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From Risk to Resilience: Integrating Emergency Management and Business Continuity in Healthcare

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Abstract

This analysis highlights the critical need for healthcare systems to invest in Emergency Management and Business Continuity programs to strengthen resilience. Since the 1980s, the United States has experienced an increase in both the frequency and cost of natural disasters, with Texas leading in the number of federally declared disasters. While Emergency Management and Business Continuity programs may not generate revenue like direct patient care services, they play an essential role in preventing losses, reducing operational inefficiencies, and enhancing organizational capacities. These programs ensure that healthcare facilities can maintain the highest quality of care during both routine operations and crisis situations.

This review will discuss three main challenges Emergency Management and Business Continuity programs face and recommendations to overcome these challenges. The goal of this assessment is to identify opportunities for growth and outline steps that can be taken to improve emergency management and business continuity programs in healthcare and all sectors.

Emergency Management and Business Continuity programs can no longer exist on the periphery of healthcare organizations; they are a strategic necessity. These programs play a critical role in enhancing patient safety, improving staff readiness, ensuring regulatory compliance, and reducing financial risk. Beyond immediate crisis response, their implementation strengthens an organization's ability to uphold its mission, vision, and values under any circumstance. By embedding these disciplines into core operations, healthcare systems position themselves not just to survive emergencies, but to deliver consistent, high-quality care in the face of disruption.

Introduction

Research consistently shows that the frequency and severity of disasters are increasing. This underscores the growing importance of Emergency Management and Business Continuity roles in all sectors, especially healthcare. This urgency is further amplified by the proposed elimination of the Hospital Preparedness Program (HPP) in the FY26 federal budget (Bosch, 2025). The HPP has historically provided both direct and/or indirect funding to support critical aspects of hospital preparedness and response. Its removal would shift the full burden of readiness and coordination back onto individual hospitals and health systems, many of which rely heavily on this support. Considering this shifting landscape, this review explores both Emergency Management and Business Continuity roles and functions. Before examining the distinct roles, structures, and challenges of Emergency Management and Business Continuity within the healthcare sector, it is important to first establish the conceptual foundation that underpins both fields. This begins with a discussion of two core paradigms that guide preparedness and response strategies: risk-based and resilience-based models. Understanding how these models shape planning, decision-making, and operational readiness provides critical context for the overarching discussion.

A Risk Approach vs A Resilience Approach

Risk is a foundational concept in emergency management and business continuity. According to the Federal Emergency Management Agency (FEMA, 2011). Risk is defined as the potential for an unwanted outcome resulting from an incident, determined by the likelihood of the event and its consequences. The International Organization for Standardization (ISO 31000:2018) expands this definition by framing risk as the effect of uncertainty on objectives, which acknowledges that risk can lead to either negative outcomes or opportunities for growth, depending on how it is managed. The World Health Organization (WHO, 2019) further reinforces this concept by defining risk as the combination of the probability of an event and the severity of its consequences on health and health systems. Despite slight variations in wording, these definitions share a common framework: Risk = Threat x Vulnerability x Consequence. In

this “formula” threat refers to the likelihood of an adverse event, vulnerability represents the susceptibility of the organization or system, and consequence reflects the potential severity of the outcome should the threat occur.

In contrast, resilience is a more dynamic, holistic, and evolving concept. While widely accepted, its application varies across contexts. It will be explored in more detail later in the discussion of challenges of implementation, but key definitions illustrate its core principles. The U.S. Department of Homeland Security (2010), through the National Disaster Recovery Framework, defines resilience as “the ability to adapt to changing conditions and to withstand and rapidly recovery from disruption”. WHO (2019) emphasizes resilience as the capacity of systems and communities to prepare for, respond to, and recover from crises, informed by past experiences. The National Academy of Sciences (2012) offers a more comprehensive view, describing resilience as “the ability to prepare and plan for, absorb, recover from and more successfully adapt to adverse events.”

Resilience, especially in the context of emergency management and business continuity, is often understood through the lens of four interrelated capacities:

1. **Absorptive Capacity** – The ability of a system to buffer impacts of a disruption without losing essential functions (Bene et al., 2012)
2. **Adaptive Capacity** – The ability to modify operations, strategies, or structures in response to change or uncertainty (Folke, 2006)
3. **Recovery Capacity** – ability to return to baseline operations or a new stable operational state following a disruption (National Research Council, 2012)
4. **Transformative Capacity** – The fundamental ability to alter systems, structures, or policies to reduce future vulnerability (Walker, et. al., 2004)

These components provide a comprehensive framework for understanding how organizations not only survive but improve because of disruption. In the next section, we will explore how these risk and resilience concepts apply specifically to the healthcare sector.

Risk vs. Resilience: A Healthcare Emergency Management and Business Continuity Perspective

Emergency Management and Business Continuity programs in healthcare have historically operated within a risk-based framework, and this continues to be the predominant approach. The WHO (2019), in its *Health Emergency and Disaster Risk Management Framework*, reinforced the paradigm by advocating for risk-informed strategies that strengthen a health system's ability to prepare for, respond to, and recover from emergencies.

A more practical example of the risk-based model in action can be seen in the accreditation requirements of major healthcare oversight bodies, many of which mandate the completion of a yearly Hazard Vulnerability Analysis (HVA). HVAs identify and prioritize risks, both threats and hazards that are specific to a facility or organization. These analyses form the foundation for developing tailored training, drills, and response protocols (The Joint Commission, 2023).

The risk-based model offers several advantages. It allows healthcare organizations to allocate resources strategically, anticipate specific disruptions, and to implement mitigation plans that address the most probable threats in their geographic and operational context. By focusing on high-likelihood, high-impact events, healthcare systems can structure preparedness efforts around the risks that are most likely to disrupt service delivery.

However, there is a growing argument for transitioning from a strictly risk-based approach to one incorporating "resilience-based" planning. While risk mitigation remains vital and would be part of a resilience-based approach, a resilience-oriented model emphasizes building adaptive capacity across the community and organizations. This ensures that organizations can withstand and recover from both anticipated and unforeseen events, especially as healthcare risks become more complex and their consequences become more widespread.

Resilience-based strategies align closely with core principles of business continuity by prioritizing organizational adaptability, systems redundancy, and rapid recovery. Rather than focusing solely on threat avoidance, this approach enhances the durability of critical operations and fosters collaboration across systems to ensure uninterrupted care. It equips healthcare organizations to perform under duress, absorb initial shock, and maintain function even when risks are not fully known or predictable. In other terms, since risk is probability times impact, at its core resilience aims to reduce impacts which in return reduces risk.

Both risk and resilience-based approaches have merit, but shifting to a resilience base model would provide a more holistic approach to preparedness, response, mitigation, and recovery, because rather than preparing for a specific threat, when you use a resilience approach you are focused on improving operational processes, striving for operational excellence by building capacity (absorptive, adaptive, recovery, and transformative). The following sections will provide an overview of Emergency Management and Business Continuity, identifying specific benefits and challenges associated with implementing these programs in healthcare. The discussion concludes with three key recommendations aimed at overcoming shared barriers to establish effective programs. While the emphasis is healthcare specific, the insights and strategies offered here hold relevance across a wide range of industries.

What is Emergency Management

According to the State of Maine's Emergency Management Agency site, Emergency Management is the function that establishes an operational framework to reduce vulnerability to hazards while enhancing the community's capacity to respond to and recover from disasters. The overarching mission of Emergency Management is to protect communities by coordinating and integrating all activities necessary to build, sustain, and improve the ability to mitigate, prepare for, respond to, and recover from natural and human made disasters (Maine, 2020). To align this mission, Emergency Management is guided by eight core principles: (1) Comprehensive, (2) Progressive, (3) Risk-Driven, (4) Integrated, (5) Collaborative, (6) Coordinated, (7) Flexible, and (8)

Professional (FEMA, n.d.). These principles serve as the foundation for developing integrated Emergency Management programs, reinforcing the idea that Emergency Management is not merely a function but a culture to be attained.

History of Emergency Management

The Congressional Act of 1803 was the first federal disaster relief legislation, enacted in response to the fires in Portsmouth, New Hampshire, in December 1802. This act provided relief by suspending bond payments for affected merchants. Two centuries later, the modern era of federal emergency management began with the creation of the Federal Emergency Management Agency (FEMA). On April 1, 1979, President Carter signed Executive Order 12127, officially establishing FEMA. This was followed by Executive Order 12148 on July 20, 1979, which expanded FEMA's role to include both emergency management (EM) and civil defense.

In 1988, the Robert T. Stafford Disaster Relief and Emergency Assistance Act, commonly known as the Stafford Act, replaced the Disaster Relief and Emergency Assistance Amendments of 1974. This legislation significantly expanded and clarified FEMA's authorities.

Following the September 11, 2001, attacks, the Bush administration enacted the Homeland Security Act, which created the Department of Homeland Security (DHS) and merged FEMA with 21 other agencies. In 2006, Congress passed the Post-Katrina Emergency Management Reform Act, making FEMA a distinct agency within DHS, defining its mission, and establishing it as the principal advisor on all emergency management matters in the United States.

Further legislative developments followed other major disasters. In response to Hurricane Sandy, Congress passed the Sandy Recovery Improvement Act of 2013 to streamline public infrastructure recovery and simplify the process of requesting a Presidential disaster declaration. This was followed by the Disaster Recovery Reform Act of 2018, which emphasized mitigation efforts and strengthened the capabilities of state, local, tribal, and territorial governments (FEMA, 2021).

What is Business Continuity

Business Continuity is the “strategic and tactical capability of the organization to plan for and respond to incidents and business disruptions in order to continue business operations at an acceptable predefined level” (Stéphanel, 2022). Simply put, Business Continuity is an organization's ability to sustain operations during unexpected disruptions, such as natural disasters, cyberattacks, or system failures.

According to Hayes and Kotwic (2013), Business Continuity operates on four key pillars: assessment, preparedness, response, and recovery.

- **Assessment:** In this phase, organizations conduct hazard identification and risk evaluation, often accompanied by business impact analysis (BIA) and vendor resiliency assessment, ensuring vendor readiness.
- **Preparedness:** This involves stress testing through tabletop exercises, drills, simulations, and other training methods to ensure readiness
- **Response:** During an incident, teams integrate into Emergency Operations Centers (EOCs) to manage impacts and coordinate actions.
- **Recovery:** The final phase focuses on restoring systems and operations while documenting lessons learned to improve future resilience.

At its core, Business Continuity revolves around the “Four Ps”: People, Processes, Premises, and Providers (ThinkSecureNet, 2024), ensuring that organizations can effectively navigate disruptions and maintain continuity.

History of Business Continuity

Herbane (2010) outlines the history of Business Continuity in four distinct phases:

- **Emerging Legislation Phase (mid-1970s – mid-1990s):** This period marked the initial development of Business Continuity, with the introduction of legislation and enforcement of regulations across industries.
- **Emerging Standards Phase (mid-1990s – 2001):** As Business Continuity evolved, industry standards began to take shape, formalizing best practices.

- Post-9/11 Phase (2002 – 2005): In response to the 9/11 attacks, the development and adoption of Business Continuity practices accelerated, particularly in the financial sector, public authorities, and utility industries. This period also saw the emergence of professional competencies through the Disaster Recovery Institute International (DRII).
- Internationalization Phase (2006 – 2010): This phase focused on the global standardization of Business Continuity practices, culminating in the widespread adoption of international frameworks (Herbane, 2010).

From a private sector perspective, Business Continuity has evolved alongside technological advancements. In the 1970s, as organizations relied on mainframe computers requiring controlled environments, Business Continuity was seen as a technology-focused discipline. The 1980s marked a shift as Business Continuity expanded beyond IT, introducing the Business Impact Analysis (BIA) to assess disruptions to operational processes. By the 1990s, Business Continuity became even more comprehensive, incorporating considerations for people highlighted during the bird flu outbreak.

In the 2000s, Business Continuity continued to mature with greater integration of the Four Ps: People, Processes, Premises, and Providers. The decade also saw the introduction of the first international Business Continuity standard, ISO 22301 (McGlave, 2019), further solidifying Business Continuity as a globally recognized discipline.

Business Continuity Across Industries

Unlike Emergency Management, Business Continuity does not have a separate category under the BLA and instead falls under the broader Emergency Management classification. However, job availability suggests a strong demand for Business Continuity professionals. As of February 24, 2025, a LinkedIn search for “Business Continuity” in the United States yielded over 9,000 postings, though many included traditional Emergency Management, Security, and IT roles. Within the total, approximately 1,067 positions specifically carried the title of Business Continuity

Planner or Business Continuity Analyst (LinkedIn, 2025). This reflects the growing recognition of Business Continuity as a critical function across industries.

The Disaster Recovery Journal (DRJ, 2023) Rules and Regulations Committee compiled a comprehensive global list of regulations, standards, and good practices (with research supporting the dependability of the latter). A breakdown by countries reviewed are shown in Table 1.

Table 1: Business Continuity Regulations, Standards, and Good Practices by Country.

Country	# of Regulations	# of Standards	# of Good Practices	Blank/No Category Notated	Total
Australia	0	1	1	0	2
Australia, New Zealand	0	5	0	0	5
Canada	13	0	9	0	22
Croatia	1	0	0	0	1
European Union	8	0	2	0	10
Hong Kong	0	2	0	0	2
Indonesia	1	0	0	0	1
International	2	8	4	0	14
Japan	1	1	0	0	1
Lithuania	0	1	0	0	1
Malaysia	0	1 ¹	0	0	1
Philippines	1	0	0	0	1
Singapore	1	4	0	0	5
South Africa	3	0	0	1	4
U.K.	2	0	0	2	4
U.S.A.	30	12	1	1	44

Table 1 highlights two key points. First, the United States (44) has twice as many business continuity regulations, standards, and best practices as the next closest country, Canada (22). Second, when focusing specifically on regulations, the United States surpasses the next closest country by more than double. While regulations,

¹ Technically a code, not a standard.

standards, and best practices are not inherently negative, one would expect that, given these requirements, the United States would be better prepared to sustain operations and mitigate losses compared to other countries.

In the United States DRJ (2023) identified a total of 44 unique regulations, standards and good practices across the following infrastructure categories; (1) Banking & Finance, (2) Public Health & Healthcare, (3) Transportation & Shipping, (4) Energy (including nuclear), (5) Industry, Agriculture, Food Supply & Water, (6) Information Distribution & Communication, and (7) Government & Public Agencies as seen in *Table 2: Business Continuity Regulations, Standards, and Good Practices by Industry*.

Table 2: Business Continuity Regulations, Standards, and Good Practices by Industry.

Infrastructure Category	# of Regulations	# of Standards	# of Good Practices	Total
Banking & Finance	29	12	4	45
Public health & Healthcare	9	11	2	22
Transportation & Shipping	9	7	2	18
Energy (including nuclear)	9	6	2	17
Industry	9	9	2	20
Agriculture, Food Supply & Water	9	7	2	18
Information Distribution & Communication	16	11	2	29
Government & Public Agencies	15	2	2	26

Table 2 highlights two key points: healthcare ranks fourth among industries in terms of regulations, standards, and practices. More specifically, healthcare is tied second in the number of standards dedicated to business continuity. The following section will explore the benefits and challenges of Emergency Management and Business Continuity programs within the healthcare sector.

Benefits of Emergency Management and Business Continuity Programs in Healthcare

Hospitals face growing pressures to ensure safety, continuity of care, and operational stability during both natural and human-caused disasters. Events such as hurricanes, floods, cyberattacks, and pandemics have highlighted the fragility of healthcare systems and the consequences that can arise when preparedness is lacking. Robust emergency management and business continuity programs are no longer optional; they are critical to patient outcomes, supporting healthcare staff, meeting regulatory compliance, and preserving financial and reputational health. As research increasingly shows, disasters can lead to increased patient mortality, compromised care delivery, and overwhelmed staff who often feel underprepared. At the same time, hospitals must navigate a complex landscape of federal and state regulations while demonstrating readiness to accreditation bodies. Financial analyses further affirm that investments in preparedness yield cost savings and risk reduction. This paper explores the multifaceted value of emergency management and business continuity planning in acute care hospitals, focusing on four key dimensions:

1. Patient safety and continuity of care.
2. Staff preparedness.
3. Regulatory compliance.
4. Financial and reputation protection.

Patient Safety & Continuity of Care.

Hospital mortality rates often increase during and after disasters due to a combination of distributed infrastructure, resource limitations, and care delivery interruptions. These disruptions can significantly compromise patient safety, particularly for vulnerable populations such as the elderly or those with chronic conditions.

A study published in *Nature Medicine* found that U.S. counties impacted by billion-dollar weather disasters from 2011 to 2016, mortality rates among Medicare recipients rose by 1.4% in the first week after a disaster and remained elevated for up to

six weeks. Counties that suffered the most extensive economic losses have two to four times higher mortality rates than the average affected county, suggesting that infrastructure failures like power outages or impaired transportation increase both economic and health related issues (Sanders et al., 2023).

Similar risks have been observed globally. A large-scale study in BMJ analyzed data from 761 communities worldwide and found that flood exposure significantly increased all causes, cardiovascular, and respirator mortality. This elevated risk persisted for up to 60 days post exposure, underscoring the prolonged health effects of environmental disasters (Zhao et al., 2023).

Shifting from natural disasters to an example of a human-caused disaster, cyberattacks on healthcare have serious patient safety implications. McGlave, Neprash, and Nikpay (2023) investigated the effects of ransomware attacks on hospitals. Their research found that hospital cyberattacks were associated with statistically significant increases in patient mortality, particularly in the 30-day mortality rates for heart attack patients. These attacks disrupted electronic health records and communication systems, resulting in delays in care and diminished care quality. The study's findings emphasize that cyber incidents have life threatening consequences in many instances greater than a natural disaster does.

Together these studies illustrate the importance of investing in an emergency management and business continuity program. Regardless of natural or human-caused disaster mortality increases, hospitals must be equipped to maintain care delivery, so patient outcomes are not impacted.

Staff Preparedness and Safety

Research shows that many hospital nurses feel underprepared for disaster response, despite being on the front lines during disasters. In a qualitative study by Khankeh, Farrokhi, and Hosseini (2023), nurses reported a lack of essential competencies in disaster risk management. Participants cited insufficient training, limited practical experience, and inadequate institutional resources as major barriers to effective disaster

response. These gaps in preparedness can significantly impact nurses' ability to deliver safe and efficient care during disasters.

A related study by Adams and Meluis (2020) examined the personal disaster preparedness of nursing staff and their willingness to respond to disasters. While most nurses expressed a willingness to work during such events, the study revealed that many had not taken personal preparedness steps, such as establishing family emergency plans or storing emergency supplies. Personal obligations, particularly related to family and safety, were major factors influencing their decision to report to work during a disaster.

These findings emphasize the need for a robust emergency management and business continuity program. Continuous disaster preparedness training, regular simulations, hands-on drills, and clear communication are essential to improving nurses' confidence and performance during real events. By addressing both professional and personal preparedness needs, hospitals can enhance overall disaster readiness and maintain continuity of patient care when it matters most.

Compliance

One of the biggest benefits of having an emergency management and business continuity program is compliance. There are many factors that dictate what standards you must adhere to, but for discussion purposes this analysis assumes you are a

1. Acute-care hospital with accreditation from The Joint Commission (the most widely used accreditation body in the United States).
2. Located in Texas.
3. Have a rehab unit and neonatal ICU (NICU).
4. Are trauma designated.

In this example for emergency management and business continuity alone, you would have standards to maintain compliance with:

1. The Joint Commission.
2. Centers for Medicare & Medicaid Services (CMS).

3. Infection Control.
4. Commission on Accreditation of Rehabilitation Facilities (CARF).
5. Occupational Safety and Health Administration (OSHA), and
6. Texas State Rules for Trauma.

On July 1, 2022, The Joint Commission (2022) came out with the revised emergency management chapter which restructured and consolidated standards and elements of performance (each standard can have multiple elements of performance) and added business continuity as a requirement. The Joint Commission has a total of 15 emergency management standards with 60 elements of performance. CMS (2016) has four core elements that facilities must adhere to, but if you maintain compliance through The Joint Commission, it will meet these four core elements that CMS mandates for funding. When looking at Joint Commission Infection Control standards, there is one additional preparedness standard with two elements of performance (Joint Commission, 2023). CARF has two main standards with multiple parts for them. One of these can be met by being compliant with the Joint Commission. The other cannot, and requires unannounced drills on each shift yearly, with analysis in writing of the drill and shown improvement from the previously documented drill (i.e., if education was needed what education was provided). The OSHA chapters that are applicable to emergency management are 1910.120 and 1910.132. Both deal with decontamination and equipment inspections. 1910.120 has 15 sections. Some of these sections have multiple subparts to them. 1910.132 is more straightforward and outlines the requirements for monthly inspections of emergency use respirators. State rules for Trauma on the other hand change in September of 2025 (Texas Trauma Coordinators Forum, 2020).

It is important to note that this overview takes a literal and narrow view of federal regulations and one set of state rules. This analysis did not include rules for laboratory, non-acute care preparedness standards, pediatric readiness, state rules for Neonate, Women's Services, among many other departments. Based on what has been discussed, there are 83 distinct performance metrics that emergency management and business continuity programs are responsible for in healthcare.

Financial & Reputational Protection

Preparedness saves hospitals significant cost by mitigating impacts of emergency operations, staff, and patient care. According to RAND Corporation (2019), hospitals that invest in emergency preparedness can reduce operational losses by 30% to 50% during disasters through effective planning, staff training, and infrastructure improvements. These measures help hospitals maintain critical functions and avoid costly interruptions during disasters.

A study published in the American Journal of Disaster Medicine found that hospitals with comprehensive preparedness programs save millions of dollars by minimizing patient care interruptions, reducing overtime expenses, and avoiding costly evacuations. By having well developed emergency response plans, hospitals can reduce the risk of prolonged closures and associated revenue losses (Smith et al., 2018).

FEMA (2017) indicates that every \$1 spent on preparedness yields \$4 to \$7 in savings on disaster recovery costs. These savings include reductions in property damage, emergency response expenses, and downtime. For healthcare facilities, which are essential community resources, this return on investment highlights the importance of preparedness as a cost-effective strategy.

In addition to emergency preparedness, business continuity programs offer further financial benefits for hospitals. Business continuity planning ensures that critical operations continue with minimal disruption during and after emergencies. By maintaining continuity of care and administrative functions hospitals reduce revenue losses caused by service interruptions and maintain patient trust (Jones & Perez, 2020). The ability to quickly resume normal operations also lowers the cost associated with recovery and rebuilding.

Examples of hospital specific savings from business continuity programs include avoided closure costs, which can amount to hundreds of thousands or even millions of dollars per day in lost revenue (Healthcare Ready, 2019). Additionally, well prepared hospitals reduce staff overtime and turnout by equipping personnel with training and

resources to manage crises effectively (Smith et al., 2018). Investments in mitigation measures such as flood protection and backup power also lower repair and recovery expenses after an incident (FEMA, 2017).

Overall, emergency preparedness and business continuity programs are critical investments for hospitals. They not only protect patients and staff but also deliver substantial financial savings by minimizing operational disruptions and reducing recovery cost.

Challenges and Recommendations for of Emergency Management and Business Continuity Programs in Healthcare

One of the greatest challenges facing Emergency Management and Business Continuity programs in healthcare is their perception as “cost centers” that generate little to no direct revenue. Given the tight financial margins in healthcare, securing funding for these programs can be difficult. Healthcare leaders must weigh the uncertain nature of emergencies against the tangible, immediate impact of investments that directly align with key performance indicators. As a result, funding decisions frequently prioritize operational efficiency and revenue generating initiatives over preparedness. Beyond financial constraints, these programs face three additional critical challenges:

1. Professionalization of the industry
2. Lack of standardized success metrics
3. Resilience is an established concept but evolving in practice.

Challenge & Recommendation 1: Professionalization

The fields of emergency management and business continuity have evolved in recent decades, progressing from reactive, ad hoc roles into structured and recognized professional disciplines. This transformation reflects the increasing complexity of disaster response and the growing need for systematic approach to that of organizational resilience.

In emergency management, professionals have been driven by a greater emphasis on formal education, standardized practices, and credentialing. FEMA's Emergency Management Professional Program (EMPP) exemplifies this evolution, offering a tiered pathway that develops leadership and operational capabilities across entry level and senior emergency managers (FEMA, n.d.). Another notable example of the professionalization of the field can be seen in Texas with the Texas Division of Emergency Management's (TDEM) Emergency Management Academy. In effort to have a standard approach, TDEM has an 8-month academy designed to develop Emergency Managers to meet the needs of Texas (TDEM, 2025) Similarly, the Certified Emergency Manager (CEM) credential, administered by the International Association of Emergency Managers (IAEM), serves as a benchmark of professional competency and commitment to the field (Pearce, 2021). Research shows the importance of such professional pathways, noting that as risks become more complex, the field must continue advancing through academic training and the adoption of best practices (McEntire, 2023).

Business continuity management (BCM) has equally gone through transformation. Once a subset of IT disaster recovery, BCM is now recognized as an essential component of organizational resilience, supported by globally accepted frameworks. ISO 22301, the international standard for business continuity management systems, formalizes expectations for preparedness and continuity planning and has become widely adopted across sectors (ISO, 2019). Organizations such as Disaster Recovery Institute International (DRI) and the Business Continuity Institute (BCI) have further cemented professional standards by developing structured certification programs and guiding principles like DRI's Professional Practices for Business Continuity Management (DRI, 2024)

Despite considerable progress in the professionalization of both emergency management and business continuity, a key challenge now lies in understanding how this evolution impacts roles within the private sector, particularly in healthcare. A major area of concern involves inconsistencies in job titles, position requirements, and reporting structures. Historically, the field has been government centric, which means

there is no widely accepted career trajectory or organizational model for these roles in the private sector. For example, the title “Emergency Manager” in a hospital setting does not necessarily correspond to a managerial or director level position in terms of pay, authority, or organizational influence.

In Texas alone, job titles in healthcare emergency management and business continuity vary widely (more variation in emergency management than business continuity), including “Emergency Manager,” “Disaster Preparedness Coordinator,” or “Organizational Resilience Advisor,” among others. Another example of a title would be that, in government, an Emergency Management Coordinator is typically one of the highest positions one holds in a city or county in emergency management. A job title in healthcare with “coordinator” in it typically would notate an early career position. Without an industry standard, organizations often default to internally determined criteria, which can result in misalignment across the sectors (Kapucu & Sadiq, 2016).

The issue of reporting structure remains fragmented across the healthcare industry for emergency management and business continuity positions. Depending on the organization, emergency management and business continuity professionals may report to departments as varied as Facilities Management, Security, Operations, Risk Management, or Information Technology. While some degree of organizational flexibility is necessary, a lack of consistent guidance or best practice standards undermines the professional identity and influence of these roles (Fagel, 2013). A clear framework is needed to standardize private sector positions while keeping in mind the governmental framework.

To advance professionalization of these fields in the private sector, the industry must prioritize title alignment, standardized qualifications, and evidence-based reporting structures that reflect the complexity and criticality of the work performed.

Challenge & Recommendation 2: Success Metrics (or lack of them)

A second major challenge in advancing emergency management and business continuity programs within healthcare organizations is the lack of clearly defined metrics that align with organizational key performance indicators (KPIs). Unlike clinical

operations which are often evaluated through productivity, patient outcomes, efficiency metrics and regulatory benchmarks, emergency management lacks universally accepted standards for measuring effectiveness and value. This disconnect makes it difficult for hospital leadership to assess program value, justify sustained funding, or incorporate emergency preparedness into broader strategic planning initiatives (Kaji, Koenig, & Bey, 2006).

To address this issue, two key recommendations are proposed. First, organizations should implement a feedback mechanism following drills and disaster responses (that compliments after action reviews and hotwashes) that aligns with existing customer satisfaction frameworks. For example, adopting the Net Promoter Score (NPS), a common measure of consumer satisfaction in both healthcare and many other sectors, is a good measure of consumer satisfaction. This could offer leadership a familiar metric to gauge internal staff's perception of emergency readiness. A low score would signal a gap in satisfaction and/or performance and provide actionable insight for improvement in training, communication, and response protocol.

Second, the field would benefit from the development of a universally accepted composite KPI specific to emergency management and business continuity. Such a metric should extend beyond simple regulatory compliance and reflect the true complexity of preparedness across domains such as infrastructure, operations, supply chain, human capital, and financial continuity. A practical starting point could be to use a standardized static annual assessment with the long-term goal of evolving toward a dynamic real time readiness dashboard. This kind of metric would enable leadership to track preparedness in a meaningful, quantifiable way and facility strategic investment in program development (Savoia et al., 2009). Together these recommendations provide a pathway toward enhancing the visibility and strategic relevance of emergency management programs within healthcare systems.

Challenge & Recommendation 3: Resilience, an Established Concept, but Evolving in Practice.

The last challenge discussed in this analysis is transitioning emergency management and business continuity from a risk-based model to a resilience-based model. While resilience is well understood in theory, its practical application within healthcare emergency management and business continuity, and across all sectors, is still evolving. In a traditional risk-based approach, the organization would conduct an HVA, identify top threats, and build preparedness around those threats. For example, if a hospital identifies hurricanes as their top threat, preparedness efforts for the following year would focus on hurricane response. However, if that hospital then experiences a cyberattack that causes complete IT system downtime rather than a hurricane, the critical question becomes: was that hospital truly prepared? Risk-based approaches are often too narrow, limiting preparedness to a predefined set of scenarios or circumstances.

A resilience-based model still utilizes the HVA but shifts the focus from specific threats to strengthening the organization's core functions and capacities such as infrastructure, human capital, supply chain, operations, and finances. The goal is to prepare the hospital to withstand, adapt, and recover from a wide range of disruptions, not just the most likely ones. This approach represents a change in thinking, and while still emerging in practice, it is a necessary evolution to match the complexity of modern healthcare challenges.

A resilience-based approach also necessitates the integration of a broader range of departments and functions across the healthcare organization. Unlike a risk-based model that may localize preparedness efforts within a single department, such as emergency management or facilities, resilience requires a holistic view of operations. Effective resilience planning involves clinical services, information technology, supply chain, human resources, communications, and finance to ensure that capacity to withstand and adapt to the distribution is embedded throughout the organizational structure (Barasa et al., 2018).

While risk assessment remains a foundation tool, resilience should be the status healthcare organizations, and other sectors strive for. It incorporates risk but broadens the operational lens, building systemic strength and adaptability. This broader perspective is essential for the healthcare sector to prepare for the increasingly complex and unpredictable nature of modern emergencies.

Conclusion

As the frequency, complexity, and impact of disasters continue to increase, the need to integrate Emergency Management and Business Continuity programs within healthcare has never been more needed. These programs are no longer peripheral operational considerations, they are central to patient safety, staff readiness, regulatory compliance, and financial sustainability. This analysis has outlined how shifting from a traditional risk-based model to a resilience-based framework enables healthcare organizations to build capacity required to face both expected and unforeseen threats. It also identified structural and strategic challenges that hinder program advancement, including the lack of standardized professional pathways, metrics misaligned with healthcare KPIs, and the underutilization of cross-departmental collaboration. Addressing these barriers requires sector-wide commitment, leadership support, and investment in these disciplines. The path forward is clear: hospitals must institutionalize resilience by embedding Emergency Management and Business Continuity into their core operations, not only as a means of compliance, but as strategic imperative for sustaining quality care in the face of crisis.

Author Biography

Adam Lee currently is the Director of Emergency Management and Organizational Resilience for Memorial Hermann Health System, where he is responsible for leading the Emergency Management, Business Continuity, and Resilience programs across all Memorial Hermann Owned and Operated Sites. Adam also is an Adjunct Professor with Sam Houston State University and sits at the Institute of Homeland Security Institute at Sam Houston State's Advisory Committee for Healthcare, the Advisory Committee for the Association of Business Continuity's Special Interest Group on healthcare, and the Greater Houston Partnerships Resilience Workgroup. Prior to joining Memorial Hermann Adam worked for the SouthEast Texas Regional Advisory Council (SETRAC) and the City of League City. Adam's academic credentials consist of a master's in business administration (MBA), Master of Science (MS), Certified Emergency Manager (CEM), Master Continuity Practitioner (MCP) and is a Six Sigma Green Belt. Adam had also published in both peer-reviewed and professional journals.

References

- Adams, L. M., & Melius, J. (2020). Prepared to respond? Exploring personal disaster preparedness and nursing staff response to disasters. *Disaster Medicine and Public Health Preparedness*, 15(5), 557–562. <https://doi.org/10.1017/dmp.2020.47>
- Barasa, E., Mbau, R., & Gilson, L. (2018). What is resilience and how can it be nurtured? A systematic review of empirical literature on organizational resilience. *International Journal of Health Policy and Management*, 7(6), 491–503. <https://doi.org/10.15171/ijhpm.2018.06>
- Bene, C., Wood, R. G., Newsham, A., & Davies, M. (2012). Resilience: New Utopia or New Tyranny? Reflection about the Potentials and Limits of the Concept of Resilience in Relation to Vulnerability Reduction Programmes. IDS Working Paper 405. <https://doi.org/10.1111/j.2040-0209.2012.00405.x>
- Centers for Medicare & Medicaid Services. (2016). Medicare and Medicaid Programs; Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers. Federal Register, 81(180), 63860-64044. Retrieved from <https://www.cms.gov/medicare/health-safety-standards/quality-safety-oversight-emergency-preparedness/emergency-preparedness-rule>
- Department of Homeland Security. (2010). National Disaster Recovery Framework. <https://www.fema.gov>
- Disaster Recovery Institute International. (2024). *Professional Practices for Business Continuity Management*. <https://drii.org/resources/professionalpractices/EN>
- Disaster Recovery Journal. (2023). Disaster recovery journal report. DRJ. <https://drj.com/wp-content/uploads/2023/10/2023-9-DRJ-EAB-RR.ped>h
- Fagel, M. J. (2013). Principles of Emergency Management and Emergency Operations Centers (EOC). CRC Press.
- Federal Emergency Management Agency. (n.d.). *Emergency Management Professional Program (EMPP)*. <https://training.fema.gov/programs/emergency-management-professional>
- FEMA. (n.d.). Emergency Management Definition. Emergency management institute redirect page. https://emilms.fema.gov/is_0230e/groups/999.html
- Federal Emergency Management Agency. (2011). Comprehensive Preparedness Guide (CPG) 201: Threat and Hazard Identification and Risk Assessment Guide (2nd ed.). <https://www.fema.gov>
- Federal Emergency Management Agency. (2017). *Natural hazard mitigation saves: 2017 interim report*. https://www.fema.gov/sites/default/files/2020-07/fema_mitigation_saves_180611.pdf

- FEMA. (2021, January 4). History of FEMA. FEMA.gov. <https://www.fema.gov/about/history>
- Folke, C. (2006). *Resilience: The emergence of a perspective for social–ecological systems analyses*. *Global Environmental Change*, 16(3), 253–267. <https://doi.org/10.1016/j.gloenvcha.2006.04.002>
- Hayes, B., & Kotwica, K. (2013). *Business Continuity: Playbook*. Elsevier.
- Healthcare Ready. (2019). *Business continuity in healthcare: Ensuring operational resilience*. <https://healthcareready.org/resources/>
- Herbane, B. (2010). The evolution of business continuity management: A historical review of practices and drivers. *Business history*, 52(6), 978-1002.
- International Organization for Standardization. (2018). ISO 31000:2018—Risk management—Guidelines. <https://www.iso.org/standard/65694.html>
- International Organization for Standardization. (2019). *ISO 22301:2019 Security and resilience – Business continuity management systems – Requirements*. <https://www.iso.org/standard/75106.html>
- Jones, A., & Perez, M. (2020). Business continuity planning in healthcare organizations: Best practices and financial impacts. *Journal of Healthcare Management*, 65(3), 177–189. <https://doi.org/10.1097/JHM-D-19-00024>
- Kaji, A. H., Koenig, K. L., & Bey, T. (2006). Surge capacity for healthcare systems: A conceptual framework. *Academic Emergency Medicine*, 13(11), 1157–1159. <https://doi.org/10.1111/j.1553-2712.2006.tb01635.x>
- Kapucu, N., & Sadiq, A. A. (2016). *Emergency Management and Disaster Preparedness: A Comprehensive Review*. Springer.
- Khankeh, H. R., Farrokhi, M., & Hosseini, M. A. (2023). Nurses' challenges for disaster response: A qualitative study. *BMC Emergency Medicine*, 23(1), 1–10. <https://doi.org/10.1186/s12873-023-00921-8>
- Maine Emergency Management Agency. (2020). *Maine emergency management agency*. Home | Maine Emergency Management Agency. <https://www.maine.gov/mema/home>
- McEntire, D. A. (2023). *The professionalization of emergency management: Challenges, progress, and pathways forward*. [ResearchGate Publication]. <https://www.researchgate.net/publication/390570975>
- McGlave, R. (2019, February 14). *The development of Business Continuity Management*. The Development of Business Continuity Management. <https://continuity2.com/blog/the-development-of-business-continuity-management>

McGlave, C., Neprash, H. T., & Nikpay, S. (2023). Hacked to Pieces? The Effects of Ransomware Attacks on Hospitals and Patients. SSRN. <https://ssrn.com/abstract=4579292>

National Research Council. (2012). *Disaster Resilience: A National Imperative*. The National Academies Press. <https://doi.org/10.17226/13457>

Pearce, L. (2021). Credentialing in emergency management: Progress and remaining gaps. *Journal of Homeland Security and Emergency Management*, 18(2), 155–170.

RAND Corporation. (2019). *Healthcare system preparedness and response to disasters*. https://www.rand.org/pubs/research_reports/RR3115.html

Sanders, L. M., et al. (2023). Mortality rates among Medicare beneficiaries in U.S. counties affected by billion-dollar weather disasters, 2011–2016. *Nature Medicine*. <https://pubmed.ncbi.nlm.nih.gov/38424213/>

Savoia, E., Agboola, F., & Biddinger, P. D. (2009). Use of after-action reports (AARs) to promote organizational and systems learning in emergency preparedness. *International Journal of Environmental Research and Public Health*, 9(8), 2949–2963. <https://doi.org/10.3390/ijerph9082949>

Smith, R., Lee, J., & Thompson, K. (2018). The financial impact of hospital emergency preparedness programs: A case study analysis. *American Journal of Disaster Medicine*, 13(2), 95–102. <https://doi.org/10.5055/ajdm.2018.0290>

Texas Trauma Coordinators Forum. (2020). Trauma Rules 157.125 – February 2020. Retrieved from <https://www.ttcf.org/wp-content/uploads/2020/02/Trauma-Rules-157.125-Feb-2020.pdf>

ThinkSecureNet. (2024, November 16). *6 Things Your Business Continuity Plan Should Include*. ThinkSecureNet for Managed IT Support Services, Outsource & Consulting. <https://www.thinksecurenet.com/blog/6-things-your-business-continuity-plan-should-include/#:~:text=The%20%20Ps%20of%20a,the%20face%20of%20unforeseen%20events>.

The Joint Commission. (2022). *Reference Guide: Emergency Management Standards*. Retrieved from <https://www.jointcommission.org/-/media/tjc/documents/resources/emergency-management/hospital--new-em-chapter-reference-guide.pdf>

The Joint Commission. (2023). Emergency Management Standards and HVA Guidance. <https://www.jointcommission.org>

The Joint Commission. (2023). R3 Report Issue 41: New and revised requirements for infection prevention and control for critical access hospitals and hospitals. https://www.jointcommission.org/-/media/tjc/documents/standards/r3-reports/r3_report_ic_rewrite-hap_cah.pdf

University of Minnesota School of Public Health. (2023, April 5). *Ransomware attacks on America's health care systems more than doubled from 2016 to 2021*. <https://www.sph.umn.edu/news/ransomware-attacks-on-americas-health-care-systems-more-than-doubled-from-2016-to-2021-exposing-the-personal-health-information-of-millions/>

U.S. Bureau of Labor Statistics. (2024, April 3). *Emergency management directors*. U.S. Bureau of Labor Statistics. <https://www.bls.gov/oes/current/oes119161.htm>

Walker, B., Holling, C. S., Carpenter, S. R., & Kinzig, A. (2004). Resilience, adaptability, and transformability in social–ecological systems. *Ecology and Society*, 9(2). <https://www.ecologyandsociety.org/vol9/iss2/art5/>

World Health Organization. (2019). Health emergency and disaster risk management framework. World Health Organization. <https://iris.who.int/handle/10665/326106>.
License: CC BY-NC-SA 3.0 IGO

Zhao, Q., et al. (2023). Flood exposure and risks of all-cause, cardiovascular, and respiratory mortality: A global study. *BMJ*, 383, e075081. <https://www.bmj.com/content/383/bmj-2023-075081>



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