — that could disrupt routine medical response.⁴

The Massachusetts Department of Public Health (Mass DPH) has utilized grant funding to purchase and install satellite phones in nearly 80 medical facilities around the state. They execute scheduled drills to ensure staff at each location is familiar with the use of the equipment and employ the resources of their satellite phone services provider to troubleshoot and provide support through the process.

The Federal government mandates that states procure interoperable redundant communications systems for health care centers. Satellite communications are the most reliable option to achieve this. After detailed analysis, the department decided to purchase satellite phones for all hospitals and the Director of Public Health.

After reviewing all of the options presented, the Mass Department of Public Health awarded the project to GlobaFone, Inc., of Portsmouth NH. The company has provided equipment and service for the past five years to Mass DPH, including assistance during drills to trouble shoot, provide training at sites around the state and attendance at regional meetings to offer additional information and support.

A key factor in this and any project is having the right vendor. Knowledgeable, support-oriented vendors will tailor their input to client needs and help get the process started to demystify satellite communications. Knowing where to start and having a plan in place to see it through has been critical to the success of the program.

Healthcare institutions understand the crucial need to have preparations and training in place to respond efficiently and effectively in an emergency. The need to transfer data as patient care is routed to surviving facilities is met by equipment that allows reliable and accurate data transfer. This in turn reduces the real possibility of transmitting misinformation and the resulting potential deadly mistakes while providing care to the injured and hospitalized.

In any kind of disaster, whether natural or man-made, communication is critical. Whether the situation involves responders saving lives or business continuity plans going into action, dependable communications systems make all the difference between success and failure. In disaster scenario after disaster, scenario, incident after incident, land lines become disrupted or non-functioning, cellular systems become overloaded with civilian traffic and radios are subject to hardware failure. In short, ALL terrestrial-based communications become un-reliable because they ALL carry risk.

Satellite solutions, ranging from simple handsets to complete office functionality with fax, data transfer, internet, email and voice capability, are a necessary starting point to crisis communications plans.

Satellite phones are an essential component of any realistic disaster preparedness/business continuity plan because they are:

- *Immediately deployable* – users can be connected within minutes of powering up.
- *Independent of land-based systems* – reception is based on satellites orbiting the earth, not towers on land
- *Secure* – data transmissions of sensitive natures are not vulnerable to public interception
- *Durable* – designed to withstand extreme temperatures and conditions
- *Dependable* – achieve global connectivity
- *Supported* – reputable providers offer 24 hour accessibility for questions

In light of the devastating and potentially life-threatening impact of communication breakdown in crisis situations, the only reliable solution is satellite-based communications.

The economic impact of inoperability due to lack of preparedness is numbing. Research indicates that for every \$1 spent on disaster mitigation and preparedness, \$7 is saved. ⁶

The obvious converse truth is that budgets become unnecessarily strained with spending seven times what is needed in the middle of crises. Hospitals and health care institutions cannot afford the alternative to preparedness. Satellite connectivity is a vital part of that preparedness.

Preparing now will allow your Hospital's Emergency Response Plan to be crafted and carried out with excellence during an unexpected crisis. Avoiding panic, unnecessary injury and potential deaths must take priority over budget concerns. Recent disasters have taught that lesson painfully well.

Without a doubt, non-terrestrial forms of communication (satellite phones and data transfer devices) are a critical necessity in any and every disaster preparation plan. With the right equipment, training and drills, hospitals will be able to continue to execute their missions to provide optimum care.

NOTES:

1. Gray, Bradford, H., and Herbert, Kathy, *After Katrina: Hospitals in Hurricane Katrina, Challenges Facing Custodial Institutions in a Disaster*, Urban Institute, July 2006.
2. Frederick, M., *Satellite Companies Offer Services to the Gulf Coast*, Space News Business Report, September 12, 2005.
3. Keller, Jeff, *Communication Breakdown*, <http://lostworld.pair.com/blog/archives/002179.html>, October 30, 2007
4. USA Today.com, *Three Major Needs Emerge from Katrina*, January 23, 2006.
5. Protacio, Mark, *Commercialization Office Pilot Operational Requirements Document, National Emergency Response Interoperability Framework and Resilient Communication System of Systems*, February 2009.
6. Twigg, John, *Physician, Heal Thyself? The Politics of Disaster Mitigation.* *Disaster Management Working Paper #1*, Benfield Greg Hazard Research Centre, University College London, <http://bghrc.com>, 2001.

About GlobaFone

For over a decade GlobaFone has provided government, enterprise and individual clients with an impressive array of satellite and cellular solutions. From handheld satellite phones to high-speed, portable broadband devices to tracking and location units, GlobaFone's clients trust them to share knowledge, education and expertise, that helps them choose the best solution for their particular requirement. GlobaFone has been instrumental in supporting response organizations for numerous highly publicized events including many mentioned in this paper.