

Weathering the Storm: Electronic Health Records and Disaster Recovery

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Natural disasters, although often devastating, offer opportunities to examine various aspects of disaster planning, preparedness, and response – including those related to healthcare. The large-scale adoption of electronic health records (EHRs) in the 21st century has revealed a number of ways in which this technology is capable of transforming disaster recovery efforts for healthcare facilities. Several high-profile and destructive natural disasters have highlighted EHR recovery capabilities:

- **2005:** Thousands of paper health records were destroyed when Hurricane Katrina ravaged the Gulf Coast. However, the Department of Veterans Affairs (VA), which had implemented an EHR system, was able to safeguard its health records and transfer patients and their pertinent information to other VA medical centers when the disaster struck.¹
- **2011:** A newly implemented EHR system allowed St. John’s Regional Medical Center and its affiliated practices to quickly recover and access patient records after a tornado severely damaged Joplin, Missouri.²
- **2012:** EHRs and health information exchange (HIE) facilitated uninterrupted care and prevented widespread loss of patient health information as Hurricane Sandy pummeled the Mid-Atlantic and Northeast.³
- **2017:** Healthcare organizations in Houston were able to continue to access their EHR systems following the devastation of Hurricane Harvey. Further, following Hurricane Irma, the Florida Hospital Association received no reports of EHR failures.⁴

These examples highlight the utility of EHRs in disaster recovery. Unlike paper records, which can be easily destroyed and incredibly difficult to rebuild, EHRs can:

- Protect patient data and other important information, even if physical structures are damaged or lost
- Allow healthcare providers and organizations to quickly transfer health records for patients who are evacuated to other facilities
- Prevent the need to rely on patient recollection and memory to gather critical health information
- Facilitate the continuity of care during and after a disaster

Electronic Health Record Considerations for Disaster Planning

The importance of establishing a comprehensive disaster recovery plan cannot be overstated. Foremost, HIPAA requires covered entities (CEs) to develop contingency plans for responding to emergencies/disasters and safeguarding electronic protected health information (ePHI). Further, CEs “need to have policies and procedures in place that cover emergency response where systems containing PHI are damaged. This could include a fire, system failure, or natural disaster.”⁵

The HIPAA Security Rule requires a data backup plan, a disaster recovery plan, and an emergency mode operation plan; the rule also advises CEs to develop testing and revision procedures and conduct an analysis of applications and data criticality.⁶



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When considering how to address EHR systems as part of emergency preparedness and response planning – and as part of overall health information technology (IT) management – healthcare administrators, providers, support staff, and technical staff should address various factors.⁷

Examples of these considerations include:

- **Onsite Safety**

- Is onsite IT equipment (e.g., servers, laptops, networking devices, etc.) kept in the safest place possible within your facility? For example, if you have a multi-level office, is your IT equipment stored on a higher floor to prevent damage from flooding?
- Does your organization have a protocol for shutting down all systems prior to an impending disaster?
- Have appropriate individuals in your organization been delegated the responsibility of overseeing IT equipment and procedures?

- **Accessibility**

- Does your facility have a backup generator to restore power during an emergency or outage?
- Does your facility's backup power source have the capability to restore power to your IT infrastructure?
- Does your facility have a detailed protocol for how to handle loss of internet connectivity?

- **Data Backup**

- How is information from your organization's EHR system backed up? Is the information stored onsite/locally or offsite (e.g., at a remote data warehouse or with a cloud-based service)?
 - If onsite/locally, how will you recover data if a disaster – such as a hurricane or flooding – damages or destroys the data backups?
 - If offsite, what is the appropriate procedure for accessing the data backups? Who is authorized to do so?
- Are data routinely backed up? What is the process for recovering data and applications?

- **Interoperability**
 - If your facility is part of a larger healthcare organization, is your EHR system compatible with other local and regional systems?
 - Can your EHR system facilitate smooth transfer of patient records if necessary?
 - Are protocols in place for transferring ePHI without violating HIPAA regulations?
 - Is your practice participating in a HIE?
- **Emergency Procedures**
 - Does your organization have a written procedure for staff to use in the event of system failures or inaccessibility?
 - Are paper copies of the emergency procedure available in case the organization's electronic systems are not accessible?
 - Is a contingency plan in place for documenting patient care and other important information if the EHR system is unavailable?
 - Have procedures been established for updating the EHR system with data from paper documentation?
- **Training**
 - Are healthcare providers and other staff members in the organization trained for emergency situations, including natural disasters and other types of emergencies?
 - Does training occur when new technology is introduced and when procedures and workflow processes are updated?
 - Do healthcare providers and staff members know their roles/responsibilities and appropriate actions to take during an emergency?
- **Vendor Support**
 - Is your EHR/data warehouse vendor focused on customer service?
 - What type of services/support does your vendor supply in the event of a disaster?

- Are emergency preparedness and disaster recovery services clearly defined in a service agreement?

These questions provide some general thoughts to consider when including an EHR system as part of your organization's emergency preparedness protocols. For more information about incorporating an EHR system into your disaster recovery plans, visit the Office of the National Coordinator for Health IT Technology at HealthIT.gov and see the [Contingency Planning SAFER Guide](#).

Take-Away Message

When used appropriately, EHR systems have proven beneficial in disaster recovery. In the past 15 years, these systems have weathered major crises and shown their resilience in the face of disaster. EHRs can “help sustain practices and enable the ability to provide essential health care services post-disaster when patients may be most vulnerable.”⁸

To realize the full potential of EHRs as a vital component of disaster recovery, healthcare organizations should consider environmental and technical factors associated with these systems and optimize safeguards related to data preservation, recovery, and exchange.

Endnotes

¹ Abir, M., Mostashari, F., Atwal, P., & Lurie, N. (2012, Dec.). Electronic health records critical in the aftermath of disasters. *Prehospital and Disaster Medicine*, 1-3.

² Mercy. (2011, June 7). Electronic health records make difference in disaster recovery. Retrieved from www.mercy.net/newsroom/2011-06-07/electronic-health-records-make-difference-in-disaster-recovery/

³ MedCity News. (2012, Oct. 30). Hurricane Sandy proves the value of health IT infrastructure, state info exchanges. Retrieved from <http://medcitynews.com/2012/10/hurricane-sandy-underscores-new-yorks-health-information-exchange-and-data-storage-logistics/>

⁴ Gettinger, A. (2017, November 15). Reflections from a health IT perspective on disaster response. *Health IT Buzz*. Office of the National Coordinator for Health Information Technology. Retrieved from www.healthit.gov/buzz-blog/health-it/reflections-health-perspective-disaster-response/; Lichtenwald, I. (2017, September 22). How recent hurricanes expose remaining gaps in healthcare IT. *Health Data Management*. Retrieved from www.healthdatamanagement.com/opinion/how-recent-hurricanes-expose-remaining-gaps-in-healthcare-it

⁵ Snell, E. (2018, January 24). Why providers need a disaster recovery plan for EHR security. HealthIT Security. Retrieved from <https://healthitsecurity.com/news/why-providers-need-a-disaster-recovery-plan-for-ehr-security>

⁶ HIPAA Privacy and Security Rule, 45 C.F.R. § 164.308(a)(7)(i).

⁷ Abir, et al. Electronic health records critical; Harris, B. (2012, Oct. 29). 3 health IT must-haves for natural disaster preparedness. *Healthcare IT News*. Retrieved from www.healthcareitnews.com/news/3-health-it-must-haves-natural-disaster-preparedness; Coughlin, B. (2012, Nov. 21). In the wake of Hurricane Sandy: Health IT 1, paper records 0. *Health IT Buzz*. Office of the National Coordinator for Health Information Technology. Retrieved from www.healthit.gov/buzz-blog/ehr-case-studies/hurricane-sandy-health-information-technology/; Burns, E. (n.d.). Offsite data centers key part of effective disaster recovery plans. SearchHealthIT. Retrieved from <http://searchhealthit.techtarget.com/feature/Offsite-data-centers-key-part-of-effective-disaster-recovery-plans>

⁸ Abir, et al. Electronic health records critical.

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