Joint Disaster Medicine and Public Health Ecosystem

2025 ANNUAL REPORT

NCDMPH
Uniformed Services University

The National Center for Disaster Medicine and Public Health (NCDMPH, or the National Center) is a federal interagency organization and component of the Uniformed Services University (USU). Established in 2008 under Homeland Security Presidential Directive-21 (HSPD-21), the National Center works closely with military, nonprofit, private, and other federal collaborators to advance the nation's medical operational readiness for crisis and conflict through science, education, and training. The National Center is governed as a collaboration across the Departments of Defense, Health and Human Services, State, Homeland Security, Transportation, and Veterans Affairs.

As an interagency organization established to serve as the nation's center of excellence in disaster and military medicine, NCDMPH recognizes that expertise and capabilities can be found across the nation. No one center can advance medical operational readiness in all the critical ways needed to prepare our nation for future conflict. The National Center must acknowledge and actively partner with existing centers of excellence across many fields, leveraging the expertise of organizations receiving federal funding to advance knowledge and capabilities. While there is a critical need to identify and connect expertise, NCDMPH does not seek to re-create capability at the federal level that exists elsewhere in academia, industry, or other parts of government. To maximize U.S. government investment, NCDMPH serves to streamline and support excellence in disaster and military medicine wherever it can be found, functioning as an interagency conduit to expertise and capabilities needed to advance the nation's medical operational readiness.

To provide greater opportunity for impact and avoid redundancy, the National Center has adopted a partnership-based model aimed at more efficient use of government investments as well as more effective integration of knowledge and resources nationally. Under this model, NCDMPH serves to quickly and effectively mobilize excellence in disaster and military medicine through its Joint Disaster Medicine and Public Health Ecosystem. The Ecosystem serves as a national asset and is composed of leading medical organizations that have demonstrated excellence in disaster and military medicine, public health, and other relevant fields of practice. Participating organizations can rapidly mobilize under NCDMPH, providing the widest possible array of capabilities to support medical requirements on behalf of the Defense Department, the federal interagency, the White House, and Congress.

The Ecosystem had a tremendously productive first year by welcoming 52 partners from academic, not-for-profit, and commercial organizations with NCDMPH funding and tasking more than 20% of Ecosystem partners to move critical disaster and military medicine efforts forward. These efforts span working with communities to understand and mitigate health effects of environmental exposures to improving health outcomes from post-motor vehicle crash care to strengthening the readiness of our nation's civilian and military health systems for future crises. We look forward to expanding these, and other, efforts in the coming year!

NATIONAL CENTER FOR DISASTER MEDICINE AND PUBLIC HEALTH
EST. 2008

Red Hill Independent Health Registry

The Red Hill Registry aims to support over 90,000 individuals exposed to jet propellent-5 aviation fuel, accidentally released from the legacy Red Hill fuel storage facility in Oahu, Hawai'i in late 2021 that contaminated a Navy potable water system. The selection of the University of Hawai'i System (UH) to spearhead this vital effort leverages UH's deep understanding of Hawai'i's unique environment, fostering trust within the local community and capitalizing on their established research capabilities. Rapidly developing this Registry is critical for the long-term monitoring of the health impact on the exposed population and in laying the foundation to support sustained research into the health effects of jet fuel exposure. UH is well-positioned to build trust and encourage participation, drawing upon existing relationships with the community, state agencies, and healthcare providers. In addition to evaluating the impact of the Red Hill fuel release on the community, the Registry will connect impacted individuals with needed health and social programs and services as well as track individuals over time to determine ongoing health effects and needs.

To address the ongoing impact of the Red Hill fuel release, the Red Hill Registry has implemented a comprehensive program to fulfill three core objectives. First, UH completed a feasibility assessment, confirming the need for epidemiological studies to understand the long-term effects of the Red Hill fuel release. Second, the Red Hill Registry is creating a five-year registry that establishes public health goals, an organizational structure, and an online presence to recruit and enroll impacted individuals. Due to begin enrollment on July 1st, 2025, the Registry will screen, longitudinally monitor health, and refer impacted individuals to health and social programs. Finally, a crucial component will be the establishment of an education and outreach program for healthcare providers and the affected community on the health effects of jet fuel exposure. Community-driven environmental health education will also be provided via podcasts and videos, guided by a new Community Oversight Board to ensure bidirectional communication and trust.

Implementation of the Field Trauma Triage Guidelines by EMS

The National Center has strategically partnered with the USA Center for Rural Public Health Preparedness (USA Center) at the Texas A&M University (TAMU) Health Science Center to support and evaluate state and local emergency medical services (EMS) systems in effectively implementing the 2021 Field Trauma Triage Guidelines (FTTG). The USA Center's expertise with unique challenges of rural public health preparedness and EMS systems ideally suit them to address the needs of the underserved communities within this project. Funded by the Department of Transportation's National Highway Traffic Safety Administration, the USA Center will focus on two main goals: supporting state and local EMS systems and assessing the impact of FTTG interventions.

By leveraging their established networks and understanding of rural EMS, the USA Center will identify and fund qualified EMS agencies to promote, develop practices for, and train clinicians on the 2021 FTTG. This includes leveraging an annotated bibliography of relevant literature developed by NCDMPH as well as establishing clear award criteria for eligible EMS agencies and monitoring training and implementation activities. Notably, financial awards will prioritize EMS agencies and systems serving rural and underserved communities providing high levels of post-vehicle crash care, a demographic where the USA Center possesses significant understanding and experience in addressing healthcare disparities. Funding will also support implementation evaluation through the development and execution of an evaluation plan, drawing upon the USA Center's research capabilities to measure the processes and outcomes of the funded activities through interviews, secondary data analysis, and outcome data. The findings from this project will inform EMS-related entities and stakeholders about best practices, lessons learned, and considerations for future initiatives aimed at supporting and implementing the 2021 FTTG.

National EMS & 911 Projects to Support Post-Crash Care

The provision of whole blood immediately after trauma by emergency medical providers following severe injuries during motor vehicle crashes (MVCs) decreases mortality by 60% and reduces the need for blood products within the first 24 hours.[1] Immediate whole blood transfusion acts as a rapid resuscitation strategy, improving patient survival and stability. The National Highway Traffic Safety Administration within the Department of Transportation is currently spearheading a pre-hospital blood transfusion (PBT) initiative that will enhance post-crash care and emergency response systems across the nation. Resources will bolster State Emergency Medical Services (EMS) system development to update clinical guidelines, develop statewide post-crash care plans, and improve data collection and interoperability. Substantial investment will be made in PBT initiatives to support research in PBT effectiveness, develop pilot programs, and explore innovative technologies like drone-based blood delivery, ultimately improving outcomes for MVC victims.

Recognizing the critical role of 911 systems, efforts will be directed towards public safety answering point (PSAP) traffic safety education. This will involve collaborating with national associations to provide technical support and resources to PSAPs, enhancing their ability to contribute to highway safety. Additionally, the "Stop the Bleed" program will be promoted and revised, focusing on educating first responders and the public on life-saving bleeding control techniques. This task will also support the integration of these techniques into national EMS education standards and ensure accessibility through multilingual materials.

Furthermore, a dedicated effort will be made to evaluate and assess post-crash care risks to fire service and EMS responders. This includes supporting the Longitudinal Inquiry into Fire and EMS Health Study (LIFE Study) and assessing additional risks faced by these critical personnel. Finally, strategic support will be provided to enhance the role of 911 in highway safety. This involves developing a strategic plan to connect 911 program initiatives with highway safety goals, identifying specific initiatives within key areas like operations and data, and establishing priorities for future programmatic activities.

Ecosystem Program Evaluation

NCMDPH is conducting a program evaluation of the JDMPH Ecosystem to annually assess progress towards its goals, including the development of a robust partner network.

GOAL	MEASURE(S)
1. Establish a robust partner network	Changes in size, cohesiveness, and strength of collaboration in the network
2. Execute tasks to advance and respond to disaster medicine and public health	Changes in number and types of discrete interagency emergency and steady-state projects undertaken and completed; quality of and partner satisfaction with projects
3. Advances disaster medicine and public health readiness	Changes in interagency and/or disaster medicine and public health policy or practice; innovation; publications; citations

To capture the baseline partner network measures using social network analysis, Ecosystem principal investigators (PIs) and team leads (N = 48) were surveyed at the Year 1 kickoff. The baseline network (Figure 1) indicates 148 existing professional contacts among partners (gray lines, known as edges or ties, represent partner relationships).[2] Figure 2 shows the 89 existing relationships that involve collaborative work among partners, and the different widths of the ties correspond to a 3-point ordinal scale measuring the intensity of this collaboration (thicker ties indicate more intensive collaboration). The smaller size of the collaboration network (Figure 2) compared to the professional contact network (Figure 1) demonstrates that not every professional contact results in collaboration. Among relationships that involved collaborative work, the average level of collaboration 1.7 out of 3. Both networks are moderately cohesive based on their clustering coefficients, however, many partners have limited number of ties (blue dots, or nodes, represent individual PIs/team leads) and both networks have isolated clusters.

Fig. 1: Baseline professional contact network
(Overall clustering coefficient: 36%)

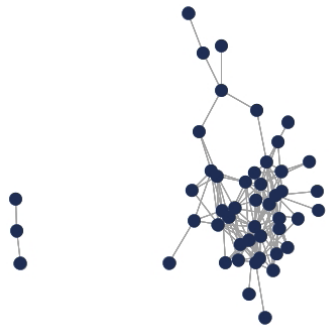
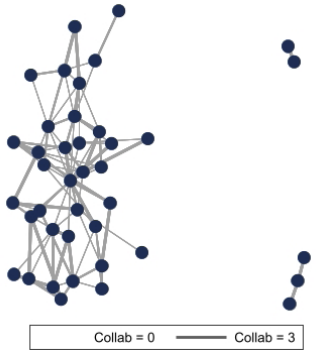


Fig. 2: Baseline collaboration network
(Overall clustering coefficient: 29%)



Baseline analysis highlighted the existing relationships and collaboration within the Ecosystem network, and suggest where growth and collaboration can be furthered to develop a robust partner network. NCDMPH will continue to evaluate the Ecosystem to assess the program's effectiveness and inform future efforts.

[1] Jim McCarney, "Whole Blood in Resuscitating Trauma Patients Is Making a Comeback", ACS Bulletin, April 10, 2023, https://www.facs.org/media/5h0n1yed/april-2023-acs-bulletin.pdf (access 4/30/2025).

[2] Thin lines are cooperative relationships (1): the collaboration involves exchanging information/resources and attending meetings together. Medium lines are coordinated relationships (2): the collaboration also involves intentional efforts to enhance each other's capacity for mutual benefit. Thick lines are integrated relationships (3): the collaboration includes using commonalities to create a unified center of knowledge and programming that supports work in related content areas.

INDIVIDUAL NATIONAL DISASTER MEDICAL SYSTEM (NDMS) PROJECTS IN COLLABORATION WITH ECOSYSTEM PARTNERS

MIT Lincoln Laboratory

Systems-Level View

Providing a comprehensive NDMS view to identify bottlenecks in definitive care for combat casualties, the NDMS mission model aligns with USNORTHCOM's Integrated CONUS Medical Operations Plan, civilian medical support planning, and Defense Health Agency Role 4 modeling initiative.

Mass General Brigham

Essential Capabilities

In addition to buttressing the health system and medical expertise embedded in the NDMS mission model, Mass General Brigham is performing a historical review of the NDMS to identify essential needs that accelerate program evolution.

Georgetown University

Levers and Boundaries

To strengthen the ability of the NDMS to effectively manage a protracted nationwide medical surge event, Georgetown University's Center for Global Health Science and Security is curating and systematizing the policies, authorities, and regulations associated with disaster health events.

The MITRE Corporation

Civilian Counterpart

A full-scale activation of the NDMS across DoD, VHA, and HHS civilian partner healthcare facilities requires a comprehensive interagency support plan for medical response to a LSCO, under development by MITRE to complement the DoD's Integrated CONUS Medical Operations Plan.

University of Nebraska Medical Center

Agile and Adaptable

Rapidly creating capacity under the most extreme conditions when our steady-state assumptions and constraints are no longer valid constitutes the Building on the Fly by Design initiative, conducted by the University of Nebraska Medical Center.

Public Health Extreme Events Research (PHEER)

Simultaneity Risks

To understand the risks created by competing demands during complex crises, the Public Health Extreme Events Research network performed a baseline health and medical needs assessment and evaluation of location-based data during the near-simultaneous Hurricanes Beryl, Helene, and Milton.

Louisiana State University Health Shreveport

Simultaneity Response

Louisiana State University Health Shreveport is studying the timing of needs and decision-making by leaders during disaster health events that may co-occur during a LSCO to identify community health and medical response implications of deployments of active duty and reserve Servicemembers and National Guard.

Future NDMS Pilot Collaborations with Ecosystem Partners

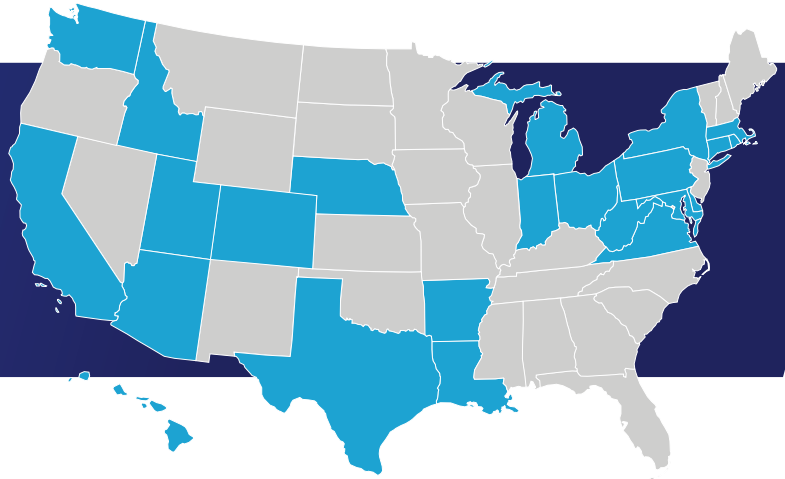
The NDMS Pilot is expanding to Shreveport, Louisiana, Puget Sound, Washington, and Honolulu, Hawai'i, in partnership with the Louisiana State University-Health Shreveport (LSUHS), University of Washington (UW) and The Queen's Medical Center (QMC), respectively. In addition to the original five Pilot sites, these three new sites play a unique role in American military and health care excellence and will contribute to the groundwork laid by the original Pilot sites. Please join us in welcoming the LSUHS, UW, and QMC teams!

The Colorado Regional Medical Operations Coordination (RMOC) ("CO RMOC") Project, led by the Southwest Texas Regional Advisory Council (STRAC), aims to demonstrate the scaling and implementation of the Research and Exportability study that was previously conducted by STRAC in San Antonio, Texas during Year 3 of the NDMS Pilot..

- An "RMOC" is a centralized facility or hub that coordinates and manages medical and health care operations within a specific geographic region. Key benefits include improved efficiency, communication, preparedness, and better patient outcomes through load-balancing.
- The Denver Pilot Site is pursuing this effort to inform future RMOC development in additional FCC jurisdictions nationwide. A robust and multidisciplinary group of key stakeholders has been established to create a CO RMOC Steering Committee, representing over 20 organizations across the North Central and South Central Healthcare Coalitions of Colorado. This work will culminate in a June 2025 Table Top Exercise.

ECOSYSTEM PARTNERS

Current members of the Joint Disaster Medicine and Public Health Ecosystem



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American College of Emergency Physicians
ADVANCING EMERGENCY CARE

American Heart Association.

AMPLIFIED SCIENCES

American Red Cross

Texas A&M

Beth Israel Lahey Health
Beth Israel Deaconess Medical Center

BROWN

CAPTRS

Carnegie Mellon University

CU

GEORGETOWN UNIVERSITY

Guidehouse

THE GEORGE WASHINGTON UNIVERSITY
WASHINGTON, DC

HARVARD UNIVERSITY

IAED

JOHNS HOPKINS UNIVERSITY

LEGACY BLIS Blood Logistics Integrity | Security

LSUS SHREVEPORT

THE LUNDQUIST INSTITUTE

Mass General Brigham

LINCOLN LABORATORY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

MITRE

Mount Sinai

NAEMSP

NASEMSO

NATIONAL ASSOCIATION OF STATE 911 ADMINISTRATORS

NATURAL HAZARDS CENTER

NEMSQA
National EMS Quality Alliance

NATIONAL REGISTRY OF EMERGENCY MEDICAL TECHNICIANS

NEW YORK MEDICAL COLLEGE CHARTERED 1860

NYU

OHIO STATE

STOP THE BLEED

STRAC
Southwest Texas Regional Advisory Council

SwRI
SOUTHWEST RESEARCH INSTITUTE

THE QUEEN'S MEDICAL CENTER

THE UNIVERSITY OF ARIZONA

University of Nebraska Medical Center

UW

UC DAVIS
UNIVERSITY OF CALIFORNIA

UC San Diego

UNIVERSITY of HAWAI'I SYSTEM

UNIVERSITY OF PITTSBURGH

THE UNIVERSITY OF UTAH

UTMB
The University of Texas Medical Branch

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https://ncdmph.usuhs.edu/science/ecosystem