National EMS Advisory Council

FINAL

Report and Advisory

Subcommittee: Preparedness and Education

Title: Large Scale Incidents: EMS Planning and Preparedness

A. Executive Summary

The planning, management and coordination of EMS resources during large scale preplanned events such as sports venues, concerts, international and national tournaments, presents a complex logistical issue for emergency medical services.. These events can be further complicated by mass casualty incidents (MCIs) when unexpected manmade or natural events occur. These large-scale events have components that are predictable in nature. EMS knows that there will be requests for assistance that range from diabetics who lost their insulin, people who have twisted an ankle, up to anaphylaxis, STEMI, and people who have fallen from the stands. These events have elements that are also often unpredictable, and may include forward surges, as what happened at the Astroworld Music Festival in 2021, and instances of extreme violence, reminiscent of the 2017 Las Vegas shooting (FEMA, Clark County Fire, & Las Vegas Metropolitan Police Department, 2018) . These situations often strain the already limited public resources, leading to a dilemma of allocation and utilization. Moreover, current guidelines regarding EMS preparation and implementation for these scenarios remain scant, rendering these services underprepared and underequipped (Konig & Schultz, 2019) . Success in this arena, especially in communities where these events have been occurring in some instances for decades, is attributed more to trial and error, the building of a body of knowledge over time based on lessons learned.

B. Recommendations

To tackle these issues, it is imperative to adopt a systematic approach involving:

Federal Interagency Committee on EMS (FICEMS)

Recommendation 1:
Development of updated tools for a comprehensive pre-event planning process, which provides an outline of the essential elements that must be addressed. This should include checklists and/or templates as tools to assist with planning and operations, and also model Emergency Action Plans (EAP).

Recommendation 2:
Develop and promote training that includes basic competencies for all levels of providers, to include pre-event training and just-in-time training. Incentivize participation in multi-agency (multidiscipline, including EMS, fire, police, public works, traffic management, 911 telecommunicators, hospital partners, etc., and multiple agencies within a given discipline) training, including functional and full-scale exercises through funding mechanisms. Update (local/regional/state-wide/national) practices to require ICS training and participation in functional and full-scale exercises in a scalable fashion, as part of permitting or licensing for public events.

Recommendation 3:
Include a focus on event planning and management in the Emergency Medical Services Education Agenda 2050, to encourage wider exposure and participation in ICS 300/400.

Recommendation 4:
Support improved inter-agency coordination, leveraging the capabilities and expertise of the EMS 911 telecommunicator to improve and facilitate on-scene operations through the development of updated training, templates and tools for EMS 911 telecommunicators that is specific to mass casualty events, including participation in functional and full-scale exercises.

Recommendation 5:
Develop a guidance document for preplanned events with input from federal partner organizations including but not limited to the Department of Homeland Security (DHS); the Federal Emergency Management Agency (FEMA); the National Highway Traffic Safety Administration (NHTSA); Administration for Strategic Preparedness and Response (ASPR); the US Department of Health and Human Services (DHHS); and the Centers for Disease Control and Prevention (CDC); with best practices for public-private partnerships (PPPs), to promote innovative resource supplementation strategies for managing a large-scale event coupled with meeting the day to day needs for 9-1-1 requests.

C. Scope and Definitions

Large scale event planning requires a multi-agency approach including: emergency medical services leadership and medical direction, law enforcement, fire services, emergency management, local hospital leadership, among others. Representation of emergency medical services is of primary importance to prepare and plan for standard medical presentations as well as risk mitigation for other active threats. Margolis et al. provide goals for the medical response at large scale events:

- On-site initial stabilization and treatment
- Lessen the burden on local jurisdictional EMS & healthcare agencies
- Prepare for and respond to mass casualty incidents (Margolis et al, 2021, p. 593)

The emergency medical needs of events thus far have been difficult to predict. Hartman et al. found that a classification system that stratifies events based on weather, expected participants, presence of alcohol, demographic in attendance, and crowd intentions can successfully predict medical needs at mass gatherings. Two methods have been widely accepted in the field of event planning preparedness: The Zeitz model and the Arbon method. The Zeitz Model purports presentation volume is best predicted using historical data for the particular event. The Arbon approach uses statistical modeling in addition to outside factors such as weather, event location, etc. to estimate medical needs. (Arbon, 2018) Both of these methods have been shown to be statistically reliable in predicting medical needs for large events though additional research is needed. Standardized data collection at mass gathering events is needed to enhance best practices for EMS at large scale events. (Schwartz, 2015)

Recommended strategies for large scale events include use of the incident command system (ICS), emergency operations plans (EOP), supplies and equipment, and integrated communication systems between EMS, hospitals, fire, and law enforcement. (Catlett, 2010.) Other resources recommend venue evaluation, review of documentation requirements, education needs, tabletop exercises, and a host of others.
Large-scale event refers to the size of the event relative to available response. In a small town a high football game with a seating collapse could be considered a large-scale event, while a major urban center would consider an event such as a city-wide marathon or a championship game to be a large-scale event. FEMA uses the term “special event” which is defined as a non-routine event that strains the resources of the hosting community and requires special permitting or additional planning, preparation, and mitigation (need reference).

D. Analysis

The path to implementing these solutions is fraught with barriers. A significant issue relates to the lack of guidelines for EMS in planning and response. Therefore, it is imperative to develop comprehensive, national-level guidelines informed by evidence-based research and past experiences.

Many agencies lack the capabilities and capacities to manage a large-scale event, while simultaneously meeting the day-to-day EMS needs for their communities. The optics of successfully managing a large-scale event while your local community may struggle in receiving a timely response or vice-a-versa failing at managing a large-scale event while maintaining your normal EMS operations is not the best face to put forward. The training package needs to be manageable, it cannot be overwhelming, and for events that may occur over multiple days (the Olympics, World Series, Lollapalooza, etc.), it should occur in
a timely manner may require a longer implementation period. Just in time training must be easily disseminated and implemented. Guidelines and procedures must be easy to follow and can be distilled down to flip cards that can be attached to a lanyard or carried in a uniform pocket.

Credentialing for out-of-state EMS professionals is another hurdle, demanding swift action to establish reciprocity agreements between states or provide temporary practice permissions during large-scale events.

It is clear that a systematic approach integrating effective pre-event planning, rigorous training, inter-agency coordination, and strategic public-private partnerships holds the key to substantially enhancing the emergency medical response to large-scale preplanned events.

The first step is effective pre-event planning, which should be grounded in evidence-based research and historical data. With these tools, we can accurately predict potential scenarios and model appropriate responses, significantly improving our preparedness levels.

Training, both theoretical and practical, is another crucial component of this comprehensive approach. By equipping our EMS professionals with the skills and knowledge needed to manage such complex scenarios, we bolster the efficacy and timeliness of our emergency responses.

Inter-agency coordination is an often overlooked but vital aspect of emergency response management. Seamless communication and clear role definition amongst all agencies, from on-the-ground EMS to coordinating telecommunicators, are key to ensuring a swift, effective response that can save lives. Public-private partnerships present a solution to resource scarcity during large-scale events (Arbon, Bridgewater, & Smith, C. 2001; Milsten, Maguire, Bissell, & Seaman, 2002).

These collaborations can bring forth the best of both sectors - the public sector’s accountability and the private sector’s efficiency - ensuring a well-rounded, robust response. They need to be defined and worked out well ahead of any pre-planned event. However, to make these improvements possible, it is essential to identify and adopt best practices from successful past experiences. Development of robust guidelines and checklists can facilitate the planning and training processes, ensuring a clear pathway for EMS professionals to follow.

Additionally, the role of table top, functional, and full-scale exercises cannot be understated. These drills provide a realistic platform for testing our plans, identifying gaps, and refining our strategies to ensure the highest level of preparedness when real-life situations occur.

Lastly, at the policy level, national recommendations need to advocate for these comprehensive changes, highlighting the importance of an integrated, systematic approach. This would be complemented by significant investments in research and training, which are crucial to staying ahead of the curve, constantly improving our systems, and ultimately, saving lives. As such, the journey to a more resilient, effective EMS response to large-scale preplanned events is multifaceted and challenging, but with a systematic approach and the right investments, it is within our reach. We have the tools, the knowledge, and the resolve to ensure that our EMS systems are prepared for any eventuality, no matter how large the scale. It is time we used them to their full potential.

E. Strategic Vision

Updated resources and guidance documents are needed to promote best practices for managing large scale events appropriately, in scalable fashion. EMS providers, supported by 9-1-1 telecommunicators, need additional training and resources to be able to manage patients that present at large scale incidents. Local 9-1-1 EMS systems are already stretched to manage the load of emergency calls and including public-private partnerships in all stages of planning, mitigation, response and recovery for unplanned and preplanned events.

F. Strategic Goals

1. Within three years, FICEMS should develop an integrated, data-driven pre-event planning model that can help optimize resource allocation and readiness for possible mass casualty incidents (MCIs) at large scale events, including preplanned events. The model can leverage historical data on crowd behaviors, event-specific considerations, and best practices from successfully managed past events to predict potential scenarios and their corresponding responses.
2. Within two years, FICEMS should update guidance documents and offer accessible training for EMS telecommunicators concerning large scale events.
3. Within two years, FICEMS should identify a basic training outline for every level of responder that includes the basic competences required for any large-scale event, as well as the essential proficiencies for specific events, promoting multi-disciplinary participation in functional and/or full-scale exercises.
4. Within two years, FICEMS should develop and promote resources that encourage public-private partnerships (PPPs) for managing all phases of large-scale incidents, including addressing licensing issues for out-of-state EMS professionals, given that private firms can quickly credential their staff according to state regulations.

G. Reference Material

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