TRACIE

HEALTHCARE EMERGENCY PREPAREDNESS INFORMATION GATEWAY

Patient Movement and Tracking Topic Collection

3/8/2017

ASPR

ASSISTANT SECRETARY FOR PREPAREDNESS AND RESPONSE

Topic Collection: Patient Movement and Tracking

In the event of a mass casualty incident, local emergency responders will be faced with the challenge of identifying, categorizing, triaging, and tracking large numbers of patients. As the scale of the event increases, so does the need for expanded assistance—from the local, state, regional, and federal levels, including health care coalitions and other health systems. Organizing appropriate transport and matching appropriate patients to the transportation can be challenging. Patient tracking takes a coordinated effort with all involved to identify a system that works in specific jurisdictions. This Topic Collection includes resources on patient movement from area healthcare facilities and tracking that can help emergency planners and responders learn more about various levels of assistance available, how to request it, how it is activated, and lessons learned from recent events.

This topic collection does not include resources specific to pre-hospital transport to the initial hospital; those can be found in the ASPR TRACIE Pre-Hospital Topic Collection. Pre-hospital triage methods can also be important when not enough transportation resources are available from the scene; access the Trauma Care and Triage Topic Collection (forthcoming) for more information. Patient movement is also distinct from hospital evacuation, but important overlapping concerns and issues exist. The Healthcare Facility Evacuation Topic Collection may be a valuable complementary resource.

Each resource in this Topic Collection is placed into one or more of the following categories (click on the category name to be taken directly to that set of resources). Resources marked with an asterisk (*) appear in more than one category.

Must Reads

Abbott, S. and Stevermer, A. (2012). Patient Movement: A Different Type of Evacuation.

> This conference presentation details the history of patient movement and the decision making process associated with patient movement (including medical considerations in prioritization). It also includes an overview of the National Disaster Medical System, the Joint Patient Tracking and Assessment System, and risks associated with moving and tracking.

ASPR TRACIE. (2016). Federal Patient Movement: NDMS Definitive Care Program Fact Sheet. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response.

This factsheet provides an overview of federal patient movement (the relocation or evacuation of patients from a disaster site to unaffected areas of the nation by federal agencies). It also explains the services covered and how coverage will be coordinated and includes links to helpful resources.

Denison, T. (n.d.). HEMS Utilization During Hospital Evacuation. (Accessed 2/1/2017.)

This presentation includes background information on Helicopter Emergency Medical Services (HEMS) and the importance of collaborative disaster planning to ensure HEMS is used as efficiently and safely as possible. The author also shares information on the New England HEMS (e.g., formation and capabilities). While HEMS can provide significant capabilities, particularly to smaller communities, planning is needed to manage multiple rotor-wing units responding.

Hopper, K., Hrdina, C., and Case, C. (2016). Patient Movement Following a Radiological Mass Casualty Incident.

The speakers in this webinar discuss the effects of an improvised nuclear detonation on infrastructure, human beings, and medical resources. They then explain field evacuation of three groups (those with combined injuries, radiation exposure, and limited injuries) to four types of healthcare facilities (medical centers, assembly centers, evacuation centers, and centers set up for "national care" purposes). The Radiation Injury Treatment Network is discussed at the end of the webinar.

Institute of Medicine of the National Academies. (2015). Regional Disaster Response Coordination to Support Health Outcomes: Surge Management—Workshop in Brief.

This document summarizes three regional workshops on effective medical and public health response to large-scale disasters. Challenges, opportunities, and lessons learned related to patient tracking and evaluation are included. The first section of the document provides some important bullet points to consider when planning large-scale patient movement.

Kerschner, D. (2013). Patient Evacuation: Federal Capabilities.

In this presentation, the speaker provides an overview of: the Federal National Ambulance Contract (including determining the need and the request and activation processes); the National Disaster Medical System; patient tracking; and patient movement challenges.

King County Healthcare Coalition. (2010). Regional Medical Evacuation and Patient Tracking Mutual Aid Plan (MAP).

This plan provides an operational overview of the King County (WA) regional mutual aid plan that can be applied when: 1) an individual facility is in need of resources; 2) a disaster occurs that forces evacuation; Region 6 is "incapable of handling patient volume." Section 7 focuses on patient identification and tracking and includes sample tracking form templates.

Lamana, J. (n.d.). An Introduction to ESF #8 Patient Movement. (Accessed 1/25/2017.)

The presenter discusses the evolution of patient movement from a federal perspective, summarizes the functional areas under ESF #8, and explains how plans can help responders manage scares resources.

McGovern, J. (n.d.). Mass Casualty Evacuation and Patient Movement. The Federal Response to Health and Medical Disasters, Chapter 9. (Accessed 3/2/2017.)

The author provides an overview of the planning and activation steps in a catastrophic scenario requiring mass evacuation that overwhelms local and state resources. The chapter has several sections: Planning Cycle (which examines planning for various types of threat); Characteristics of the Area (which encourages planners to consider demographics and structural integrity of healthcare facilities); Estimating Requirements for Medical Evacuation; Planning; Execution; Patient Evacuation from Medical Facilities; and Patient Evacuation Using the National Disaster Medical System.

Tavakoli, N., Yarmohammadian,, M., Safdari, R., and Keyvanara, M.. (2016). Health Sector Readiness for Patient Tracking in Disaster: A Literature Review on Concepts and Patterns. International Journal of Health System & Disaster Management. 4(3): 75-81.

In this literature review of 44 articles published between 2003 and 2015 that focused on patient tracking, the authors explained how the concept varies in emergency medicine and shared findings and experiences with electronic triage and online and wireless tracking systems in various disaster settings.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response (ASPR), and ASPR Technical Resources, Assistance Center, and Information Exchange. (2015). Joint Patient Assessment and Tracking System Overview and Fact Sheet.

This factsheet and PowerPoint presentation includes an overview of the Joint Patient Assessment and Tracking System (JPATS) to include background/history, functionality, integration into the Disaster Medical Information Suite, and common questions from state and local jurisdictions. Information about JPATS system requirements, the implementation process and cost, and types of assistance available through the U.S. Department of Health and Human Services Assistant Secretary for Preparedness and Response is also provided.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2015). HHS Response and Recovery Resources Compendium: Patient Movement.

This document is part of a repository of HHS products, services and capabilities available to state, state, tribal, territorial, and local agencies before, during, and after public health and medical incidents. The Patient Movement tab includes links to relevant disaster resources available from HHS, a brief description of each resource, and information on accessing each one.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2016). NDMS Patient Movement Exercise.

This brief video highlights the benefit of holding exercises that test the National Disaster Medical System.

Ambulance Strike Teams

California Emergency Medical Services Authority. (2010). Ambulance Strike Team (AST)/ Medical Task Force (MTF) System Manual.

This document defines Ambulance Strike Teams and their role in the state of California.

Florida Department of Health. (2012). Florida Ambulance Deployment Standard Operating Procedure.

These state-specific standard operating procedures cover issues such as the request process for ambulance strike teams (AST) (for incidents with and without notice), activation processes, resource management, logistical support, and demobilization. Supporting appendices include position descriptions, Florida Standards for an Ambulance Strike Force and Ambulance Task Force, and an equipment list for ground/air ambulance personnel.

Goss, J., McDonough, M., and Messina, M. (2006). Ambulance Strike Teams. EMSWORLD.

The authors explain the development of California's ambulance strike teams (AST) and medical task forces. They highlighted how ASTs were able to evacuate medical facilities, support cities that were overwhelmed by response activities and address the surge of calls related to the 2003 San Bernardino fire stores. Sections on concepts of operations, necessary training, and lessons learned are also included.

Pennsylvania Department of Health. (2006). Pennsylvania Emergency Medical Services Strike Team Guidelines.

These state-specific standard operating guidelines covers issues such as physical requirements and core immunizations required for ambulance strike team (AST)

personnel, training, and equipment and supplies. Supporting appendices include AST resource typing information, position descriptions for several types of emergency medical service providers, strike team job leader responsibilities, and relevant incident command system forms.

Texas Department of State Health Services. (2012). Ambulance Strike Team Standard Operating Guidelines.

This state-specific standard operating guidelines covers issues such as ambulance strike team (AST) composition, deployment, tasking, travel, and operations. Supporting appendices include AST deployment equipment guidelines and relevant incident command system forms.

Federal Patient Movement

Abbott, S. and Stevermer, A. (2012). Patient Movement: A Different Type of Evacuation.

This conference presentation details the history of patient movement and the decision making process associated with patient movement (including medical considerations in prioritization). It also includes an overview of the National Disaster Medical System, the Joint Patient Tracking and Assessment System, and risks associated with moving and tracking.

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This factsheet provides an overview of federal patient movement (the relocation or evacuation of patients from a disaster site to unaffected areas of the nation by federal agencies). It also explains the services covered and how coverage will be coordinated and includes links to helpful resources.

ASPR TRACIE. (2016). Federal Patient Movement: Overview Fact Sheet. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response.

This fact sheet provides an overview of the three levels of patient movement and highlights the functions and support agencies involved in patient movement.

ASPR TRACIE. (2016). Noble Lifesaver Patient Movement Workshop: Promising Practices and Lessons Learned. United States Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response

This document summarizes findings from the "Noble Lifesaver Patient Movement (PM) Workshop Series," held in 2015. These Workshops were designed to test and examine the

scope of federal assistance for PM functions and the specific requirements among local, state, regional, and federal emergency support function #8 partners to execute PM.

Donohue, J. (n.d.). National Disaster Medical System. Maryland Patient Reception Plan. (Accessed 1/31/2017.)

This presentation highlights the preparation, activation, and demobilization of pre-identified acute care hospitals and other healthcare facilities in Maryland that support the National Disaster Medical System. Several organization charts and floorplans are included. Note that this plan is focused on patient reception from affected areas.

Hopper, K. (n.d.). Federal Patient Movement. (Accessed 2/1/2017.) U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response.

This presentation highlights the various modes of patient evacuation and transport and tracking, federal coordination centers, the national ambulance contract, and factors that need to be considered when planning and activating federal patient movement.

Kerschner, D. (2013). Patient Evacuation: Federal Capabilities.

In this presentation, the speaker provides an overview of: the Federal National Ambulance Contract (including determining the need and the request and activation processes); the National Disaster Medical System; patient tracking; and patient movement challenges.

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National Disaster Medical System, Nashville Federal Coordinating Center. (2015). Patient Reception Operations Plan.

This plan explains how voluntary, pre-identified acute care hospitals and other healthcare facilities in Nashville and Smyrna (TN) will, under the National Disaster Medical System, serve as Federal Coordinating Centers that can "receive, triage, stage, track and transport inpatients that exceed the capabilities of local, state, or federal medical systems" due to mass casualty incidents. Templates, an organization chart, bed reporting forms, and other resources are included as appendices.

U.S. Department of Defense. (2016). DoD Instruction 6010.22: National Disaster Medical System (NDMS).

The roles of the U.S. Department of Defense as they pertain to the National Disaster Medical System (NDMS) are summarized in this issuance. The document includes a list of Federal Coordinating Centers and explains how they are selected and activated.

U.S. Department of Health and Human Services, Assistant Secretary for Preparedness and Response (ASPR), and ASPR Technical Resources, Assistance Center, and Information Exchange. (2015). Joint Patient Assessment and Tracking System Overview and Fact Sheet.

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U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2016). NDMS Patient Movement Exercise.

This brief video highlights the benefit of holding exercises that test the National Disaster Medical System.

Guidance

American Medical Response Office of Emergency Management, in Cooperation with the U.S. Department of Health and Human Services. (2013). Guidelines for Evacuation of Individuals with Disabilities During Disasters.

This guide provides disaster evacuation and transportation recommendations for individuals and caregivers/healthcare providers of people with access and functional needs. While it is geared more towards noninstitutionalized populations, some of the information can be applied to people in institutions and others.

Daniels, K., Oakeson, A.M., and Hilton, G. (2014). Steps Toward a National Disaster Plan for Obstetrics. Obstetrics and Gynecology. 124(1):154-158. (Abstract only.)

The authors examine disaster planning specific to obstetric units and present OB TRAIN (Obstetric Triage by Resource Allocation for Inpatient), a triage model that can help facilities plan for the evacuation and tracking of this group of patients.

Denison, T. (n.d.). HEMS Utilization During Hospital Evacuation. (Accessed 2/1/2017.)

This presentation includes background information on Helicopter Emergency Medical Services (HEMS) and the importance of collaborative disaster planning to ensure HEMS is used as efficiently and safely as possible. The author also shares information on the New England HEMS (e.g., formation and capabilities). While HEMS can provide significant capabilities, particularly to smaller communities, planning is needed to manage multiple rotor-wing units responding.

Hopper, K., Hrdina, C., and Case, C. (2016). Patient Movement Following a Radiological Mass Casualty Incident.

The speakers in this webinar discuss the effects of an improvised nuclear detonation on infrastructure, human beings, and medical resources. They then explain field evacuation of three groups (those with combined injuries, radiation exposure, and limited injuries) to four types of healthcare facilities (medical centers, assembly centers, evacuation centers, and centers set up for “national care” purposes). The Radiation Injury Treatment Network is discussed at the end of the webinar.

Institute of Medicine of the National Academies. (2014). Nationwide Response Issues After an Improvised Nuclear Device Attack: Medical and Public Health Considerations for Neighboring Jurisdictions – Workshop Summary.

This report summarizes the presentations from a 2013 workshop held by the Institute of Medicine and the National Association of County and City Health Officials focused on response requirements faced by public health and healthcare systems in response to an improvised nuclear device (IND) detonation. Chapter 9 specifically discusses the roles and work of healthcare coalitions to advance regional planning for IND incidents. The specific challenges of patient forward movement unique to a nuclear event are discussed.

*Institute of Medicine of the National Academies. (2015). Regional Disaster Response Coordination to Support Health Outcomes: Surge Management—Workshop in Brief.

This document summarizes three regional workshops on effective medical and public health response to large-scale disasters. Challenges, opportunities, and lessons learned related to patient tracking and evaluation are included. The first section of the document provides some important bullet points to consider when planning large-scale patient movement.

Lien, O. and Tobiason, E. (n.d.). Building Military-Civilian Partnerships to Develop NDMS Patient Reception Area Plans. (Accessed 2/1/2017.)

This presentation includes an overview of the National Disaster Medical System (and the role of Federal Coordinating Centers). It also includes information on the King County (WA) Patient Reception Area, patient movement scenarios, and patient reception teams. Additional guidance on patient movement and tracking which could be helpful to emergency planners is also provided.

McGovern, J. (n.d.). Mass Casualty Evacuation and Patient Movement. The Federal Response to Health and Medical Disasters, Chapter 9.

The author provides an overview of the planning and activation steps in a catastrophic scenario requiring mass evacuation that overwhelms local and state resources. The chapter has several sections: Planning Cycle (which examines planning for various types of threat); Characteristics of the Area (which encourages planners to consider demographics and structural integrity of healthcare facilities); Estimating Requirements for Medical Evacuation; Planning; Execution; Patient Evacuation from Medical Facilities; and Patient Evacuation Using the National Disaster Medical System.

Rich, T., Biddinger, P., Zane, R., et al. (2011). Recommendations for a National Mass Patient and Evacuee Movement, Regulating, and Tracking System.

The authors explain the development of recommendations for a national mass patient and evacuee movement, regulating, and tracking system that could be used during a mass casualty or evacuation incident for the purposes patient tracking and movement. The system could also be used to support decision making for those responsible for patient and evacuee movement and care, healthcare and transportation resource allocation, and incident management.

Rich, T., Biddinger, P., Zane, R., et al. (2011). Recommendations for a National Mass Patient and Evacuee Movement, Regulating, and Tracking System: Appendix C: Existing Systems: Tracking Systems.

This Appendix contains a review of patient tracking systems used at the local or regional level, and used or in development (at the time it was published) at the federal level.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Response. (n.d.). Planning for Psychiatric Patient Movement During Emergencies and Disasters. (Accessed 1/25/2017.)

This tip sheet highlights basic considerations that can help public health and medical planners prepare for the movement of patients of psychiatric facilities in the event of a disaster.

Lessons Learned

Dorsey, D., Carlton, F., and Wilson, J. (2012). The Mississippi Katrina Experience: Applying Lessons Learned to Augment Daily Operations in Disaster Preparation and Management. Southern Medical Journal. 106(1).

The authors share how lessons learned in patient movement and other planning and response capabilities have been incorporated since Hurricane Katrina struck the Gulf Coast. The authors highlight the development of Mississippi MED-COM, a statewide medical communications center, to serve as a "hub for patient coordination and movement during emergency incidents."

Ihde, R., Brown, D., and Crane, Jr., R. (2013). Central Arkansas Response to Medical Evacuations Related to Hurricane Gustav. Journal of Preparedness and Recovery. 1(1): 17-29.

This article highlights how the State of Arkansas incorporated lessons learned from their response to Hurricane Katrina, namely, by developing the Metropolitan Hospital Emergency Management Group (MHEMG). The authors highlight how MHEMG operated after Hurricane Gustav by providing more efficient and effective care (e.g., movement and tracking) of evacuees.

Institute of Medicine of the National Academies. (2011). Case Examples: 2008 Mexican Hat, Utah, Incident and 2010 Albert Pike, Arkansas, Flood. Preparedness and Response to a Rural Mass Casualty Incident: Workshop Summary.

This chapter presents two case studies of rural mass casualty incidents and includes sections on challenges and successes and lessons learned related to patient movement and tracking.

Institute of Medicine of the National Academies. (2011). Preparedness and Response to a Rural Mass Casualty Incident: Workshop Summary.

Healthcare facilities in rural areas can be particularly challenged during a mass casualty incident (MCI) as local emergency medical service providers may be overwhelmed by 911 responses and unable to assist with patient forward movement. This summary

reviews some of the contributing issues and potential solutions and highlights a broader range of issues for rural MCI response.

*Institute of Medicine of the National Academies. (2015). Regional Disaster Response Coordination to Support Health Outcomes: Surge Management—Workshop in Brief.

This document summarizes three regional workshops on effective medical and public health response to large-scale disasters. Challenges, opportunities, and lessons learned related to patient tracking and evaluation are included. The first section of the document provides some important bullet points to consider when planning large-scale patient movement.

Kearns, R., Holmes, J., Skarote, M., et al. (2014). Disasters: The 2010 Haitian Earthquake and the Evacuation of Burn Victims to US Burn Centers. (Abstract only.) Burns. 40(6):1121-1132.

The authors share lessons learned from the movement of burn patients from Haiti to U.S. Burn Centers and how these lessons could be applied to larger patient movement events.

Klein, K.R. and Nagel, N.E. (2007). Mass Medical Evacuation: Hurricane Katrina and Nursing Experiences at the New Orleans Airport. (Abstract only.) Disaster Management and Response. 5(2): 56-61.
The authors of this article describe the experiences and solutions of nurses and other personnel from three Disaster Medical Assistance Teams assigned to the New Orleans airport responsible for patient assessment, stabilization, and evacuation operation after Hurricane Katrina.

Lee, A. (n.d.) Concept of Forward Movement of Patients. (Accessed 1/25/2017.)

In this PowerPoint presentation, the author provides an overview of forward movement of patients and highlights lessons learned from a 2002 tabletop exercise and Hurricane Katrina.

Lezama, N., Riddles, L., Pollan, W., and Profenna, L. (2011). Disaster Aeromedical Evacuation. (Abstract only.) Military Medicine. 176(10): 1128-1132.

The authors share lessons learned from Department of Defense patient movement during the 2008 hurricane season and the 2010 Haiti in earthquake.

Rogers, N., Guerra, F., Suchdev, P., et al. (2006). Rapid Assessment of Health Needs and Resettlement Plans Among Hurricane Katrina Evacuees-San Antonio, Texas, September 2005. Morbidity and Mortality Weekly. 55(9): 242-244.

The authors conducted surveys with post-Hurricane Katrina evacuees (residing in evacuation centers). Key findings include: 42% had a household member with a chronic medical condition, 28% percent said they had a family member with access or functional

needs, and 20% shared that they knew someone in need of post-Katrina counseling services. These findings support the need for healthcare facility emergency planners to bolster their mass casualty patient movement and tracking plans.

Rose, K. (2013). From Chaos to Coordination: The EMS Patient Movement Strategy for the Asiana Plane Crash. California Hospital Association.

The author provides an overview of the crash, the associated destruction, and how responders moved and tracked patients. Overall, 181 patients were transported to 11 hospitals within five hours in several waves.

Sanford, C., Jui, J., Miller, H., and Jobe, K. (2007). Medical Treatment at Louis Armstrong New Orleans International Airport after Hurricane Katrina: The Experience of Disaster Medical Assistance Teams WA-1 and OR-2. (Abstract only.) Travel Medicine and Infectious Disease. 5(4):230-5.

The authors describe the patient evacuation that occurred after Hurricane Katrina—the largest air evacuation in U.S. history. They also highlight the multiple factors that "diminished the effectiveness" of the entire operation (e.g., the length of time it took to stand up medical triage to track and move patients, understaffing, and failure to use the incident command system).

Stuart, J. and Johnson, D. (2011). Air Force Disaster Response: Haiti Experience. (Abstract only.) Journal of Surgical Orthopaedic Advances. 20(1): 62-66.

In this article, the authors share medical response techniques and lessons learned from the U.S. Air Force patient movement effort that took place after the 2010 Haiti earthquake.

Tavakoli, N., Yarmohammadian,, M., Safdari, R., and Keyvanara, M. (2016). Health Sector Readiness for Patient Tracking in Disaster: A Literature Review on Concepts and Patterns. International Journal of Health System & Disaster Management. 4(3): 75-81.

In this literature review of 44 articles published between 2003 and 2015 that focused on patient tracking, the authors explained how the concept varies in emergency medicine and shared findings and experiences with electronic triage and online and wireless tracking systems in various disaster settings.

National Ambulance Contract Resources

American Medical Response. (2016). Overview of AMR/FEMA Federal Emergency Medical Services Contract.

This pamphlet describes the services provided in the federal contract (e.g., triage, symptom surveillance and reporting, patient transport, immunizations), summarizes events in which the contract has been activated from 1992-2016, and provides contact information for the American Medical Response Office of Emergency Management.

Federal Emergency Management Agency. (2009). Typed Resource Definitions. Emergency Medical Services Resources.

Emergency incident command staff can use the information in this document to request and receive resources through mutual aid during disasters or other emergencies.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (n.d.). FEMA National Ambulance Contract. (Accessed 3/2/2017.)

This document explains the purpose of the contract, how it would be requested, when it would be activated, and he roles of emergency medical services in this type of response. Photos of ground and air assets during Hurricane Dean (2007) are included.

U.S. Department of Homeland Security, American Medical Response, and U.S. Department of Health and Human Services. (2015). EMS Scope of Practice, Protocols, Reciprocity, and Medical Control and Direction for AMR/FEMA Federal EMS Deployments.

In a critical incident, emergency medical services responders from multiple states will likely be deployed under the National Ambulance Contract. This document includes clinical guidelines, a minimum scope of practice, and reciprocity procedures all responders must comply with regardless of their state of origin.

U.S. Department of Homeland Security, American Medical Response, and U.S. Department of Health and Human Services. (2015). Equipment for Ground Ambulances in Federal EMS Response.

This list addresses recommendations for the equipment and supplies that would be necessary in an event requiring mass patient movement via ground ambulance. It is divided into two sections: Basic Life Support and Advanced Life Support Ground Ambulance Required Equipment.

Patient Tracking

Chan, T., Griswold, W., Buono, C., et al. (2011). Impact of Wireless Electronic Medical Record System on the Quality of Patient Documentation by Emergency Field Responders During a Mass-Casualty Exercise. (Abstract only.) Prehospital Disaster Medicine. 26(4):268-275.

The authors compared the efficiency and accuracy of a wireless, electronic patient documentation tool against a traditional paper-based tool during a mass casualty exercise. They found that the electronic tool performed better.

Lenert, L., Kirsh, D., Griswold, W., et al. (2011). Design and Evaluation of a Wireless Electronic Health Records System for Field Care in Mass Casualty Settings. Journal of the American Medical Informatics Association. 18(6): 842–852.

Lenert et al. describe Wireless Internet Information System for Medical Response in Disasters (WIISARD), including the research that contributed to its development and testing. They found that applying the principles of electronic health records can help responders track patients in mass casualty incidents and that WIISARD could improve patient data collection and dissemination.

Plans, Tools, and Templates

CT Department of Public Health, CT Department of Emergency Management and Homeland Security, and The Capitol Region Metropolitan Medical Response System, State of Connecticut. (2008). State of Connecticut: The Forward Movement of Patients Plan.

This state plan covers the medical management and transport of patients after a mass casualty incident (and before the National Disaster Medical System [NDMS] is implemented). It also includes steps for activating and implementing NDMS.

Florida Health, Division of Emergency Preparedness and Community Support, Bureau of Preparedness and Response. (2013). Patient Movement Support Standard Operating Guideline.

This Standard Operating Guide highlights the State of Florida's patient movement plan. Sample forms and checklists are included as appendices.

Hospital Incident Command System. (n.d.). Disaster Victim/Patient Tracking Form. (Accessed 2/2/2017).

Healthcare providers can use this HICS 254 form to track patients by triage tag number, demographics, area triaged to, location/time of procedure, time sent to surgery, and disposition within a healthcare facility.

Hospital Incident Command System. (2014). Patient Tracking Manager.

This Job Action Sheet can be used to monitor the movement and document the location of patients. It also includes lists of other helpful Hospital Incident Command System forms and resources.

King County Healthcare Coalition. (2010). Regional Medical Evacuation and Patient Tracking Mutual Aid Plan (MAP).

This plan provides an operational overview of the King County (WA) regional mutual aid plan that can be applied when: 1) an individual facility is in need of resources; 2) a disaster occurs that forces evacuation; Region 6 is "incapable of handling patient volume." Section 7 focuses on patient identification and tracking and includes sample tracking form templates.

Agencies and Organizations

Note: The agencies and organizations listed in this section have a page, program, or specific research dedicated to this topic area.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. Joint Patient Assessment & Tracking System (JPATS).

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. National Disaster Medical System.

This ASPR TRACIE Topic Collection was comprehensively reviewed in February 2017 by the following subject matter experts (listed alphabetically):

***Eric Alberts,** CEM, CHS-V, FPEM, FPEM-HC, CDP-1, CHPP, CHEP, SEM, CFRP, FABCHS, Emergency Preparedness Manager, Orlando Health, Inc.; **Julie Bulson**, DNP, MPA, RN, NE-BC, Director, Emergency Preparedness, Spectrum Health; **John Hick**, MD, HHS ASPR and Hennepin County Medical Center; **Alexander Isakov**, MD, MPH Emory University; **Mark P. Jarrett**, MD, MBA, MS, SVP & Chief Quality Officer, Northwell Health; **Jodi Keller**, RN, Associate Director of Healthcare System Emergency Preparedness, Central Ohio Trauma System; **Mary Russell** EdD, MSN, Emergency Services, Boca Raton Regional Hospital; and **Gamunu Wijetunge**, Office of Emergency Medical Services, National Highway Traffic Safety Administration.*