Hurricane Irene, August 2011

Creating Unsurpassed Situational Awareness During Hurricane Irene and Tropical Storm Lee

Executive Summary

Hurricane Irene and Tropical Storm (TS) Lee brought many challenges to the Emergency Management Agencies and Hospitals of Southeastern Pennsylvania. Fortunately, because the Regional Task Force and the local hospitals utilize Knowledge Center's incident management system software, communication, resource management, incident management and documentation capabilities were greatly enhanced. Knowledge Center provided a real-time common operating picture and critical situational awareness for both, the community emergency management personnel and hospital emergency management personnel, creating the optimal environment for coordinated response efforts.

Hurricane Irene and TS Lee in Southeastern Pennsylvania

Having experienced the wettest July ever recorded, the ground was already saturated when Hurricane Irene arrived. Philadelphia mayor Michael Nutter expressed concern that there could be severe devastation in the city and surrounding areas, and Governor Tom Corbett declared a state of emergency for the city and surrounding counties. High winds ravaged the city, and 8 to 10 inches of rainfall were recorded throughout the area causing massive flooding. A few weeks later when TS Lee arrived, extreme flooding was again inevitable. Fortunately, the Emergency Managers in the area were able to take advantage of Knowledge Center's "next generation" incident management system to coordinate and track all aspects of the response effort.

Regional Task Force Leads the Way, Hospitals Follow Suit

Three years prior, the Southeastern Pennsylvania Regional Task Force (SEPA RTF) had conducted an evaluation and selected Knowledge Center™ (KC) for their situational awareness tool. Shortly thereafter, the Delaware Valley Healthcare Council (DVHC) followed suit and purchased Knowledge Center's hospital product, Hospital Incident Management System (HIMS), which was interfaced with the SEPA RTF's KC system. Linking the two systems provided critical information sharing, especially when considering that KC has been interfaced with the SEPA RTF's Computer Aided Dispatch

system. The result provided the opportunity for outstanding situational awareness, dramatically enhanced communications and coordinated response throughout the storms.

Ed Atkins, Director of the Department of Emergency Services for the SEPA RTF's Chester County commented, "The combination of the hospitals on HIMS and the emergency managers on KC provides us all with a better sense of what is going on, where there are trouble spots, and more importantly where trouble is developing. The HIMS/KC combination lets us all do a better job faster."

Statistics

Counties
Chester
Montgomery
Delaware
Bucks
Philadelphia City

Combined Statistics	
Municipalities	80
Hospitals	75
Incidents	160
Logs	5250
Documents	243

Health Systems/Hospitals
DVHC
Chester Co. Hospital
Chestnut Hill Hospital
Chester Co. Hospital
Holy Redeemer Hospital
Lankenau Medical Center
Paoli Hospital
Bryn Mawr Hospital
Roxborough Hospital
Bryn Mawr-Rehabilitation
DVHC Public Information
Pennsylvania Presbyterian Medical Center
Temple University Hospital Health System
Hospital of the University of Pennsylvania

Distributed Use, Virtual EOC Access

All of the information made available by KC and HIMS was provided by emergency management personnel. It was distributed throughout the affected areas in many different agencies, from State to Municipal, creating a common operating picture from which all could reap the benefits. This increased efficiencies because the information came from a trusted source.

Tom Grace, VP of Health Services and Emergency Preparedness of the DVHC commented, "In the past, most of the information came from the press…so we had to call to verify the info which took time from both parties. Now the information comes through self-reporting, so we know that it is valid and can respond to it real-time, or at minimum be aware of it if it isn't vital to our situation."

During the storms, some KC and HIMS users were unable to leave their homes, or wanted to access the software in the off hours. Both KC and HIMS are Web-based systems, so access from outside of the EOC was not a problem. For example, Evan Resnikoff, Manager of Emergency Preparedness at Temple University Health System, was immersed in the response activity even though he was unable to leave his flooded home. After he lost power, he started his generator and utilized the Internet to access HIMS which enabled him to manage the health system's Command Center remotely.

"The communication wheel and Knowledge Center worked very well. In my 17 years working in an emergency response capacity this is the first time I have seen communications as a positive mark in an AAR (After Action Report). The use of Knowledge Center really gave us the picture of what was going on out there in real-time…the speed was terrific, even from my home and at the height of usage", Resnikoff said.

The Knowledge Center's Dynamic Tools Provide Real-Time Success

During the eight days of Hurricane Irene and TS Lee, over 1000 users accessed KC and HIMS, entering numerous incidents and taking advantage of resource tracking and information sharing capabilities available through KC and HIMS:

- water levels rising in hospital basements, nearing electrical boxes
- flood waters nearing a water treatment plant
- numerous flooded roadways and bridges
- tornado warnings communicated and preparations made
- assisted living center evacuated and residents sheltered at local hospital
- swift water rescue activities

Real-time self-reporting of information through logging was critical and generous sharing of information, even sensitive information, was what created an overall sense of situational awareness and spawned real-time learning and adoption of best practices.

Grace commented, "Users could see what other hospitals were doing and then follow suit, or evaluate and choose not to take action. Sharing of information stimulates others to think about options… real-time lessons learned – users had an awareness of what others were doing and could adopt practices on the fly rather than learn through an After Action Report, when the need to know is no longer critical."

KC Logs   HIMS Logs

Bobby Kagel, Deputy Director for Emergency Management at Chester County Department of Emergency Services, was also immersed in coordinating response efforts. He commented that when hospital personnel viewed a log entry that a KC user had sent to the HIMS system regarding the possibility of water contamination due to flooding at a waste water treatment plant during TS Lee, the local hospital became aware of a potential rush of sickened patients. Fortunately, the contamination never occurred, but at the local hospital preparations had been made to properly treat the community if it had.

During the hurricane, over 5000 log entries and 160 incidents were entered and reviewed by KC and HIMS users, who shared information about various activities such as the ones mentioned above. Grace knows this is extremely important. He stressed that responsible emergency management means being aware, assessing and making a logical decision to benefit the health and welfare of all involved in the response effort and those they serve.

Perhaps Resnikoff said it best, "This was the first time that, as a region, we were all able to collaborate together – everything we prepared for worked very well – Joint Commission, Pennsylvania Department of Health Standards of Emergency Management, and exercises on Knowledge Center's HIMS."