

Solar Eclipses: Planning Resources

July 2017

On August 21, 2017, a total solar eclipse will be visible in a path across the U.S. from Oregon to South Carolina, from early morning through the afternoon. It is expected that millions will travel to locations across the country to view this rare event.



Source: <https://eclipse.gsfc.nasa.gov/SEmono/TSE2017/TSE2017.html>

Many of these locations are rural with limited healthcare infrastructure, and since these sites are not (yet) officially sponsored, the typical augmentation of resources that accompanies planned mass gatherings will not take place. To address planning and response concerns and help local emergency healthcare providers plan for these gatherings, the **ASPR TRACIE** team collected the following fact sheets, checklists, locally-developed guidance documents, and news articles on eye safety, injury treatment, and planned mass gatherings in rural and urban areas. Resources in sections I through V are specific to the eclipse event; the rest of the sections include resources related to planned mass gatherings.

We encourage our stakeholders to check out these ASPR TRACIE Topic Collections for related guidance and resources (listed in alphabetical order): [Burns \(plans, patient care, and lessons learned\)](#); [Emergency Public Information and Warning/ Risk Communications](#); [Explosives \(e.g., bomb, blast\)](#) and [Mass Shooting](#); [Hospital Surge Capacity and Immediate Bed Availability](#); [Mass Gatherings/Special Events](#); [Natural Disasters](#); [Rural Disaster Health Issues](#); and [Utility Failures](#).

Quick Links

[Eclipse Eye Safety](#)

[Eclipse Eye Injury Treatment](#)

[Federal Resources](#)

[Locally-Developed Resources \(e.g., plans, tools, and templates\)](#)

[News Articles](#)

[Education and Training](#)

[Education and Training: Rural Areas](#)

[General Guidance: Planned Mass Gatherings](#)

[General Guidance: Rural Emergency Preparedness](#)

[Guidance: Helicopter Rescue](#)

[Lessons Learned: Planned Mass Gatherings](#)

[Lessons Learned: Rural Areas](#)

[Plans, Tools, and Templates](#)

[Plans, Tools, and Templates: Rural Areas](#)

[Surge Planning \(from Urban to Rural Areas\)](#)

I. Eclipse Eye Safety

American Astronomical Society. (2017). [Solar Eclipse across America: Eye Safety](#).

This webpage provides information on how to safely view a solar eclipse and provides eye protection tips.

American Optometric Association. (2017). [2017 Solar Eclipse - Safe Viewing Tips](#).

This webpage includes information sheets, an infographic, and other important information on how to safely view an eclipse.

Cofield, C. (2017). [How to View a Solar Eclipse without Damaging Your Eyes](#).

The author shares tips and links to resources specific to eclipse viewing eye protection.

Eclipse2017.org. (2017). [Eye Safety!](#)

This webpage includes information on how to protect your eyes while watching an eclipse.

Fulco, C. (2017). [Eclipses and Eye Safety: Dispelling Myths About Viewing Eclipses.](#)

The author explains the difference between direct and indirect methods of observation and provides related helpful links.

National Aeronautics and Space Administration. (2017). [Eclipse 101: How to View the 2017 Solar Eclipse Safely.](#)

This webpage provides eye protection safety tips related to viewing an eclipse.

II. Eclipse Eye Injury Treatment

Chen, K., Jung, J., and Aizman, A. (2013). [Solar Retinopathy: Etiology, Diagnosis, and Treatment.](#) Retinal Physician.

The authors provide an overview of solar retinopathy, the difference between acute and chronic retinopathy, and prognosis and treatment challenges.

Drake-Casanova, P., Bolivar-de-Miguel, G., Castro-Rebello, M., et al. (2007). [Eclipse Retinopathy: Three Cases Report.](#) Archivos de la Sociedad Espanola de Oftamologia. 9(82): 575-578.

The authors discuss observational case series of three children who were cared for in the emergency department 48 hours after a solar eclipse. They discuss symptoms, treatment, and outlook for retinopathy.

Gregory-Roberts, E., Chen, Y., Harper, C., et al. (2015). [Solar Retinopathy in Children.](#) (Abstract only.) Journal of the American Association for Pediatric Ophthalmology and Strabismus. 19(4): 349–351.

The authors discuss observational case series of three children who were cared for in the emergency department after having directly viewed the sun during the transit of Venus (2012), or the partial eclipse of the sun (also 2012). Despite treatment and relatively good visual recovery, the authors found that solar retinopathy can cause persistent damage to multiple retinal layers.

Khatib, N., Knyazer, B., Lifshitz, T., and Levy, J. (2014). [Acute Eclipse Retinopathy: A Small Case Series](#). *Journal of Optometry*. 7(4): 225–228.

The authors share case studies of four young patients who observed a total eclipse in 2011 without appropriate eye protection. While acute solar retinopathy can be reversed, in some cases, permanent visual loss is still a possibility.

Lee, A. and Lai, T. (2010). [Central Serous Chorioretinopathy after Solar Eclipse Viewing](#). *Journal of Ophthalmic & Vision Research*. 5(3): 193-195.

A male patient developed a sudden-onset unilateral scotoma after viewing a partial solar eclipse in Hong Kong. Tests revealed “features compatible with central serous chorioretinopathy.” An initial increase in the amount of subretinal fluid was spontaneously resolved 10 weeks after the onset of symptoms. The authors emphasized the need for more research.

Michaelides, M., Rajendram, R., Marshall, J., and Keightley, S. (2001). [Eclipse Retinopathy](#). (Abstract only.) *Eye (London, England)*. 15(Pt 2): 148-151.

The authors share findings from cases related to a solar eclipse in 1999. The authors credited public health education with the reduction in visual morbidity (there were no reported cases of permanent visual loss).

III. Federal Resources

U.S. Department of Transportation, Federal Highway Administration. (2006). [Planned Special Events: Checklists for Practitioners](#).

While this reference pertains to the transportation aspects of preparing for special events, the formula used for the planning process and checklists can be adapted to health and medical concerns.

U.S. Department of Transportation, Federal Highway Administration. (2017). [2017 SOLAR ECLIPSE Transportation Fact Sheet for State and Local Departments of Transportation](#).

This webpage includes links to state-specific information and lists considerations for state and local departments of transportation (e.g., advanced planning, event schedules, traveler behavior).

IV. Locally-Developed Resources (e.g., plans, tools, and templates)

Conway, B. (2017). [2017 Solar Eclipse in St. Joseph: Right in the Middle of it All](#).

This PowerPoint presentation includes a brief history of eclipses, a summary of the 2017 total solar eclipse's path in Missouri, and information on community planning and travel tips for the weekend of the eclipse.

Eastern Idaho Public Health. (2017). [Total Solar Eclipse - August 21, 2017](#).

This website includes a link to a planning guide for environmental health and other helpful resources about the location.

Idaho Tourism. (2017). [Idaho 2017 Eclipse Community Planning White Paper](#).

This resource includes information on traffic enforcement, eye safety, fire safety, and space considerations.

Kentucky Cabinet for Health and Family Services, Office of Communications. (2017). [Eclipse Eye Safety](#).

Dr. Connie White shares information on eye safety measures for properly viewing the eclipse on August 21, 2017.

Kentucky Cabinet for Health and Family Services, Office of Communications. (2017). [Eclipse Safety Kit](#).

Dr. Anna Yaffee lists items that should be part of an "Eclipse Safety Kit" (e.g., sunscreen, water, hand sanitizer, insect repellent, and antibacterial ointment).

Kentucky Emergency Management. (2017). [2017 Solar Eclipse](#).

This webpage provides planning and exercise information and links to two eclipse-related videos.

Kentucky Emergency Management. (2017). Kentucky Eclipse 2017 Plan. (Contact ASPR TRACIE for this resource.)

This plan details how state and county agencies will use mutual aid to support the communities affected by the expected surge in visitors for the 2017 total solar eclipse.

Kentucky Emergency Management. (2017). Exercise Summary: Total Eclipse. (Contact ASPR TRACIE for this resource.)

This report summarizes a functional exercise conducted by Region 2 for coalition partners, mainly directed toward hospital engagement, with the goal of preparing for the August 2017 total eclipse.

Missouri Department of Natural Resources. (2017). [Solar Eclipse 2017](#).

This webpage includes links to lessons, videos, Missouri-specific eclipse articles that can help residents learn more about the 2017 event and eclipses in general.

Missouri Department of Public Safety. (2017). [Missouri Prepares for August 21 Total Solar Eclipse](#).

This page provides an overview of the 2017 eclipse and lists helpful driving and boating tips for residents and visitors. Eclipse-related links are provided along the right side of the page.

MO.gov. (2017). [MO Eclipse](#).

This webpage includes a countdown to the 2017 solar eclipse and links to tips on safety, tourism information, and tweets.

Oregon Office of Emergency Management. (2016). [Special Event Plan: 2017 Solar Eclipse](#).

This plan includes sections on roles and responsibilities and concept of operations and six appendices specifically related to the upcoming eclipse (state-specific, U.S.-specific, list of known events, and timing).

V. News Articles

Ellgren, N. (2017). [Eclipse Emergency Committee Forms Traffic Plan](#). News-Press Now.

This article highlights the work that has been done by the Missouri Department of Transportation and other agencies to prepare for the eclipse-related influx in visitors.

Funk, J. (2017). [Wyoming Officials Plan for Big Eclipse Crowds](#). Post Register.

More than a dozen Wyoming cities are in the eclipse's "path of totality," and officials are planning for an influx of visitors. The article briefly describes the efforts being undertaken by state agencies.

Johnson, B. (2017). [Emergency Planners Brace for Crowds During Total Solar Eclipse](#). Smoky Mountain News.

This article highlights the challenges with estimating the number of visitors expected in the Jackson County (North Carolina) area. The author discusses the planning committee and a Homeland Security-funded tabletop exercise that highlighted planning gaps and how they are being addressed.

Kennison, H. (2017). [Solar Eclipse—Here’s How Agencies Plan to Keep You Safe](#). Magic Valley.

The author estimates that up to half a million people could visit Idaho to watch the eclipse and explains how local and state health and other agencies are planning for this influx.

Rogers, B. (2017). [Total Solar Eclipse Expected to Bring Thousands to Western Kentucky](#).

This press release outlines how state and local emergency preparedness agencies are planning for the event and includes travel and eclipse-watching tips for residents and visitors.

St. Fleur, N. (2017). [A College Town Gets Ready for its Moment Under No Sun](#). The New York Times.

The author summarizes how Carbondale (IL), which lies in the “point of greatest duration” for the 2017 total solar eclipse and the “line of totality” for the 2024 total solar eclipse, is planning for these events.

Waggenspack, T. (2017). [Solar Eclipse Security Plans](#).

The reporter explains that Casper (WY) is expecting nearly 35,000 visitors and highlights the planning work that has been done by first responders.

VI. Education and Training

Baez, A. and Sztajnkrzyer, M. (2015). [Basic Principles of Mass Gathering Medical Care. Supercourse Lectures #17951](#). The Department of Emergency Medicine, Mayo Clinic College of Medicine.

This PowerPoint presentation is a brief overview of medical care aspects of mass gatherings. It includes nine planning elements (e.g., triage, personnel, data collection, and crowd size); a planning timeline; anticipated conditions by event; and lessons learned from past events. The authors emphasize the use of incident command, but readers should note that the charts they include are neither NIMS compliant nor mass-gathering related.

Federal Emergency Management Agency. (2013). [IS-15.B: Special Events Contingency Planning for Public Safety Agencies](#).

This web-based course teaches first responders about pre-event planning, forming the planning team, event hazard analysis, and responding to incidents during special events in their community.

Northwest Center for Public Health Practice. (2010). [Mass Gatherings: Are You Prepared?](#)

This free 90-minute course focuses on mass gathering preparation. The course is based on a hypothetical three-day music festival and includes various scenarios and case studies. Users can also access the print version of the course from this site.

VII. Education and Training: Rural Areas

Rural Domestic Preparedness Consortium. (2016). [Rural Emergency Preparedness and Response Training](#).

This website provides resources and links to numerous online training courses for rural first responders and healthcare workers. The site also includes a "responder toolbox" which includes links to additional resources.

Rural Domestic Preparedness Consortium. (2017). [Emergency Operations Plans for Rural Jurisdictions](#).

This 8-hour in-person course can help rural planners develop plans suited to their jurisdictions.

VIII. General Guidance: Planned Mass Gatherings

Disaster Information Management Research Center. (2015). [Mass Gatherings](#). U.S. Department of Health and Human Services.

This webpage provides links to resources on mass gatherings under categories such as: mass casualty preparedness, outbreaks and communicable diseases, and environmental health and sanitation. Links to mass casualty response documents are also included.

Environmental Surveillance Section, Environmental Health Service, Department of Health (Australia). (2006). [Guidelines for the Management of Public Health & Safety at Public Events](#).

This document provides background information and guidance on pre-event planning, communications, event (and health) promotion, environmental health, emergency services, and first aid. Appendices that cover specific scenarios (e.g., needle stick injuries) are also included.

Jaslow, D., Yancy, A., and Milsten, A. (2000). [Mass Gathering Medical Care](#). National Association of EMS Physicians Standards and Clinical Practice Committee. Prehospital Emergency Care. 4(4):359-60.

This position paper emphasizes that mass gathering medical care plans include 15 components (e.g., medical reconnaissance, medical equipment, access to care, and documentation).

Kollek, D. (2014). [An Introduction to Mass Gatherings](#). The Centre for Excellence in Emergency Preparedness.

The author provides an overview of mass gatherings and the related medical strategies (surveillance, prevention, and diversion) and interventions planners can use to prepare for these events. Guidance on staffing and command and control is included and a question-based initial analysis is used. Table 2 provides a summary of risks and issues for all events.

Ossman, E. (2014). [From Mosh Pits to Marathons: Preparing for Mass Gathering Events](#).

In this presentation, the author highlights how emergency physicians are uniquely suited to providing medical care during mass gathering events. He highlights the pros and cons of preparing to serve as on-site or facility medical care provider during a mass gathering event.

Schwartz, B., Nafziger, S., Milsten, A., et al. (2015). [Mass Gathering Medical Care: Resource Document for the National Association of EMS Physicians Position Statement](#). Prehospital Emergency Care. 19(4).

This position statement includes definitions, a literature review, an overview of the role of the medical director, and strategies for determining on-site medical resources. The authors emphasize the need for "the consistent use and further development of universally accepted consistent metrics" to streamline the planning process.

World Health Organization. (2015). Public Health for Mass Gatherings: Key Considerations.

This guidance document incorporates lessons learned from past mass gatherings across the globe and includes 18 chapters on topics such as: planning, command and control, communications, event medical services, surveillance and outbreak response, preventing and controlling infection, and use of modern technology in planning and operations.

IX. General Guidance: Rural Emergency Preparedness

Busko, J. (2009). [Rural EMS](#).

While slightly dated, the issues the author shares regarding rural emergency medical systems (EMS), including relevant research, legislation, and regulation still apply to many agencies today. He also lists challenges associated with rural EMS and closes by stating, “Creativity, flexibility, and an innate perseverance are the characteristics that allow the EMS services covering 20% of the population and 80% of the landmass of the United States to provide care in face of innumerable challenges.”

McCulley, K. (2008). [Emergency Planning Considerations for Rural and Frontier Community Health Centers](#).

The author shares: an overview of Utah’s community health centers (27 sites; 16 are rural or frontier); the role they play as sole medical providers; how they identify and address emergency planning priorities; and lessons learned from local events.

National Rural Health Association. (2011). [National Rural Health Association Policy Brief: Rural Health Preparedness](#).

This policy brief lists several guiding principles for rural emergency medical preparedness that can help ensure effective response to all types of hazards.

Trockman, S., Meit, M., and Stebbins, S. (n.d.). [Rural Emergency Preparedness. What All Rural Responders Must Know About Public Health Emergencies](#). (Accessed 6/14/2017).

This textbook—while focused on the State of Pennsylvania—comprehensively covers many of the components associated with rural emergency preparedness. Information is presented in seven chapters: Emergency Public Health Functions; Public Health and Emergency Management; Mass Care; Risk and Crisis Communication; Powers and Authorities; Disaster Mental Health Issues; and Protecting Yourself, Your Family, and Others from Infectious Diseases.

X. Guidance: Helicopter Rescue

Delisio, D. (1998). [Helicopter Landing Zones: Setup & Safety](#).

The author shares 11 guidelines related to setting up a landing zone and ensuring on-scene safety.

Greenspun, P. (2006). [Preparing a Helicopter Landing Zone](#).

The author lists the “Four Ws and Four Ss”—considerations for helicopter pilots to take when off-airport landing is called for.

McLean County Area EMS. (n.d.). [Landing Zone Setup](#).

This factsheet includes graphics, landing zone requirements, and safety precautions that can help those rescuing patients from various scenarios.

Spell, J. (2014). [Landing a Helicopter: What Firefighters Need to Know](#).

The author explains several universally-accepted landing zone procedures: site selection, marking and lighting, eye contact (with the pilot), and safe approach.

XI. Lessons Learned: Planned Mass Gatherings

Baird, M.B., O'Connor, R.E., Williamson, A.L., et al. (2010). [The Impact of Warm Weather on Mass Event Medical Need: A Review of the Literature](#). (Abstract only.) American Journal of Emergency Medicine. 28(2):224-9.

From an in-depth literature review, the authors found that most studies found a positive relationship between heat/humidity and the frequency of patient presentation. In addition to the literature review, the authors propose an algorithm for predicting patient volume at mass events.

Bledsoe, B., Songer, P., Buchanan, K., et al. (2012). Burning Man 2011: [Mass Gathering Medical Care in an Austere Environment](#). (Abstract only.) Prehospital Emergency Care. 16(4): 469-76.

The authors provide an overview of the planning and emergency care process associated with Burning Man 2011. The authors listed several challenges to providing emergency medical care, including attendance size, distance to "definitive medical care," and the need for physicians because some of the necessary care exceeded paramedics' scope.

Burdick, T.E. (2005). [Wilderness Event Medicine: Planning for Mass Gatherings in Remote Areas](#). (Abstract only.) *Travel Medicine and Infectious Disease*. 3(4): 249-258.

The author reviews data on wilderness injury and illness rates and shares a framework for planning and carrying out Wilderness Event Medicine, broken into three stages: event planning, medical treatment at the event, and post-event tasks.

Centers for Disease Control and Prevention. (2000). [Public Health Aspects of the Rainbow Family of Living Light Annual Gathering: Allegheny National Forest, Pennsylvania, 1999](#). *Morbidity and Mortality Weekly Report*. 49(15): 324-326.

Nearly 20,000 attended this event, held in a remote location that was not accessible by vehicle and did not have sanitary facilities. The festival provided alternative medical care and local public health employees were permitted to visit the site daily (but were requested to keep their interactions informal). Local emergency department staff asked all patients seeking care during a certain time period if they had attended the festival. Of the 115 recorded attendees seeking healthcare, one death was reported, as were a variety of infections, musculoskeletal injuries, insect/dog/snake bites, and other conditions.

Milsten, A.M., Seaman, K.g., Liu, P., et al. (2003). [Variables Influencing Medical Usage Rates, Injury Patterns, and Levels of Care for Mass Gatherings](#). (Abstract only.) *Prehospital and Disaster Medicine*. 18(4):334-46.

The authors examined medical utilization rates during three types of mass gatherings over a three-year period. They found that event type and temperature best predicted specific injuries and medical utilization rates.

National Library of Medicine. (2015). [Public Health Preparedness for Mass Gatherings](#).

This website provides links to resources on healthcare preparedness for mass gatherings, including lessons learned from large events, planning considerations, and tools and resources on mass casualty planning and response.

The Lancet: Infectious Diseases. (2012). [Mass Gatherings Health](#).

This webpage provides links to articles on mass gathering health. Articles on the Hajj pilgrimage, disease prevention, non-communicable disease risks, and crowd and environmental management are included.

XII. Lessons Learned: Rural Areas

Cliff, B. (2007). [A Study of Disaster Preparedness of Rural Hospitals in the United States](#). Western Michigan University. Dissertations.

The author used a model of disaster preparedness to examine seven elements of preparedness. She also examined risk perception and HRSA funding. She categorized rural hospitals as "moderately prepared overall" with high preparedness in education/training isolation/decontamination. Respondents perceived higher risk from natural disasters and vehicular accidents than from human-caused incidents.

Fisher, S., Biesiadecki, L., Schemm, K. (2014). [Responding to Medical Surge in Rural Communities: Practices for Immediate Bed Availability](#).

The focus of this report is on immediate bed availability in rural healthcare settings. The authors conducted a literature review and synthesized data collected during interviews with representatives in four areas: Mississippi, Southwest Utah, Virginia, and Southeast Texas.

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

Healthcare facilities in rural areas can be particularly challenged during a mass casualty incident (MCI) as local emergency medical service providers may be overwhelmed by 911 responses and unable to assist with patient forward movement. This summary reviews some of the contributing issues and potential solutions and highlights a broader range of issues for rural MCI response.

Mason, W., Randolph, J., Boltz, R., et al. (2014). [Rural Coalition Development and Immediate Bed Availability](#).

This 90-minute webinar reviews the unique challenges of building and operating healthcare coalitions in rural settings. Speakers discuss policy and partnership lessons learned from a disaster in Arkansas; bed surge and mass fatality support and coordination best practices from a Greyhound bus disaster in Pennsylvania; Community Assessment Tool (CAT) implementation in Nebraska; and rural healthcare coalition development strategies used in Missouri.

National Association of Community Health Centers. (2013). [Health Centers: Assistance Before, During, and After Emergencies and Disasters](#).

This resource provides examples of ways health centers have assisted their communities before, during and after emergencies and disasters.

Rossberg, S., Thompson, C., and Williams, L. (2015). [Addressing Surge in Rural and Frontier Communities](#). (Free registration required.)

In this webinar, speakers from Montana, Utah, and Washington share what they have learned from medical surge exercises and actual events in low population density areas.

Rural Health Information Hub. (2016). [Rural Emergency Preparedness and Response](#).

This webpage toolkit provides answers to frequently asked questions and links to resources specific to rural health preparedness and response.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2017). [HPP In Action: Stories from the Field](#).

Many of the posts on this webpage include lessons learned from health practitioners and emergency managers in rural areas and American Indian/Alaskan Native communities.

XIII. Plans, Tools, and Templates

Bulson, J. (2013). [Large Gathering Medical Plan Template](#).

Emergency medical services planners and other healthcare providers can tailor this template to their facility and event. It includes sample forms and schematics for several injuries and scenarios.

District of Columbia Department of Health, Health Emergency Preparedness and Response Administration. (2014). [Special Events Health, Medical and Safety Planning Guide](#).

This document outlines the recommended procedures for creating a Health, Medical, and Safety Plan for a special event. It is directed to the event applicants/organizers and includes a list of requirements for medical care by type and size of event (page 7), checklists, and templates that can be tailored to a variety of jurisdictions.

Federal Emergency Management Agency. (2010). [Special Events Contingency Planning](#).

This job aid manual groups information into five chapters: pre-event planning; event operational considerations; incident command and control; additional planning; and post-event actions.

Federal Emergency Management Agency. (2012). [Operational Templates and Guidance for EMS Mass Incident Deployment](#).

The goal of this comprehensive report is to share detailed model policies and practices and help emergency medical services (EMS) deploy more effectively to planned and spontaneous mass care incidents. Case studies and event templates for scheduled and unscheduled events are included that can help EMS planners develop local plans and conduct activities.

Minnesota.gov. (n.d.). [Special Event and Mass Gathering Medical Care Planning Guideline](#). (Accessed 7/7/2017).

This event classification matrix was developed to help local emergency healthcare providers develop medical plans for large events based on risk.

*National Library of Medicine. (2015). [Public Health Preparedness for Mass Gatherings](#).

This website provides links to resources on healthcare preparedness for mass gatherings, including lessons learned from large events, planning considerations, and tools and resources on mass casualty planning and response.

Oregon Department of Human Services, Public Health Division. (n.d.). [Regulations Governing Health and Safety at Outdoor Mass Gatherings](#). (Accessed 7/7/2017.)

Though written specifically for the State of Oregon, these rules can be used as a model for other jurisdictions when planning for a mass gathering. The document specifies rules for emergency medical facilities, fire protection, security personnel, traffic control, water supply, drainage, sewer facilities, trash storage and disposal, and sanitary food service.

Pennsylvania Emergency Management Agency. (n.d.). [Special Event Emergency Action Plan Guide](#). (Accessed 7/7/2017.)

This document outlines the recommended procedures for creating an Emergency Action Plan for a special event.

San Francisco EMS Agency. (2013). [Mass Gathering: Report of Treatment by Event Medical Resources](#).

This form (prepared by San Francisco emergency medical services agency) can be used by healthcare providers to track and report a summary of injury and health-related problems that occur during a mass gathering event.

State of New Hampshire. (2014). [Mass Gathering Standard Operating Guideline Template](#).

This standard operating guideline published by the State of New Hampshire can be customized to meet the needs of other states during mass gathering emergency medical services resource planning. The template covers all areas that need to be addressed and includes a scoring matrix helpful to predict risk and coverage needs.

U.S. Department of Transportation, Federal Highway Administration. (2006). [Planned Special Events: Checklists for Practitioners](#).

While this reference pertains to the transportation aspects of preparing for special events, the formula used for the planning process and checklists can be adapted to health and medical concerns.

XIV. Plans, Tools, and Templates: Rural Areas

Rural Disaster Resilience Planning. (n.d.). [Rural Disaster Resilience Planning](#). (Accessed 5/16/2017.)

While it does not include health or medical information, this Canadian-based website can serve as a planning tool for those working in rural communities. It includes six tabs with templates, activities, checklists, and other resources that can help users better understand their community resilience resources and plan accordingly.

USA Center for Rural Public Health Preparedness, Texas A&M Health Science Center School for Rural Public Health. (2007). [Partnering to Achieve Rural Emergency Preparedness: A Workbook for Healthcare Providers in Rural Communities](#).

This workbook provides an interactive, user-friendly tool to assist rural health clinics and rural-based hospitals, community health centers, and migrant health centers create/update all-hazards emergency response plans.

Ware County Board of Health. (2011). [Risk Communication in Rural Settings](#).

Healthcare practitioners in rural areas can use the strategies in this toolkit to communicate with their community during a variety of disasters including natural, biological, chemical, radiological, and mass vaccination/medical events.

XV. Surge Planning (from Urban to Rural Areas)

Meit, M., Briggs, T., Kennedy, A., et al. (2007). [Spontaneous Evacuation Following a Dirty Bomb or Pandemic Influenza: Highlights from a National Survey of Urban Residents' Intended Behavior](#). NORC Walsh Center for Rural Health Analysis.

The authors highlight results from a national survey that measured urban residents' plans to evacuate after two potential disasters. Responses differed by several variables; the potential effect of this movement on infrastructure in rural communities (including the healthcare system) is significant and plans must be adjusted.

Meit, M., Briggs, T., and Kennedy, A. (2008). [Urban to Rural Evacuation: Planning for Rural Population Surge](#).

The authors conducted a literature review and a quantitative analysis of survey data to assess the likelihood of urban evacuation to rural areas and to provide recommendations for rural planning and response. The last section of the report contains a set of policy and planning recommendations.

Meit, M., Redlener, I., Briggs, T., et al. (2011). [Rural and Suburban Population Surge Following Detonation of Improvised Nuclear Device: A New Model to Estimate Impact](#). Disaster Medicine and Public Health Preparedness. 5. Supplement 1.

The authors describe a “push-pull” model that estimated the evacuation from Manhattan to counties within a 150 mile radius after a nuclear detonation. This model predicted that arriving evacuees could increase the population needing services by between 50 and 150 percent.

University at Albany, State University of New York, School of Public Health and Health Professions, Center for Public Health Preparedness. (2007). [Mass Evacuation to Rural Communities II](#).

The speakers in this webinar highlight concerns expressed by leaders in rural communities—areas to which large numbers of evacuees might travel in a disaster. Specific concerns included sustaining the water supply, septic systems, and receiving and treating people with special needs. One speaker shared lessons learned from a tabletop exercise, particularly managing self-deployed volunteers.

*This document was comprehensively reviewed in July 2017 by these subject matter experts (listed in alphabetical order): **Dick Bartlett**, B.S., Med, Emergency Preparedness/Trauma Program Coordinator, KY Hospital Association, and KHREF; and **L. Corey Sloan**, M.A., M.S., EMT-P, Deputy Chief of EMS, NTA EMS Rescue, Bethany, MO.*