Building on the Fly by Design Meeting 1 Report

March 26-27, 2025 | Omaha, Nebraska

Executive Summary

The Building on the Fly by Design (BFD) Meeting 1 convened federal interagency and Department of Defense partners in Omaha, Nebraska in March 2025, to address one of the most complex challenges facing national security: how to build healthcare capacity that can respond to extreme emergencies and large-scale combat operations (LSCO) while maintaining domestic healthcare stability. The meeting brought together experts from across the federal government to examine decision-making processes under extreme pressure with yet-unseen morbidity and mortality and identify the scenario elements that would push leaders beyond conventional thinking into "rules-free" environments where mission success demands unprecedented innovation.

In a peer adversary conflict, the U.S. healthcare system—both military and civilian—could face demands that exceed all planning assumptions. The current system, optimized for efficiency and steady-state operations, lacks the surge capacity needed for sustained LSCO operations with large amounts of casualties while simultaneously maintaining domestic healthcare delivery. Adding to this threat is the potential for concurrent asymmetric and unique threats or natural disasters. These events will trigger pressures that will not occur in isolation; disruption in one domain (i.e., space, staff, stuff, or systems), can cascade rapidly into others, exacerbating strain across the entire system.

Meeting 1 reinforced that building this capacity requires more than incremental improvements; it demands fundamental transformation of how we think about healthcare delivery under catastrophic conditions. That transformation must address not only operational capabilities, but also the processes by which leaders make decisions when time is short, information is degraded, and ethical strain is unavoidable. Equally important is sustaining public trust, which participants viewed as essential to preserving domestic stability and ensuring mission success in the face of a sustained LSCO.

Meeting 1 demonstrated both the urgency and the commitment required to prepare the healthcare system for the demands of a sustained LSCO while also maintaining domestic trust and stability. These discussions set the stage for Meeting 2, which will use scenario-based testing to stress decision-making processes and examine the capacity to sustain operations under prolonged pressure.

The Mission: Competing Priorities and Clear Objectives

A central theme throughout the meeting was the tension between competing missions (LSCO mission success and the provision of definitive healthcare for all) and the need for clarity about ultimate objectives. From the federal and military perspective, the mission in LSCO is unambiguous: win the fight. As one participant emphasized, "If we're at war with a peer adversary, the priority is to win the fight. Period." This priority is codified in doctrine and flows from strategy down through all operations.

However, the civilian healthcare system operates under different imperatives: save the most lives, achieve the best patient outcomes, and minimize disruptions to routine care. Routine demands for chronic illnesses, pediatrics, and emergency care will continue even as warfighters return with complex injuries. The result is a dual burden: sustaining care for injured warfighters while also preserving the capacity of the US healthcare system to meet the day-to-day needs of the domestic population. This fundamental difference in mission orientation creates tension that must be addressed in any comprehensive response plan. The challenge is not choosing between these missions but rather executing both simultaneously while maintaining public trust and support—because losing domestic confidence ultimately undermines the ability to sustain the fight.

Participants recognized that winning the war requires more than battlefield success; it demands maintaining homeland stability. As one military leader noted, "We will lose the fight if we cause the sort of disruption that erodes trust in government." Meeting 2 must therefore explore how to maximize protection and support for the injured warfighter while sustaining civilian healthcare and maintaining the public support essential for sustained operations.

Decision-Making Under Extreme Pressure

The primary goal of BFD is to understand and improve how senior leaders make critical decisions when conventional rules, assumptions, and processes no longer apply in scenarios that have not previously been experienced. Participants discussed how their leaders typically operate within comfort zones defined by regulations, past experience, and established protocols. But catastrophic scenarios demand decision-making that transcends these boundaries.

Several key insights emerged about decision-making under pressure:

The Authority to Think Differently: Perhaps the most critical element is not specific policies or procedures, but rather the authorization for leaders to adapt and innovate. One participant explained, "It's about authorizing people to think differently... Americans innovate under pressure. We just need authorization to do so, balanced with the right controls so it's not abused."

Leading Up: Multiple discussions emphasized the importance of "leading up"—how subject matter experts can help senior leaders make informed decisions by providing actionable intelligence, risk assessments, and recommendations. Effective leading up requires distinguishing between indicators and actionable intelligence, ensuring that "if every problem is important, none of them are important."

Time and Self-Awareness: Decision-making under pressure requires both time (which may not be available) and self-awareness (which may need to be provided by others). The goal of exercises like BFD is to build the mental frameworks and "muscle memory" that enable rapid, effective decision-making when time is scarce.

The goal of Meeting Two will be to break through traditional decision-making boundaries and address what participants referred to as “the rigidity challenge”. The paradigm shift required for this to occur will require a movement from regimented, rule-bound thinking to more creative, innovative problem-solving. Participants identified ethical strain as a key part of this challenge: leaders may face indicators and triggers for shifting standards of care, the strain of prolonged triage, and the moral distress associated with allocating scarce resources. Scenario elements must therefore be designed to push leaders into uncomfortable spaces where rules are insufficient, experience may bias and mislead, and the weight of ethical trade-offs further strains the decision-making process.

System Vulnerabilities and Cascading Failures

Participants identified numerous vulnerabilities across the healthcare system that could trigger cascading failures under LSCO conditions. These vulnerabilities span the traditional "4-S" framework: Space, Staff, Stuff, and Systems.

Staff: The human element emerged as perhaps the most critical vulnerability. Healthcare workforce shortages, moral distress, and burnout were identified as immediate concerns that would be amplified under LSCO conditions. The system depends heavily on staff who may be deployed forward, become ill, or experience psychological breakdown under sustained pressure.

Systems: Technology dependence creates significant vulnerabilities. Cyber degradation—rather than complete denial—poses particular challenges because it creates uncertainty about data reliability and validity. As one participant explained, "When labs are slow, data is suspect, or you're not sure what's accurate, the decision-making becomes murky. Confusion is, in many ways, the most dangerous weapon."

Supply Chain: Critical supply disruptions—from bulk oxygen to IV fluids to specialized medications—can rapidly overwhelm system capacity. International supply dependencies and transportation vulnerabilities amplify these risks.

Communication and Coordination: Command and control systems, patient tracking, and interagency coordination mechanisms represent critical failure points that could cascade across the entire response system.

Importantly, these vulnerabilities rarely occur in isolation; failures in one domain of the “4-S” framework often influence others. One example discussed during the meeting was the way in which cyber degradation can create uncertainly in lab and surveillance data, eroding confidence in decision-making and increasing pressure placed on staff. Similarly, supply chain disruptions may accelerate burnout and strain command and control functions. Scenario design for Meeting

2 must account for these interdependencies, as the most significant risks arise from compounded effects across domains rather than isolated disruptions.

The Civilian Healthcare System Challenge

A recurring theme of Meeting 1 was recognition that the civilian healthcare system is simultaneously essential to mission success and fundamentally distinct and unprepared for extreme near-peer LSCO demands. Participants noted that civilian hospitals are "more focused on financial solvency and daily operations than on mass casualty preparedness" and lack understanding of expected injury patterns, necessary medical specialties, and extreme surge requirements.

The current NDMS model, designed as an augmentation system for discrete events, cannot scale to meet LSCO requirements. As one leader observed, "An augmentation model will not get the job done. We don't have enough people to send everywhere." This recognition drives the need for more transformative approaches, potentially including military supervisory models in civilian settings and novel training paradigms that prepare civilian providers for battlefield-like conditions.

The civilian system's baseline has already shifted since COVID-19, with many facilities operating at what was previously considered contingency levels. This reality means that any additional surge capacity must be built from an already-stressed foundation.

Preparing the Nation

Perhaps the most challenging aspect of BFD planning is preparing the broader population—both leadership and citizenry—for the scale of potential disruption. Participants emphasized the need for extensive socialization and buy-in across industries and communities that don't typically engage in this level of contingency planning.

The challenge is balancing preparation with panic prevention. As one participant noted, "Most people outside DoD don't know what is foreseeable. How do you prepare without causing panic?" Historical examples, such as Cold War civil defense preparations, provide models for public engagement, but the current threat environment and social context require updated approaches.

Public communication strategies must address the psychological elements of sustained crisis, including the erosion of public trust, confusion from degraded information systems, and moral distress among healthcare workers. Preparing providers and patients mentally and emotionally for what they might face was identified as a critical "duty to warn."

Innovation and Adaptation

The meeting revealed significant potential for innovation within existing frameworks. Participants discussed how crisis conditions can free organizations from normal constraints,

enabling creative solutions. Examples ranged from repurposing private sector logistics capabilities (like learning from Chick-fil-A's drive-through efficiency) to leveraging dormant skills within existing personnel.

The concept of practicing "at the top of your license" versus "at the bottom of your license" illustrates this flexibility. While specialists may need to perform outside their normal scope during crises, highly trained professionals may also need to take on basic support roles to maximize overall system efficiency.

Technology offers both opportunities and vulnerabilities. Telemedicine, remote monitoring, and AI-assisted decision-making could augment limited human resources, but over-dependence on these systems creates additional failure points.

Scenario Development for Future Exercises

Participants agreed that scenario design is essential to the goals of BFD. For Meeting 2, the purpose is not to script a single “catastrophic, worst-case scenario”, but to create scenarios that serve as forcing functions, exposing decision points, testing assumptions, and observing how leaders adapt when conventional rules and processes may no longer apply. Participants consistently recommended that scenarios should increase in complexity, with layered stressors that reflect how crises unfold in practice. This also ensures participants are not overwhelmed by an extreme, catastrophic scenario from the start. Highlighted examples included a cyber incident that undermines confidence in data systems, followed by a surge of casualties with specialized needs, and later fuel shortages that disrupt logistics. Such progressive injects enables observation of how leaders identify inflection points, adapt priorities, and decide when to escalate or conserve resources (the latter referred to by participants as “just-in-time” vs. “just-in-case”). Moreover, participants reflected that failures rarely occur in isolation. Scenario design must therefore incorporate cascading effects and highlight interdependencies to understand system fragility.

Participants identified numerous scenario elements that should be tested in future exercises, recognizing that no single scenario can address all potential challenges. Key elements include:

- **Cyber degradation:** not a complete denial of service, but partial degradation that creates uncertainty about which data can be trusted, erodes confidence in information, and delays decision-making.
- **Supply chain disruptions:** interruptions in oxygen, IV fluids, pharmaceuticals, or fuel that stress hospitals already operating at contingency levels and create effects across care delivery.
- **Mass casualty events:** specific injury patterns (e.g., burn) that overwhelm specialized care capacity and resources, forcing rapid prioritization.
- **Special population challenges:** situations where vulnerable groups such as pediatric patients and those with disabilities face disproportionate risks, straining limited expertise and resources.
- **Simultaneous natural disasters:** hurricanes, earthquakes, or severe weather events occurring alongside LSCO demands, diverting resources and complicating logistics.

- **International complications:** limited allied capacity to absorb US warfighters, constraints on patient movement across borders, and the strain on NATO partners already managing their own populations.

Indicators and triggers for shifts in care delivery: decision points that require leaders to determine when conventional practices can no longer be sustained (e.g., supplies exhausted, casualty volumes exceed available staff), forcing changes in how care is prioritized and delivered. The goal is not to create an "unwinnable" scenario but rather to push decision-makers far enough outside their comfort zones to stimulate innovative thinking while still providing opportunities for meaningful solutions.

Conclusion and Next Steps

Meeting 1 successfully established buy-in for the BFD concept, validated the use of an extreme near-peer LSCO scenario, and identified critical areas for future development. Participants demonstrated broad consensus on the need for this type of planning, even while acknowledging the significant challenges involved and the lack of expendable resources to do so. There is also acknowledgement of a 'requirements' gap – the need for the requirements for this work to be identified, created, and owned.

The path forward requires continued iteration, refinement, and expansion. As one participant observed, "This is a process, not a product. It's a thought process we all have to engage in." Future meetings will need to move beyond identification of problems toward development of actionable frameworks for decision-making under extreme conditions.

Key priorities for continued development include:

1. **Building Resilience**: Developing systematic approaches to strengthen both healthcare system and population resilience. This includes addressing the dual mission of sustaining care in the homeland while responding to a LSCO, and anticipating and responding to cascading stresses across space, staff, stuff, and systems.
2. **Legal and Regulatory Framework**: Addressing policy barriers that could impede effective response, including clarifying the laws, waivers, and authorities that enable or constrain operations, and incorporating them into advanced planning.
3. **Training and Education**: Creating programs that prepare both military and civilian providers for non-standard care delivery.
4. **International Coordination**: Developing realistic assumptions about allied support and burden-sharing, including the acknowledgement that allied nations may have limited ability to absorb US casualties and be committed to their own populations.
5. **Public Engagement**: Building the societal foundation necessary for sustained response efforts. Priorities include transparent communication, patient and family tracking, countering misinformation, and preparing communities and providers for the psychological demands of a sustained crisis.
6. **Decision-Making Under Sustained Pressure:** Capturing not just what decisions are made, but how they are made under degraded information and compressed timelines.

7. **Innovation and Adaptation**: Documenting how crisis conditions enable new practices, such as shifting roles across licensure boundaries, leveraging private-sector logistics, and adopting new technologies, while also recognizing the risks and vulnerabilities that adaptations bring.

The ultimate goal remains clear: winning the mission should the need arise. This will involve creating a healthcare system capable of supporting national defense objectives while maintaining domestic stability and public trust. Achieving this goal will require unprecedented collaboration between military and civilian sectors, innovative approaches to capacity building, and the courage to plan for scenarios we hope never to face.

The participants in Meeting 1 demonstrated both the expertise and commitment necessary for this challenging work. Their willingness to engage with difficult questions and uncomfortable scenarios provides the foundation for developing the capabilities our nation may need in its darkest hours. In preparation for Meeting 2, Meeting 1 participants are asked to brief their senior leaders on the Building of the Fly concept to ensure they are prepared to engage with the scenario-based testing in December.