

**Disclaimer:** This document contains examples of existing tools, guidance, protocols, and planning models. The authors chose these examples to illustrate certain principles and concepts, but do not endorse the use of one community planning model or tool over another.

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**Table of Contents**

[Chapter One – About This Document 1](#_Toc466287834)

[Overview 1](#_Toc466287835)

[Topics Covered 3](#_Toc466287836)

[Target Audience 3](#_Toc466287837)

[Purpose 4](#_Toc466287838)

[Format 4](#_Toc466287839)

[Guiding Principles 5](#_Toc466287840)

[1. An Integrated Approach to Medical Surge Planning 5](#_Toc466287841)

[2. Medical Oversight 6](#_Toc466287842)

[3. Planning for Special Populations 7](#_Toc466287843)

[4. Preserving EMS Personnel for Clinical and Prehospital Functions 7](#_Toc466287844)

[5. Day-to-Day Integration 8](#_Toc466287845)

[Chapter Two – Setting the Stage: A Foundation for Expanding EMS System Capacity 9](#_Toc466287846)

[PHEP/HPP Capabilities 9](#_Toc466287847)

[Integrated Community Medical Surge Planning 12](#_Toc466287848)

[Integrating EMS into Community Medical Surge Planning 12](#_Toc466287849)

[Additional Considerations for Engaging EMS 17](#_Toc466287850)

[Conducting a Hazard Vulnerability Analysis 21](#_Toc466287851)

[Conducting a Needs Assessment 22](#_Toc466287852)

[Identifying Triggers 25](#_Toc466287853)

[Establishing Reimbursement Mechanisms 27](#_Toc466287854)

[EMS System Performance Management 28](#_Toc466287855)

[Monitoring Provider and Patient Safety 29](#_Toc466287856)

[Patient Tracking 30](#_Toc466287857)

[Education and Training of EMS 30](#_Toc466287858)

[Communication to Patients, Public, and Media 33](#_Toc466287859)

[Conclusion 34](#_Toc466287860)

[Chapter Three – Tiered Dispatch 35](#_Toc466287861)

[Overview 35](#_Toc466287862)

[Examples of Tiered Dispatch 36](#_Toc466287863)

[Addressing Legal Barriers 37](#_Toc466287864)

[How to Plan for Implementing Tiered Dispatch 38](#_Toc466287865)

[1. Meet with PSAP and Dispatch Directors, Assess Capacity, and Identify Resources Needed to Expand Services during an Emergency 38](#_Toc466287866)

[2. Develop Staffing Plans to Expand Dispatch Center Capacity 41](#_Toc466287867)

[3. Identify Other Call Centers for Referral of Non-life-threatening Calls for Medical Advice 45](#_Toc466287868)

[4. Identify Hosting Solutions for a Scalable System (to Assure Interoperability between Call Centers) 49](#_Toc466287869)

[5. Develop Standard Methodology and Protocols 51](#_Toc466287870)

[Chapter Four – Modified Treatment and Transport Strategies 56](#_Toc466287871)

[Overview 56](#_Toc466287872)

[Examples of Modified Treatment and Transport Strategies 56](#_Toc466287873)

[Addressing Legal Barriers 59](#_Toc466287874)

[How to Plan for Implementing Modified Treatment and Transport Strategies 60](#_Toc466287875)

[1. Determine Ways to Increase the Availability of EMS Personnel in the Field 60](#_Toc466287876)

[2. Develop Methodology and Protocols 61](#_Toc466287877)

[A Note on Training EMS Personnel to Perform Modified Treatment and Transport 63](#_Toc466287878)

[Chapter Five – Coordinating Transport to Alternate Destinations 64](#_Toc466287879)

[Overview 64](#_Toc466287880)

[Examples of Coordinating Transport to Alternate Destinations 64](#_Toc466287881)

[Addressing Legal Barriers 68](#_Toc466287882)

[How to Plan for Implementing Coordinating Transport to Alternate Destinations 69](#_Toc466287883)

[1. Familiarize EMS Stakeholders with Overall Community Plans for Utilizing Alternate Destinations during an Emergency 70](#_Toc466287884)

[2. Determine the Roles EMS Providers Will Play in Community Plans for Alternate Destinations/Alternate Care Sites during an Emergency 71](#_Toc466287885)

[3. Establish Plans for Communicating Between Dispatch, EMS Personnel and Non-EMS Transporters, and Destinations on Capacity 73](#_Toc466287886)

[4. Establish Communication Plans for Patient Handoff 73](#_Toc466287887)

[5. Develop Methodology and Protocols 74](#_Toc466287888)

[Chapter Six – Support for Rapid Implementation of Patient Interventions 76](#_Toc466287889)

[Overview 76](#_Toc466287890)

[Addressing Legal Barriers 76](#_Toc466287891)

[Legal Responsibility to Plan for Delivery of Patient Interventions 76](#_Toc466287892)

[Laws Impacting Distribution of Resources 77](#_Toc466287893)

[The Strategic National Stockpile and Declaration of Emergency 77](#_Toc466287894)

[Rapid Implementation of Patient Interventions and EMS Scope of Practice 77](#_Toc466287895)

[Examples of Patient Interventions and Implementation Considerations 77](#_Toc466287896)

[Vaccine Administration 78](#_Toc466287897)

[Pharmaceutical Distribution 79](#_Toc466287898)

[Non-pharmaceutical Interventions Delivery 80](#_Toc466287899)

[PPE Distribution 80](#_Toc466287900)

[Sample Methodology and Protocols 81](#_Toc466287901)

[Chapter 7 – Conclusion 83](#_Toc466287902)

[The Preparedness Cycle 83](#_Toc466287903)

[Application to Expanding EMS System Capacity during Medical Surge 83](#_Toc466287904)

[Exercise Planning 85](#_Toc466287905)

[Exercise Documentation 86](#_Toc466287906)

[Final Suggestions 86](#_Toc466287907)

[Ending Note 86](#_Toc466287908)

[Appendix A – References 87](#_Toc466287909)

[Appendix B – EMS Stakeholder Meeting Participants 95](#_Toc466287910)

[Participants 95](#_Toc466287911)

[Federal Government Participants 99](#_Toc466287912)

[Staff 101](#_Toc466287913)

[National Highway Traffic Safety Administration, U.S. Department of Transportation 101](#_Toc466287914)

[Healthcare Preparedness Activity, Centers for Disease Control and Prevention 102](#_Toc466287915)

[Oak Ridge Institute for Science and Education 103](#_Toc466287916)

[Appendix C – Abbreviations and Acronyms 106](#_Toc466287917)

[EMS and Public Health Preparedness Acronyms 106](#_Toc466287918)

[Organizational Acronyms 108](#_Toc466287919)

[Appendix D: Copies of Worksheets 110](#_Toc466287920)

[Worksheet 2.1 – EMS Planning Team Members 110](#_Toc466287921)

[Core EMS Planning Team Members for Integrating EMS 110](#_Toc466287922)

[Additional EMS Planning Team Members 110](#_Toc466287923)

[Worksheet 2.2 – EMS Planning Partners 112](#_Toc466287924)

[Tier 1: Primary EMS Partners for Community Planning 112](#_Toc466287925)

[Tier 2: Other Key Community Planning Partners 113](#_Toc466287926)

[Tier 3: Other Potential Partners for EMS to Engage 113](#_Toc466287927)

[Worksheet 2.3 – Improving EMS Community Engagement 114](#_Toc466287928)

[Worksheet 2.4 – Community Disaster Scenarios 115](#_Toc466287929)

[Worksheet 2.5 – Resource Review by Disaster Scenario 116](#_Toc466287930)

[Worksheet 2.6 – Trigger Identification Discussion Questions 117](#_Toc466287931)

[Worksheet 3.1 – Dispatch Center Identification and Survey 118](#_Toc466287932)

[Survey Development 118](#_Toc466287933)

[Survey Data Collection 118](#_Toc466287934)

[Survey Data Synthesis 119](#_Toc466287935)

[Survey Findings Review 119](#_Toc466287936)

[Future Planning 120](#_Toc466287937)

[Worksheet 3.3 – Community Call Centers (for Referral of Non-life-threatening Calls) 121](#_Toc466287938)

[Worksheet 5.1 – Discussion Questions for Clarifying EMS roles in Alternate Destination/Alternate Care Site Planning 123](#_Toc466287939)

[Worksheet 6.1 – Discussion Questions for Defining EMS Roles in Rapid Implementation of Patient Interventions 125](#_Toc466287940)

[Worksheet 7.1 – Community Multiyear Training and Exercise Plan 127](#_Toc466287941)

# Chapter One – About This Document

## Overview

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| During a public health emergency, EMS may be overwhelmed quickly by the demands of patients with illness or injury who require transport as well as those with non-acute complaints. |

Emergency medical services (EMS) is a system of coordinated response and emergency medical care involving dispatch centers, ambulance agencies, hospitals, and specialty care centers (e.g., trauma, burn, pediatrics). (1, 2) Under this EMS system, EMS care "is provided by well-trained and equipped personnel using standardized protocols and guidelines approved by medical directors." (2) For single-patient and mass casualty calls to 9-1-1, EMS provides initial response and field care and then coordinates patient movement and entry into a hospital emergency department (ED) or specialty center. In some circumstances, EMS is used regularly by patients who may be better—and more efficiently—managed outside of acute care hospital EDs. (3)

| **About This Document** |
| --- |
| Emergency response requires advance planning for medical surge—the ability to provide adequate medical evaluation and care during events that exceed the limits of the normal medical infrastructure of an affected community.  Hospitals across the United States experience medical surge on a daily basis that requires expansion of patient care beyond what is provided under normal operations. This document addresses medical surge that requires a much larger expansion of patient care than most hospitals have ever encountered.  This document takes an all-hazards approach to planning for medical surge. The principles addressed apply to any emergency, including natural disasters, widespread outbreaks of infectious diseases, or any other event that pushes medical demand beyond the day-to-day capacity of a community's healthcare system. |

During a public health emergency, EMS may be overwhelmed quickly by the demands of patients with illness or injury who require transport as well as those with non-acute complaints. EMS agencies must plan for medical surge in order to provide adequate medical evaluation and care when demand exceeds available resources. EMS agencies and organizations and local, state, and federal governments acknowledge the critical need for EMS medical surge planning. These groups have identified current medical surge planning as inadequate.(2, 4)

The Federal Interagency Committee on Emergency Medical Services (FICEMS) and the National Academies of Science (NAS) have recognized that, in order to accommodate medical surge during an emergency, EMS agencies may need to perform functions outside their normal routine. These functions may include

* Modified triage.
* Increased options for disposition of 9-1-1 callers, such as treatment without transport and transport to nontraditional care sites.
* Support for mass vaccination, targeted antiviral prophylaxis, and sentinel surveillance.

FICEMS and NAS outlined important considerations for communities in three documents released in 2009, 2011, and 2012 respectively: *State EMS System Pandemic Influenza Preparedness: A Report of the FICEMS*; *2011 National EMS Assessment*; and *Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response*. (2, 4, 5)However, these documents do not provide operational guidance for implementing strategies for expanding EMS system capacity during medical surge.

The Centers for Disease Control and Prevention (CDC) Healthcare Preparedness Activity (HPA) partnered with the U.S. Department of Transportation (DOT) National Highway Traffic Safety Administration (NHTSA) and the Oak Ridge Institute for Science and Education (ORISE) to understand the role of EMS in medical surge planning and to examine the need to supplement existing guidance on integrating EMS into community preparedness plans. These agencies convened the *EMS Stakeholder Meeting* on August 21–22, 2013 to develop a framework for expanding EMS system capacity in coordination with healthcare and emergency response stakeholders. (6) Participants engaged in discussions on various strategies that could be included in a framework. See Appendix B for a list of *EMS Stakeholder Meeting* participants.

After the *EMS Stakeholder Meeting*, CDC-HPA, DOT-NHTSA, and ORISE assembled workgroups consisting of subject matter experts (SMEs) from a variety of disciplines, including EMS, 9-1-1 call centers, public health, hospitals, emergency management, emergency medicine, national EMS organizations, and the federal government (see *Appendix B – EMS Framework Subject Matter Experts*). These workgroups assisted in drafting, reviewing, and revising a *Framework for Expanding EMS System Capacity during Medical Surge* (hereafter referred to as the *EMS Framework*).

## Topics Covered

This *EMS Framework* addresses the partnerships, resources, and planning needed to implement four strategies for expanding EMS system capacity during an emergency resulting in medical surge:

1. **Tiered Dispatch**

Strategies to preserve EMS resources, including caller screening to determine acuity, use of prerecorded messages to selectively direct calls, and referral of non-life-threatening calls to advice lines.

**2. Modified Treatment and Transport Strategies**

Strategies to modify routine treatment and transport protocols to allow EMS personnel to assess, treat, release, and refer patients without transport and, when needed, to transport patients away from a hospital.

**3. Coordinated Transport to Alternate Destinations**

Strategies to transport patients to facilities that do not traditionally receive 9-1-1 patients (e.g., clinics, urgent care, surgery centers, and alternate care sites) by establishing surge protocols.

**4. Support for Rapid Implementation of Patient Interventions**

Strategies to allow EMS personnel to assist larger community and public health response efforts by delivering vaccines, pharmaceuticals, non-pharmaceuticals, and personal protective equipment (PPE) to both patients and caregivers at home.

## Target Audience

This document is intended for the following audiences:

* **Public health agencies** – Local and state public health departments that coordinate with EMS and other healthcare entities for emergency planning.
* **Healthcare coalitions** – Consist of partners who have a vested interest in the healthcare response of a community during an incident and improving the ability of the healthcare system to recover from incidents. These coalitions are made up of subcommittees or task forces that are smaller teams grouped by area of specialty or according to specific tasks. These teams may be time-limited (e.g., active until task is complete) or semipermanent (e.g., addressing regular issues within the community).
* **EMS agencies and personnel** – Private and public EMS agencies and emergency response personnel providing all levels of care.
* **EMS advisory committees or boards** – Local and state agencies responsible for the overall planning and coordination of EMS (e.g., State Disaster Medical Advisory Committee [SDMAC]).
* **EMS policy and regulatory agencies** – Agencies that create, direct, and enforce the financial, regulatory, and licensing policies for EMS and certify or license EMS personnel and ambulances. Policy and regulatory agencieswill vary by state, but may include state EMS authorities, governor's councils, and other committees.
* **Professional organizations and associations** – Local, state and national organizations and associations representing EMS agencies and personnel.

## Purpose

This document provides communities with a framework for responding to medical surge by employing the previously identified four strategies for expanding EMS system capacity during an emergency. The *EMS Framework* aims to guide communities in building the foundation necessary to implement these strategies during an emergency, as well as how to train, educate, and communicate with EMS personnel, patients, and the media about the strategies.

The configuration of EMS systems varies considerably nationwide by community size, demographics, geography, and legal authority. (4, 7) Communities also vary in their level of medical surge planning and the involvement of EMS in this planning. This document contains guidance from EMS and public health SMEs and aims to facilitate community collaboration with local and state EMS agencies—ideally through healthcare coalitions—to develop medical surge plans. The *EMS Framework* does not provide standard protocols or guidelines intended for adoption by all EMS agencies.

## Format

With the exception of Chapter Two – Setting the Stage: A Foundation for Expanding EMS System Capacity, the chapters in this document are organized in a standard format.Chapter Two describes the groundwork needed to initiate planning for expanding EMS system capacity during medical surge. A key takeaway is the recommendation for establishing or enhancing healthcare coalitions to include EMS. Chapter Two also discusses hazard vulnerability analysis (HVA) and needs assessment, triggers, reimbursement mechanisms, performance management, education and training, and stakeholder communication.

The remaining chapters are each devoted to one of the four proposed strategies for expanding EMS system capacity. Each chapter is organized as follows:

* **Overview** – Explanation of the strategy and the rationale for expansion.
* **Examples of Use during Routine or Disaster Care** – Current status of the strategy and any work being done to develop and evaluate it.
* **Addressing Legal Barriers** – Brief descriptions of core legal and policy issues underlying each of the four strategies and available solutions for navigating these issues during an emergency. Prepared by James Hodge, JD, LL.M, Associate Dean and Professor of Public Health Law and Ethics and Director of the Public Health Law and Policy Program at the Sandra Day O'Connor College of Law, Arizona State University, these sections are further explained in *Emergency Medical Services and Medical Surge: Essential Legal Issues*, available at <http://orau.gov/hsc/emslegalwebinar/downloads/EMS-LegalIssuesReport.pdf>.
* **Implementation** – Steps to implement each strategy including sample methodology and protocols where guidance exists.

In the absence of protocols or guidance to recommend implementation steps for coordinated transport to alternate destinations and support for rapid implementation of patient interventions, **Chapters Five and Six** provide discussion points and considerations for planning teams.

## Guiding Principles

The following guiding principles serve as the foundation for expanding EMS system capacity during an emergency within this *EMS Framework*:

### 1. An Integrated Approach to Medical Surge Planning

The formation of a healthcare coalition or planning team to aid in planning and decision making is an essential step for any community hoping to develop an integrated approach to responding to public health emergencies. The size and composition of the coalition or planning team may depend on the size of the community and the amount of resources available; however, communities should consider including representatives from all agencies and organizations within the community's healthcare delivery system. In order for a community to effectively respond and be resilient, all of the major sectors that comprise a community's healthcare response must be knowledgeable of key constituents, know the hazards present in the community, and have coordinated response plans that are regularly communicated and exercised with partners.

Community coalitions should have formal coordinating entities that may need to be established at multiple jurisdictional levels, reflecting the local-, regional-, and state-driven aspects of healthcare. For example, an SDMAC may be helpful for coordinating consistent resource allocation decisions in line with state statutes (2, 8); however, local/regional organizations may be better suited to make decisions as to the direction of care and the specifics of triage. All members of the coalition or planning team must maintain regular communication during all phases of planning, response, and recovery.

This *EMS Framework* presents planning concepts to be explored as part of a planning body that specifically includes the EMS system and other healthcare partners. Expanding EMS system capacity simply cannot be initiated without significant and meaningful representation from EMS stakeholders. Representatives from all facets of the community's EMS system (including dispatch centers, both public and private EMS agencies, and sites of care) must be included on the planning team.

### Medical Oversight

All aspects of EMS require the active involvement of physicians at the local, regional, and state level. Medical oversight by a physician medical director is a standard of EMS practice and is needed to facilitate consistent and appropriate patient care. EMS personnel utilize medical protocols that may be developed at the local or state level, depending on the state. Protocols should be evidence-based where possible or based on guidelines and guidance from various expert sources (e.g., government, professional societies). The National Association of EMS Physicians (NAEMSP) details the qualifications and full range of physician involvement in EMS in its position paper, *Medical Direction of EMS* <http://www.acep.org/Content.aspx?id=29570>. (9)

Local and state EMS medical directors must be included on the planning team or healthcare coalition. As in day-to-day EMS operations, their responsibilities will include defining or providing the framework for

* Medication type/use.
* Equipment type/use.
* Consistent treatment and transport protocols within and across jurisdictions.
* Modification of treatment protocols based on available resources during an emergency.
* Systems development (e.g., trauma, cardiac, stroke).
* Performance improvement, to include determining appropriate education and training of personnel.

### Planning for Special Populations

EMS professionals are expected to meet the urgent healthcare needs of all patients, regardless of age or comorbidity, consistent with their defined role. Recognized special populations include, but may not be limited to, children; geriatric and disabled patients; and patients with limited access to healthcare due to geographic, demographic, socioeconomic, or other reasons. (10)

Special populations may have unique needs and considerations for care during an emergency that requires planning by the EMS system. These unique considerations may include

* Meeting unique equipment, medication, and supply demands.
* Ensuring transport to sites with appropriate clinical skills or oversight.
* Establishing patient security, tracking, and reunification systems.
* Providing psychological first aid and support systems for longer-term mental health recovery.

This U.S. Department of Health and Human Services (HHS) website maintains a complete list of organizations and resources for special populations: Emergency and Disaster Preparedness, available at <https://sis.nlm.nih.gov/outreach/specialpopulationsanddisasters.html>.

### Preserving EMS Personnel for Clinical and Prehospital Functions

EMS personnel serve a vital role in the healthcare system by stabilizing and transporting critically ill and injured patients. They are educated and equipped to provide protocol-directed, emergency medical care with appropriate medical oversight, education, and training. Currently, many pilot projects are being conducted to evaluate the capabilities of paramedics to expand their role or scope of practice to incorporate many of the surge strategies introduced in this document (see Day-to-Day Integration on page 9).

Additional ideas for using EMS personnel to augment disaster responses have been proposed, such as using paramedics for mass distribution of medical countermeasures or to augment medical staff in alternate care sites. However, EMS systems are likely to be overwhelmed responding to acute stabilization and transport needs during a mass medical surge event. Therefore, EMS personnel will likely serve their community best if their services are reserved for clinical functions in the prehospital environment. They likely will be most comfortable with and adapt best to changes that are made within their clinical skill set and environment.

### Day-to-Day Integration

This document contains a framework for expanding EMS system capacity during emergencies to support medical surge in a community. Implementation of the strategies introduced in the *EMS Framework* will be more effective if they are practiced, assessed, and improved before an actual emergency response. EMS personnel must receive regular education, training, and planning updates to assure they can perform these surge strategies safely and appropriately when called upon to perform them. Prior development and testing will help personnel be more effective in these expanded EMS roles.

A growing body of research indicates that daily integration of expanded EMS roles can significantly improve current systems of healthcare while reducing costs for communities.

(3, 11, 12, 13). Some examples are listed below:

* DOT-NHTSA, HHS Assistant Secretary for Preparedness and Response (ASPR), and the Health Resources and Services Administration (HRSA) present a fiscal analysis and model for adopting protocols and strategies to innovatively triage and treat patients in their white paper entitled Innovation Opportunities for Emergency Medical Services: A Draft White Paper (available at <http://ems.gov/pdf/2013/EMS_Innovation_White_Paper-draft.pdf>).
* Community paramedicine and mobile integrated healthcare are other strategies for adapting EMS to meet healthcare needs on a daily basis. (12, 13, 14)Both are promising models for integrating EMS with out-of-hospital health services, and may be a good basis for discussions on how best to facilitate medical surge planning for the expansion of EMS roles in daily operations. The National Association of Emergency Medical Technicians (NAEMT) Community Paramedicine and Mobile Integrated Healthcare Knowledge Center(available at <http://www.naemt.org/MIH-CP/MIH-CPKnowledgeCenter.aspx>) provides more information on these models.

# Chapter Two – Setting the Stage: A Foundation for Expanding EMS System Capacity

Effective response to medical surge during an emergency requires integrated planning and action from a community and its healthcare system. This type of response does not happen by accident and cannot be undertaken by a single individual. Rather, effective response involves

* Forming a planning team or coalition to aid in planning and decision making.
* Establishing formal partnerships with stakeholders.
* Conducting a community hazard assessment. (14)
* Engaging in integrated planning.
* Ensuring ongoing communication.
* Providing long-term engagement and evaluation of key players and capabilities.

No single model will work for every community. Success will be driven by engaging community partners and identifying creative solutions to barriers. This chapter describes the importance of community-wide planning for mass medical surge that is inclusive of EMS. It provides strategies for integrating EMS into community planning and outlines the foundation needed to initiate planning for expanding EMS system capacity during medical surge. Many topics relevant to planning are included in this chapter, including examining the hazard and needs analysis, identification of triggers, establishing reimbursement mechanisms, evaluating EMS system performance, education and training of EMS, and planning communications to EMS stakeholders.

## PHEP/HPP Capabilities

In 2011, CDC and HHS-ASPR released guidance for their Public Health Emergency Preparedness (PHEP) and Hospital Preparedness Program (HPP) grantees. CDC's *Public Health Preparedness Capabilities: National Standards for State and Local Planning* and HHS-ASPR's *Healthcare Preparedness Capabilities, National Guidance for Healthcare System Preparedness* both aim to help communities build and sustain public health and healthcare preparedness capabilities by establishing standards for protecting human health and national health security. (16, 17)

These guidance documents impart a vision for coordinated medical surge planning and response through the charter and use of healthcare coalitions (PHEP and HPP Capabilities 1). Coalitions are meant to bring together healthcare stakeholders to prepare for and respond to medical surge during an emergency. Many states and localities currently are exploring how to use existing healthcare and medical coordinating entities to accomplish the work outlined in the PHEP and HPP guidance. Including EMS in healthcare coalitions and planning for expanding EMS system capacity during a disaster will assist communities with their efforts to meet the PHEP and HPP preparedness capabilities.

| **Public Health Emergency Preparedness Cooperative Agreement** |
| --- |
| CDC plays a pivotal role in ensuring that state and local public health systems are prepared for public health emergencies because of its unique abilities to respond to infectious, occupational, or environmental incidents that affect the public's health. CDC's Office of Public Health Preparedness and Response, Division of State and Local Readiness, administers funds for preparedness activities to state and local public health systems through the PHEP cooperative agreement. Through the PHEP, CDC helps public health departments strengthen their abilities to respond to all types of public health incidents and build more resilient communities.  The PHEP cooperative agreement is a critical source of funding for state, local, tribal and territorial public health departments. Since 2002, the PHEP cooperative agreement has provided nearly $9 billion to public health departments across the nation to upgrade their ability to effectively respond to a range of public health threats, including infectious diseases, natural disasters, and biological, chemical, nuclear, and radiological events. Preparedness activities funded by the PHEP cooperative agreement are targeted specifically for the development of emergency-ready public health departments that are flexible and adaptable.  Taken verbatim from <http://www.cdc.gov/phpr/coopagreement.htm> |

| **Hospital Preparedness Program** |
| --- |
| HPP provides leadership and funding through grants and cooperative agreements to states, territories, and eligible municipalities to improve surge capacity and enhance community and hospital preparedness for public health emergencies. This funding is used to support programs to help strengthen public health emergency preparedness in several ways:   * **Enhanced Planning:** HPP funding is used to improve hospital and healthcare system planning and response at the State, local, and territorial levels. * **Increasing Integration:** HPP facilitates the integration of public and private sector medical planning and assets to increase the preparedness, response, and surge capacity of hospitals and other healthcare facilities. * **Improving Infrastructure:** Awardees have used HPP Grants and Special Initiative Grant funding to improve the State, local, and territorial infrastructures that help hospitals and healthcare systems prepare for public health emergencies.   The program is managed by the Office of the Assistant Secretary for Preparedness and Response (ASPR) which provides programmatic oversight and works with its partners in state, territorial, and municipal government to ensure that the program's goals are met or exceeded.  Taken verbatim from <http://www.phe.gov/preparedness/planning/hpp/pages/default.aspx> |

The PHEP and HPP aligned capabilities listed below are addressed by including EMS in community coalitions and emergency planning:

**PHEP**

Capability 1: Community Preparedness

Capability 6: Information Sharing

Capability 10: Medical Surge

**HPP**

Capability 1: Healthcare System Preparedness

Capability 6: Information Sharing

Capability 10: Medical Surge

## Integrated Community Medical Surge Planning

The development of healthcare coalitions is supported and encouraged in the PHEP and HPP grants. In many cases, a formal community coalition already exists. Defined as a healthcare coalition or possibly as an ESF-8 coalition, such entities are managed under the auspices of a local public health department.[[1]](#footnote-2)

Many resources are available that support the need for coordinated, multi-sector planning that provides guidance on how to build successful healthcare coalitions. A few suggested resources and models to build healthcare coalitions are listed in Table 2.1 below.

**Table 2.1 – Community Coalition Tools and Resources**

| **Tool or Resource** | **Description** | **Reference** |
| --- | --- | --- |
| *Medical Surge Capacity and Capability: The Healthcare Coalition in Emergency Response and Recovery* | Provides guidance on how to develop, implement and maintain healthcare coalitions | <http://www.phe.gov/Preparedness/planning/mscc/Documents/mscctier2jan2010.pdf> |
| *Local Health Department Coalition Development Tools*, information and tools to assist local health departments | Provides a guide, tools, and resources to help communities develop healthcare coalitions | <http://www.floridahealth.gov/programs-and-services/emergency-preparedness-and-response/community-preparedness/community-resilience/_documents/HealthDepartmentCoalitionDevelopmentTools.pdf> |
| *The Community Planning Framework for Healthcare Preparedness* | Provides planning guidance for community planners to use to enhance existing community plans for medical surge or to develop new plans from the beginning. | http://www.cdc.gov/phpr/healthcare/communityplanningframework.htm |

## Integrating EMS into Community Medical Surge Planning

PHEP and HPP grant performance guidance encourage healthcare and public health departments to include EMS agencies as a collaborator in healthcare and public health planning and response (see pages 11 and 12 for a summary of the PHEP and HPP programs). EMS systems should be engaged in the initial stages of planning. Inclusion of EMS allows for a real-time understanding of EMS functions, regulations, licensure and scope of practice limitations, and opportunities and barriers to expanding EMS system capacity.

Community partners can use Worksheet 2.1 – EMS Planning Team Members on the next page to identify and collect contact information for core EMS planning team members. This core team will drive the agenda for expanding EMS system capacity and have primary responsibility for the project. Core planning team members do not necessarily need to be the community's decision makers; however, they should be well connected within the community and have access to key decision makers. Based on other community models, the core planning team should include, at a minimum, representatives from all EMS agencies operating in a community in addition to public health, emergency management, and healthcare (ideally as part of a coalition).

Worksheet 2.2 – EMS Planning Partners on page 16 can be used to gather a list of critical EMS partners that should be engaged in community planning. The role of these partners may vary based on the community or jurisdiction. Determining who in your community would have a stake in the decision-making process and including them in planning is important.

**Worksheet 2.1 – EMS Planning Team Members**

**Core EMS Planning Team Members for Integrating EMS**

**Instructions:** List the name, title, agency/organization, and contact information (phone and e-mail address) for the current members of your core EMS planning team. Consider including representatives from all EMS agencies operating in a community in addition to public health, emergency management, and healthcare.

| **Name** | **Title** | **Agency** | **Contact Info** |
| --- | --- | --- | --- |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |

**Additional EMS Planning Team Members**

**Instructions:** List the name, title, agency/organization, and contact information (phone and e-mail address) for additional members of your EMS planning team.

| **Name** | **Title** | **Agency** | **Contact Info** |
| --- | --- | --- | --- |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |

**Worksheet 2.2 – EMS Planning Partners**

**Instructions:** Place a check mark next to each EMS planning partner represented in your local emergency planning committee, planning team, healthcare coalition, or similar entity. If your community finds that significant gaps exist or key partners are missing, discuss how these missing partners can be engaged.

The partners listed below are organized in tiers based on their importance to discussions on addressing the role of EMS in an emergency, with the understanding that some communities may be limited in their ability to develop and manage a large planning entity.

**Tier 1: Primary EMS Partners for Community Planning**

| **Partner** | | **Partner** |
| --- | --- | --- |
| 9-1-1/Public Safety Answering Point (PSAP) 🞏 | Fire 🞏 | |
| Local EMS agencies (both public and private) 🞏 | Law enforcement 🞏 | |
| State EMS office 🞏 | Professional medical associations 🞏  (e.g., ACEP, AAEM, ENA) | |
| Emergency management 🞏 | Public works 🞏 | |
| Public health 🞏 | Other 🞏 | |
| Governmental services 🞏 | Other 🞏 | |

**Tier 2: Other Key Community Planning Partners**

| **Partner** | | **Partner** |
| --- | --- | --- |
| Hospitals 🞏 | Hospital EDs 🞏 | |
| Federally Qualified Health Centers/ 🞏  free clinics | Outpatient/retail clinics 🞏 | |
| Hospital outpatient centers 🞏 | Local physician groups 🞏 | |
| Urgent care centers 🞏 | Public works 🞏 | |
| Behavioral health providers 🞏 | Insurance providers/ 🞏  third party payers/Centers for Medicare and Medicaid Services (CMS) | |
| Billing companies/administrators 🞏 | Other 🞏 | |
| Long-term care facilities 🞏 | Other 🞏 | |

**Tier 3: Other Potential Partners for EMS to Engage**

| **Partner** | **Partner** |
| --- | --- |
| Elected officials (e.g., National Governor's 🞏  Association, Association of City and County Managers) | State and local regulatory agencies and 🞏 legislatures |
| Companies familiar with the logistics of 🞏 distribution (e.g., UPS, FedEx) | Professional EMS Member Organizations 🞏  (e.g., National Association of State Emergency Medical Services Officials [NASEMSO], National EMS Management Association [NEMSMA]) |
| NGOs, civic groups, and community groups 🞏 that represent vulnerable populations | Volunteer organizations 🞏 |
| Legal experts 🞏 | Ethicists 🞏 |
| Other 🞏 | Other 🞏 |

## Additional Considerations for Engaging EMS

| **EMS Subject Matter Expert Tip** |
| --- |
| Be sure the healthcare coalition includes EMS partners who have applied knowledge of EMS structure, management, and operations. EMS partners should be active in the profession and not just "speaking on behalf of EMS." |

The structure and organization of EMS varies widely across states and local communities, though EMS systems share some common features. Every EMS agency is coordinated by a medical director and operational director or chief. EMS response is coordinated with multiple partners—primarily acute healthcare, public health, and public safety—to ensure the health and safety of patients and the community. (4) EMS is regulated at the state level through statutory authority, certification or licensure, provider titles, and scope of practice. (5) At the local level, EMS is guided by the medical director and the agency supervisor who work in partnership during emergency response events. (5) The exact structure of the EMS agencies operating in a community is important to determining the baseline capacity and capability of EMS.

Additional considerations for engaging EMS are

* Become familiar with key terminology and definitions used to describe EMS systems. This activity will help you to better understand and "speak the same language" as you engage EMS partners in your planning. (See Table 2.2 – EMS Terminology on the next page for a list of relevant EMS definitions.)
* Do not make assumptions about EMS organization, services, or capabilities. EMS leadership can provide information about the structure and function of their agency. They can also discuss scope of practice, licensure, and legislative limitations that affect community response.
* Invite EMS leadership to community planning meetings, and ensure meetings are scheduled at times that will permit them to attend.
* Assure EMS partners that planning with other stakeholders may identify EMS system issues and vulnerabilities. This process also will identify capabilities, strengths, and common solutions.

**Table 2.2 – EMS Terminology[[2]](#footnote-3)**

| **Term** | **Definition** |
| --- | --- |
| **Advanced Emergency Medical Technician (AEMT)** | The AEMT provides basic and limited advanced emergency medical care and transportation for critical and emergent patients who access the EMS system. (10) Currently four EMS personnel licensure levels are defined under the National EMS Scope of Practice Model at <http://www.ems.gov/pdf/education/EMS-Education-for-the-Future-A-Systems-Approach/National_EMS_Scope_Practice_Model.pdf>. |
| **Advanced Life Support (ALS)** | An ALS intervention is a procedure that is, in accordance with state and local laws, required to be done by an AEMT or paramedic, such as manual defibrillation/cardioversion or endotracheal intubation. |
| **Basic Life Support (BLS)** | BLS is provision of medically necessary supplies and services by an individual who is qualified in accordance with state and local laws as an emergency medical technician (EMT). These services may include ambulance transport. BLS services are defined by the state and laws may vary from state to state or within a state. For example, only in some jurisdictions is an EMT permitted to operate limited equipment onboard the vehicle, assist more qualified personnel in performing assessments and interventions, and establish a peripheral intravenous (IV) line. |
| **Emergency Medical Responder (EMR)** | The EMR possesses the basic knowledge and skills necessary to provide lifesaving interventions while awaiting additional EMS response and to assist higher level personnel at the scene and during transport. EMRs (e.g., law enforcement) perform basic interventions with minimal equipment. |
| **Emergency Medical Technician (EMT)** | The EMT provides basic emergency medical care and transportation for critical and emergent patients who access the emergency medical system. The EMT possesses the basic knowledge and skills necessary to provide patient care and transportation. |
| **Nonemergency Transport** | EMS resources (e.g., staff, ambulances, helicopters, and other emergency transport vehicles) can be used to transport patients in nonemergency situations. A nonemergency situation typically involves transport of patients who are medically stable, but require medical support from one location to another (e.g., hospital to long-term care facility, chronically ill patient to a doctor's appointment). Nonemergency medical transportation is a service offered by some hospitals and through specialty companies. |
| **Paramedic** | The paramedic is a healthcare professional whose primary focus is to provide advanced emergency medical care for critical and emergent patients who access the emergency medical system. This individual possesses the complex knowledge and skills necessary to provide patient care and transportation. Paramedics function as part of a comprehensive EMS response, under medical oversight. |
| **Specialty Care Transport (SCT)** | SCT is the interfacility transportation of a critically injured or ill beneficiary by a ground ambulance vehicle, including the provision of medically necessary supplies and services, at a level of service beyond the scope of the EMT-Paramedic. SCT is necessary when a beneficiary's condition requires ongoing care that must be furnished by one or more health professionals in an appropriate specialty area (e.g., emergency or critical care nursing, emergency medicine, respiratory care, cardiovascular care, or a paramedic with additional training). (18) |

Worksheet 2.3 – Improving EMS Community Engagement on the next page contains some basic concepts to stimulate community partner dialogue in order to understand how EMS is organized and how EMS could potentially be engaged. Worksheet 2.3 does not contain an exhaustive list of questions. The intent is to promote mutual understanding among community partners about EMS organization and engagement to facilitate medical surge planning.

**Worksheet 2.3 – Improving EMS Community Engagement**

**Instructions:** Think through and discuss the questions below to determine the best way to engage or include EMS in your community planning process.

| **Questions** |
| --- |
| **How is EMS integrated into community planning efforts?**   * Does EMS currently engage in a community healthcare coalition? * Are meaningful interactions conducted with EMS regarding medical surge? |
| **How can EMS be more involved in community planning efforts?**   * What are the opportunities to interact and engage EMS in the community or jurisdiction planning process? * Is EMS included on standing committees or planning efforts? |
| **What would a coordinated planning effort look like in your community or jurisdiction?**   * Are there additional EMS personnel who should be invited to the coalition? * Would an "EMS workgroup" exist within a coalition that includes some representation from the other "non-EMS" entities? * Would EMS be a separate workgroup that meets with ESF-8 partners? |

## Conducting a Hazard Vulnerability Analysis

Once community stakeholders have initiated the process of establishing a healthcare coalition or similar planning entity, conducting a thorough needs assessment will be critical to an effective and efficient community response within resource limitations. An HVA will detail which hazards are present in the community and which will have the largest impact if they occur. Gathering information from the HVA and a community assessment is an important step in understanding the makeup of the community or jurisdiction. For more information on the HVA, see the Federal Emergency Management Agency's (FEMA's) Threat and Hazard Identification and Risk Assessment (THIRA) (available at <http://www.fema.gov/threat-and-hazard-identification-and-risk-assessment>). THIRA is the referenced assessment guide for subgrantees of all the federal preparedness grants, whether through HHS, FEMA, or CDC.

Emergency management and public health partners may have already completed an HVA for a local jurisdiction. Engage those partners to determine if they have an existing HVA and if they are willing to share the information. Discussion among stakeholders should take place to define the best way to proceed for an evaluation of the community or jurisdiction.

Use Worksheet 2.4 – Community Disaster Scenarios below to record the disaster scenarios identified by your community's HVA as the most likely to impact your local healthcare system.

**Worksheet 2.4 – Community Disaster Scenarios**

**Instructions:** List the disaster scenarios identified by your community's HVA as likely to impact your local healthcare system.

| **Community Disaster Scenarios** |
| --- |
| 1. To be filled in |
| 2. To be filled in |
| 3. To be filled in |
| 4. To be filled in |
| 5. To be filled in |

## Conducting a Needs Assessment

| **Example of a Needs Assessment** |
| --- |
| The FEMA Learning Resource Center provides an example of how one community (Naperville, Illinois) assessed EMS capacity for delivery of services during disasters in a document titled *Delivery of Emergency Medical Services to Large-scale Community Disasters (24)*. |

The planning team should consider conducting a robust community needs assessment. Systematic needs assessments can inform the community about local EMS capabilities and limitations to determine if expanding EMS system capacity is feasible.

Potential information to collect may include the size, age, and health status of the population served, the annual call volume, and the number of providers. A needs assessment also can be used to identify any gaps in the skill sets of providers and volunteers, state and local plans for allocation of scarce resources, and the current healthcare system's capacity to handle medical surge.

| **Community Assessment Tool** |
| --- |
| CDC's Office of Public Health Preparedness and Response (OPHPR) developed a Community Assessment Tool (CAT) (available at <http://www.cdc.gov/phpr/healthcare/communities.htm>) to assess community readiness for a disaster from a total healthcare system perspective. The CAT helps reveal each core agency partners' capabilities and resources, highlights cases of the same vendors being used for resource supplies by the partners, and addresses gaps in the community's capabilities or potential shortages in resources. CDC's CAT may help your community identify important capabilities and limitations prior to initiating planning for expanding EMS system capacity. |

The needs assessment can be used as a foundation to inform a plan for resource allocation and coordination. It can also highlight where EMS roles can be modified or expanded and when they may be appropriate to implement. Finally, the process undertaken in the needs assessment will allow for the necessary reciprocity agreements and pre-incident agreements, memoranda of understanding (MOUs), and formal agreements with suppliers to be finalized prior to the event.

To assist with the needs assessment, certain planning assumptions should be determined based on community requirements. One such planning assumption might be that EMS personnel should have a role in the distribution of vaccines or antivirals to the first responder community. Every community should make decisions about what planning assumptions are relevant to their response needs.

Use Worksheet 2.5 – Resource Review by Disaster Scenario on the next page to summarize the resources required for responding to each disaster scenario listed in Worksheet 2.4 – Community Disaster Scenarios. This summary may be helpful to share with partners prior to initiating planning for expanding EMS system capacity.

**Worksheet 2.5 – Resource Review by Disaster Scenario**

**Instructions:** For each disaster scenario listed in Worksheet 2.4 – Community Disaster Scenarios, consider the specific supplies and equipment, staff, and space requirements needed to respond. Record responses in the space provided and indicate if your community has existing resources or needs to identify potential sources.

Disaster Scenario: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

| **Supplies and Equipment Needed** | **Within existing capacity?** | **Need to identify potential sources?** |
| --- | --- | --- |
| To be filled in | 🞏 | 🞏 |
| To be filled in | 🞏 | 🞏 |
| To be filled in | 🞏 | 🞏 |

| **Staff Needed** | **Within existing capacity?** | **Need to identify potential sources?** |
| --- | --- | --- |
| To be filled in | 🞏 | 🞏 |
| To be filled in | 🞏 | 🞏 |
| To be filled in | 🞏 | 🞏 |

| **Space Needed** | **Within existing capacity?** | **Need to identify potential sources?** |
| --- | --- | --- |
| To be filled in | 🞏 | 🞏 |
| To be filled in | 🞏 | 🞏 |
| To be filled in | 🞏 | 🞏 |

## Identifying Triggers

Emergency situations are unpredictable; therefore, identifying situations or "triggers" that alert communities when routine, day-to-day actions of agencies and organizations must be altered is essential. Community healthcare partners have a collective responsibility to share information on current constraints, resources, plans, location of hospital bed availability and partner capacity to assist in trigger identification. EMS, along with the state office that has a regulatory role, must be key collaborators to identify triggers for expanding EMS system capacity. Use Worksheet 2.6 – Trigger Identification Discussion Questions below to aid in identifying these triggers.

**Worksheet 2.6 – Trigger Identification Discussion Questions**

**Instructions:** Think through the questions below to determine how EMS currently addresses surge on the healthcare system.

| **Questions** |
| --- |
| **What must occur to increase surge capacity when response time exceeds established standards?**   * Does EMS have triggers already in place that need to be modified? * What obstacles need to be addressed in order to expand EMS roles? * What is the public expecting? |
| **How is EMS affected when hospitals are surged or on diversion?**   * What can be done for hospitals that are overwhelmed to rapidly accept and free up EMS crews who bring patients during a surge situation (to avoid patient offload delays)? * How does EMS coordinate patient transport to other hospitals? * Are mechanisms in place to transport patients to alternate care sites? |
| **What mechanisms does EMS put into action when calls for EMS assistance exceed the EMS resources available to respond?**   * Are agreements already in place to reduce healthcare system stress? * What are the mechanisms that are successfully used to decrease healthcare system stress? |

A healthcare coalition or planning team will need to understand and review available EMS resources (i.e., supplies and equipment, staff, and space) and how these resources can be adapted to address medical surge (see Worksheet 2.5 – Resource Review by Disaster Scenario on page 25). Trigger discussions also should include who defines triggers and who makes the decision to initiate action based on the trigger. EMS roles and capabilities vary significantly across local communities. Analyzing the information about the mechanisms and parties responsible for initiating triggers is important information that can guide community surge planning. (See Worksheet 2.6 – Trigger Identification Discussion Questions on the previous page for suggested discussion topics for identifying triggers for EMS systems.)

The NAS report, *Crisis Standards of Care: A Toolkit for Indicators and Triggers* (available at http://www.nationalacademies.org/hmd/Reports/2013/Crisis-Standards-of-Care-A-Toolkit-for-Indicators-and-Triggers.aspx),is one resource to generate discussion and thought in recognizing triggers. An example of triggers for expanding EMS system capacity is the catastrophic plan triggers for initiating resource requests and federal interventions at the onset of an event of specific severity. These plans are developed as a collaboration between FEMA, HHS, and state/local response agencies and can be obtained from local or state emergency management, as appropriate.

The following are examples of surveillance data that could trigger the implementation of emergency plans (recommended by experts attending the *EMS Stakeholder Meeting*)

* Time required for a PSAP to answer an emergency call ("answer time") exceeds established standards.
* Number of calls to a PSAP exceed EMS resources.
* Hospitals are diverting patients.
* Hospital beds are at or exceeding capacity.
* Observed severity/lethality of the disease.

## Establishing Reimbursement Mechanisms

| **Reimbursement for Alternate Care Sites** |
| --- |
| Reimbursement requirements and restrictions may be modified by legislation that recognizes alternate care sites as a reimbursable expense that can be billed to CMS and private insurance companies. For more information, see  <http://www.cms.gov/About-CMS/Agency-Information/H1N1/downloads/AlternativeCareSiteFactSheet.pdf>  and  <http://www.cms.gov/About-CMS/Agency-Information/Emergency/downloads/MedicareFFS-EmergencyQsAs1135Waiver.pdf>. |

During a disaster, agency reimbursement is secondary to the primary focus of saving lives. EMS agencies, working through partnerships and coalitions, should determine and formalize reimbursement agreements with authorities and third party payers prior to an emergency so that reimbursement will not be a limiting factor for an effective response. Ensuring reimbursement mechanisms are in place prior to an emergency will improve support for expanded EMS roles.

Providing flexibility and local control of reimbursement and incentives may allow for novel approaches. Ensuring community buy-in and support can create an environment of innovation, where encouraging business partnerships and solutions can lead to necessary agreements. One possible approach may be to develop reimbursement strategies for different alternate care sites depending on the type of service provided. Identifying the partners and categorizing the strategies ahead of time will allow for the establishment of MOUs, contracts, and agreements prior to the emergency situation. The feasibility of such an option is highly dependent on the state and organization of the EMS system, but addressing the issue with community partners allows solutions to be uncovered.

Because a single regulatory framework is not available for expanding EMS roles, the legal and regulatory environment surrounding liability, legal authority, protocols, and regulations are issues that will have to be addressed. Documentation of the major EMS funding agencies will be important in order to recognize issues. For example, some coalition partners may not realize that, in order to get reimbursed, EMS must transport patients to a hospital. Identification of issues such as these not only provides situational awareness for community planning members, but also can facilitate collaboration with the state EMS office to help find solutions.

## EMS System Performance Management

| **EMS Compass Initiative** |
| --- |
| In 2015, NASEMSO launched the EMS Compass Initiative through a cooperative agreement funded by DOT-NHTSA. The goal of the EMS Compass initiative is "to create a system that enables meaningful assessment of performance of EMS systems at the local, regional, state and national levels. EMS Compass will engage a wide range of EMS stakeholders to develop performance measures that are relevant to EMS agencies, regulators, and patients." The measures will be based on the latest version of the National EMS Information System (NEMSIS) data (available at <http://www.nemsis.org>).  EMS Compass Working Groups will outline performance measures for use during medical surge emergencies.  For more information on the EMS Compass Initiative, go to <http://www.emscompass.org/>.  For more information on other efforts to develop performance measures, go to <http://www.emscompass.org/about-performance-measures/>. |

Performance management, quality assurance, or compliance to protocols, policies, and procedures are a critical component of any EMS system. Performance management helps to ensure that EMS systems are running efficiently, providing the best possible care to patients, and protecting the safety of both patients and providers. "Traditional EMS performance measures have focused on

* Response times.
* Appropriate patient selection for prehospital rapid sequence intubation (RSI).
* Appropriate selection for air versus ground transportation.
* Out-of-hospital cardiac arrest survival.

Newer efforts are expanding EMS performance management criteria for various other conditions encountered by EMS systems, such as ST-segment elevation myocardial infarction (STEMI), acute stroke, pulmonary edema, asthma, and seizures." (19)

Performance management is perhaps more critical during a medical surge emergency, yet standard methods to measure performance may not be feasible when EMS personnel are being strained to meet demand, and quality assurance personnel may have to focus on other roles. EMS systems must develop performance monitoring and feedback methods that are quick and reasonably effective, even while likely under the pressure of added demand.

The development of evidence-based performance measures should be led by EMS medical directors during initial planning for expanding EMS system capacity. Examples of disaster response-based metrics that are currently being studied include

* Appropriateness of triage level.
* Transportation to a hospital with suitable treatment capability.
* Time-dependent mortality of victims. (19–22)

EMS experts provided the following advice on developing performance management criteria for expanding EMS system capacity during mass medical surge:

* Community planning teams should explore allowing EMS systems to access and add data to electronic health and other medical records. This action will better equip EMS personnel with the patient history/data to improve patient care, assist with patient tracking and EMS accountability, and improve communication across the disaster healthcare system.
* For dispatch
  + Online, real-time monitoring of call taking and dispatch activities by supervisors and managers will be an important role of the management staff so that errors can be caught and corrected in real time.
  + Having dispatch supervisory and management staff available on the dispatch floor to answer questions as they arise will be important.

### Monitoring Provider and Patient Safety

Monitoring provider and patient safety is an important part of traditional performance management and quality assurance. EMS experts who were involved in preparing this document acknowledge that formal monitoring for provider and patient safety will be very difficult in the midst of a medical surge event unless this information is automatically captured electronically. A thorough retrospective review of provider and patient safety outcomes is more easily accomplished post-event and should be a key component of after-action reporting.

A recommendation is that provider and patient safety considerations that are specific to the nature of a medical surge event be addressed comprehensively during education and training of EMS providers. Adverse events should be reported to the EMS medical director and operations chief who will determine when the providers should receive additional training and when safety protocols should be modified during an event.

### Patient Tracking

Knowing the location and destination of patients is a complex issue during mass casualty incidents. Most EMS systems do not yet have the methods or technology needed for bidirectional sharing of patient information electronically with the healthcare system (e.g., Health Information Exchange). Such systems would allow for real-time patient follow-up and monitoring of outcomes within the healthcare system. In absence of such systems, patient tracking is largely done retrospectively. EMS experts suggest that community planning teams explore how the EMS medical director could provide real-time monitoring and the possibility of having EMS personnel conduct selected patient call-backs to determine outcomes.

| **EMS Subject Matter Expert Tip** |
| --- |
| For the purpose of evaluating use of expanded tiered dispatch during medical surge, dispatch centers must track where patients, or more accurately callers, are referred. Tracking referrals can be accomplished in most dispatch centers with existing software that records caller name and the EMS unit dispatched. During medical surge, an additional field for "non-dispatched, referred to 'location' (e.g., nurse advice line, poison control center)" should be added.  Dispatch centers face several challenges in patient or caller tracking including   * Once referred by dispatch, many EMS systems do not have systems in place for tracking whether dispatched resources reach the patient or whether a patient reaches another referred destination. * Interoperability of some computer-aided dispatch (CAD) programs can make tracking challenging, particularly in instances where the dispatch center taking the call and the patient-receiving hospital are in different jurisdictions. * Dispatch centers may not be equipped to track third party calls. |

## Education and Training of EMS

For an expansion of EMS system capacity to succeed during a disaster, community planners must address both education and training of EMS personnel. During the community needs assessment process, discussing education and training with the local EMS medical director and EMS personnel will be important. These persons will be the best resources for identifying gaps in the current skills and training of providers and volunteers as well as the topical education and training needs of EMS personnel and community partners. Once these needs are identified, targeted education and training can be developed.

| **EMS Subject Matter Expert Tip** |
| --- |
| To adequately prepare EMS personnel for expanding EMS system capacity, addressing both training and education is important. The purpose of training EMS personnel is to introduce the technical protocols and procedures required to respond (e.g., the steps required to start an IV). The purpose of education is to provide the necessary background and rationale for performing the procedure (e.g., why starting an IV is necessary). |

When response plans are finalized and MOUs are in place; community stakeholders must educate, train, and exercise to the plans in order to facilitate a seamless response. Standardized training plans, with multiple delivery methods (e.g., web-based, in-person and just-in-time), will provide accessibility to all partners. Providing opportunities to exercise, evaluate, and modify education and training protocols over time will ensure that the curriculum meets the varying needs of community response efforts. For more information on developing and exercising community response plans, see FEMA's Homeland Security Exercise and Evaluation Program (HSEEP) (available at <https://www.fema.gov/media-library/assets/documents/32326>).

The following strategies for meeting education and training needs were recommended by EMS experts:

**Policy, Regulation, and Research**

* Familiarize (non-EMS) community partners with state legislation and regulations that defines EMS organization, scope of practice, medical oversight requirements, and integration.
* Research Good Samaritan laws, which offer legal protection for individuals who attempt to assist others who are sick or injured. Good Samaritan laws vary considerably by state, both in terms of the type of protection provided and to whom.
* Define the role of alternate care sites including role in the response, organization, utility, expectations of care, and lessons learned from previous incidents.
* Train all responders on protocols that ensure patient safety.
* Define crisis standards of care, to include the community's triggers for implementation and the impact on normal, day-to-day care.
* Educate EMS providers regarding current statutes, regulations, and legal barriers, including provider liability protection.
* Specify medical countermeasures indications, effect and contraindications, screening protocols, logistics of distribution, and dispensing.
* Create treat-and-release protocols.

**Strategy, Assessment, and Evaluation**

* Integrate with the community's Emergency Operations Center (EOC) to provide coordination and communication of patient movement and to train responders and community stakeholders on the system elements and their roles.
* Conduct tabletop and other practical exercises that include all components of the EMS system (e.g., dispatch, ALS/BLS units, hospital EDs, public health).

**Curriculum Development**

* Establish just-in-time (JIT) training and web-based training on safety at the scene and for provider and patient.
* Develop uniform training for providers on new protocols for expanding system capacity.
* Educate and train providers on how to target care to vulnerable populations.

Finally, when planning partner training, avoid overlooking the public. The public should have access to information regarding potential altered treatment protocols and decisions that may impact their care during an emergency (e.g., responses may be delayed; an ambulance may not respond to every call).

Education of the public should include the following topics:

* EMS roles during normal operations.
* Characteristics of emergencies that affect EMS roles.
* When to seek medical care versus self-care.
* When to call 9-1-1.
* Medical necessity and benefits of expanding EMS roles during an emergency.
* Logistics of distribution of medical countermeasures.
* Countermeasure information, administration, and contraindication.
* JIT training resources available to partners.

## Communication to Patients, Public, and Media

Communicating to patients, the public, and media is key when expanding EMS roles during a medical surge event. Communication considerations are to

* Deploy uniform messages pre-event, during an event, and post-event.
* Create uniform messages to inform the public when and why an emergency requires a shift in EMS response operations.
* Create uniform messages that educate the public on when (and when not) to call EMS during a medical surge event and what to do to help a patient or themselves.
* Develop public engagement and education strategies that will help manage expectations about what type of EMS support will be provided in an emergency.

Communication strategies should follow successful models already in use by the local community. Developing specific public engagement strategies to explain the role of EMS in an emergency can help control confusion or public expectations for the EMS response. Messages will change depending on the situation and logistics involved for the response. Partnering with the Joint Information Center (JIC) at the state and local emergency operations center will enable consolidation of outgoing messages to the public.

Suggested strategies for risk communication include

* Develop a communication plan using available agreements and resources such as the Crisis and Emergency Risk Communication program training at http://emergency.cdc.gov/cerc/.
* Create tailored public service announcements.
* Promote the setup of a pre-established telephone triage line.
* Inform partners about available education and training resources.
* Address the expansion of EMS roles and the reasons behind the modified response.

## Conclusion

The remaining chapters in this document outline proposed strategies and solutions for expanding EMS system capacity during a disaster. These strategies comprise useful planning worksheets and considerations for use by local communities.

# Chapter Three – Tiered Dispatch

## Overview

When EMS systems are overwhelmed by a disaster, existing tiered dispatch procedures must be expanded and refined to preserve the most resources possible (both ALS and BLS units). In areas without multiple EMS responder types (BLS only or ALS only), tiered dispatch systems will likely need to be initiated.

Tiered dispatch during a disaster allows EMS resources to be dispatched through established surge protocols based on resource availability, chief complaint, impact on the capacity of the overall healthcare system, and the nature and conditions of the disaster event. Additionally, a tiered dispatch system implemented during a medical surge event may include the following components:

| **Tiered Response Examples** (23) |
| --- |
| * BLS First Response – ALS Transport * ALS First Response – BLS Transport * Police or Fire Service First Response (BLS or ALS – Private ambulance transport [BLS or ALS]) * ALS intercept vehicle to support BLS transport service * Delayed response |

* Use of prerecorded messages that encourage callers with non-acute illness to manage care at home or seek care at another location.
* Caller screening to determine acuity.
* Use of enhanced or modified protocols to identify emerging infectious diseases

(e.g., Ebola, pandemic influenza).

* Referral of non-life-threatening calls to advice lines.
* Dispatch of non-ambulance vehicles

(e.g., passenger vans) for transport of non-acute patients.

* Use of a callback system when sending an EMS resource will be delayed.

EMS systems have adopted methods of pre-dispatch, caller screening in order to prioritize EMS responses. Utilization of priority dispatching allows for a tiered medical response, but requires more than one type of response vehicle or level of personnel (see text box above). Such tiered dispatch systems allow for conservation of highly-trained paramedic or ALS units and help to preserve the highest levels of care for the patients most in need. (24, 25)One of the most efficient uses of resources during a disaster will be to limit use of dual response (i.e., BLS and ALS units) and sending one or the other according to established surge protocols.

## Examples of Tiered Dispatch

Many approaches to tiered dispatch exist, including Priority One, homegrown systems, and the Medical Priority Dispatch System (MPDS) or "Clawson System" (named for its developer, Jeffrey Clawson). MPDS was initially proposed to "curb the use of red lights and sirens" in order to protect the public and EMS providers from unnecessary collision risks. Now under the stewardship of the International Academies of Emergency Dispatch (IAED), MPDS assigns a response level through caller screening for chief complaint, age, status of consciousness, status of breathing, and the presence or absence of several other priority symptoms. (7, 25)

More recently, MPDS has been used to identify the lowest acuity patients for transfer to a secondary nurse triage system known as the Emergency Communication Nurse System (ECNS). The ECNS places specially trained remote triage nurses in the emergency communications center to receive calls directly from the emergency medical dispatcher. Nurses route qualifying patients to non-ambulance venues, such as urgent care centers, primary care physicians' offices, and other outpatient facilities, or simply advise home care. This system is now in use in 9-1-1 centers in Fort Worth, Texas; Reno, Nevada; Louisville, Kentucky; Salt Lake City, Utah; and a hospital-based service in Long Island, New York.

The Dallas Fire Department uses registered nurses in its dispatch center to screen calls and determine the level of emergency. For life-threatening medical emergencies, the nurses provide medical advice until ALS units arrive. If nonemergent, the nurses give medical advice and provide follow-up information, including referrals to other services and agencies. (25, 26)Many other areas have initiated priority dispatch systems using trained and certified Emergency Medical Dispatchers (EMDs) who are trained in basic dispatch techniques, use of a priority coding system to dispatch appropriate EMS resources, and in delivery of pre-arrival instructions. (27)

One of the more sophisticated tiered dispatch systems is Seattle King County's Medic One System. Trained medical dispatchers use predefined medical criteria to assign each call a risk level. If a call meets predefined low-risk criteria (not requiring dispatch of EMS resources), the call is transferred to a 24-hour nurse referral line. If the call meets criteria for immediate medical response, the nearest fire department BLS unit is dispatched. If the medical emergency is potentially life threatening, the closest ALS unit with paramedics is also dispatched. (28, 29)

## Addressing Legal Barriers

Engaging in tiered dispatch during emergencies requires methodological shifts to assure rapid vetting and delivery of EMS. Potential legal issues exist underlying changing the use, application, and roles of dispatch personnel and systems. Also, many options and solutions are available.

Negotiation and use of advance agreements, MOUs, and compacts among various community partners can efficiently operationalize tiered dispatch services across populations. (5) Multiple examples of these agreements provide ready templates for use in any community. Still, some legal details may not be so easily negotiated in advance. Key guidance on dispatch decisions, for example, may be determined in real-time through state and local disaster protocols referenced via existing agreements.(2) Provided these protocols are crafted and followed consistent with appropriate medical oversight, EMS personnel and partners may legally alter practices in response to emerging crises.

Knowing when to conduct tiered dispatch is essential. Legal triggers for initiating (and ending) tiered dispatch may extend from 1) formal declarations of a public health emergency or disaster at the federal, state, or local levels; 2) implementation of crisis standards of care related to scarcity of resources; or 3) terms of agreements (as noted above). (30) The end of the emergency or crisis typically terminates the need for tiered dispatch, but agreements noted above may also clarify when these systems should be discontinued.

When triggered through emergency declarations, legal authorities can change instantly. (30) EMS personnel and partners may mobilize and alter their practices. Laws that impede successful implementation of tiered dispatch may be temporarily waived.(31) During the 2009 influenza A/H1N1 pandemic, for example, HHS waived certain requirements of the Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule (32) on the acquisition and use of identifiable health data for the duration of the declared emergency. (33)

Implementation of tiered dispatch systems raises additional legal concerns, all of which are resolvable. Screening of prospective patients presents few liability risks so long as protocols are closely followed. EMS or other practitioners seeking to provide real-time medical guidance through dispatch systems may require some level of patient informed consent, which is easily obtained through proper communications embedded in system designs. (34) Simple explanations of practitioner roles and responsibilities and the limits of medical guidance can avoid patient misconceptions about potential legally-recognized relationships and related duties. Assuring impartiality in the distribution of EMS through tiered dispatch can limit potential claims of unfair allocation of limited EMS personnel or other resources.

## How to Plan for Implementing Tiered Dispatch

The six steps to planning for the implementation of tiered dispatch are

1. Meet with PSAP and dispatch directors, assess capacity, and identify resources needed to expand services during an emergency.
2. Develop staffing plans to expand dispatch center capacity.
3. Identify other call centers for referral of non-life-threatening calls for medical advice.
4. Identify hosting solutions for a scalable system (to assure interoperability between call centers).
5. Develop standard methodology and protocols (consider additional protocol questions for emerging infectious diseases).

Each of these steps is discussed in detail below.

### Meet with PSAP and Dispatch Directors, Assess Capacity, and Identify Resources Needed to Expand Services during an Emergency

The idea to establish new or alternate dispatch centers during an emergency may be proposed by those unfamiliar with EMS operations. It is important to convey that establishing a new or alternate dispatch center during a disaster is not feasible for most, if not all, communities given the financial demands of day-to-day operations and limited funds available from federal and state government to support EMS system preparedness. (35, 36) New facilities would require supplies, equipment, and staff to be mobilized while existing community dispatch centers become increasingly overwhelmed.

EMS agencies must work within a broader planning context, such as through their local or regional healthcare coalitions, to develop plans to augment the capacity of a community's existing dispatch centers and, when possible, prepare to link these centers during an emergency to allow for sharing of call overflow.

Meeting and joint planning with PSAP and EMS dispatch in your community is needed to thoroughly understand the present capacity, staffing, procedures, site requirements, technology, and disaster plans of PSAPs and their associated EMS dispatch centers. This collaboration is essential for planning any tiered dispatch system or other system that links call centers together.

Some communities may elect to survey PSAPs and dispatch centers. EMS system experts on your local or regional healthcare coalition, particularly those with an understanding of dispatch center technologies and software, should develop the survey, collect data from each dispatch center, and analyze data to identify centers able to participate in an expanded tiered dispatch system during a disaster.

Examples of dispatch center capacity surveys include

* [North Carolina 9-1-1 Board – Sample Intrado PSAP Survey](https://www.nc911.nc.gov/pdf/Sample_Intrado_PSAP_Survey.pdf); [North Carolina 9-1-1 Board – Sample Intrado PSAP Survey Fillable PDF Version](https://www.pdffiller.com/en/project/21142559.htm?form_id=5738751&utm_expid=2952066-142.EzvEMEsAQ3-Wj23uLTZrrQ.0&utm_referrer=http%3A%2F%2Fwww.pdffiller.com%2F5738751-Sample_Intrado_PSAP_Surveypdf-Sample-Intrado-PSAP-Survey---NC-911-Board-Other-forms-nc911-nc), available at <http://www.pdffiller.com/5738751-Sample_Intrado_-PSAP_Survey-Sample-Intrado-PSAP-Survey---NC-911-Board-Other-forms-nc911-nc>
* Cuyahoga County: Public Safety Answering Point Assessment (page 14), available at <http://ja.cuyahogacounty.us/pdf_ja/en-US/Publications/2012-PSAPAssessment.pdf>
* Southeast Minnesota PSAP Consolidation Study Project, available at <https://dps.mn.gov/divisions/ecn/programs/911/Documents/SE%20Mn%20PSAP%20Consolidation%20Study%20-%20FINAL%20-%20Full%20Doc%20(2).pdf>

Use Worksheet 3.1 – Dispatch Center Identification and Survey on the next page to chart your progress and identify dispatch facilities willing and able to participate in expanded tiered dispatch.

**Worksheet 3.1 – Dispatch Center Identification and Survey**

**Survey Development**

| **Survey Task** | **Completed** |
| --- | --- |
| Planning team member has been selected to lead identification and survey of dispatch centers. | 🞏 |
| Lead and subject matter experts (include experts in dispatch center technologies and software) develop draft survey (see sample surveys, mentioned earlier). | 🞏 |
| Planning team reviews and finalizes survey. | 🞏 |

**Survey Data Collection**

| **Survey Task** | **Completed** |
| --- | --- |
| Dispatch centers to be approached and surveyed have been identified. | 🞏 |
| Representatives of these centers have been identified, contacted, and have agreed to participate in the survey. | 🞏 |
| Planning team members have met with representatives to complete a survey for each center in the community. | 🞏 |

**Survey Data Synthesis**

| **Survey Task** | **Completed** |
| --- | --- |
| Survey data for each center have been reviewed to identify issues or gaps in each center's ability to participate in expanded tiered dispatch (may include issues with capacity, technology, funding). | 🞏 |
| Observations on these issues/gaps have been documented. | 🞏 |
| Recommended solutions for addressing these issues/gaps have been documented. | 🞏 |
| Assistance and tools that can help the center have been documented or identified. | 🞏 |

**Survey Findings Review**

| **Survey Task** | **Completed** |
| --- | --- |
| Planning team members have met with dispatch center representatives to review survey findings. | 🞏 |
| Issues or gaps in planning identified by the planning team have been discussed with the representatives and modified as needed. | 🞏 |
| Dispatch center representatives have identified assistance that the planning team could offer them. | 🞏 |

**Future Planning**

| **Survey Task** | **Completed** |
| --- | --- |
| Dispatch center representatives agree to engage with the planning team and other dispatch centers to plan for expanded tiered dispatch; begin drafting mutual aid agreements (MAAs) and MOUs. | 🞏 |

### Develop Staffing Plans to Expand Dispatch Center Capacity

Expanding tiered dispatch will require a plan for increasing personnel in dispatch centers. This increase in personnel can be achieved in two ways: bringing on and training (or retraining) additional personnel or cross-training existing personnel.

Medical dispatch is a difficult job requiring multitasking and excellent problem solving and decision making skills. The person trained must have the opportunity to practice that training in an operational setting on a semifrequent basis. The manpower constraints that accompany a mass medical surge event may require flexibility in staffing some dispatch positions; however, utilizing substitute personnel without proper training, real-time practice, and supervision can compound problems during a disaster response.

| **EMS Subject Matter Expert Tip** |
| --- |
| Engage nursing organizations early in discussions on expanding EMS system capacity, whether or not your community intends to include nurses in your tiered dispatch system. Communities may want to consider incorporating nurses into dispatch during nonemergency situations to manage inappropriate and nonemergency calls more efficiently. Also, many EMS agencies use nurses for training and quality improvement/assurance (QI/QA). These nurses could be inserted rapidly into dispatch during a medical surge event.  Additionally, arrangements could be made with existing nurse advice lines in a community. At a minimum, communities should consider developing protocols with existing nurse advice lines so that they do not use standard messages during an emergency that might contribute to surge on the EMS system (e.g., "if you think you are having a medical emergency, hang up and dial 9-1-1"). |

#### Train New Staff in Tiered Dispatch

Depending on how your system is organized, tiered dispatch may require personnel at two points in time:

| **EMS Subject Matter Expert Tip** |
| --- |
| During mass medical surge, some initial caller screening may be performed through use of prerecorded messages played while a caller is waiting. Such messages should be developed in coordination with your healthcare coalition (to assure situational awareness) and be approved by the chief medical officer for the event (Public Health) and the EMS medical director.  Your coalition can determine when the message should be played. One option is to present a recorded message when the initial call taker forwards nonemergent calls to the dispatcher. This message will support efficient queue management and maximize the availability of EMD trained communicators for urgent patients. |

* Initial Caller Screening
* Dispatch

**Initial Caller Screening ("Controller")**

These individuals are the first to speak with a caller. They authenticate the call and determine if it should be routed to a trained medical dispatcher. During an emergency, these initial screeners can also provide callers with basic information, such as the status of the EMS system (e.g., ambulances may be delayed), locations of outpatient treatment and alternate care centers, or websites containing basic care and treatment information.

Initial caller screening can be conducted by substitute personnel with appropriate protocols, training, and supervision. Possible sources of substitute personnel include former dispatchers and retired dispatch personnel. EMS SMEs recommended against using volunteers without prior dispatch experience or without the ability to be trained and practice that training on a routine basis in a dispatch setting. JIT training for medical surge dispatchers is not recommended.

**Dispatch**

EMS dispatchers should be emergency medical dispatchers with the necessary training or medical expertise to determine the acuity of the caller's medical condition, dispatch appropriate EMS resources, and provide pre-arrival medical advice. (37) Individuals must be comfortable with day-to-day dispatch operations such that they can more easily adapt to the protocol changes required for an expansion of tiered dispatch.

Training EMDs requires time and funding. Training EMDs only to serve during a disaster is likely infeasible for most communities. Communities should instead consider ways to maximize the capacity of existing trained dispatchers by

* Assuring nonemergent calls are appropriately directed to others who can provide medical advice and referral.
* Arranging alternate resources outside of the standard EMS response system.
* Developing and implementing a call queuing strategy that will provide for lower priority calls to be held in the dispatch queue when response resources are unavailable.
* Developing and implementing a callback plan for queued calls. This plan should ensure that cases in queue for a specified time will receive a callback from the EMD, that patient status and the queue can be updated, and that additional instructions can be given when necessary.
* Consider "virtual communications centers" linked together by network. This strategy may be particularly useful for communities where the PSAP has no EMS or EMD personnel in the communications center to help triage calls.

Nurses, if available during an emergency, may be a valuable resource to use when implementing tiered dispatch. They might be used for screening and referral for medical advice. As long as written into protocols, dispatchers can triage and prioritize calls and transfer to a nurse line. EMS SMEs who helped develop this document recommend that trained dispatchers answer calls first and then transfer to nurses if the patient meets established criteria.

#### Cross-Train Existing Staff

Another staffing option to consider is the possibility of cross-training existing dispatch center staff to work for another community dispatch center. Cross-training could allow one dispatch center to augment another during medical surge and for continuity of operations in instances where one dispatch center is down.

Dispatch center personnel (EMDs and nurses in particular) are highly trained to operate under the use of protocols and with medical supervision to screen calls, dispatch appropriate medical resources, and provide caller instructions (at a minimum, until EMS units arrive). These clinical skills should be easily transferrable to a new location given similarities in dispatch protocols as dictated by local and state governments. However, a community's dispatch centers may use different technologies or different versions of similar technologies (e.g., different CAD software). In order for dispatch center staff to operate in more than one facility, they will need training on the specific software and procedures of the other facility or, if technology and budget allows, training in CAD-to-CAD interface. Individuals should have routine practice functioning in the alternate dispatch center to gain needed hands-on experience prior to an event. This type of training may be hard to implement in some jurisdictions.

Work with the dispatch center representatives in your community to develop a staffing plan for tiered dispatch during a disaster. Use Worksheet 3.2 below to outline the steps and identify issues to address.

**Worksheet 3.2 – Approach to Staffing Tiered Dispatch**

| **Step Description** | **Activities** | **Issues to Address** | **Responsible Parties** |
| --- | --- | --- | --- |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |

### Identify Other Call Centers for Referral of Non-life-threatening Calls for Medical Advice

The primary objective of any tiered dispatch system is to meet the needs of the caller. When EMS resources are not required or unavailable, callers need to receive useful information and medical advice. One efficient means of dispensing information and medical advice to callers while preserving trained dispatchers is to refer non-life-threatening calls to other call centers.

| **EMS Subject Matter Expert Tip** |
| --- |
| Integrating with other call centers and advice lines will be particularly important for small or rural communities. EMS systems in such areas may become particularly overwhelmed by nonemergent calls during a disaster.  Communities may need to establish agreements with regional call centers (e.g., Poison Centers) or call centers in neighboring areas if resources are not available within the community. |

Following are examples of call centers possibly operating in your community.[[3]](#footnote-4)

**Table 3.1 – Call Center Types**

| **Call Center** | **Description** |
| --- | --- |
| **2-1-1** | A health and human services information and referral line operated by United Way and the Alliance of Information and Referral System's (AIRS') members. 2-1-1 maintains a comprehensive database of local, regional, and national community resources that are already managing many of the types of calls that you would receive. They have partnerships with local and state agencies and can direct calls to them. They also have the capability of managing non-English speaking callers and can be accessed 24 hours a day/7 days a week/365 days a year. To locate your nearest 2-1-1 information and referral center, visit [www.211.org](http://www.211.org/). |
| **3-1-1** | A municipal services and information line. 3-1-1 allows city residents to obtain important nonemergency information services through a central, all-purpose phone number. It is not available in all communities. |
| **4-1-1** | A telephone directory assistance line. 4-1-1 service is provided by individual telephone service (landline and cell phone) providers at no charge per call or for a fee. Cell phone 4-1-1 service can provide directory assistance through text messaging as well as voice. |
| **5-1-1** | A transit and traffic information line. 5-1-1 offers a variety of information services (i.e., traffic reports, weather conditions, and airport information). It also allows users to report traffic accidents or request roadside assistance. 5-1-1 is operated by state departments of transportation. It is not available in all states. |
| **6-1-1** | A line to report problems with telephone service. 6-1-1 is not officially assigned by the Federal Communications Commission (FCC) but is generally recognized across the North American Numbering Plan (NANP). |
| **7-1-1** | A line dedicated to the hearing or speech impaired. 7-1-1 provides access to Telecommunications Relay Services (TRS), which permits persons with a hearing or speech disability to use the telephone system via a text telephone (TTY) [sometimes called a telecommunication device for the deaf (TDD)] or other device. |
| **8-1-1** | A public utility line. 8-1-1 is recognized as the call-before-you-dig number to get assistance in locating underground public utilities (e.g., power lines or gas pipes) when planning an excavation. |
| **Poison Centers** | Poison centers (also known as Poison Control Centers) are normally staffed by physicians, nurses, pharmacists, and paramedics. They can be contacted via a nationwide, toll-free telephone number (1-800-222-1222). A poison center may be located in your community or it may be situated elsewhere in your state. |
| **Telephone Triage/ Nurse Advice Lines** | Telephone triage lines/nurse advice lines are staffed by licensed healthcare professionals (usually registered nurses [RNs]) who help the caller determine the nature and urgency of their problem and direct them to the appropriate level of care. These lines may or may not incorporate a treatment component as well. Sometimes these lines are associated with health insurance companies or healthcare providers. |
| **Health Information Lines** | Health information lines provide information on relevant health topics. Some health information lines operate around the clock, while others are only activated in emergency situations. |
| **Hotlines/ Crisis Centers** | Hotlines/crisis centers are set up to provide specific information on specific topics. Some hotlines are activated when emergency circumstances warrant such a move. Examples of hotline topical areas are suicide prevention, HIV/AIDS awareness, and grief counseling. (**NOTE:** Some hotlines/crisis centers are operated by 2-1-1.) |
| **Communication Centers** | Communication centers operate inside and outside of healthcare settings. Customer service lines at a hospital or private business are examples of communication centers. |
| **Answering Services** | Answering services answer a client's telephone calls and convey messages to the client. |
| **Modified Online Search Engines** | Online search engines can be modified to recognize medical questions and prioritize information for local resources over other online medical information. |

Just as you did with identifying dispatch centers, your healthcare coalition will need to collect data from each call center in order to effectively plan roles (i.e., what type of caller will be referred to which call center) and integration with your tiered dispatch system. An example call center survey can be found on page 69 of CDC's [*Coordinating Call Centers for Responding to Pandemic Influenza and Other Public Health Emergencies: A Workbook for State and Local Planners*](http://www.cdc.gov/phpr/healthcare/documents/FinalCallCenterWorkbookForWeb.pdf). Once you have initiated a plan for which call centers to include in your tiered dispatch system, seek support from EMS System representatives, dispatch centers, and call center managers for implementation and be sure to obtain any necessary agreements from other medical system partners.

Use Worksheet 3.3 below to record the call centers operating in your community, whether they have agreed to participate, and whether a call center survey has been completed for the call center.

**Worksheet 3.3 – Community Call Centers (for Referral of Non-life-threatening Calls)**

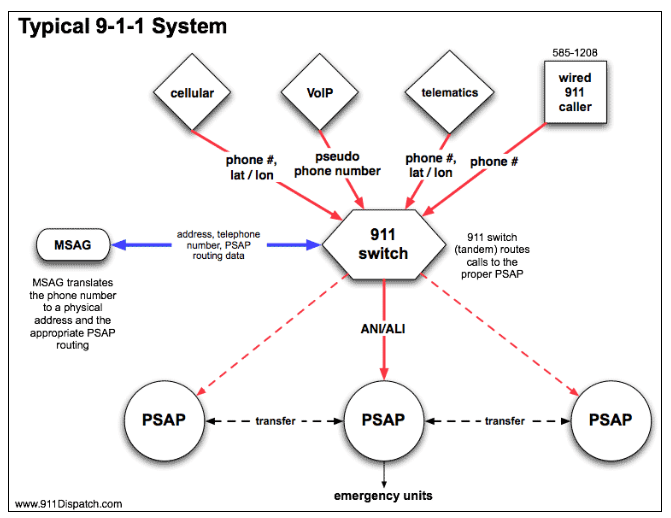
| **Call Center/ Representative Contact** | **Expertise/Type of Call Referral** | **Agreed to Participate** | **Call Center Survey Completed** |
| --- | --- | --- | --- |
| To be filled in | To be filled in | 🞏 | 🞏 |
| To be filled in | To be filled in | 🞏 | 🞏 |
| To be filled in | To be filled in | 🞏 | 🞏 |
| To be filled in | To be filled in | 🞏 | 🞏 |
| To be filled in | To be filled in | 🞏 | 🞏 |
| To be filled in | To be filled in | 🞏 | 🞏 |

### Identify Hosting Solutions for a Scalable System (to Assure Interoperability between Call Centers)

In steps one and three to implementing tiered dispatch, your planning team collected detailed data on the software and technology systems employed by your community dispatch and other call centers. Including EMS technology experts in all discussions will be essential as your planning team navigates the very complex technology (e.g., networks, software applications, databases, CPE components) operating 9-1-1 dispatch and other call centers.

Diagram 3.1 summarizes various technology systems that are common in 9-1-1 dispatch and communications centers.

**Diagram 3.1. A Typical 9-1-1 System**[[4]](#footnote-5)



For definitions of the technology listed in the above diagrams and other types used in 9-1-1 dispatch centers, see the National Emergency Number Association's (NENA) Master Glossary of 9-1-1 Terminology (available at <http://c.ymcdn.com/sites/www.nena.org/resource/collection/625eab1d-49b3-4694-b037-8e854b43ca16/NENA-ADM-000.17_Master_Glossary_20130909.pdf?hhSearchTerms=%22911+and+glossary%22>). This glossary may be helpful to establish consistent terms, definitions, and acronyms when your planning team is discussing technology solutions for tiered dispatch during a disaster.

One term used in conjunction with technology is *interoperability*. This term refers to, in this case, the ability for dispatch centers and other call centers' technologies and communication systems to interface and communicate with each other without special technical effort. For example, some call centers use private vendor provided systems that may not interface with systems provided by a competing vendor. In such cases, additional software or systems may need to be installed, and communities will need to assess the financial resources available for such efforts.

| **A Note on Computer-Aided Dispatch Software** |
| --- |
| "The design, development, purchase and installation of CAD systems can be a complex process for a medium- or large-size EMS agency. It involves not only the installation of computers and the CAD software, but also usually connection to a wide variety of other systems: alarm inputs, mobile data systems, time synchronization sources, records management systems, CAD systems of other agencies, and the local, county, state, and federal network of criminal justice databases."  –Gary Allen  former editor and publisher  *Dispatch Monthly* magazine and 9-1-1 Dispatch website |

Purchasing CAD software as part of disaster preparedness planning is unrealistic; however, in communities already employing this technology, CAD software can assist in establishing a more robust tiered dispatch system during a disaster. In particular, establishing CAD-to-CAD interfaces can allow one dispatch center to communicate and share calls with another dispatch center.

| **EMS Subject Matter Expert Tips** |
| --- |
| * Ensure CAD has a back-up power system. * Plan several layers of back-up technology to assure continuity of operations during an event. * Consider inviting HAM radio clubs to engage with your planning team and to assist when critical equipment is down. Organizations, such as the American Radio Relay League (AARL), can help with point-to-point communications; however, they may be unable to assist with communications between units. |

### Develop Standard Methodology and Protocols

Carefully crafted protocols are the most essential component of any tiered dispatch system. Protocols should be developed by or in coordination with EMS, healthcare systems, medical professional organizations, and dispatch leadership and vetted with the EMS and dispatch personnel who will be expected to use them during an emergency. According to the laws in your state, they should be approved by the EMS medical directors at agency, local, and state levels. Protocols should be tested and revised on a regular basis.

EMS experts (who attended the August 2013 EMS stakeholder meeting) provided the following advice for creating protocols for each component of an expanded tiered dispatch system:

* Write protocols to include that all calls received will be handled using the tiered response and that any call received is subject to triage guidelines.

| **EMS Subject Matter Expert Tip** |
| --- |
| Some EMS experts recommend limiting use of answering machines and prerecorded messages due to a tendency for patients to learn (and often take advantage of) the terminology/criteria that will connect them to a medical dispatcher. One option to consider in lieu of prerecorded messages is use of answering services with pre-scripted directions. |

* Engage public health, medical professional associations, and healthcare systems to develop triggers for crisis protocols; any decision to deviate from standard EMS practice must be determined by and communicated across the healthcare system.
* Use prerecorded messages to filter calls

(e.g., advise the caller that no ambulance transport is available or may be delayed because requests for assistance have exceeded system capacity).

* Develop criteria to triage calls and prioritize the order of response (a responsibility of EMS medical directors).
* Develop protocols to provide for tiered response of different EMS unit types (e.g., conserving ALS for the most acute patients) to maximize efficient and appropriate use of EMS resources.
* Develop specific protocols for emerging infectious diseases (e.g., Ebola, pandemic influenza).
* Refer non life-threatening calls to advice lines (e.g., advise the caller of locally designated patient collection and treatment points).
* Dispatch non-ambulance vehicles (e.g., passenger vans) for transport of non-acute patients

Table 3.2 summarizes sample protocols for tiered dispatch during disasters.

**Table 3.2 – Methodology and Protocol Examples for Tiered Dispatch during a Disaster**

| **Author or Organization** | **Title and Description** | **Available at** |
| --- | --- | --- |
| NASEMSO | *Sample Pandemic Influenza Virulent Infectious Disease Protocol and Dynamic System Severity Score*  One example of how resources may be evaluated and reallocated within the system during an influenza pandemic. | <http://www.nasemso.org/Resources/documents/DynamicSystemSeverity20080701.pdf> |
| NASEMSO | *Maximize the Use of Limited Resources, Alternative Dispatch Protocols* | <http://www.nasemso.org/Resources/documents/Goes_with_ON_SCENE__Pan_Flu_EMD__APPROVED.pdf> |
| State of Arizona Chapter, Association of Public Safety Communications Officials (APCO), NENA | *Pandemic Influenza Response Plan* *Appendix 4. Dispatch Protocols*  Includes samples of call flow diagram for standard versus pandemic flu EMD calls, EMS dispatch protocol, EMS operating protocol, pandemic influenza-specific protocol questionnaire (surveillance), and EMS pre-arrival guidance | <http://www.az-apco-nena.org/Newsletters/A_4_dispatch_protocols.htm> |
| State of Massachusetts Emergency Medical Services | *Pilot On-scene Protocol and Alternative Dispatch Protocol during Declared Public Health Emergency for Pandemic Influenza*  A sample protocol designed to be implemented only when a significant infectious disease exists that has impacted the healthcare system to the extent that all hospital beds are full, the EMS/Dispatch work force is significantly depleted due to absenteeism, and the calls for EMS support overwhelm resources to manage all calls. | <http://www.nasemso.org/Resources/documents/MAProtocolOnSceneAndAlternativeDispatch101909.pdf> |
| North Dakota Department of Health | *Emergency Medical Service Pandemic Surge Protocols and Public Safety Answering Point Pandemic Surge Protocols* | <http://www.ndhealth.gov/EPR/Publications%5CEMS-PSAP-Stages-for-Standards-of-care2.pdf> |
| Committee on Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations, Institute of Medicine | *Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response*  Table 6-1. Potential EMS Response Adaptations Under Conventional, Contingency, and Crisis Conditions. | <http://www.ncbi.nlm.nih.gov/books/NBK201058/table/tab6_1/?report=objectonly> |

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# Chapter Four – Modified Treatment and Transport Strategies

## Overview

As highlighted in *Innovation Opportunities for Emergency Medical Services* (available at <http://ems.gov/pdf/2013/EMS_Innovation_White_Paper-draft.pdf>), EMS providers contribute to ED overcrowding on a daily basis by transporting—based on EMS system protocols—non-acutely ill or injured patients when these patients could be treated without transport, referred for treatment to a more appropriate destination, or transported to a non-ED for treatment. (11) During any mass medical surge event based on a disaster, ED and EMS resources will be stressed far beyond what is experienced on a daily basis. Modifying transport and treatment protocols will be vital to preserving these resources. In cases of pandemic influenza or another infectious disease outbreak, modified treatment and transport protocols also will be necessary for community mitigation strategies, such as social distancing and voluntary quarantine.

EMS agencies may need to modify routine treatment and transport protocols for EMS to preserve transport resources for the most critically ill and injured patients and to utilize paramedics to optimally distribute patients to community health facilities. Community health facilities may include, but are not limited to, alternate care facilities, medical shelters, and prehospital stabilization units. In addition, protocols may be needed to allow EMS providers to transport patients away from the hospital to community health resources in order to open up bed space.

## Examples of Modified Treatment and Transport Strategies

Modified treatment and transport strategies may include development of protocols to allow EMS personnel to assess, treat, release, and refer patients without transport.

According to the Journal of Emergency Medical Services (JEMS) 200-City Survey (2005), 35.7% of U.S. systems allow EMS to refuse transport under certain conditions, including patients judged to have minor illness or injury after examination. According to *State EMS System Pandemic Influenza Preparedness: A Report of the FICEMS* (2009), among 22 pandemic influenza supporting activities for EMS, the supporting activity that states most frequently did not address was defining the role of EMS providers in "treating and releasing" patients without transporting them to a healthcare facility. While these statistics indicate efforts have been made to modify EMS transport and treatment strategies in some areas, many EMS systems are still required to transport all patients to a hospital ED and are prohibited from treating without transport except in those instances with a documented patient refusal. (27)

As outlined in *Innovation Opportunities for Emergency Medical Services: A Draft White Paper* from NHTSA, ASPR, and HRSA, EMS systems are uniquely positioned to care for 9-1-1 patients and to assist less emergent patients with transport to the most appropriate care setting based on medical and social needs. Many communities have initiated pilot programs to expand EMS provider roles to enhance access to primary care services particularly in rural or medically underserved populations. (38)

As mentioned in the introduction to this document, community paramedicine and mobile integrated healthcare are both strategies for adapting EMS to better meet healthcare needs on a daily basis. (12, 13, 14)Both are promising models for integrating EMS with out-of-hospital health services, and may be a good basis for discussions on how best to integrate medical surge planning for expanding EMS system capacity roles into daily operations. At present, North Carolina, Colorado, Minnesota, Maine, and Texas have all implemented variations of community paramedicine. (14, 39)

Figure 4.1 on the next page, which is provided by Kizer, Shore, and Mouline (2013) in their white paper, *Community Paramedicine: A Promising Model of Integrating Emergency and Primary Care* (available at <http://www.ucdmc.ucdavis.edu/iphi/publications/reports/resources/IPHI_CommunityParamedicineReport_Final%20070913.pdf>), summarizes opportunities and challenges in modifying scope of practice to allow EMS personnel to assess, treat, release, and refer patients without transport.

| **Figure 4.1. Assess, Treat as Needed, and Refer for Release by Community Paramedics[[5]](#footnote-6)** |
| --- |
| ***Opportunities***  Overarching: Improve patient care by treating at home or at incident site, and then releasing patient or referring for additional care in a non-ED setting; potential for system-wide cost savings when patient is not transported to an ED.   * Ambulances are often sent in response to nonemergency situations; community paramedics could assess patients, treat and release them if appropriate, or if needed, refer patients to providers other than the ED. * For nonemergency situations care may be administered appropriately in settings, other than the ED, that are less expensive. There would potentially be lower costs for patients, insurers, and the healthcare system overall. * Frees up resources for patients in the ED who need emergency care. * Community Paramedics (CPs) would be connected to other community resources where they could refer patients not needing ED level of care for appropriate treatment. * Provides formal policy and protocols with training and accountability for CPs working with patients in nonemergency situations versus current informal suggestions that these patients decline transport against medical advice (AMA).   ***Challenges***  Overarching: Risk and liability associated with inaccurate evaluations by CPs. Need for protocols to ensure that all patients are treated equally and that none are denied care.   * CPs will need protocols for patient assessment, along with greater online medical control for consultations on patients, since potential for error is greater than current practice transporting all patients to EDs, where they are evaluated by ED staff. * Can be challenging to make accurate patient assessment with incomplete information about patient's condition. Electronic transfer of health information would help improve decision-making and liability. Medical directors may incur extra liability. * Patients and families could think care is being inappropriately denied, potentially based on patient characteristics. CPs will need to be alert to equity in patient care. * Need to change statute and regulations to allow CPs to treat and release or refer and change policies to allow payment for care that does not involve transport of patients to hospital EDs. |

## Addressing Legal Barriers

Modified treatment and transport strategies during medical surge raise questions related to licensure, scope of practice, and medical and legal standards of care, all of which can be addressed with advance consideration and planning. (40)

Ensuring sufficient EMS personnel are available, trained, and legally authorized for an expanded scope of practice is a significant challenge during periods of medical surge. Existing state licensure and certification processes, including state-based reciprocity arrangements, may be leveraged extensively through emergency declarations or orders. (41) These efforts can facilitate rapid out-of-state licensure recognition by allowing temporary suspension of laws and regulations that might hinder response efforts. (42)

Related licensure issues affect emergency vehicles and ambulance companies. State laws and exclusive local agreements can complicate real-time allocation of vehicles and personnel. However, an array of legal options can help avoid these obstacles, including waiver authorities and existing mutual aid agreements (MAAs) between public and private partners. (43)

Medical surge may require EMS professionals to treat and assess patients in nontraditional ways and settings. Scope of practice restrictions must be considered under state law. In many jurisdictions, these restrictions may be altered or temporarily waived via state officials, often via gubernatorial order or declaration. (33) Alternatively, existing laws may often be interpreted favorably to allow increased flexibility during emergencies or crises.

Appropriate surge care is tied as well to disaster protocol development. "Treat and release" protocols help EMS professionals and other providers adapt to limited resources, difficult conditions, and limited communications while still providing quality care.(44) Activation of these protocols may coincide with crisis standards of care implementation, which ensures the medical standards of care is appropriate based on available resources in emergencies and shifting from patient needs to the needs of the broader community. (33)

Public health emergencies heighten liability concerns for EMS personnel and entities. However, legal standards of care (which may determine whether a health professional is liable for failing to provide adequate patient care) can fluctuate sufficiently to accommodate varied practices during crises, effectively absolving potential liability.(45) In addition, federal and state liability protections may shield some EMS professionals and entities from liability for acts of negligence, especially concerning volunteers during declared emergencies. (46)

## How to Plan for Implementing Modified Treatment and Transport Strategies

The two steps to implementing modified treatment and transport strategies are

1. Determine ways to increase the availability of EMS personnel in the field.
2. Develop methodology and protocols.

Each of these steps is discussed in detail below.

### Determine Ways to Increase the Availability of EMS Personnel in the Field

While a modified staffing schedule may meet increased demand when fewer personnel are available in the short term, a long-term event will require careful planning. Solutions like better utilization of first response and transport resources, recalling off-duty staff, utilizing retired personnel, and providing for emergency credentialing and interstate mutual aid are mechanisms to examine.

EMS experts provided the following advice for increasing the availability of EMS personnel in the field during medical surge:

* Restructure ambulance staffing. For example, allow BLS to respond to calls and perform simple medical tasks without ALS. (**NOTE:** This practice may require expanding scope of practice).
* Change staffing models for EMS units (e.g., two paramedics per unit becomes one paramedic plus one EMT or only one EMT and a trained driver).
* Consider different disaster scenarios (refer to your community's hazard vulnerability analysis) and how they could impact demand for services at various times of day. Depending on the nature of the incident, shifts could be reorganized or fewer ambulances could be made available at different times of day to alleviate personnel fatigue.
* Staffing solutions and recommendations are available through statewide programs; such as, the Emergency Systems for Advance Registration of Volunteer Health Professionals (ESAR-VHP) and local programs, such as the Medical Reserve Corps (MRC) and community volunteer groups.
* Consider batched transports, which may involve a single EMS unit (ambulance or other vehicle) visiting and assessing multiple patients in multiple locations before transporting some or all patients to the hospital. (2)
* Minimize or stop patient offload delays that can occur at the hospital ED or other end destination. When EMS must wait for ED staff to accept patients and transfer them from the ambulance, they are unable to respond to other calls.

### Develop Methodology and Protocols

EMS experts (who attended the August 2013 CDC-HPA and DOT-NHTSA *EMS Stakeholder Meeting*) provided the following advice for creating protocols for modified treatment and transport:

* Develop criteria for treat-and-release, including specific competencies, scope of practice, and certification/license maintenance.
* Define how to report to dispatch, clinics, and medical directors. Consider use of video-based communications programs in cases where an EMS provider needs a medical consult (such programs would allow medical control to view the patient).
* Create pre-event surge status protocols and procedures at the state level.
* Address gaps found in the process from EMS to follow-up care.
* Develop triage definitions and categorization protocols.

| **Recognition of EMS Personnel Licensure Interstate Compact (REPLICA)** |
| --- |
| Released in 2014 by the National Association of State EMS Officials (NASEMSO) and the Council of State Governments (CSG) National Center for Interstate Compacts, REPLICA allows for member states to honor other jurisdictions' licenses for emergency medical personnel so long as the license is issued in another member state in a manner consistent with the new compact. In order to become a member of the interstate compact, the compact must be signed into state law through a legislative process.  NASEMSO suggests that REPLICA can "solve the pervasive dilemma of providing appropriately credentialed individuals from other states the legal ability to practice under specified conditions, introduce unprecedented accountability related to those personnel, and create means of information sharing among states."  For more information, go to <http://www.nasemso.org/Projects/InterstateCompacts/>. |

Table 4.1 below summarizes sample protocols for modified treatment and transport during disasters.

**Table 4.1 – Methodology and Protocol Examples for Modified Treatment   
and Transport during a Disaster**

| **Author or Organization** | **Title and Description** | **Available at** |
| --- | --- | --- |
| Utah Hospitals and Health Systems Association for the Utah Department of Health | *Utah Pandemic Influenza Hospital and ICU Triage Guidelines*  Guidelines and algorithms intended to guide the allocation of patient care resources during an influenza pandemic or other public health emergency, when demand for services dramatically exceeds supply. | <http://www.nasemso.org/Resources/documents/Utah_Pandemic_Influenza_Hospital_and_ICU_Triage_Guidelines_8_11_09.pdf> (Prehospital settings, EMS, page 2)  Appendices:  <http://www.nasemso.org/Resources/documents/Utah_Panflu_Hospital_Triage_and_ICU_Guidelines_Appendix_A.pdf>  <http://www.nasemso.org/Resources/documents/Utah_Panflu_Hospital_Triage_and_ICU_Guidelines_Appendix_B.pdf> |
| Committee on Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations; Institute of Medicine | *Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response*  Table 6-1. Potential EMS Response Adaptations Under Conventional, Contingency, and Crisis Conditions | <http://www.ncbi.nlm.nih.gov/books/NBK201058/table/tab6_1/?report=objectonly> |

## A Note on Training EMS Personnel to Perform Modified Treatment and Transport

Implementing modified treatment and transport strategies represents a change in traditional EMS practice. Providing education and training to perform modified treatment and transport in advance of an actual incident is recommended. This change in traditional practice to incorporate more complex decision making requires more education and training. Education on the actual protocols for where to transport can be just-in-time.

Providers must be trained and retrained, and their knowledge/skills must be validated on a regular basis. As many EMS experts have argued, strategies for expanding EMS systems capacity will be most successful if at least some activities are integrated into daily operations.

# Chapter Five – Coordinating Transport to Alternate Destinations

## Overview

| **EMS Subject Matter Expert Consideration** |
| --- |
| Beginning transport of patients outside of routine sites of definitive care for the first time in the midst of a crisis will be extremely challenging.  An EMS system will be more successful if it can explore transport to alternate facilities on a routine basis. At a minimum, transport to alternate destinations (using disaster protocols) should be exercised regularly. |

EMS personnel may need to transport patients to settings other than EDs during situations of expanded demand. Transport to facilities that traditionally do not receive 9-1-1 patients will depend on established surge protocols to ensure care can be safely, efficiently, and more appropriately provided at the alternate destination.

Alternative destinations may include clinics, urgent care centers, surgery centers, and alternate care sites. Several states currently have established alternate care facilities with medical support, logistics, and scope of care defined, but will not be used until surge stress is significant.

If current statutes and regulations do not permit transport to alternate destinations in a community, EMS systems may face resistance to such plans from their various healthcare partners. Healthcare partners should be engaged early in the planning process to work through opposition in favor of a mutually beneficial disaster response.

## Examples of Coordinating Transport to Alternate Destinations

Unlike other strategies for expanding EMS systems capacity during a disaster, few examples of ways in which EMS systems are engaging in coordinated transport to alternate destinations exist. Current reimbursement mechanisms for EMS mandate transport of patients to a designated emergency patient destination (i.e., hospital ED) based on proximity, specialty designations, hospital capacity, and, in some cases, patient requests. Such reimbursement mechanisms incentivize EMS systems to transport patients to EDs and disincentivize efforts to explore coordinating transport to destinations outside of the hospital either as part of routine care or during a disaster.

In 2008, the American College of Emergency Physicians (ACEP) and NAEMSP reaffirmed its 2001 position on "[alternate ambulance transportation and destination](http://www.acep.org/Clinical---Practice-Management/Alternate-Ambulance-Transportation-and-Destination/)." ACEP and NAEMSP agreed that "EMS systems may encounter patients who do not need ALS level care or evaluation at an ED. In these circumstances, transportation by alternate means or to an alternate destination may be appropriate. EMS systems that choose to implement such options, either in the dispatch phase or following on-scene evaluation by field personnel, should develop a formal program to address these alternatives. Alternate transportation and destination decisions may affect the EMS system's liability." (47)

ACEP and NAEMSP outlined key elements of alternate transportation and destination programs:

* EMS physician medical director oversight for all components of the EMS system from dispatch centers and first responders to basic life support and ALS services.
* EMS physician medical director-led development, implementation, continuous quality improvement of policies and procedures, and research designed to ensure patient safety and appropriateness of any alternate transportation or destination decisions.
* Education programs for EMS personnel, physicians, and the community.
* Compliance with established emergency medical dispatch criteria.
* Opposition to patient incentive programs that circumvent the established 9-1-1 (or equivalent) PSAP as the initial call for a perceived medical emergency.
* Assurance that alternate transportation and destination decisions are consistent with medical necessity and with consideration for patient preference when the patient's condition allows.
* Support of appropriate compensation for EMS systems based on patient evaluation and treatment as well as on transport. (47)

Other possible elements of alternate transport and destination programs recommended by EMS SMEs include:

* Engagement of alternate community resources to develop transfer and communication protocols with them. The purpose is to assure that they have the capacity to accept a patient and to determine how the patient care will be transferred.
* Incorporating a pre-incident agreement with the governor of the state or the National Guard to utilize mobile hospitals if building space reaches capacity.

| **Case Study: Grady Emergency Medical Services Alternate Destination Care Program (Atlanta, Georgia)** |
| --- |
| Started in 2010, the program is designed to offer patient transports to a neighborhood clinic rather than an ED for nonemergent medical problems. Grady EMS permits its field EMS providers "to transport stable ambulatory patients that meet specific criteria to one of the Grady Hospital System ambulatory care clinics. The responding ambulance will be notified prior to arrival if the patient meets the EMD determinant code to qualify for the program. Upon arrival, the field provider will complete an assessment and establish concordance with the EMD determinant. If the patient meets this concordance, the patient will be offered transport to one of four preselected ambulatory clinics. Should the field assessment result in discordance, the patient will be transported to an ED."  From Grady EMS Field Operations, available at <https://www.gradyhealth.org/ems/field_operations.php>. |

Glassman and Parrillo (2010) confirmed that patient transport to alternate destinations increases healthcare system surge capacity during an emergency by alleviating less severely ill or injured patients from traditional points of entry. As with modified treatment and transport strategies, community paramedicine provides a promising model for coordinating transport to alternate destinations and may provide insights into implementing this strategy during an emergency. Figure 5.1 on the next page, provided by Kizer, Shore, and Mouline (2013) in their white paper, *Community Paramedicine: A Promising Model of Integrating Emergency and Primary Care* (available at <http://www.ucdmc.ucdavis.edu/iphi/publications/reports/resources/IPHI_CommunityParamedicineReport_Final%20070913.pdf>), summarizes opportunities and challenges in transporting patients to destinations other than the ED.

**Figure 5.1. Community Paramedics Transporting Patients to Locations Other Than the Hospital ED[[6]](#footnote-7)**

| ***Opportunities*** |
| --- |
| Overarching: Method for getting right level of care to patients in an efficient, effective, and timely manner. May reduce crowding in some emergency rooms.   * Many patients may be treated appropriately in a location other than a hospital ED (e.g., patients with minor upper respiratory infections, chronic inebriates). * Means of getting patients to services they need more quickly and efficiently. Reduction or eliminations of secondary transfers or referrals if the individual is taken to the most appropriate treatment facility initially. * May reduce overcrowding in EDs if fewer patients with nonemergent conditions are there, potentially reducing costs and making more efficient use of ED resources. May also reduce ED division rates and EMS wait times. * CPs would be connected to other community resources where appropriate treatment could be obtained by patients not needing ED level of carte. * Use of technology, such as telehealth consultations, could help to ensure accurate assessment of patients, particularly in rural, underserved areas. * Patients may prefer being taken to a facility where they can immediately obtain the appropriate level and type of care, and they may perceive improvements in the quality of service. * Because the current system takes everybody to a hospital ED, transport to alternate locations may be seen by patients as lower-quality care. Appropriate education is needed so the public accepts that this approach is beneficial. * May result in overutilization of transportation resources by patients. * Need to change statutes and regulations to allow transport of patients to non-ED locations and to allow community paramedics to practice in locations other than those currently specified. |

**Figure 5.1. Community Paramedics Transporting Patients to Locations Other Than the Hospital ED**

**(continued)**

| ***Challenges*** |
| --- |
| Overarching: CPs must be well trained to assess patients in the field using protocols and must have access to online medical experts, and state regulations must be changed.   * CPs will need additional training and protocols for patient assessment, along with greater online medical control for consultation on patients, since potential for error is greater than current practice of transporting all patients to EDs, where they are evaluated by ED staff. * Need for viable alternate locations for patients to be transported to; often, there are limited resources in communities for mental health care, substance abuse treatment, urgent care, and primary care. Need exchange of data with all providers and quality assurance/improvement processes in place. * Need appropriate medical condition evaluation prior to transport to an alternate facility. * Difficult to accurately assess complex patients (e.g., those with psychological or substance abuse issues) with the potential of underlying medical conditions. |

If communities have existing programs for transport to destinations other than an ED, the program leads could serve as the lead agencies in working out agreements for coordinating transport to alternate destinations during medical surge. Providers for these programs could be assigned transports to non-EDs since they may be already familiar with clinics and other nontraditional sites of care.

## Addressing Legal Barriers

A number of legal concerns are implicated by the need to ensure that EMS personnel are permitted to transport patients to alternate care sites (ACSs) during emergencies. Most states authorize EMS providers to transport emergency patients to nonemergency health care facilities only under specific conditions based on statutory or regulatory mandates, local protocols, or medical control. (46) Some states' statutes, like Massachusetts, even require EMS personnel to transport all patients to specified locations, generally acute care centers or trauma hospitals. (32)

While these laws may hamper the use of ACSs and other facilities, emergency powers, waivers, and surge protocols provide multiple legal routes to overcome destination restrictions. Emergency declarations permit state officials to suspend laws that hamper emergency response, including limits on EMS transport destinations. For example, during the 2013 Boston Marathon, the Massachusetts Office for Emergency Medical Services temporarily suspended the state legal definition of "appropriate health care facility," permitting EMS personnel to transport patients to medical care tents along the route instead of acute care facilities. (48)

Under permissive state laws, or when appropriate waivers are in place, EMS personnel may transport patients to temporary treatment sites such as ACSs or extended treatment areas (ETAs). Temporary use of private property for these sites also may be permitted via emergency powers subject to constitutional requirements that compensation be provided later. (49)

Reimbursement for Medicaid and Medicare emergency transport can also hinge on patient destination, restricting transport to hospitals, skilled nursing facilities, a patient's home, and dialysis centers.(50) While CMS waivers do not apply typically to ambulance coverage requirements, it may reimburse for an ambulance transport to ETAs that are mere extensions of already-approved destinations (e.g., a hospital). (51) Additional reimbursement for EMS transportation services also may be available through federal grants in declared emergencies. Unlike hospital care, EMS can be reimbursed under a Robert T. Stafford Disaster Relief and Emergency Assistance Act declaration. (53)

Potential liability claims against EMS providers framed in negligent care, transport, or lack of medical oversight can always arise, but liability protections are in place for EMS providers via emergency declarations, Good Samaritan statutes, and other laws. (54) Evolving standards of care, reflecting emergency conditions or lack of resources, may also protect EMS providers from liability for harms resulting from transportation. So long as EMS providers act in good faith and without willful or wanton intent to harm, resulting acts of negligence may be nonactionable due to liability protections or adherence to crisis standards of care.

## How to Plan for Implementing Coordinating Transport to Alternate Destinations

The six steps to implementing coordinated transport to alternate destinations are

1. Familiarize EMS stakeholders with overall community plans for utilizing alternate destinations during an emergency.
2. Determine the roles EMS providers will play in community plans for alternate destinations/alternate care sites during an emergency.
3. Establish communication plans for communicating between dispatch, EMS personnel, non-EMS transporters, and destinations.
4. Establish communications plans for patient hand off.
5. Develop methodology and protocols.

Each of these steps is discussed in detail below.

### Familiarize EMS Stakeholders with Overall Community Plans for Utilizing Alternate Destinations during an Emergency

In their 2009 Agency for Healthcare Research and Quality (AHRQ) report, *Disaster Alternate Care Facilities: Selection and Operation*, (available at <http://archive.ahrq.gov/prep/acfselection/dacfreport.pdf>), Cantrill, Pons, Bonnett, and Moore state the following about establishing alternate care facilities:

"The identification and use of an alternate care facility for the management and treatment of patients resulting from a mass casualty event can only be done in the context of pre-event planning that delineates those medical functions and treatment objectives to be accomplished by implementing such a facility. Community planners, comprised of participants from municipal agencies including public safety, public health, and emergency management as well as representatives from local health care organizations or institutions, must conceive of, develop and implement a plan in which alternate care facilities serve in concert with existing health care facilities including hospitals, outpatient clinics, and multi-specialty group offices, as well as home care, in order to deliver a wide-ranging level of medical services to the population in need." (55)

Planning alternate destinations—both alternate care sites and other healthcare resources (e.g., clinics, ambulatory surgery centers) willing to accept additional patients during emergencies—is a complicated and time-consuming endeavor. Planning for the designation, establishment, and management of alternate destinations is outside of the scope of this document; however, integrating EMS system stakeholders (including representatives on your healthcare coalition, dispatch center representatives, agency and personnel representatives) into the alternate care site planning process from the beginning is vital. EMS medical directors must be involved in the development of protocols for EMS transfer at the sites.

Recommended actions for EMS system representatives to engage in community planning for alternate destinations include

* Review community "heavy surge" or alternate care facility plans, both local and from other communities.

For example, the California Department of Public Health's *Standards and Guidelines for Healthcare Surge During Emergencies* (available at <http://www.bepreparedcalifornia.ca.gov/CDPHPrograms/PublicHealthPrograms/EmergencyPreparednessOffice/EPOProgramsandServices/Surge/SurgeStandardsandGuidelines/Pages/SurgeStandardsandGuidelines.aspx>) provides detailed protocols for establishing alternate care sites.

* Assure that EMS protocols and methodology developed for coordinating transport to alternate destinations integrate with community guidelines for triage of patients into categories (immediate, delayed, minimal, expectant, and dead or compatible categories) to match patients' needs with available medical resources.
* Participate in community-wide exercises.
* Develop protocols for who can be transferred to alternate cate sites and match site capabilities and capacity to these protocols. Assuring that a facility will take a patient when transferred to avoid delays and additional surge on the EMS system is critical.

### Determine the Roles EMS Providers Will Play in Community Plans for Alternate Destinations/Alternate Care Sites during an Emergency

| **EMS Subject Matter Expert Consideration** |
| --- |
| Many community plans for alternate care sites list EMS personnel as potential sources of staffing for site operation. "Functioning in extraordinary settings, such as shelters, alternate care sites, patient receiving centers, clinics, and tented free-standing medical units" is also mentioned as a potential role for EMS responders in *Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response*.(2)  The EMS experts consulted for this document recommend that communities preserve EMS personnel for acute stabilization and transport needs rather than use EMS providers to augment clinical staff in alternate care and other outpatient sites. For other ideas on staffing alternate care sites, see CDC's Community Planning Framework, Chapter 5 – Planning for Heavy Surge, Part 1 (Alternate Care Systems) (available at <http://www.cdc.gov/phpr/healthcare/communityplanningframework.htm>). |

In *Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response*, NAS and the Committee on Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations outlines several fundamental changes in prehospital care that may result during a disaster. The committee mentions two potential roles for EMS personnel involving transport to alternate destinations/alternate care sites:

1. ". . . transport destinations being adjusted to allow transport to clinics or other alternate sites of care in addition to hospitals." (2)
2. "Assisting in the evacuation of patients at a health care facility to alternate care sites. This, in turn, may require them to provide care to patients for longer than is usual for EMS providers, who normally provide care for patients at the scene and during transport and transfer." (2)

As mentioned previously, current EMS reimbursement rules have discouraged many communities from considering the above roles and other options for coordinated transport to alternate destinations during mass medical surge. In absence of specific guidance for implementation, the questions provided in Worksheet 5.1 may help guide your healthcare coalition in determining the role EMS systems will play in your community plans for alternate destinations/alternate care sites.

**Worksheet 5.1 – Discussion Questions for Clarifying EMS roles in Alternate Destination/Alternate Care Site Planning**

**Questions**

1. Where do EMS agencies currently provide transport within the community?
   1. Do any agencies provide transport to destinations other than an ED?
2. If agencies are currently providing transport to ambulatory care or other outpatient settings:
   1. What potential roles can these EMS agencies play in coordinated transport to alternate destinations during medical surge?
   2. Can these agencies handle transport to outpatient settings for a wider service area?
   3. Are representatives from these agencies included in the community's healthcare coalition or planning body?
3. If agencies are currently providing transport to specialty centers (e.g., burn center, cardiac center, stroke center, pediatric specialty center, psychiatric facilities):
   1. Will transport to these specialty centers continue/cease/increase/decrease during a mass medical surge event?
   2. What potential roles can these EMS agencies play in coordinated transport to alternate destinations during medical surge?
   3. Are representatives from these agencies included in the community's healthcare coalition or planning body?
4. If agencies are currently providing transport only to EDs, are any planning to implement or change procedures to allow transport to other destinations in the future?
   1. If no plans are in place, have any considered transport to alternate destinations?
   2. What models for transport to alternate destinations (e.g., community paramedicine) have been considered?
   3. What barriers have been encountered or discussed?
5. Has the community identified the different types of transport required to support community plans for alternate care sites or alternate destinations? Examples are
   1. Transport of patients from within the community to alternate care sites
   2. Transport of patients from a hospital emergency room to an alternate care site
   3. Transport of acute patients from their home to an ambulatory care center
6. What are the minimum staff, skills, and equipment required to conduct each type of transport?
7. Is the community considering unconventional transport options in addition to EMS/ambulance transport (e.g., volunteer drivers, use of school buses or vans for transport to alternate care sites)?
   1. If yes, what role – if any – should EMS personnel play in identifying options/sources for non-EMS transport (i.e., vehicles and drivers)?
   2. What role – if any – should EMS personnel play in training or supporting these drivers before and during an event?
   3. Will these non-EMS transporters be integrated with 9-1-1 PSAPs (and included in modified/tiered dispatch protocols) or will their transport assignments be coordinated through Emergency Management/Emergency Operations Center?
   4. Is the community considering converting vans or buses for transport of acute patients?
8. (For EMS representatives) What are your biggest concerns in terms of planning for and implementing coordinated transport to alternate destinations during mass medical surge?

Once the community has identified the role EMS systems and other partners will play in coordinated transport to alternate destinations, the remaining implementation steps will assist in developing a more complete plan.

### Establish Plans for Communicating Between Dispatch, EMS Personnel and Non-EMS Transporters, and Destinations on Capacity

EMS systems will need assurance before transport that an alternate destination has the capacity to accept patients. Some communities (e.g., Arkansas) have used a "Trauma Dashboard" that is dedicated to tracking hospitals that report their ability to accept specific trauma patients. A dedicated person within the dispatch system could track self-reporting nontraditional facilities and report to the dispatchers as needed.

### Establish Communication Plans for Patient Handoff

During a medical surge event, patient handoff must be quick and efficient—receiving staff will be busy and transporting agencies will need quick turnarounds. One option for ensuring efficient communication of needed patient information is use of a standard form for all transporting agencies. The form may include the following fields:

* Chief complaint and past medical history.
* Patient descriptors/assessment.
* Vital signs.
* Treatment.
* Location of origination of call (for patient tracking and post-event review).

### Develop Methodology and Protocols

EMS experts recommend creating protocols for coordinating transport to alternate destinations that contain methodology for triage at four points in time

* At dispatch.
* In the field for transport destination.
* At destination to accept and manage patients (EMS would develop in coordination with clinics or healthcare systems and the medical director of the alternate site).
* At destination for secondary transport.

No local or state protocols were identified during the writing of this document for EMS coordinating transport to alternate destinations. Table 5.1 on the next page summarizes guidance documents that include information to inform protocol development.

**Table 5.1 – Methodology and Protocol Examples for Coordinating Transport to Alternate Destinations during a Disaster**

| **Author or Organization** | **Title and description** | **Available at** |
| --- | --- | --- |
| DOT-NHTSA | *Preparing for Pandemic Influenza: Recommendations for Protocol Development for 9-1-1 Personnel and Public Safety Answering Points (PSAPs)* | <http://www.nhtsa.gov/people/injury/ems/PandemicInfluenza/> |
| Jefferson G. Williams, MD MPH, Deputy Medical Director, Wake County EMS System (Raleigh, North Carolina | *Alternative Destinations for EMS Patients*  (a presentation to the National Association of EMS Physicians Annual Conference, February 25, 2013) | <http://www.naemsp.org/Documents/2013%20Annual%20Meeting%20Handouts/HANDOUT%202013%20ATMD%20Williams%20Alternative%20Destinations-%20Final.pdf> |

# Chapter Six – Support for Rapid Implementation of Patient Interventions

## Overview

EMS systems may be able to enhance community responses to medical surge by delivering interventions to patients and caregivers at home or outside of the regularly established response mechanisms of hospitals and public health. Many communities have discussed such strategies and others have implemented them on a small scale during an emergency. Planning for implementation of patient interventions is traditionally the responsibility of public health and emergency management. EMS system stakeholders should be integrated into the planning process from the beginning if they will be expected to have a role in implementing the plans during an emergency.

Interventions should be determined within the context of a healthcare coalition, with guidance from state or local EMS medical directors. Patient interventions may be determined based on community needs, the nature of the disaster event, and the capacity of EMS in the region. For more information on determining EMS system capacity, see "Conducting a Needs Assessment" in Chapter 2: Setting the Stage – A Foundation for Expanding EMS System Capacity (page 23).

Unlike the strategies addressed in Chapters Three and Four, little precedent exists for EMS supporting rapid implementation of patient interventions during emergencies. Significant barriers to implementation include the reimbursement and legal issues associated with expanding EMS roles to include a broad range of nontraditional activities. Despite these barriers, the EMS experts who assisted in the development of this document encourage communities to discuss the feasibility of such strategies when planning to expand EMS system capacity during medical surge.

## Addressing Legal Barriers

### Legal Responsibility to Plan for Delivery of Patient Interventions

State and local governments must plan and train for emergencies to effectively protect the public's health. Private entities (e.g., hospitals) may be required legally to make adequate emergency plans as a condition of their licensure or via other legal requirements. (56)

Failing to plan appropriately, including addressing the needs of vulnerable populations, may lend to risks of liability. (57) Emergency preparedness plans that do not adequately address the needs of persons with disabilities, for example, have been legally challenged under the Americans with Disabilities Act (ADA) and other laws in New York City and Los Angeles County. (58) In each instance, courts requested that local governments revise their plans to meet federal- or state-based disability requirements.

Proper planning, education, training, and guidance are the surest way to address other legal issues. Yet, emergency planners, public health practitioners, EMS providers, and their attorneys must also be prepared to effectively "triage" legal issues in emergencies to generate solutions consistent with real-time public health responses. (59) These decisions may include how best to allocate scarce resources to avoid constitutionally-grounded claims of unfairness.

### Laws Impacting Distribution of Resources

State and local laws can impact the distribution of limited resources in a declared emergency. For example, states may allow health departments to restrict the allocation or sale of health care supplies during declared public health emergencies involving shortages of key supplies. (60) In this situation, EMS providers may need to adapt treatment and other protocols consistent with limitations on the use of certain health care supplies.

### The Strategic National Stockpile and Declaration of Emergency

To forestall the potential depletion of supplies, CDC maintains the Strategic National Stockpile (SNS). SNS includes large quantities of medication, vaccines, and supplies used to protect the public's health in emergencies. SNS resources can be delivered quickly to any state (and select localities) without having to formally declare an emergency. State or local governments manage policies and protocols on the distribution of SNS supplies to points of dispensing (PODs). (31)

POD locations are typically local decisions designed to assure efficient distribution. (61)

### Rapid Implementation of Patient Interventions and EMS Scope of Practice

During emergencies, implementing patient interventions rapidly may also necessitate changes in the duties and roles of EMS personnel. These alterations may be legally supported. During the 2009 influenza A/H1N1 pandemic, for example, basic EMTs in Maine were trained and allowed to administer intranasal vaccine provided a nurse, physician, nurse practitioner (NP), or physician’s assistant (PA) was available on scene to address potential adverse reactions. (62-69)

## Examples of Patient Interventions and Implementation Considerations

EMS experts suggest that communities discuss EMS support for the rapid implementation of four categories of patient interventions. Categories are briefly defined below and implementation considerations are provided. Worksheet 6.1 – Discussion Questions for Defining EMS Roles in Rapid Implementation of Patient Interventions (on page 81) lists questions to guide discussion among healthcare coalition or planning team members on EMS support for rapid implementation of patient interventions.

### Vaccine Administration

States and localities may consider utilizing EMS personnel to administer vaccines during mass medical surge. Many states including Maine, Ohio, Pennsylvania, Vermont, Virginia, and Wisconsin, authorized EMS providers to dispense vaccines as part of a coordinated response to the 2009 influenza A/H1N1 pandemic. In most of these cases, EMS providers dispensed vaccines (both intravenous and intranasal) as part of a vaccination clinics organized by state or local public health. Resources were provided through public health (using local, state, or federal assets) and vaccine administration was supervised by a physician. Some states have continued to allow EMS providers to dispense vaccines in public health immunization clinics following the 2009–2010 flu seasons. (70) Also, during the 2009 influenza A/H1N1 pandemic, Oregon piloted a program that used EMS providers to deliver vaccines to vulnerable or homebound patients in coordination with local public health and community organizations (see case study below).

| **Case Study: Oregon Department of Public Health and Private EMS Service Collaborate to Deliver H1N1 Vaccine to Vulnerable Populations** |
| --- |
| In 2010, the Oregon Department of Human Services Public Health Division (DHS PH) and the Oregon State Ambulance Association (OSAA) piloted the *Taking H1N1 Vaccination to Vulnerable Populations* project. The project involved local health departments, EMS providers, and community-based organizations teaming to identify, screen, and deliver vaccination and H1N1 flu information to 70 vulnerable or homebound patients in five Oregon counties.  The project "Leadership Team" included representatives from county health departments, Seniors and Persons with Disabilities (SPD), Oregon Health & Science University, OSAA, DHS PH, and a project coordinator. The steering committee included the OSAA President, State EMS Director, State EMS Medical Director, State Immunization Coordinator, and DHS PH Community Health Director.  To distribute the vaccines to vulnerable patients   1. Community-based organizations (e.g., “Meals on Wheels”) distributed factsheets to homebound patients that notified them of the program and instructed them to contact their local EMS provider to schedule a vaccination visit. 2. Three counties had persons call the EMS dispatch center and schedule appointments. In one county, the initial call was received by the State Flu Hotline and then referred to the EMS agency for scheduling. In another county, calls were received by the local EMS agency, and a coordinator screened and scheduled calls. 3. All five counties followed the same procedure for vaccine administration, and each patient was provided with H1N1 information.   For more information, see Oregon DHS PH, *Taking H1N1 Vaccination to Vulnerable Populations Project,* available at <http://www.cidrap.umn.edu/sites/default/files/public/php/Taking%20H1N1%20Vaccination%20to%20Vulnerable%20Populations%20Project%20Report.DOC>. |

Of importance to note is the fact that, during mass medical surge in which large numbers of acutely ill patients require transport, EMS providers must be reserved to fulfill their primary role of acute stabilization and transport. Retired healthcare providers or volunteers may need to support vaccination efforts in the absence of EMS.

### Pharmaceutical Distribution

| EMS Subject Matter Expert Tip |
| --- |
| Discussions about rapid implementation of patient interventions will be more productive if healthcare coalitions and planning teams prioritize the safety of healthcare responders, including EMS providers. A critical point to make is that those on which the burden of disaster response falls should be provided the supplies and equipment necessary to protect themselves, before supplies are allocated to the general public. Supplies and equipment could include vaccines, prophylactic medications, and PPE needed to protect responders from illness and injury. Some disaster experts recommend also prioritizing delivery to responder's families to alleviate mental burden on responders and allow them to focus on their disaster response functions. |

EMS providers operating under written protocols and supervision routinely dispense a variety of pharmaceuticals to patients. In many states, EMS providers also can assist patients by administering drugs prescribed by the patients' healthcare provider. During mass medical surge, communities may need to rapidly dispense prophylactic medications to the general public or to certain populations at increased risk for illness (such as pregnant women, children, geriatric or disabled patients, or individuals living a certain distance from a disaster site).

Experts recommend that communities limit discussions on the role of EMS in delivering patient interventions to tasks that can be performed within utilizing existing EMS resources. For example, using EMS providers to deliver prophylactic pharmaceuticals to every home in a community (e.g., "postal service model") would take EMS providers away from vital treatment and transport functions. However, EMS personnel may be able to deliver prophylactic medications to family members or those living with a patient who is being treated by EMS (e.g., targeted antiviral prophylaxis). EMS experts recommend that healthcare coalitions share with EMS partners any existing plans for receiving, distributing, and dispensing SNS assets and plans for mass immunization or prophylaxis. When all partners are knowledgeable about current planning efforts, they can better discuss feasible options for EMS integration.

Communities will need to examine the legal regulations governing prescriptive authority and EMS providers' license to dispense certain medications. Some disaster experts propose modifying requirements that each patient have an individual prescription to authorize the widespread administration of vaccines and drugs without prescriptions. (71)

### Non-pharmaceutical Interventions Delivery

Communities may consider EMS providers to support community plans for rapid distribution of non-pharmaceutical interventions (NPIs), including oxygen, oxygen concentrators, respiratory items, and patient and caregiver education. EMS providers are uniquely able to support such roles given that they routinely contact vulnerable or hard-to-reach patients, support patients requiring advanced respiratory support, and participate in community education programs such as first aid, cardiopulmonary resuscitation (CPR), and automated external defibrillators (AEDs). (72) At the time of publication, authors could not identify any case studies of EMS systems supporting community disaster response through delivery of NPIs. As mentioned previously, EMS experts recommend against using EMS providers for purely supply delivery functions, given their primary function of providing emergency medical care.

### PPE Distribution

EMS providers may be utilized to distribute PPE to patients, particularly to caregivers of infected patients already being treated by EMS. Though many communities have discussed PPE delivery strategies that include EMS, authors could not identify any case studies at the time of publication. A majority of these discussions have been sidelined by the inability of local communities to secure adequate supplies of PPE to protect EMS and disaster responders and also distribute to patients. As described in the National Association of State EMS Officials (NAEMSO) position paper, *Strategies and Considerations for the Deployment of EMS Personal Protective Equipment in Response to an Ebola Outbreak,*

"Concerns about the refusal to treat suspected pandemic diseases may indicate that, without the proper PPE deployment strategy and training, the medical community runs the risk that EMS will not be available to suspected Ebola patients. To ensure both the safety of EMS providers and the quality of care provided by these personnel, PPE deployment strategies, funding, and training will require significant consideration to meet the demands of the nation during an Ebola outbreak." (73)

In the absence of specific guidance for implementing any rapid deployment of patient interventions in coordination with EMS, the questions in Worksheet 6.1 on the next page may help guide your healthcare coalition in determining the role EMS systems will play.

**Worksheet 6.1 – Discussion Questions for Defining EMS Roles in Rapid Implementation of Patient Interventions**

| **Questions** |
| --- |
| 1. What gaps exist in our community plans for delivery of patient interventions during mass medical surge? 2. Given anticipated EMS system capacity during mass medical surge, and the recommendation to preserve EMS providers for acute stabilization and transport, what roles would EMS agencies be willing and able to play?    1. How will scope of practice, reimbursement, staffing, and so forth be impacted by each proposed role? 3. How can delivery of patient interventions be incorporated into typical EMS provider roles and minimize the burden on providers?    1. a. What roles or actions could EMS providers perform during an emergency that would not overly burden them or prevent them from performing their typical roles?    2. Could EMS providers deliver interventions to caregivers in the home of an acute patient requesting transport? 4. What are the biggest concerns in terms of planning for rapid implementation of patient interventions? |

## Sample Methodology and Protocols

Table 6.1 on the next page summarizes guidance and sample protocols for rapid implementation of patient interventions during disasters.

**Table 6.1 – Methodology and Protocol Examples for Rapid Implementation of Patient Interventions during a Disaster**

| **Author or Organization** | **Title and description** | **Available at** |
| --- | --- | --- |
| Maryland Vaccination and Testing Program for EMT-Paramedic Providers | *Optional Supplemental Protocol*  Provides sample protocols for providing vaccines for Influenza and Hepatitis B as well as screening for PPD (Intradermal) | <http://www.nasemso.org/Resources/documents/MarylandH1N1VaccinationProtocols.pdf> |
| Michigan Department of Community Health | *EMS Immunization Procedure*  Protocols and trainings to allow paramedics to provide vaccinations for seasonal flu and during public health emergencies | <http://www.nasemso.org/Resources/documents/ImmunizationEmergencyProtocol.October62009.pdf> |
| Maryland Institute for EMS Systems | *Strategies and Considerations for the Deployment of EMS Personal Protective Equipment in Response to an Ebola Outbreak*  A NASEMSO position paper by Jonathan Bratt, MS, CEM, CCEMT-P; Amy Robinson, MA, MPA, EMT; and Richard Alcorta, MD, FACEP, Maryland Institute for Emergency Medical Service Systems | <https://www.nasemso.org/Projects/DomesticPreparedness/documents/Strategies-and-Considerations-for-Deployment-of-EMS-PPE-in-Response-to-Ebola-Outbreak-18Nov2.pdf> |

# Chapter 7 – Conclusion

## The Preparedness Cycle

The National Incident Management System (NIMS) defines the *preparedness cycle* as "planning, training, equipping, exercising, evaluating, and taking action to correct and mitigate." (74) The preparedness cycle is similar to a continuous improvement cycle:

* It starts with the identification of a need for emergency preparedness and response planning.
* Once this need has been identified, plans are developed, and those entities having roles and responsibilities prescribed in the plan are organized and trained on the plan.
* When this training is complete, the plan is then exercised to evaluate not only this training, but also the effectiveness of the plan in meeting the need that was identified at the beginning of the preparedness cycle.
* After the exercise, the plan is evaluated and improved, when necessary, and the preparedness cycle starts over.

## Application to Expanding EMS System Capacity during Medical Surge

The preparedness cycle approach applies to the work a healthcare coalition or planning team will undertake to create a *Framework for Expanding EMS System Capacity*. The coalition or team should

* Train pertinent people on their roles and responsibilities as prescribed in the plans developed in the previous chapters.
  + Be sure to train all parties on their roles and responsibilities as well as those of other partners who support EMS operations.

For example, plans for implementing tiered dispatch during medical surge may include referral of lower acuity calls to another call center, such as 2-1-1 or a nurse advice line. Once new protocols have been developed and approved by the EMS medical director, all parties with a role in the response will need to be trained on the criteria and protocols for both referral and acceptance of calls.

* + Assure that EMS training plans are shared with other partners. During a response, partners—particularly healthcare partners—should know exactly what EMS has been trained to do and how they have been trained.
* Exercise plans with other partners to evaluate training and the viability of the plans.
  + The initial exercise after a new plan is developed can help uncover gaps in planning and in training.
  + Subsequent exercises should validate those changes and can focus on other capabilities outlined in the plan.
  + Conduct exercises frequently so new personnel can gain a better understanding of how the community will respond.
  + When developing exercises to evaluate plans for expanding EMS system capacity, consider the following recommendations from EMS experts:
    - Almost any mass casualty exercise will test coordination among EMS and its partners; however, a scenario that involves mass evacuation (e.g., tornado or gas plant explosion) will uniquely test EMS system capacity.
    - Exercise scenarios should begin with calls entering the 9-1-1 PSAP and stress EMS assets with calls related to the event in addition to the daily volume of calls, resulting in triage and the implementation of MAAs.
    - Exercises should include patient handoff to test training and coordination among EMS and hospital ED staff. If a hospital uses more than one EMS agency for transport, assure that each agency is included in the exercise.
    - Casualty rates should require diversions to evaluate plans for triage and transport.
    - Do not stop the exercise when the last patient is transported, but ask about the reconstitution of the vehicle and more importantly, personnel.
    - Assure exercises include collection of performance management and patient tracking criteria and that participants simulate reporting this information to required parties during the response. By doing so, it will be possible to evaluate coordination as well as the feasibility of reporting each criterion outlined in the plan.
* Use exercise results to make improvements to the plans.

Another way to evaluate plans is through responses to real-life emergencies. Whenever a community experiences a disaster or public health emergency, the healthcare coalition or planning team should compare the actual response to the event to a response prescribed in written plans. This comparison will reveal gaps in planning or other issues that need to be addressed. As with exercising, necessary improvements should be made to the plans.

## Exercise Planning

HSEEP was created in 2002 to address the response needs of the nation and to standardize methodologies and terminologies relative to exercises. HSEEP provides a set of guiding principles for exercise programs as well as a common approach to exercise program management, design and development, conduct, evaluation, and improvement planning. (75)

HSEEP recommends that community planners develop a multiyear training and exercise plan to strengthen their emergency response capabilities. Once initial planning for the *EMS Framework* is complete, planners should consider developing a multiyear training and exercise plan. Worksheet 7.1 below can help to develop a multiyear training and exercise plan.

**Worksheet 7.1 – Community Multiyear Training and Exercise Plan**

| **Plan Name** | **Point of Contact** | **Date Last Trained or Exercised** | **Date Next Training or Exercise** | **Type of Training** | **Type of Exercise** |
| --- | --- | --- | --- | --- | --- |
| To be filled in |  | To be filled in | To be filled in | To be filled in | To be filled in |
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## Exercise Documentation

Whether evaluating plans through exercises or response to real-life emergencies, planning teams should always document observations of a simulated or actual event and make recommendations for improvements to existing plans. Two tools to assist in this effort are an after-action report (AAR) and an improvement plan (IP). The AAR summarizes key information about an exercise or an actual response, such as observations and outcomes. The IP is a structured document outlining improvements that need to be made to a plan and delegating responsibilities and timelines for making the improvements. For more information about these two tools and for useful templates, see the latest HSEEP guidance.

## Final Suggestions

As a final suggestion, healthcare coalitions or planning teams should schedule regular meetings to accomplish these tasks:

* Review the makeup of the planning team and the community coalition to see if members need to be changed.
* Monitor who attends each meeting and make sure that all understand the importance of attendance. If multiple EMS agencies are serving in a community, make sure that each one or someone who represents them all is at the table.
* Periodically conduct a hazard vulnerability analysis to determine if the two or three scenarios identified as likely to impact your community are still valid.
* Periodically review the work done on a particular strategy to see if it needs updating.

## Ending Note

Planning for expanding EMS System capacity during medical surge follows a continuous improvement cycle. Planning will always be ongoing. Detailed plans, key partners trained on the plan, and exercises that stress the ways partners will interact during an emergency are all necessary for developing an EMS system geared toward saving more lives during a response.

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# Appendix C – Abbreviations and Acronyms

## EMS and Public Health Preparedness Acronyms

AAR After-Action Report

ACEP American College of Emergency Physicians

ACS Alternate Care Site

AED Automated External Defibrillator

AEMT Advanced Emergency Medical Technician

ALS Advanced Life Support

BLS Basic Life Support

CAT Community Assessment Tool

CAD Computer-Aided Dispatch

CP Community Paramedic

CPR CardiopulmonaryResuscitation

ECNS Emergency Communication Nurse System

ED Emergency Department

EMD Emergency Medical Dispatcher

EMR Emergency Medical Responder

EMS Emergency Medical Services

EMT Emergency Medical Technician

ESAR-VHP Emergency Systems for Advance Registration of Volunteer Health Professionals

ETA Extended Treatment Area

HSEEP Homeland Security Exercise and Evaluation Program

HVA Hazard Vulnerability Analysis

ICU Intensive Care Unit

JEMS Journal of Emergency Medical Services

MAA Mutual Aid Agreement

MOU Memorandum of Understanding

MPDS Medical Priority Dispatch System

MRC Medical Reserve Corps

NEMSIS National EMS Information System

NIMS National Incident Management System

NP Nurse Practitioner

NPI Nonpharmaceutical Interventions

PA Physician Assistant

PHEP Public Health Emergency Preparedness

PPE Personal Protective Equipment

PSAP Public Safety Answering Point

REPLICA Recognition of EMS Personnel Licensure Interstate Compact

RSI Rapid Sequence Intubation

SCT Specialty Care Transport

SDMAC State Disaster Medical Advisory Committee

SME Subject Matter Expert

SNS Strategic National Stockpile

STEMI ST-segment Elevation Myocardial Infarction

THIRA Threat and Hazard Identification and Risk Assessment

## Organizational Acronyms

APCO Association of Public Safety Communications Officials

CDC Centers for Disease Control and Prevention

HPA Healthcare Preparedness Activity

OPHPR Office of Public Health Preparedness and Response

DOT U.S. Department of Transportation

FICEMS Federal Interagency Committee on EMS

NHTSA National Highway Traffic Safety Administration

FEMA Federal Emergency Management Agency

HHS U.S. Department of Health and Human Services

AHRQ Agency for Healthcare Research and Quality

ASPR Assistant Secretary for Preparedness and Response

CMS Centers for Medicare and Medicaid Services

HRSA Health Resources and Services Administration

NAEMSP National Association of EMS Physicians

NAEMT National Association of Emergency Medical Technicians

NASEMSO National Association of State EMS Officials

NAS National Academy of Sciences, Engineering, and Medicine

NEMSMA National EMS Management Association

ORISE Oak Ridge Institute for Science and Education

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# Appendix D: Copies of Worksheets

## Worksheet 2.1 – EMS Planning Team Members

### Core EMS Planning Team Members for Integrating EMS

**Instructions:** List the name, title, agency/organization, and contact information (phone and e-mail address) for the current members of your core EMS planning team. Consider including representatives from all EMS agencies operating in a community in addition to public health, emergency management, and healthcare.

| **Name** | **Title** | **Agency** | **Contact Info** |
| --- | --- | --- | --- |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |

### Additional EMS Planning Team Members

**Instructions:** List the name, title, agency/organization, and contact information (phone and e-mail address) for additional members of your EMS planning team.

| **Name** | **Title** | **Agency** | **Contact Info** |
| --- | --- | --- | --- |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in | To be filled in | To be filled in | To be filled in |

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## Worksheet 2.2 – EMS Planning Partners

**Instructions:** Place a check mark next to each EMS planning partner represented in your local emergency planning committee, planning team, healthcare coalition, or similar entity. If your community finds that significant gaps exist or key partners are missing, discuss how these missing partners can be engaged.

The partners listed below are organized in tiers based on their importance to discussions on addressing the role of EMS in an emergency, with the understanding that some communities may be limited in their ability to develop and manage a large planning entity.

### Tier 1: Primary EMS Partners for Community Planning

| **Partner** | **Partner** |
| --- | --- |
| 9-1-1/Public Safety Answering Point (PSAP) 🞏 | Fire 🞏 |
| Local EMS agencies (both public and private) 🞏 | Law enforcement 🞏 |
| State EMS office 🞏 | Professional medical associations 🞏  (e.g., ACEP, AAEM, ENA) |
| Emergency management 🞏 | Public works 🞏 |
| Public health 🞏 | Other 🞏 |
| Governmental services 🞏 | Other 🞏 |

### Tier 2: Other Key Community Planning Partners

| **Partner** | **Partner** |
| --- | --- |
| Hospitals 🞏 | Hospital EDs 🞏 |
| Federally Qualified Health Centers/ 🞏  free clinics | Outpatient/retail clinics 🞏 |
| Hospital outpatient centers 🞏 | Local physician groups 🞏 |
| Urgent care centers 🞏 | Public works 🞏 |
| Behavioral health providers 🞏 | Insurance providers/ 🞏  third party payers/Centers for Medicare and Medicaid Services (CMS) |
| Billing companies/administrators 🞏 | Other 🞏 |
| Long-term care facilities 🞏 | Other 🞏 |

### Tier 3: Other Potential Partners for EMS to Engage

| **Partner** | **Partner** |
| --- | --- |
| Elected officials (e.g., National Governor's 🞏  Association, Association of City and County Managers) | State and local regulatory agencies and 🞏 legislatures |
| Companies familiar with the logistics of 🞏 distribution (e.g., UPS, FedEx) | Professional EMS Member Organizations 🞏  (e.g., National Association of State Emergency Medical Services Officials [NASEMSO], National EMS Management Association [NEMSMA]) |
| NGOs, civic groups, and community groups 🞏 that represent vulnerable populations | Volunteer organizations 🞏 |
| Legal experts 🞏 | Ethicists 🞏 |
| Other 🞏 | Other 🞏 |

## Worksheet 2.3 – Improving EMS Community Engagement

**Instructions:** Think through and discuss the questions below to determine the best way to engage or include EMS in your community planning process.

| **Questions** |
| --- |
| **How is EMS integrated into community planning efforts?**   * Does EMS currently engage in a community healthcare coalition? * Are meaningful interactions conducted with EMS regarding medical surge? |
| **How can EMS be more involved in community planning efforts?**   * What are the opportunities to interact and engage EMS in the community or jurisdiction planning process? * Is EMS included on standing committees or planning efforts? |
| **What would a coordinated planning effort look like in your community or jurisdiction?**   * Are there additional EMS personnel who should be invited to the coalition? * Would an "EMS workgroup" exist within a coalition that includes some representation from the other "non-EMS" entities? * Would EMS be a separate workgroup that meets with ESF-8 partners? |

## Worksheet 2.4 – Community Disaster Scenarios

**Instructions:** List the disaster scenarios identified by your community's HVA as likely to impact your local healthcare system.

| **Community Disaster Scenarios** |
| --- |
| 1. To be filled in |
| 2. To be filled in |
| 3. To be filled in |
| 4. To be filled in |
| 5. To be filled in |

## Worksheet 2.5 – Resource Review by Disaster Scenario

**Instructions:** For each disaster scenario listed in Worksheet 2.4 – Community Disaster Scenarios, consider the specific supplies and equipment, staff, and space requirements needed to respond. Record responses in the space provided and indicate if your community has existing resources or needs to identify potential sources.

Disaster Scenario: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

| **Supplies and Equipment Needed** | **Within existing capacity?** | **Need to identify potential sources?** |
| --- | --- | --- |
| To be filled in | 🞏 | 🞏 |
| To be filled in | 🞏 | 🞏 |
| To be filled in | 🞏 | 🞏 |

| **Staff Needed** | **Within existing capacity?** | **Need to identify potential sources?** |
| --- | --- | --- |
| To be filled in | 🞏 | 🞏 |
| To be filled in | 🞏 | 🞏 |
| To be filled in | 🞏 | 🞏 |

| **Space Needed** | **Within existing capacity?** | **Need to identify potential sources?** |
| --- | --- | --- |
| To be filled in | 🞏 | 🞏 |
| To be filled in | 🞏 | 🞏 |
| To be filled in | 🞏 | 🞏 |

## Worksheet 2.6 – Trigger Identification Discussion Questions

**Instructions:** Think through the questions below to determine how EMS currently addresses surge on the healthcare system.

| **Questions** |
| --- |
| **What must occur to increase surge capacity when response time exceeds established standards?**   * Does EMS have triggers already in place that need to be modified? * What obstacles need to be addressed in order to expand EMS roles? * What is the public expecting? |
| **How is EMS affected when hospitals are surged or on diversion?**   * What can be done for hospitals that are overwhelmed to rapidly accept and free up EMS crews who bring patients during a surge situation (to avoid patient offload delays)? * How does EMS coordinate patient transport to other hospitals? * Are mechanisms in place to transport patients to alternate care sites? |
| **What mechanisms does EMS put into action when calls for EMS assistance exceed the EMS resources available to respond?**   * Are agreements already in place to reduce healthcare system stress? * What are the mechanisms that are successfully used to decrease healthcare system stress? |

## Worksheet 3.1 – Dispatch Center Identification and Survey

### Survey Development

| **Survey Task** | **Completed** |
| --- | --- |
| Planning team member has been selected to lead identification and survey of dispatch centers. | 🞏 |
| Lead and subject matter experts (include experts in dispatch center technologies and software) develop draft survey (see sample surveys, mentioned earlier). | 🞏 |
| Planning team reviews and finalizes survey. | 🞏 |

### Survey Data Collection

| **Survey Task** | **Completed** |
| --- | --- |
| Dispatch centers to be approached and surveyed have been identified. | 🞏 |
| Representatives of these centers have been identified, contacted, and have agreed to participate in the survey. | 🞏 |
| Planning team members have met with representatives to complete a survey for each center in the community. | 🞏 |

### Survey Data Synthesis

| **Survey Task** | **Completed** |
| --- | --- |
| Survey data for each center have been reviewed to identify issues or gaps in each center's ability to participate in expanded tiered dispatch (may include issues with capacity, technology, funding). | 🞏 |
| Observations on these issues/gaps have been documented. | 🞏 |
| Recommended solutions for addressing these issues/gaps have been documented. | 🞏 |
| Assistance and tools that can help the center have been documented or identified. | 🞏 |

### Survey Findings Review

| **Survey Task** | **Completed** |
| --- | --- |
| Planning team members have met with dispatch center representatives to review survey findings. | 🞏 |
| Issues or gaps in planning identified by the planning team have been discussed with the representatives and modified as needed. | 🞏 |
| Dispatch center representatives have identified assistance that the planning team could offer them. | 🞏 |

### Future Planning

| **Survey Task** | **Completed** |
| --- | --- |
| Dispatch center representatives agree to engage with the planning team and other dispatch centers to plan for expanded tiered dispatch; begin drafting mutual aid agreements (MAAs) and MOUs. | 🞏 |

## Worksheet 3.3 – Community Call Centers (for Referral of Non-life-threatening Calls)

| **Call Center/ Representative Contact** | **Expertise/Type of Call Referral** | **Agreed to Participate** | **Call Center Survey Completed** |
| --- | --- | --- | --- |
| To be filled in | To be filled in | 🞏 | 🞏 |
| To be filled in | To be filled in | 🞏 | 🞏 |
| To be filled in | To be filled in | 🞏 | 🞏 |
| To be filled in | To be filled in | 🞏 | 🞏 |
| To be filled in | To be filled in | 🞏 | 🞏 |
| To be filled in | To be filled in | 🞏 | 🞏 |

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## Worksheet 5.1 – Discussion Questions for Clarifying EMS roles in Alternate Destination/Alternate Care Site Planning

**Questions**

1. Where do EMS agencies currently provide transport within the community?
   1. Do any agencies provide transport to destinations other than an ED?
2. If agencies are currently providing transport to ambulatory care or other outpatient settings:
   1. What potential roles can these EMS agencies play in coordinated transport to alternate destinations during medical surge?
   2. Can these agencies handle transport to outpatient settings for a wider service area?
   3. Are representatives from these agencies included in the community's healthcare coalition or planning body?
3. If agencies are currently providing transport to specialty centers (e.g., burn center, cardiac center, stroke center, pediatric specialty center, psychiatric facilities):
   1. Will transport to these specialty centers continue/cease/increase/decrease during a mass medical surge event?
   2. What potential roles can these EMS agencies play in coordinated transport to alternate destinations during medical surge?
   3. Are representatives from these agencies included in the community's healthcare coalition or planning body?
4. If agencies are currently providing transport only to EDs, are any planning to implement or change procedures to allow transport to other destinations in the future?
   1. If no plans are in place, have any considered transport to alternate destinations?
   2. What models for transport to alternate destinations (e.g., community paramedicine) have been considered?
   3. What barriers have been encountered or discussed?
5. Has the community identified the different types of transport required to support community plans for alternate care sites or alternate destinations? Examples are
   1. Transport of patients from within the community to alternate care sites
   2. Transport of patients from a hospital emergency room to an alternate care site
   3. Transport of acute patients from their home to an ambulatory care center
6. What are the minimum staff, skills, and equipment required to conduct each type of transport?
7. Is the community considering unconventional transport options in addition to EMS/ambulance transport (e.g., volunteer drivers, use of school buses or vans for transport to alternate care sites)?
   1. If yes, what role – if any – should EMS personnel play in identifying options/sources for non-EMS transport (i.e., vehicles and drivers)?
   2. What role – if any – should EMS personnel play in training or supporting these drivers before and during an event?
   3. Will these non-EMS transporters be integrated with 9-1-1 PSAPs (and included in modified/tiered dispatch protocols) or will their transport assignments be coordinated through Emergency Management/Emergency Operations Center?
   4. Is the community considering converting vans or buses for transport of acute patients?
8. (For EMS representatives) What are your biggest concerns in terms of planning for and implementing coordinated transport to alternate destinations during mass medical surge?

## Worksheet 6.1 – Discussion Questions for Defining EMS Roles in Rapid Implementation of Patient Interventions

| **Questions** |
| --- |
| 1. What gaps exist in our community plans for delivery of patient interventions during mass medical surge? 2. Given anticipated EMS system capacity during mass medical surge, and the recommendation to preserve EMS providers for acute stabilization and transport, what roles would EMS agencies be willing and able to play?    1. How will scope of practice, reimbursement, staffing, and so forth be impacted by each proposed role? 3. How can delivery of patient interventions be incorporated into typical EMS provider roles and minimize the burden on providers?    1. a. What roles or actions could EMS providers perform during an emergency that would not overly burden them or prevent them from performing their typical roles?    2. Could EMS providers deliver interventions to caregivers in the home of an acute patient requesting transport? 4. What are the biggest concerns in terms of planning for rapid implementation of patient interventions? |

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## Worksheet 7.1 – Community Multiyear Training and Exercise Plan

| **Plan Name** | **Point of Contact** | **Date Last Trained or Exercised** | **Date Next Training or Exercise** | **Type of Training** | **Type of Exercise** |
| --- | --- | --- | --- | --- | --- |
| To be filled in |  | To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in |  | To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in |  | To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in |  | To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in |  | To be filled in | To be filled in | To be filled in | To be filled in |
| To be filled in |  | To be filled in | To be filled in | To be filled in | To be filled in |

1. A medical surge emergency would be under the domain and response coordination of emergency support function #8 (ESF 8), the Public Health and Medical Services Annex of the National Response Framework. Public health coordinates ESF 8 health and medical responses. [↑](#footnote-ref-2)
2. This chart was adapted from the HHS Centers for Medicare & Medicaid Services (CMS) CMS Manual System Pub 100-02 Medicare Benefit Policy <https://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/downloads/R130BP.pdf>. [↑](#footnote-ref-3)
3. List adapted from CDC's *Coordinating Call Centers for Responding to Pandemic Influenza and Other Public Health Emergencies: A Workbook for State and Local Planners* (available at <http://www.cdc.gov/phpr/healthcare/documents/FinalCallCenterWorkbookForWeb.pdf>). [↑](#footnote-ref-4)
4. The diagram is from the 9-1-1 Dispatch website (formerly at <http://www.911dispatch.com/911/>). This website is no longer available. [↑](#footnote-ref-5)
5. Taken from *Community Paramedicine: A Promising Model of Integrating Emergency and Primary Care* (available at <http://www.ucdmc.ucdavis.edu/iphi/publications/reports/resources/IPHI_CommunityParamedicineReport_Final%20070913.pdf>). [↑](#footnote-ref-6)
6. Taken from *Community Paramedicine: A Promising Model of Integrating Emergency and Primary Care* (available at <http://www.ucdmc.ucdavis.edu/iphi/publications/reports/resources/IPHI_CommunityParamedicineReport_Final%20070913.pdf>). [↑](#footnote-ref-7)
7. ƚ Co-assigned to Centers for Disease Control and Prevention's National Center for Injury Prevention and Control under the Intergovernmental Personnel Act [↑](#footnote-ref-8)