Lessons from Katrina: In the Hurricane's Wake, Lessons for Records Management

by Ruth Carol

EHRs demonstrated their promise during Hurricane Katrina. But the storm's greatest lesson for HIM is the necessity of contingency planning for health information.

By now we've heard numerous stories about the piles of pulp that used to be patient medical records and the shelves of mildewed, stuck-together x-rays that staff found once they were allowed back into their facilities after Hurricane Katrina crashed into the Gulf Coast region last August. But there were success stories, also.

How patient information survived the storm depended in large part on whether it was stored on paper or in an electronic health record (EHR). Electronic records weathered Hurricane Katrina well, especially where health information systems were directly supported in contingency plans. In the best cases, patient data were on hand where displaced patients eventually sought care. But whether paper or electronic, Katrina underscored the need to address medical records in disaster contingency planning.

Flooding and Power Outages

Healthcare institutions from New Orleans to Mississippi and Alabama fell victim to flooding and power outages when the category 3 storm hit. Facilities with paper records obviously faced the greatest danger from flood waters. The Springhill Medical Center in Mobile, AL, has a mostly electronic record, but not all of its clinics are as far along in their transition from paper. An outlying clinic in the downtown area had 90 percent of its active medical records damaged due to flooding.

Sharon Barnicle, RHIT, helped assess the damage and determine if any records were salvageable. "The records that were ruined pose a health hazard, so we are trying to figure out how to properly destroy the records and be within the confines of the law," she says. Barnicle, director of HIM and facility privacy and security officer, expects that it will take at least one year to recreate the records. "We know we can't do anything about the lost progress notes and other handwritten information, but at least we can piece together information like lab results from other sources," she says. "Had the clinic been further along the electronic arena, it would have been much easier to recreate the records."

Not all water-damaged records are unsalvageable. Tami Duplantis, RHIA, the New Orleans district manager for healthcare consulting firm Sourcecorp, is confident that medical records submerged in water for two weeks at three local hospitals will be recovered, once they are freeze dried and gamma radiated to decontaminate them. They will then have to be reformatted into microfilm, CD-ROM, or data repository because they are so fragile.

EHRs in Emergencies

EHRs aren't waterproof, either, of course--the hardware that runs them can be flooded. However, power outages were a greater threat to electronic patient data, especially for those facilities without enough emergency power generators or the ability to host their systems from remote locations. Power outages throughout the region often translated into a time-out for EHRs.

For West Jefferson Medical Center in Marrero, LA, that time amounted to five days, says Indra Osi, RHIA, CHP, the center's director of HIM. During that time, the hospital relied on backup generators, which were only enough to supply lighting. Staff went to a manual process to admit, transfer, and discharge patients. Osi met daily with nursing staff to reconcile the census.

"Without a computer system available, you couldn't process anything. But we needed to know who was in-house and how many beds were available," she says. While the EHR system was down, HIM staff prepped the patient charts, and when the electricity came back on they simply scanned the charts into the electronic records. That kept a backlog to a minimum, says Osi. Staff in the HIM department developed a form that was used to retrieve the records once the computer system was back up. It took approximately six days to catch up.

The more electronic you are, Osi notes, the better able you are to function in an emergency situation. "With an EHR, you can create hot sites and have remote transcription. In fact, even physicians who had evacuated were able to go on the Web site and access their records, dictate, and sign off on them without being on-site," she reports.

Woman's Hospital in Baton Rouge, a 225-bed women and infants' specialty facility 60 miles outside of New Orleans, also reverted to a manual procedure to admit patients after losing power. As part of its disaster preparedness plan, staff in the HIM department used printed forms that were later scanned into the EHR. Because the power outage occurred in the evening when the hospital had fewer admissions, and because it lasted only 24 hours, it took only a couple of hours to recover, recalls Danielle Berthelot, who wears dual hats as director of HIM and the cancer registry as well as privacy officer.

Tracking Displaced Patients

More challenging for Woman's Hospital was handling the influx of evacuated patients--many of whom were infants--and assisting family members trying to locate them. One day after the hurricane hit, Woman's Hospital, which has a 94-bed neonatal intensive care unit (NICU), was designated as an Obstetrics (OB)/NICU Center by the state Office of Emergency Preparedness and Office of Public Health. It was now responsible for coordinating the transport and transfer of OB and NICU patients from the affected areas.

The hospital created a "mini" medical record for patients who were evacuated to the facility and established an information center to help callers locate evacuated patients. While the hospital kept many of the high-risk babies, others were transferred to other hospitals. "Three to four people answered the phones from 8 a.m. until 8 p.m. for approximately eight days," says Dovie Brady, RHIA, CHP. As HIPAA project coordinator, Brady found herself coaching the telephone operators on what information could be released in order to comply with privacy and security regulations. No medical information regarding the patient's condition could be given, for example.

An estimated 2,000 calls requesting information about relocated patients were handled in that time as well as approximately 12,000 additional general hurricane-related calls. Hospital staff reconnected more than 100 families, and they delivered 220 babies above their average that September. Eight days after the hurricane touched down, the Louisiana Hospital Association in conjunction with the Office of Emergency Preparedness established a Web site for individuals seeking patients displaced by the hurricane.

The VA's Plan Put to the Test

Backed by an established EHR system and a disaster contingency plan that covered medical records, patient data in the Veterans Administration medical centers in the Gulf Coast region were not offline long. Those centers, collectively known as Veterans Integrated Service Network (VISN) 16, faced greater challenges in having enough nondisplaced employees to use the information. "I think it speaks volumes that one of the things we had to worry about least was patient information--which is critical," says Linda Nugent, RHIA, director of HIM, health data and informatics at the Department of Veterans Affairs. "When access became an issue, it was handled with such efficiency that there was almost no downtime."

Hurricane Katrina caused the loss of power and communications to VA medical centers in Jackson and Biloxi, MS, as well as New Orleans. After the levee was breached, it was anticipated that patients from the New Orleans center would have to be transported to another VA facility.

As part of its disaster contingency plan, inpatient records were backed up every two hours on secure personal computers located on each ward, explains Martha Smith, chief of HIM for the VA Gulf Coast Veterans Health Care System in Biloxi. When patients were transferred out of the New Orleans and Biloxi medical centers, each had a health summary pinned to them.

While some IT staff backed up and powered down computer systems, others were deployed to bring the New Orleans EHR system back online by restoring backup tapes of the database on hardware at the Houston medical center. The tapes containing the New Orleans system had to be moved because the commercial-wide area network in the affected region had failed.

The experience demonstrates that good contingency plans don't stop at backing up patient data to tape, notes Gail Graham, RHIA, director of health data and informatics at the VA. The greater goal is to ensure data can be made accessible again. "Even in the electronic world, we have to make sure we can rapidly get people access to medical information," she says.

The VA's Baton Rouge clinic was without its EHR for one day because of connectivity issues, but staff were able to access clinical information through the regional data warehouse in VISN 16 within four hours of the levee breach. The data warehouse, which can be activated in short order, provides read-only access to clinical data. "I was able to go in and retrieve medical information when it was needed for specific patients, even after patients were placed in other medical centers," says Vicki Edmonds, RN, business manager of VISN 16.

Providing access to the information did pose some privacy and security challenges. The VA system only allows clinicians to view patients from their particular VA medical center, and staff from Biloxi and other medical centers needed to access patient records from the New Orleans center. This required system modifications, Graham explains. VISN 16 staff worked with the Veterans Health Administration (VHA) privacy office, the VHA HIPAA program management office, and the Department of Health and Human Services Office for Civil Rights to ensure that the modification was consistent with privacy and security requirements. Once completed, clinicians were able to verify and fill prescriptions, schedule follow-up appointments, and provide immediate care to those who needed it.

Health Information and Disaster Planning

One of the biggest lessons learned in Katrina's wake is the importance of thorough planning for health information in disaster preparedness and response.

Katrina "made it very clear how important it is to be able to access your medical information wherever you are at whatever point you need it, and the role of health IT in fulfilling that objective," says Carol Diamond, managing director of the health program at the Markle Foundation, which was instrumental in establishing KatrinaHealth. (See "Crash Course in Record Sharing", below.) Disaster planning is "not just about making everything electronic and hoping that's enough," she says, echoing Graham's point. Planning must account for manual processes for use during downtime, which she notes is "essentially the role many HIM professionals play in the paper world."

HIM professionals also bring to contingency planning their experience with EHRs and with the organization's workflow. Smith from the VA's Biloxi center agrees that this knowledge gives HIM professionals a part in disaster planning. "HIM professionals should assume a leadership role in ensuring the best possible means to safeguard the medical record, whether it's paper or electronic," she says.

Katrina also emphasized the importance of routinely reviewing the emergency plan. For healthcare organizations in the Gulf States, that means reviewing them prior to every hurricane season, if not more often. "We practice and review our contingency plan every six months because of the area we live in," says Smith. Ensuring employees are knowledgeable and prepared to quickly implement these plans is essential, she adds. "It was a lifesaver for us that all of our employees were aware of the contingency plan, they knew what to do, and everybody jumped in and did it."

Having a serious conversation about backup and recovery is another important element to an effective emergency plan. "The last time we had that kind of conversation in this country was for Y2K, when everyone was worried that every computer system was going to go down," says Diamond. "People created elaborate backup and recovery plans."

Backup is something that Osi had requested but didn't get in time for Hurricane Katrina. Although she was able to retrieve information for patients who had been seen within the previous year, it would have been easier to do with backup, she says, which also would have made it easier to track inpatients post-Katrina. In addition to getting backup, last November the hospital shipped its clinical documentation system to a site in New Jersey and brought it up live. "We now remote in," Osi explains. "If anything like this happens again, we will still be able to access all of our data."

Eventually, West Jefferson Medical Center's health information system and EHR system will be sent there, as well. A recently completed utility building located in the back of the hospital is designed to supply all the power West Jefferson will need for 10 days in the event of a blackout. All servers were recently moved to the fifth floor from the first floor, where the IT offices had been located.

Barnicle is working to get all clinic records onto Springhill Medical Center's computer server, because it is located in a no-flood zone. "So even if something happens to a clinic building, nothing would happen to the data, because the data will reside here," she says.

In an effort to improve data accessibility and increase disaster preparedness, the VA is developing the Health Data Repository, a national repository that will contain real-time copies of local clinical data. The repository will provide immediate nationwide access to local data in the event of primary system failure or system unavailability.

Disasters such as Hurricane Katrina not only make the case for the use of EHRs, but also for data warehousing, says Graham. "When we need to have quick access to basic information, both the EHR at the point of care and the data warehouses that feed them are two strategies that are absolutely essential as we move into the future," she notes.

Duplantis adds a concluding note of warning. It's imperative that the contingency plan is tested. "Everyone has a disaster recovery plan on paper, but not many people test it," she says. "Don't let it go untested. Don't think it can't happen to you."

Crash Course in Record Sharing

KatrinaHealth Offers Insights into Record Linking and Data Sharing

Just three weeks after the hurricane hit, KatrinaHealth was up and running. The online service provided authorized health professionals and pharmacists with prescription medication information for Hurricane Katrina evacuees. In just three weeks, a variety of organizations came together to demonstrate that the basic premise of regional data sharing works. The effort speaks volumes about the industry's ability to link patient records between unaffiliated organizations. It also illustrates the challenges it faces.

The information was compiled and made accessible through cooperative efforts of a broad group of companies, public agencies, national organizations, pharmacy benefit managers, chain pharmacies, the Markle Foundation, and the Office of the National Coordinator for Health Information Technology.

"The message of KatrinaHealth.org is that it is possible to make certain parts of the medical record available," says Carol Diamond. "It's a demonstration of what is truly possible if we can overcome some of the challenges and barriers." The accomplishment bodes well for regional data sharing and the possibility of a nationwide health information network. "KatrinaHealth.org raises the bar on expectations," comments Diamond.

Illustrating the Need for Standards

Although KatrinaHealth illustrated how quickly the public and private sectors can collaborate, it also underscored the need for universal agreement on patient identification, says Gail Graham. While she does not promote a unique identifier, she does note that the "standards were not quite standard enough."

The project also demonstrated the need for privacy and security standards. Once participants got past the misconception that HIPAA standards had been waived during the disaster (when in fact they had simply been modified, allowing more time to get business associate agreements in place), the issue of privacy and security came up regarding authentication. The primary issue was how to be sure access was being given to the right individual. The American Medical Association stepped in to provide physician credentialing and authentication services. The National Community Pharmacists Association did so for independent pharmacy owners, and SureScripts provided these services for chain pharmacies. All sensitive information was filtered for release of information.

In the first 60 days the Web site had approximately 6,000 hits, with a 30 percent success rate in record linking, says Diamond. That rate was low for several reasons, some of which illustrate other challenges in future record linking. Without time to set up a more sophisticated linking mechanism, records had to be matched exactly--"If a name was entered slightly differently, it wouldn't have found a match," Diamond explains. With more time, the system could have included algorithms to improve the matching rate. Additionally, matches were low because data were made available only in postal districts identified by the Federal Emergency Management Agency as being affected. Finally, despite valiant efforts of volunteers and organizations promoting the service, with modes of communication down in the Gulf Coast region it was difficult to inform providers about the service.

Still, those involved in KatrinaHealth see it as a success, both for what was accomplished and what it indicated can be accomplished in the future. "Everything came together without anybody mentioning the issue of resources, money, and business issues," says Diamond. "If you take all of those things away, it's obvious what can be accomplished."

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