Conflicts

Munn : Paid Medical Director

Acknowledgements

Adam Lund
Sheila Turris
Ferdows Laraya
Alison Hutton

Shambhala Music Festival
Medical and Harm Reduction Teams
Overview

Part One – Music Festivals and Substance Use

Intro / Overview
Substance Use
Prevalence, Importance, Motivations, Risk Factors, Patterns

Part Two – Mass Gathering Health
Risks of Substance Use at Music Festivals

Interventions for Improving Outcomes

Chain of Survival Model
Preventive Care (Proactive)
Medical Care (Reactive)
Public Health Collaboration
Caveats

Limited Research
  Predominance of case studies
  Experience based over evidence based
  Emerging conceptual frameworks

Variable Definitions and Taxonomy
  Common language lacking
  Comparisons often difficult
  Evolving dynamically alongside events
  Public Health vs Medicine

Legal and Cultural Relevance
  Environments heterogeneous
Definition

Often undefined
Mixed meanings in literature
  single day & multi day
  genres, durations
Only clear definition “multiple stages” Westrol 2017
This discussion has included all music events

Increasing Festival Prevalence
?Market Saturation
Mass Gatherings

Music Festivals

Substance Use
Music Festivals

- music event
- mobile crowd
- event duration
- temperature
- crowd density
- outdoor location
- young crowd
- bounded event
- drugs and alcohol
Part One – Music Festivals and Toxicology Overview

Tobacco
Alcohol

Cannabis

Cocaine
MDMA
Ketamine
GHB
LSD
Psilocybin
Amphetamine
Opiates
Benzos
Others (*NPS)

Substance Use

*Novel Psychoactive Substances
Part Two – Mass Gathering Health

Motivations: Festival Attendance and Substance Use

*Identity, status and sense of difference*  
EMCDDA Report (2010)

*Bonding, socialization, social capital*  
Ter Bogt (2012)

*Functional catharsis*  
Calafat (2009)

*Use enhances music and experiences*  
Van Havere (2009)

*Development phase of adolescence with profound physical, emotional and intellectual changes*  
Ter Bogt (2012)

*Concurrent mental health issues*  
Sumnall (2004)
Part Two – Mass Gathering Health

Motivations: Festival Attendance and Substance Use

“Theory of Planned Behaviour”

Azjen (1991)

Hutton, Ranse and Munn (2018)
Motivations: Festival Attendance and Substance Use

"Theory of Planned Behaviour"

Azjen (1991)

Hutton, Ranse and Munn (2018)

Gate survey
Unpublished
2015

15,000 attendees

Plan Alcohol 48%
Plan Cannabis 78%
Plan Other 93%
Part One – Music Festivals and Toxicology Overview

Substance Epidemiology – Data Sources

Self Report (planned use, reported use, friend’s report of use)

**Music festival** attendees' illicit **drug** use, knowledge and practices regarding **drug** content and purity: a cross-sectional **survey**.
Day N, Criss J, Griffiths B, Gujral SK, John-Leader F, Johnston J, Pit S.

Direct Toxicological Testing – Patient (blood, urine, buccal)

**Field Detection of Drugs of Abuse in Oral Fluid Using the Alere™ DDS®2 Mobile Test System with Confirmation by Liquid Chromatography Tandem Mass Spectrometry (LC-MS/MS).**
Krotulski AJ, Mohr ALA, Friscia M, Logan BK.

Direct Toxicological Testing – Substance (assay, MS, GLC, other)

**Rapid detection of NBOME’s and other NPS on blotter papers by direct ATR-FTIR spectrometry.**
Coelho Neto J.
Part One – Music Festivals and Toxicology Overview

Substance Epidemiology – Data Sources

Direct Toxicological Testing – Aggregate Data


Social Media – Aggregate Data
Part One – Music Festivals and Toxicology Overview

Factors in Substance Use: Age and Gender

Alcohol most prevalent across all ages and genders.

Illegal substance use increases in younger age.
Illegal substance use decreases in older age.
But cultural delays in growing up.

M>F (OR 0.55) for all drug types.
But gap narrowing — role change.

Surveys: general public, festivals.
Overrep Australia / US / Canada / Europe.

Van Havere (2009)
Ter Bogt (2005)
Part One – Music Festivals and Toxicology Overview

Factors in Substance Use: Music Festivals

<table>
<thead>
<tr>
<th>Illicit drug used</th>
<th>Music festival n (%)</th>
<th>NDSHS n (%)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any drug</td>
<td>429 (46)</td>
<td>1016 (18)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Marijuana</td>
<td>376 (40)</td>
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</tr>
<tr>
<td>Inhalants</td>
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</tr>
<tr>
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</tr>
<tr>
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</table>

GHB: gamma hydroxy butyrate.

Lim (2008)
Part One – Music Festivals and Toxicology Overview

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Lim (2008)
Part One – Music Festivals and Toxicology Overview

Factors in Substance Use: Music Festivals

EtOH in males festivals and other venues negative consequences

adjusted peer influence EtOH volume personality sociodemographics

“...independent effects of drinking location on severe negative alcohol-related consequences"

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GHB: gamma hydroxy butyrate.

Part One – Music Festivals and Toxicology Overview

Factors in Substance Use: Music Genre

<table>
<thead>
<tr>
<th>Table 1: Recent illicit drug (in the past 1 month) use by music preference</th>
</tr>
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<tbody>
<tr>
<td>Illicit drug used by musical preference</td>
</tr>
<tr>
<td>Any drug</td>
</tr>
<tr>
<td>R&amp;B/hip hop</td>
</tr>
<tr>
<td>Dance/house</td>
</tr>
<tr>
<td>Alternative</td>
</tr>
<tr>
<td>Metal</td>
</tr>
<tr>
<td>Pop</td>
</tr>
<tr>
<td>Rap</td>
</tr>
</tbody>
</table>

| Any drug                                      |                        |            |
| R&B/hip hop                                   | 48                     | 1.67 (0.70, 1.54) |
| Dance/house                                   | 47                     | 1.47 (1.06, 2.05)* |
| Alternative                                   | 38                     | 0.83 (0.63, 1.08) |
| Metal                                         | 46                     | 1.36 (0.97, 1.90) |
| Pop                                           | 24                     | 0.46 (0.24, 0.83) |
| Rap                                           | 61                     | 2.44 (1.28, 4.75)* |

| Any drug                                      |                        |            |
| R&B/hip hop                                   | 25                     | 1.17 (0.78, 1.73) |
| Dance/house                                   | 44                     | 3.83 (2.86, 5.46)* |
| Alternative                                   | 18                     | 0.60 (0.43, 0.83)* |
| Metal                                         | 18                     | 0.60 (0.44, 1.05) |
| Pop                                           | 14                     | 0.51 (0.22, 1.06) |
| Rap                                           | 41                     | 2.50 (1.30, 4.78)* |

Lim (2008)
Part One – Music Festivals and Toxicology Overview

Factors in Substance Use: Music Genre

![Table showing incidence of drug use by music preference](image)

Lim (2008)
Part One – Music Festivals and Toxicology Overview

Factors in Substance Use: Music Genre

Table 2: Recent illicit drug (in the past 1 month) use by music preference

<table>
<thead>
<tr>
<th>Illicit drug used by music preference</th>
<th>% Recently taken drug</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any drug</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>R&amp;B/hip hop</td>
<td>48</td>
<td>1.69 (0.77, 2.54)</td>
</tr>
<tr>
<td>Dance/house</td>
<td>55</td>
<td>1.42 (1.16, 1.84)</td>
</tr>
<tr>
<td>Alternative</td>
<td>42</td>
<td>0.73 (0.56, 0.92)</td>
</tr>
<tr>
<td>Metal</td>
<td>51</td>
<td>1.33 (0.95, 1.85)</td>
</tr>
<tr>
<td>Pop</td>
<td>29</td>
<td>0.46 (0.28, 0.77)</td>
</tr>
<tr>
<td>Rap</td>
<td>70</td>
<td>2.56 (1.60, 3.97)</td>
</tr>
<tr>
<td>Marijuana</td>
<td>40</td>
<td></td>
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<tr>
<td>R&amp;B/hip hop</td>
<td>42</td>
<td>1.87 (0.78, 1.35)</td>
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<tr>
<td>Dance/house</td>
<td>27</td>
<td>2.03 (1.06, 3.89)</td>
</tr>
<tr>
<td>Alternative</td>
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<td>0.83 (0.63, 0.88)</td>
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<td>2.50 (1.30, 4.78)</td>
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Lim (2008)
Part One – Music Festivals and Toxicology Overview

Factors in Substance Use: Music Genre

OR for any substance = 2.47 w Dance and 0.55 w Rock, and negative correlation between alcohol and harder “rave” drugs

Van Havere (2011)

“Associations between music and substance use remained significant after including covariates in our models, and differences in music preferences accounted for a substantial part of the variation in adolescent substance use. In sum, music preferences were a significant, robust, and unique marker of adolescent substance use for both genders across Europe.”

Ter Bogt (2012)

Polysubstance use an important consideration, especially in the electronic dance music crowd, with reported use and presentations for medical care in the 25-65% range

Demott (2017), Friedman (2016)
Part One – Music Festivals and Toxicology Overview

Factors in Substance Use: Music Genre

![Graph showing substance popularity at concerts & festivals](image)

- Electric Daisy Carnival
- Ultra Music Festival
- Coachella
- Tomorrowland
- Summerfest
- Bonnaroo
- Burning Man
- Lollapalooza
- Glastonbury
- Chili Cook-Off
- Life In Color
- Camp Bisco
- Mad Decent Block Party
- Marley Fest
- Holy Ship!

% of Total Substance-Related Posts by Substance

*“General Drug Terms” consist of words such as “Drug” and “Tripping.”

INSTAGRAM POSTS COLLECTED MARCH 2015

DRUGABUSE.COM
Measuring Success: Outcomes

Medical
- Morbidity
- Mortality
- Hospital Transports

Operational
- Financial success
- Attendee enjoyment
- No headlines

*Post event
Part One – Music Festivals and Toxicology Overview

Patient Presentations at MFs – Volume Metrics Review

PPR – Patient Presentation Rate

PPTA – Percentage of Patients Transported by Ambulance

ATR – Ambulance Transfer Rate
Part One – Music Festivals and Toxicology Overview

Patient Presentations at MFs – Published Literature

Predictive models for need (Zeitz, Arbon, Others)

Vary greatly as described previously for all MGs

Nonlinear modeling to find smaller list of variables

EDM MFs PPRs 8-20 per 1000

Friedman (2016)

Cases are 80-95% minor
How many presentations are due to intoxications?
Part One – Music Festivals and Toxicology Overview

- **Total presentations**
- **Substances used**
- **Chief complaint directly due**
- **Chief complaint indirectly due (occult?)**
Part One – Music Festivals and Toxicology Overview

How many presentations are due to intoxications?

- **Total presentations**
  - Doubles with alcohol sales *Arbon (2001)*
  - Affected by alcohol and drug use *Milsten (2003)*
Part One – Music Festivals and Toxicology Overview

Total presentations

Chief complaint directly due

- 24.7% Krul (2009)
- 1.3% Stagelund (2012) MF
- 40.6% Westrol (2017)
- 8.5% Grange (1999)
- 17.0% Suy (1999)
- 2.5% Bledsoe (2012) MF
- 2.4% Sgjele (2006) MF
- 32.8% Calle (2018)
- 66.7% Hutton (2014) MF
DIMS vs DiMS

AMS = 330 / 4032 (8.2%)

Number of substances

- GHB: 30.9%
- Alcohol: 23.9%
- MDMA: 23.0%
- LSD: 20.9%
- Ketamine: 19.4%
- Cocaine: 11.8%
- Cannabis: 12.4%
- Psilo: 12.4%
- Opiates: 3.0%
- Benzos: 1.5%
- Other: 1.8%
Part One – Music Festivals and Toxicology Overview

- 403 concerts 2004-2015 (NJ)
- >2.4 million total attendees
- 4546 patient encounters
Part One – Music Festivals and Toxicology Overview

Total presentations

Substances used

15.6% Erickson (1997)
50.0% Friedman (2016)
Part One – Music Festivals and Toxicology Overview

Substances used

10-14% Chapman (1989)

Chief complaint directly due

7-8% Chapman (1989)
Part One – Music Festivals and Toxicology Overview

Total presentations: 487

Clinically due to substance: 160 (33%)

Toxicology negative: 7

Calle (2018)
Part One – Music Festivals and Toxicology Overview

Factors in Substance Use : Music Genre

<table>
<thead>
<tr>
<th>Genre</th>
<th>Risk Ratio</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Contemp.</td>
<td>0.49</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Variety/Other</td>
<td>0.53</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Pop</td>
<td>0.74</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Country</td>
<td>0.83</td>
<td>.0043</td>
</tr>
<tr>
<td>Modern Rock</td>
<td>1.00</td>
<td>reference</td>
</tr>
<tr>
<td>Classical</td>
<td>1.04</td>
<td>.82</td>
</tr>
<tr>
<td>Hard Rock</td>
<td>1.81</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Alternative</td>
<td>2.13</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Classic Rock</td>
<td>2.13</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Dance</td>
<td>2.47</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Hip Hop</td>
<td>2.7</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

Table 7. Unadjusted Risk Ratios of MUR by Genre
Abbreviation: MUR, medical usage rate.

\[ MUR = genre + F(0.223) + H(0.125) \]

Westrol (2017)
Part One – Music Festivals and Toxicology Overview

Overrepresentation of Intoxication in Transports to Hospital

8/11 (73%) Transports ?11/11  
(Lund 2015)

50% of Transports  
(Suy 1999)

53/69 (77%) Transports  
(Calle 2018)

Transport rates highest for alcohol/drug intoxicated patients  
(Westrol 2017)
Part One – Music Festivals and Toxicology Overview

Overrepresentation of Intoxication in Transports to Hospital

8/11 (73%) Transports ?11/11 (Lund 2015)

50% of Transports (Suy 1999)

53/69 (77%) Transports (Calle 2018)

Transport rates highest for alcohol/drug intoxicated patients (Westrol 2017)

Burden on Local Health Services

Boonstock Festival 2014 Canada (80 transports in 3 days)

Oxegen Festival Ireland 2008 (37 significant ED presentations in 24h)

Higher Level of Care (HLC) providers prevented 73% of transports (Lund 2015)
Part One – Music Festivals and Toxicology Overview

McAndrew (2017)
Part One – Music Festivals and Toxicology Overview

Overrepresentation of Intoxication in Music Event Deaths

68 total due to overdose/poisoning 1999-2014  
(Lund 2015)

75/722 (10.4%) of all MG deaths in academic and grey literature  
Non-MCI, Non-trauma increases to 96/128 (75%)  
(Turris 2017)
Part One – Music Festivals and Toxicology Overview

Substance Related Risks at Music Festivals

**Direct** (toxic effects)

- **Medical adverse event**
  - New onset
  - Exacerbation of existing condition

- **Overdose**

**Indirect** (altered sensorium & decision making)

- **Heat related illness**
- **Trauma**
  - violence / homicide
  - accidental
  - self-harm, suicide
- **Mental health issue / psychological distress**

- **Sexual health**
  - unsafe
  - involuntary

- **Communicable disease**
  - sexually transmitted
  - blood borne illness

- **Others**
  - Mass Casualty*

© Allen McEachern
Part One – Music Festivals and Toxicology Overview

Common Presentations – Substance Use

Altered Case Series 3y
EDM Festival n=330

<table>
<thead>
<tr>
<th>Condition</th>
<th>2013</th>
<th>2014</th>
</tr>
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<tbody>
<tr>
<td>Coma</td>
<td>7 (5)</td>
<td>3 (3)</td>
</tr>
<tr>
<td>Agitation/Anxiety</td>
<td>19 (13)</td>
<td>17 (12)</td>
</tr>
<tr>
<td>Convulsions</td>
<td>6 (5)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Syncope</td>
<td>9 (1)</td>
<td>10 (1)</td>
</tr>
<tr>
<td>Vomiting/Abdominal Pain</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>Chest Pain/Palpitations</td>
<td>4 (1)</td>
<td>1</td>
</tr>
<tr>
<td>Inebriety</td>
<td>29 (5)</td>
<td>23 (6)</td>
</tr>
<tr>
<td>Headache</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Hallucinations</td>
<td>—</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>89 (30)</td>
<td>71 (23)</td>
</tr>
</tbody>
</table>

Note: The number of patients transferred to a hospital is shown between brackets.

AMS – Self Report

Seizure (43)

Dec LOC (258)

Behavioural (128)

Nontransient (145)

Transient (105)

Unknown (8)
Mass Casualty Incidents (MCIs) at Music Festivals

Direct
- Overwhelming critical intox presentations
  - eg really BAD drugs
  - eg really GOOD drugs

Indirect
- Predisposition for usual MCIs
  - eg violence, critical errors, crowd behaviour
- Management of usual MCI w intox attendees
  - eg flyer from SMF
PLEASE BE INFORMED:

IN THE INTEREST OF PUBLIC SAFETY, WE WOULD LIKE TO INFORM OUR GUESTS AND THE PUBLIC, THAT THERE IS AN **EVACUATION ALERT** NEAR THE FESTIVAL GROUNDS. WE ARE CURRENTLY COMMUNICATING WITH LOCAL GOVERNMENT TO STAY AHEAD OF THE SITUATION.

**BC WILDFIRE SERVICE IS CURRENTLY FIGHTING THE FIRE WITH CONSIDERABLE FORCE INCLUDING 20 FIREFIGHTERS, 4 HELICOPTERS, 1 HEAVY EQUIPMENT, AND 4 AIR TANKERS.**

WHAT DOES THIS MEAN TO OUR GUESTS?

While this does not currently affect the festival, all guests should be prepared for changing conditions.

WHAT CAN YOU DO?

1) Talk with your friends about an early departure in case things change.
2) Plan to have a passport or other identification ready to go.

Part Two – Mass Gathering Health

Medical Public Health Social Science

Security/Policing
Addictions
Mental Health
Risk Taking

First Response
Harm Reduction
Behavioural Psych
Anesthesia

Substance Use
Transport Medicine

Prehospital Care
Critical Care
Youth
Toxicology

Infectious Disease
Emergency Medicine
Surveillance

© Allen McEachern
Recall: Metrics and outcomes

**Medical**
- Morbidity
- Mortality
- Hospital Transports

**Operational**
- Financial success
- Attendee enjoyment
- No headlines

*Post event*
Recap Part One: MFs

More patients, more acuity, more everything
Motivations and substance use factors
Great research medium!
The Event Chain of Survival in the Context of Music Festivals: A Framework for Improving Outcomes at Major Planned Events

Lund & Turris (2017)
Part Two – Mass Gathering Health

The Event Chain of Survival in the Context of Music Festivals: A Framework for Improving Outcomes at Major Planned Events

Illness & Injury Prevention
Averting the occurrence of illness/injury and halting the progression from its early, unrecognized stage to a more severe one.

Health Promotion
The process of enabling people to increase control over, and to improve, their health.

Harm Reduction
Any program or policy designed to reduce behavior-related harm without requiring the cessation of the behavior itself.

Crowd Resiliency
Supporting those attending and participating in events to stay safe and stop hazards from turning into risks

Event Organizers
Policing & Security
Festival Health

Lund & Turris (2017)
The Event Chain of Survival in the Context of Music Festivals: A Framework for Improving Outcomes at Major Planned Events

**Personnel**
Averting the occurrence of illness/injury and halting the progression from its early, unrecognized stage to a more severe one.

**Equipment**
The process of enabling people to increase control over, and to improve, their health.

**Training**
Any program or policy designed to reduce behavior-related harm without requiring the cessation of the behavior itself.

Lund & Turris (2017)
Part Two – Mass Gathering Health

Proactive Response
Illness / Injury Prevention
Health Promotion
Harm Reduction

PPR
PPTA
ATR

attendees
med
H

X
Part Two – Mass Gathering Health

Proactive Response – Post Event (Effects & Follow Up)
Illness / Injury Prevention
Health Promotion
Harm Reduction
Overarching Principles

Acceptance and non-judgement
Peer delivered, outreach based
Collaborative
Pre / during / post event
Research and data sharing
Experienced based to evidence based
Abstinence focus is not effective

Main activity in use in most projects during 2000s
Ineffective alone beyond “health literacy”
Multiple methods & services separated in time

Signage
Direct engagement / outreach
Social media*
Postcards, stickers, documents

Considerations – Music Festival Mass Gathering Health

Education
• Environmental
• Supplies
• Training

Considerations (In Progress) – Music Festival Mass Gathering Health

**Education**

Facilitate attendee contact for all 
Promote festival philosophy and norms

- Describe restrictions
  - Age
  - Goods (food, weapons, substances)
  - Substance possession and use (private and public)
  - Inform of needed items (camping, etc)
  - Publicize enforcement plan
- **Share code of conduct**
- **Emphasize personal responsibility**
- Abstinence messaging
- **Driving impaired**

**Health Promotion**

- Hearing protection

**Publicize event safety services**

- Share location of services
- How to contact emergency services
- Attendee first response / CPR training
- Common medical issues
- General health products available for purchase
- Critical incident debriefing

Part Two – Mass Gathering Health

Considerations (In Progress) – Music Festival Mass Gathering Health

Education

- Environment
  - Provide free water
  - Limit food and drink prices
- Legal substances
  - Limit Alcohol Hours
  - Alcohol free / low alcohol drinks
  - Alcohol & energy drinks not combined
  - Limit tobacco sales
  - Ensure air quality
  - Underage use prohibition
  - Limited drinks per purchase per customer
  - No glassware
- Plan for minors
- System for public messaging
- Noise
  - dB limit
  - Quiet time enforced
  - Limit music hours
- Spaces
  - Designated substance free areas
  - Alcohol control spaces
  - Shade and cooling spaces
  - Intoxication management zones
  - Provide identifiable uniforms for safety teams

Supplies

- Environment (continued)
- Presence of Specific Services
  - Focus on local community group partners
  - Mobile peer teams
    - Check on people / Educate / Distribute / Coo
- Drug Checking Services
  - Engage in conversations around planned
  - Educate re substances and risks
    - Post alerts re substances found
    - Feedback to medical, security, organizers
- Substance Free Zone
  - Abstinence support and meetings
- Women’s Space
  - Safe zone 24h
  - Assault counselling and referral
- Pschedelic support
  - Minimal stimulation
  - Comprehensive support

Training

Considerations (In Progress) – Music Festival Mass Gathering Health

Education

Environmental Supplies Training

Supplies

(see services; if not supplied elsewhere look into providing)

Noise
Ear plugs

Sexual Health
Condoms
Dental dams
Emergency contraceptive pills
STI testing kits (poor uptake)

Heat and Sun
Sunscreen
Fans
Cooling mist

Substances
Clean needles and disposal
Straws
Pipes

Part Two – Mass Gathering Health

Considerations (In Progress) – Music Festival Mass Gathering Health

Education

Environmental Supplies

Training

- Attendee
  - Basic first response
  - Toxidrome recognition

- Staff
  - Responsible beverage
  - Intoxication and toxi
  - Basic first response / C
  - Emergency notification
  - Site locating
  - Communications
  - Prevention of entry
  - De-escalation
  - Naloxone

- Public safety
  - Mass casualty plan and
  - Evacuation plan and dr
  - Excited delirium respor

- Medical
Part Two – Mass Gathering Health

Illness / Injury Prevention
Health Promotion
Harm Reduction

Substance Use

Increases presentations
Increases acuity / major cases
Increases ambulance need
Increases hospital utilization
Increases MCI risk / complexity
Increases deaths
Part Two – Mass Gathering Health

Illness / Injury Prevention
Health Promotion
Harm Reduction

Substance Use

Increases presentations
Increases acuity / major cases
Increases ambulance need
Increases hospital utilization
Increases MCI risk / complexity
Increases deaths
Part Three – Medical Response

Medical Response: Determine Your Objectives


Cases: Coma/Seizure/Agitated/Inebriated
(+CP/sync/AP/HA/Trauma/Dehyd/Allergy/Resp/MCI)
Critical Care: Arrest, Aspiration, HypoNa, Hyperthermia

These dictate your needs:

1. Personnel
2. Equipment
3. Training
Part Three – Medical Response

Medical Response: Personnel

Numbers?

6 / 10,000 a good place to start; model if you can; future PDM otherwise

Skills?

airway, ALS, transport, critical care, mental health, clinical tox, emerg, trauma

radio, triage

fun and flexible

*90% feet and IVs
### Medical Response: Equipment

<table>
<thead>
<tr>
<th>Condition</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coma</td>
<td>O2, airway, monitors, suction, iStat, Glu / Na, hyperNa</td>
</tr>
<tr>
<td>Seizure</td>
<td>same as coma plus restraints and benzos</td>
</tr>
<tr>
<td>Agitated</td>
<td>same as seizure +/- antipsychotics/ketamine</td>
</tr>
<tr>
<td>Inebriated</td>
<td>same as coma</td>
</tr>
<tr>
<td>CP/syncope</td>
<td>same as coma (no restraints), ECG, ASA, benzos</td>
</tr>
<tr>
<td>Arrest</td>
<td>ALS meds, intralipid, esmolol</td>
</tr>
<tr>
<td>Aspiration</td>
<td>O2, airway</td>
</tr>
<tr>
<td>Hyponatremia</td>
<td>same as coma</td>
</tr>
<tr>
<td>Hyperthermia</td>
<td>cooling fans, mist, ice packs</td>
</tr>
</tbody>
</table>
Medical Response: Training
30-60 minute modules improve skills & decrease liability

Module 1
Aspiration and Basic Airway Management at Electronic Dance Music Events

M. Brendan Munn
Online Training
June 12, 2017

MODULE ONE - ASPIRATION AND BASIC AIRWAY MANAGEMENT AT EDMEs
Module 2
Altered Mental Status at Electronic Dance Music Events

M. Brendan Munn

Online Training
June 21, 2017

MODULE TWO - ALTERED MENTAL STATUS AT EDMFs

MODULE ONE - ASPIRATION AND BASIC AIRWAY MANAGEMENT AT EDMFs
Module 3
Decreased Level Of Consciousness at Electronic Dance Music Events

M. Brendan Munn

Online Training
July 3, 2017

MODULE THREE - DECREASED LEVEL OF CONSCIOUSNESS AT EDMFes

MODULE TWO - ALTERED MENTAL STATUS AT EDMFes

MODULE ONE - ASPIRATION AND BASIC AIRWAY MANAGEMENT AT EDMFes
HOT AND ALTERED

Management of the Altered/Hyperthermic Patient at an Electronic Dance Music Event
Dr Dharma McBride

MODULE THREE PART 2 – HOT AND ALTERED AT EDMEs

MODULE THREE - DECREASED LEVEL OF CONSCIOUSNESS AT EDMEs

MODULE TWO - ALTERED MENTAL STATUS AT EDMEs

MODULE ONE - ASPIRATION AND BASIC AIRWAY MANAGEMENT AT EDMEs
Things you might find at a festival

JEFFREY EPPLER MD, FRCP(C)

MODULE FOUR PART 2 – CLUB TOXICOLOGY

MODULE FOUR - OPIATES AND NALOXONE AT EDMEs

MODULE THREE PART 2 – HOT AND ALTERED AT EDMEs

MODULE THREE - DECREASED LEVEL OF CONSCIOUSNESS AT EDMEs

MODULE TWO - ALTERED MENTAL STATUS AT EDMEs

MODULE ONE - ASPIRATION AND BASIC AIRWAY MANAGEMENT AT EDMEs
PATIENT LOCATING

MODULE FIVE - PATIENT LOCATING

MODULE FOUR PART 2 - CLUB TOXICOLOGY

MODULE FOUR - OPIATES AND NALOXONE AT EDMEs

MODULE THREE PART 2 - HOT AND ALTERED AT EDMEs

MODULE THREE - DECREASED LEVEL OF CONSCIOUSNESS AT EDMEs

MODULE TWO - ALTERED MENTAL STATUS AT EDMEs

MODULE ONE - ASPIRATION AND BASIC AIRWAY MANAGEMENT AT EDMEs
MODULE FIVE - PATIENT LOCATING

MODULE FOUR PART 2 - CLUB TOXICOLOGY

MODULE FOUR - OPIATES AND NALOXONE AT EDMEs

MODULE THREE PART 2 - HOT AND ALTERED AT EDMEs

MODULE THREE - DECREASED LEVEL OF CONSCIOUSNESS AT EDMEs

MODULE TWO - ALTERED MENTAL STATUS AT EDMEs

MODULE ONE - ASPIRATION AND BASIC AIRWAY MANAGEMENT AT EDMEs
Conclusion – At Music Festivals:

Substance use increases risks of harm, injury and illness

The use of medical services follows some known patterns but there is still a relative paucity of research on music festivals specifically within the mass gathering literature

Substance related presentations at on site medical services are on the whole predictable and manageable with appropriate training and preparation
Conclusion – At Music Festivals:

Medical services are BUT ONE of the ways to mitigate these risks.

Collaborative planning that promotes specific interventions including multi-pronged education campaigns, environmental design and well-trained and equipped on site services has the potential to minimise potential harms.

Research on the direct impact of interventions is building.

The care of potentially critically ill attendees on site remains a liability “discomfort” and an opportunity for the development of clearer guidelines promoting safety and protection.
Questions?

brendanmunn@gmail.com

WORLD ASSOCIATION OF DISASTER AND EMERGENCY MEDICINE