

Mass-gathering Medicine: Risks and Patient Presentations at a 2-day Electronic Dance Music Event - Year Two

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Conflicts of interest: All authors have participated at events as volunteers and in contracted roles as operational and clinical care providers. Dr. Gutman is the president of Rockdoc Inc., an event operations company.

Keywords: electronic dance music event; mass gathering; risk, hazard

Abbreviations:

ATR: ambulance transfer rates
MDMA: 3,4-methylenedioxy-N-methylamphetamine
PPR: patient presentation rates

Received: April 3, 2016

Accepted: April 15, 2016

Online publication: September 20, 2016

doi:10.1017/S1049023X16000856

Turriss SA, Camporese M, Gutman SJ, Lund A. Mass-gathering medicine: risks and patient presentations at a 2-day electronic dance music event - year two. *Prehosp Disaster Med.* 2016;31(6):687-688.

In June of 2015, *Prehospital and Disaster Medicine* published a paper on the impact of a higher level of care team on ambulance transfer rates (ATRs) during an urban, indoor music festival that took place over two consecutive days, for six hours each evening.¹ This was a somewhat unique event as many music festivals are outdoor events and include “residential” camping on-site. The observational study presented the data from 2013 and documented patient presentation rates (PPR), case mix, and ATRs. One outcome of particular interest was the impact of a multi-disciplinary team capable of providing care similar to that available in the emergency department, with a specific focus on reduction of ATRs.

We repeated the deployment in 2014, at the same music festival, and again embedded a data collection team in the deployment (HA, MC, ST, and SV). Details regarding the methodology are available in the original paper. The study received ethical approval from the University of British Columbia (Vancouver, British Columbia, Canada). In this letter, we briefly report the findings from 2014, the second year and final year of the study.

In 2014, there were roughly 10,000 attendees on each of the two nights the event was held. One hundred individuals sought medical care in the field clinic during the event (N = 100; 49% first night and 51% second night). The average age was 19.49 years (range: 12–30 years). Forty-seven individuals (47%) treated were less than 19 years of age (the legal age for consuming alcohol). Sixty-three percent were female.

Individuals arrived at the field clinic on foot (n = 59), by wheelchair (n = 37), and by stretcher (n = 4). The minority of patients arrived unaccompanied (n = 14), escorted by friends (n = 6), or with security services (n = 5). Most were escorted by members of the roving medical teams (n = 68): venue medical staff (n = 18) or contracted medical staff (n = 50). Seven arrivals were not documented.

There were 53 non-acute presentations (eg, knee pain or headache), and 47 were classified as potentially urgent (n = 39; eg, moderate shortness of breath or moderate allergic reaction) or emergent (n = 8; eg, overdose or poisoning, seizures, or altered level of consciousness). Accordingly, alcohol use was documented as a contributing factor for 71/100 individuals. Recreational drug use was documented in 32/100 cases. Use of 3,4-methylenedioxy-N-methylamphetamine (MDMA), or a product sold as MDMA, was the most common form of substance use disclosed (n = 30; ie, “Ecstasy” or “Molly”). Other intoxicants reported included gamma-hydroxybutyric acid/GHB (n = 1) and cocaine (n = 4).

A total of seven individuals required transfer to hospital by ambulance for treatment of presumed alcohol and/or drug intoxication. The PPR for 2014 was 5/1,000, similar to the rate reported for 2013 (4.09/1,000).

For 2014, the percent of patients seen and sent to hospital was seven percent (n = 7/100). The ATR was 0.35/1,000. Without the higher level of care team, the ATR would have been 2.75/1,000. The presence of a higher level of care team prevented 48 ambulance transfers. This represents a higher non-transfer rate than reported in the previous year (2013: n = 29). Anecdotally, reasons for transfer included the overall acuity of the patient presentation, trajectory of clinical course (ie, improving or deteriorating over time), the half-life of the substance ingested, and the time until closure of the on-site medical clinic.

In the second year of this study, we have confirmed that PPRs and ATRs remained stable. We have begun to measure the impact of a health care team capable of providing care similar to that available in an emergency department on selected patients. Now that the potential value of such a team is clearer, future projects may address the following recommendations:

1. We ought to conceptually define what constitutes a higher level of care team and better define the composition of such a team. The on-site medical team is only one link in the “chain of survival” at music festivals, but an important link.
2. We should develop a model to quantify the average cost to the Canadian health care system when a patient is transferred from a mass gathering. In this way, we will be able to begin to monetize the impact of special events on

local communities. This potentially would support event producers and host communities to reach reasonable agreements regarding the need, or lack thereof, for compensation.

3. We must examine and explain the factors that shape decisions to transport patients from mass gatherings to emergency departments. Thus informed, the scientific community would be empowered to develop best practice guidelines to support on-site medical teams on event.

Given the proliferation of large-scale music festivals, and the not uncommon occurrence of fatalities, continuing to develop the scientific knowledge base with regard to music festival safety is a goal that is both timely and relevant. Many researchers are working on questions related to this worthy goal.²⁻¹⁰

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