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Preparing and Planning for Recreational Substances at Music Festivals

Considerations from Public Health to Critical Care

M. Brendan Munn

**WADEM Webinar
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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**

mu·sic fes·ti·val

noun

an organized event, typically lasting several days, featuring performances by various musicians, singers, and groups.

"the three met at a music festival where they were all playing with different bands"

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

**Substance
Use**

Music Festivals

Music Festivals



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- ✓ 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

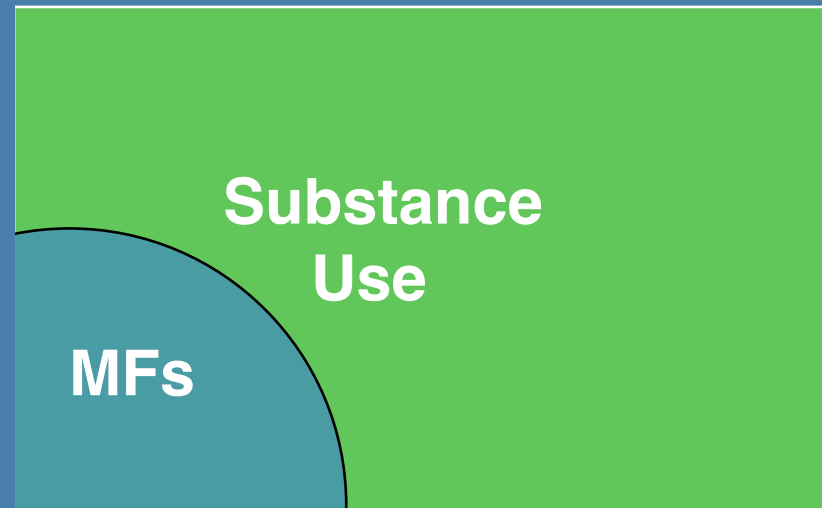
Psilocybin

Amphetamine

Opiates

Benzos

Others (*NPS)



*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, Ransse and Munn (2018)

SPECIAL REPORT

Developing Public Health Initiatives through Understanding Motivations of the Audience at Mass-Gathering Events

(2) Alison Hutton, RN, BN, MN, PhD, FACN;¹ Jamie Ransse, RN, FACN, FCENA, BN, GCertClinEd, GCertClinEpi, MCritCarNurs;² Matthew Brendan Munn, MPhil, MD, CCFPEM, DA(SA)

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Conflict of interest: none

Keywords: audience, health communication, health motivation, public health

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Abstract

This report identifies what is known about audience motivations at three different mass-gathering events: outdoor music festivals, religious events, and sporting events. In light of these motivations, the paper discusses how these can be harnessed by the event organisers and Emergency Medical Services. Lastly, motivations tell what kinds of interventions can be used to achieve an understanding of audience characteristics and the opportunity to develop tailor-made programs to maximize safety and make long-lasting public health interventions to a particular 'cohort' or event population. A lot of these will depend on what the risks/hazards are with the particular population in order to "target" them with public health interventions. Audience motivations tell the event organisers and Emergency Medical Services about the type of behaviour they should expect from the audience and how this may affect their health while at the event. Through these understandings, health promotion and event safety messages can be developed for a particular type of mass-gathering event based on the likely composition of the audience in attendance. Health promotion and providing public information should be at the core of any mass-gathering event to minimize public health risk and to provide opportunities for the promotion of healthy behaviour in the local population. Audience motivations are a key element to identify and agree on what public health information is needed for the event audience. A more developed understanding of audience behavior provides critical information for event planners, event risk managers, and Emergency Medical Services personnel to better predict and plan to minimize risk and reduce patient presentations at events. Mass-gathering event organisers and designers around their events to be positive experiences and to have meaning for those who attend. Therefore, continual vigilance to improve public health effectiveness and efficiency can become best practice at events. Through understanding the motivations of the audience, event planners and designers, event risk managers, and emergency medical personnel may be better able to understand the motivation of the audience and how this might impact on audience behavior at the event.

Hutton A, Ransse J, Munn MB. Developing public health initiatives through understanding motivations of the audience at mass-gathering events.

Part Two – Mass Gathering Health

Motivations : Festival Attendance and Substance Use

“Theory of Planned Behaviour”

Azjen (1991)

Hutton, Ransse and Munn (2018)

**Gate survey
Unpublished
2015**

15,000 attendees

**Plan Alcohol 48%
Plan Cannabis 78%
Plan Other 93%**

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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.
Harm Reduct J. 2018 Jan 5;15(1):1. doi: 10.1186/s12954-017-0205-7.

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.

J Anal Toxicol. 2017 Dec 28. doi: 10.1093/jat/bkx105. [Epub ahead of print]

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.

Forensic Sci Int. 2015 Jul;252:87-92. doi: 10.1016/j.forsciint.2015.04.025. Epub 2015 Apr 27.

Part One – Music Festivals and Toxicology Overview

Substance Epidemiology – Data Sources

Direct Toxicological Testing – Aggregate Data

Recreational drug use at a major music festival: trend analysis of anonymised pooled urine.

Hoegberg LCG, Christiansen C, Soe J, Telving R, Andreasen MF, Staerk D, Christrup LL, Kongstad KT. Clin Toxicol (Phila). 2017 Aug 17:1-11. doi: 10.1080/15563650.2017.1360496. [Epub ahead of print]

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)

Hutton F. (2004)

Ter Bogt (2005)

Part One – Music Festivals and Toxicology Overview

Factors in Substance Use : Music Festivals

Table 1. Number and proportion using drugs in the past month in music festival and National Drug Strategy Household Survey (NDSHS) [10] sample, comparison by χ^2 test

Illicit drug used	Music festival n (%) n = 939	NDSHS n (%) n = 5703	p
Any drug	429 (46)	1016 (18)	<0.001
Marijuana	376 (40)	808 (14)	<0.001
Inhalants	12 (1.3)	16 (0.3)	<0.001
Heroin	6 (0.6)	11 (0.2)	<0.05
Amphetamine	188 (20)	210 (3.7)	<0.001
Cocaine	42 (4.5)	40 (0.7)	<0.001
Hallucinogens	36 (3.8)	25 (0.4)	<0.001
Ecstasy	215 (23)	233 (4.1)	<0.001
Ketamine	30 (3.2)	9 (0.1)	<0.001
GHB	13 (1.4)	9 (0.2)	<0.001

GHB: gamma hydroxy butyrate.



Lim (2008)

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GHB: gamma hydroxy butyrate.

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”

Lim (2008)

Bahler (2014)

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

Illicit drug used by musical preference	% Recently taken drug	OR (95% CI)
Any drug	46	
R&B/hip hop	48	1.09 (0.77, 1.56)
Dance/house	55	1.62 (1.16, 2.25)*
Alternative	42	0.73 (0.56, 0.96)*
Metal	51	1.33 (0.95, 1.85)
Pop	39	0.46 (0.25, 0.81)*
Rap	70	2.86 (1.46, 5.87)
Marijuana	40	
R&B/hip hop	42	1.07 (0.76, 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 (0.28, 0.83)
Rap	61	2.44 (1.26, 4.75)*
Ecstasy	23	
R&B/hip hop	25	1.17 (0.78, 1.73)
Dance/house	44	3.83 (2.68, 5.46)*
Alternative	19	0.60 (0.43, 0.83)*
Metal	18	0.69 (0.44, 1.05)
Pop	14	0.51 (0.22, 1.06)
Rap	41	2.50 (1.30, 4.78)*

Amphetamines	20	
R&B/hip hop	22	1.18 (0.76, 1.80)
Dance/house	36	3.00 (2.07, 4.33)*
Alternative	16	0.63 (0.45, 0.89)*
Metal	18	0.95 (0.54, 1.29)
Pop	12	0.53 (0.22, 1.14)
Rap	37	2.48 (1.24, 4.78)*
LSD	4	
R&B/hip hop	4	0.92 (0.31, 2.32)
Dance/house	8	3.27 (1.55, 6.78)*
Alternative	2	0.48 (0.21, 1.02)
Metal	4	0.95 (0.35, 2.30)
Pop	3	0.77 (0.09, 3.13)
Rap	11	3.40 (0.98, 9.43)
Cocaine	4	
R&B/hip hop	5	1.29 (0.53, 2.80)
Dance/house	10	3.79 (1.91, 7.45)*
Alternative	3	0.48 (0.23, 0.98)*
Metal	3	0.52 (0.16, 1.36)
Pop	2	0.31 (0.01, 1.90)
Rap	11	2.82 (0.82, 7.73)

CI: confidence interval; OR: odds ratio.

Lim (2008)

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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.”

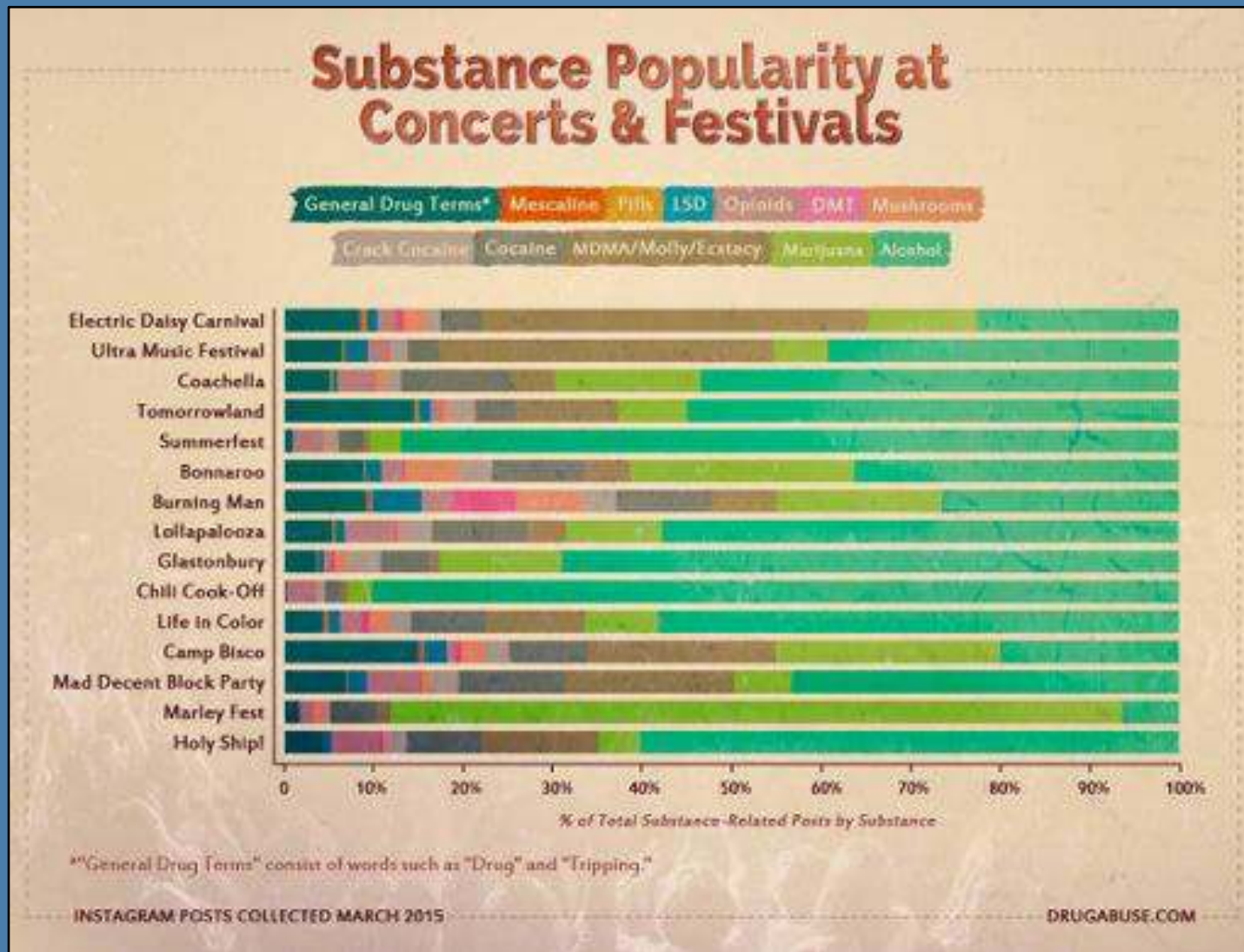
Ter Bogt (2012)

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



Measuring Success : Outcomes

Medical

Morbidity
Mortality
Hospital Transports

Operational

Financial success
Attendee enjoyment
No headlines

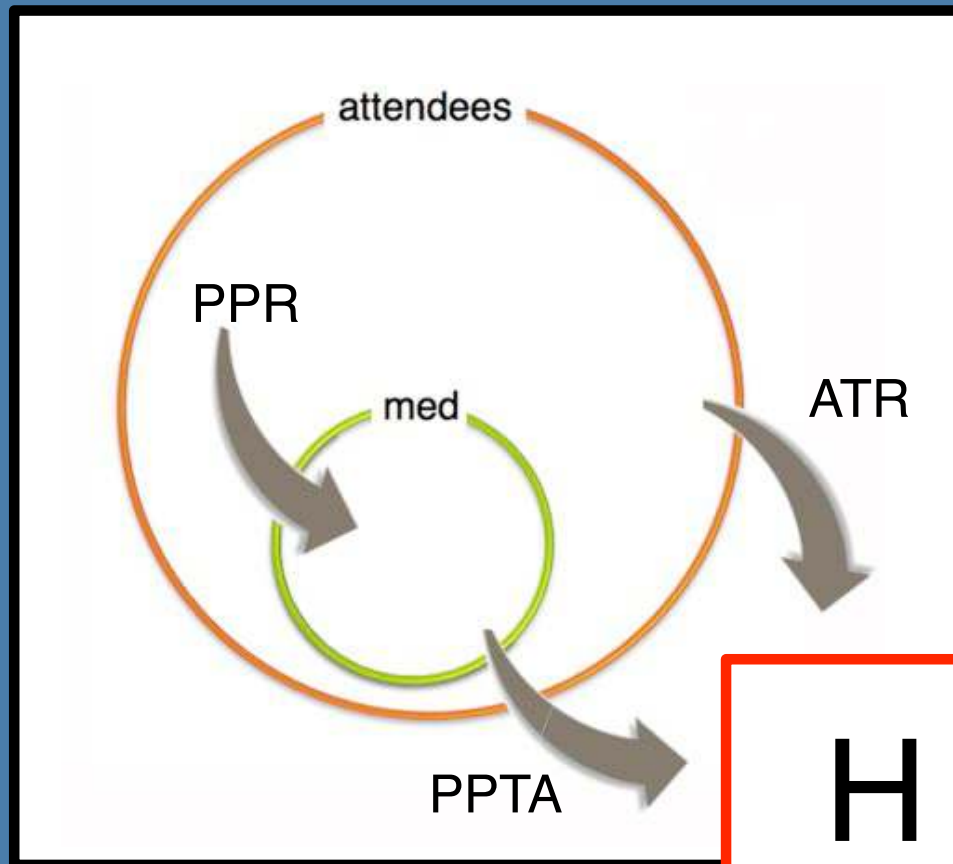
***Post event**



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Part One – Music Festivals and Toxicology Overview

Patient Presentations at MFs – Volume Metrics Review



PPR – Patient Presentation Rate

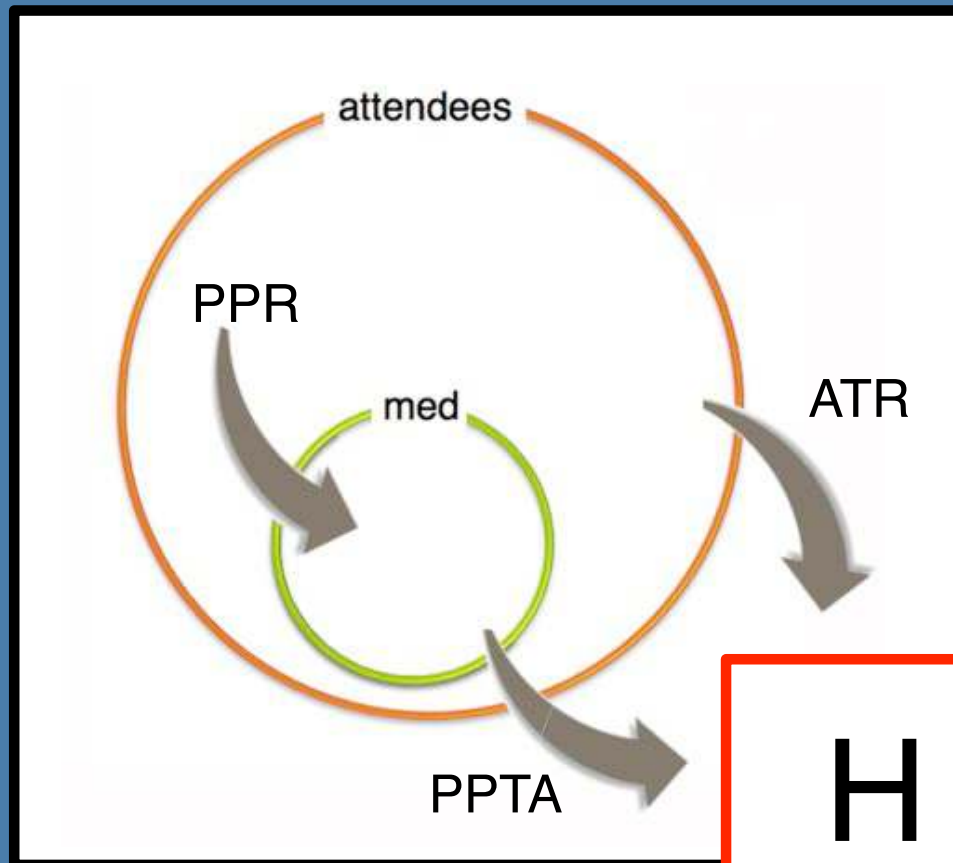
PPTA – Percentage of Patients Transported by Ambulance

ATR – Ambulance Transfer Rate

H

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

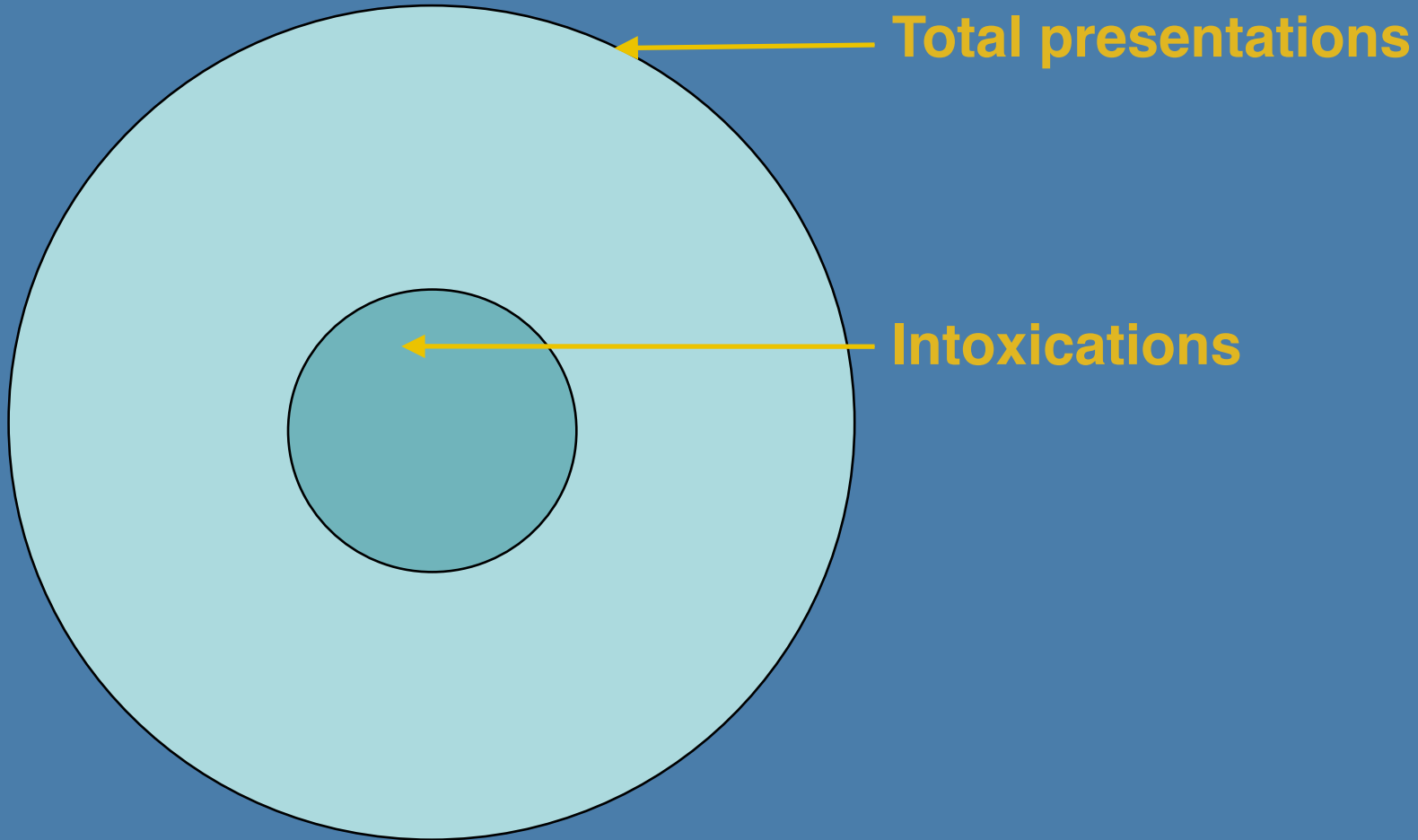
Friedman (2016)

Cases are 80-95% minor

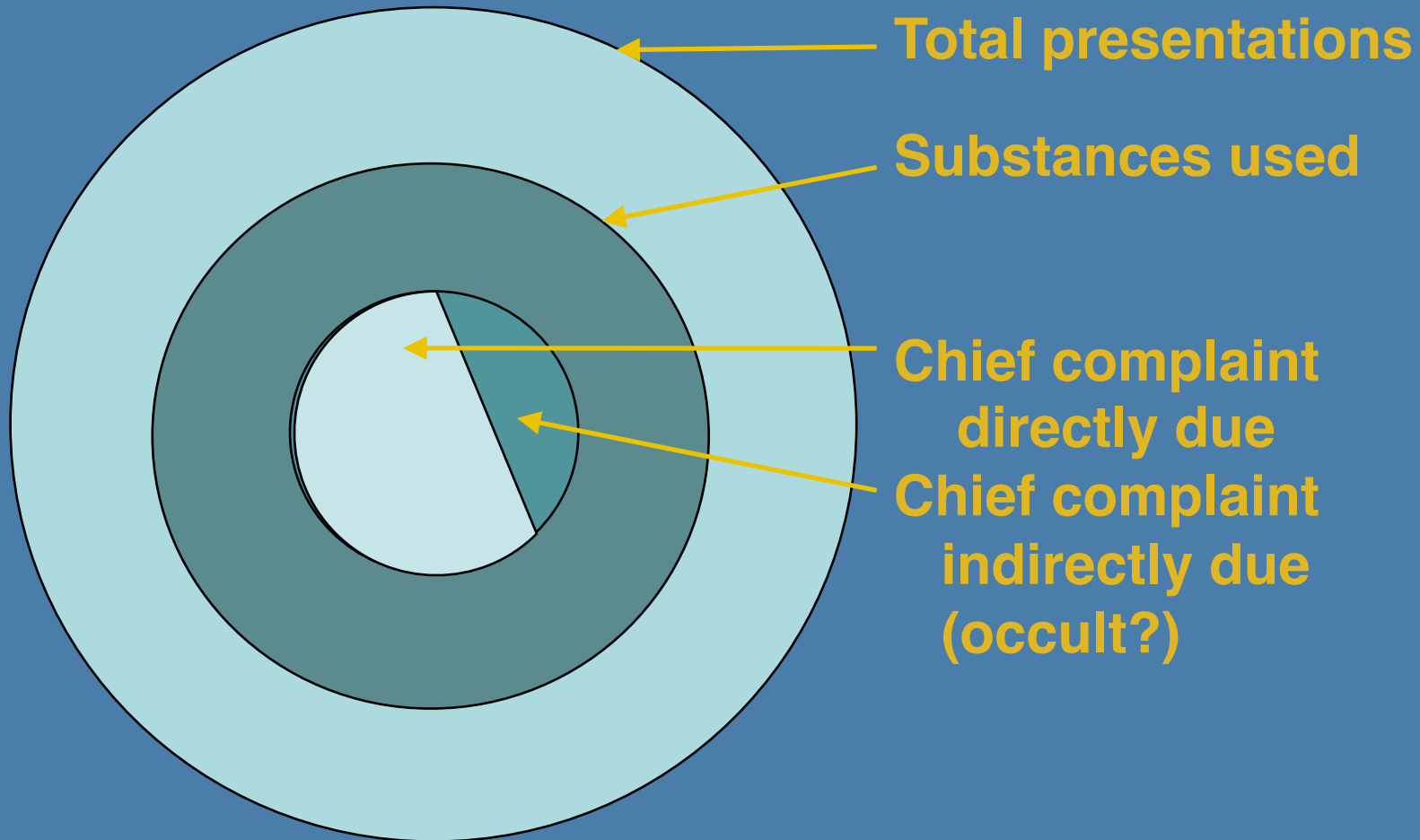
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Part One – Music Festivals and Toxicology Overview

How many presentations are due to intoxications?

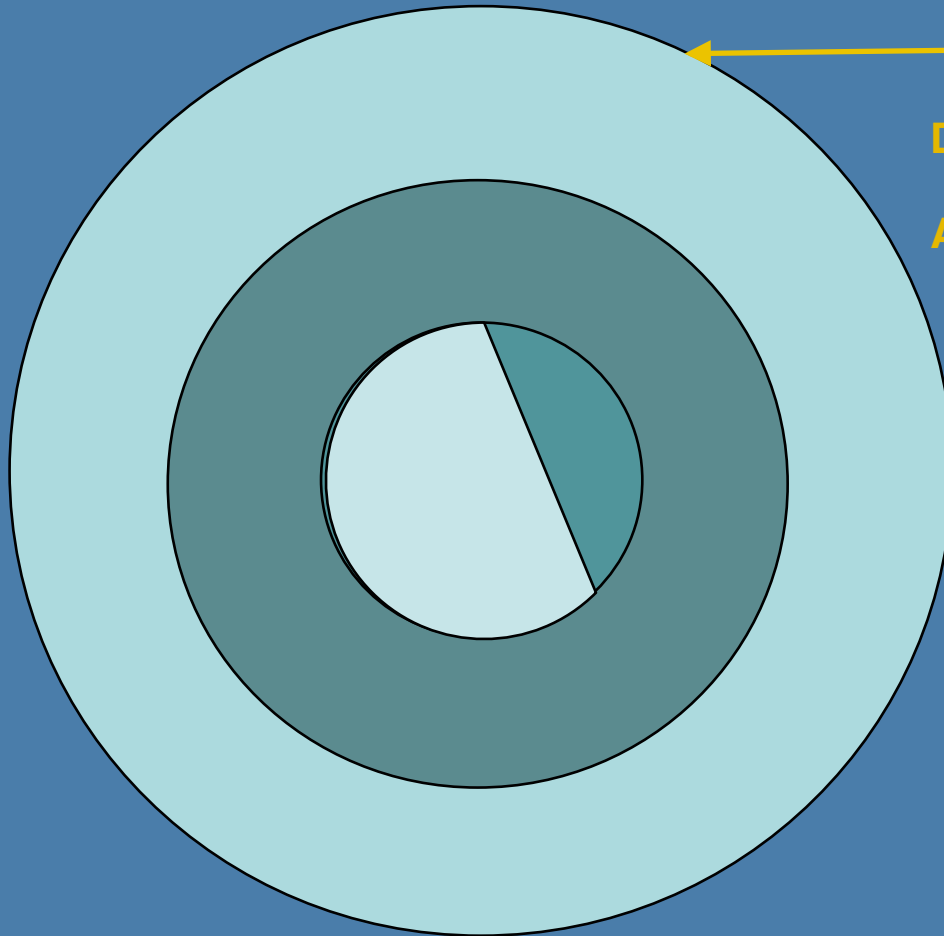


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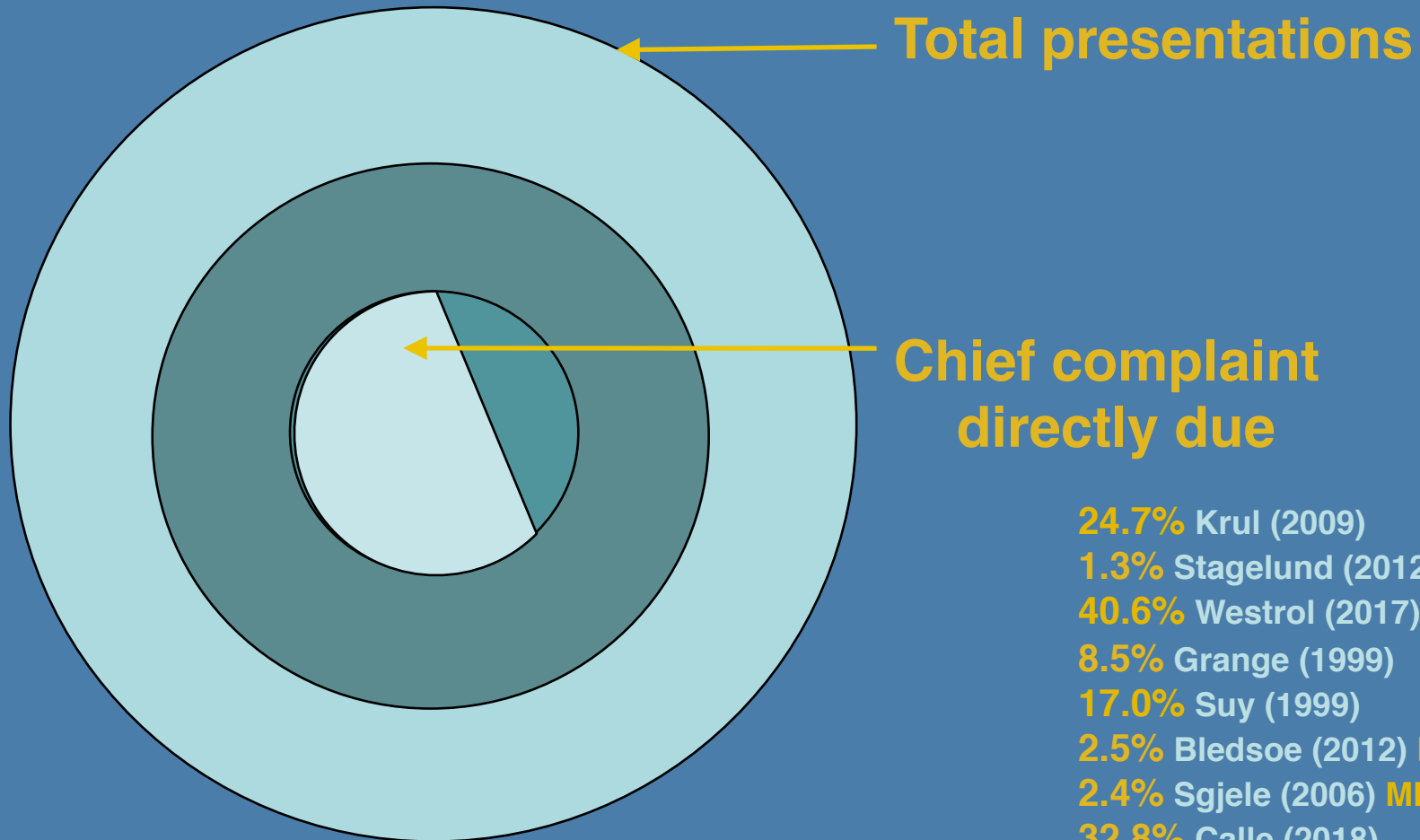
Total presentations

Doubles with alcohol sales *Arbon (2001)*

Affected by alcohol and drug use

Milsten (2003)

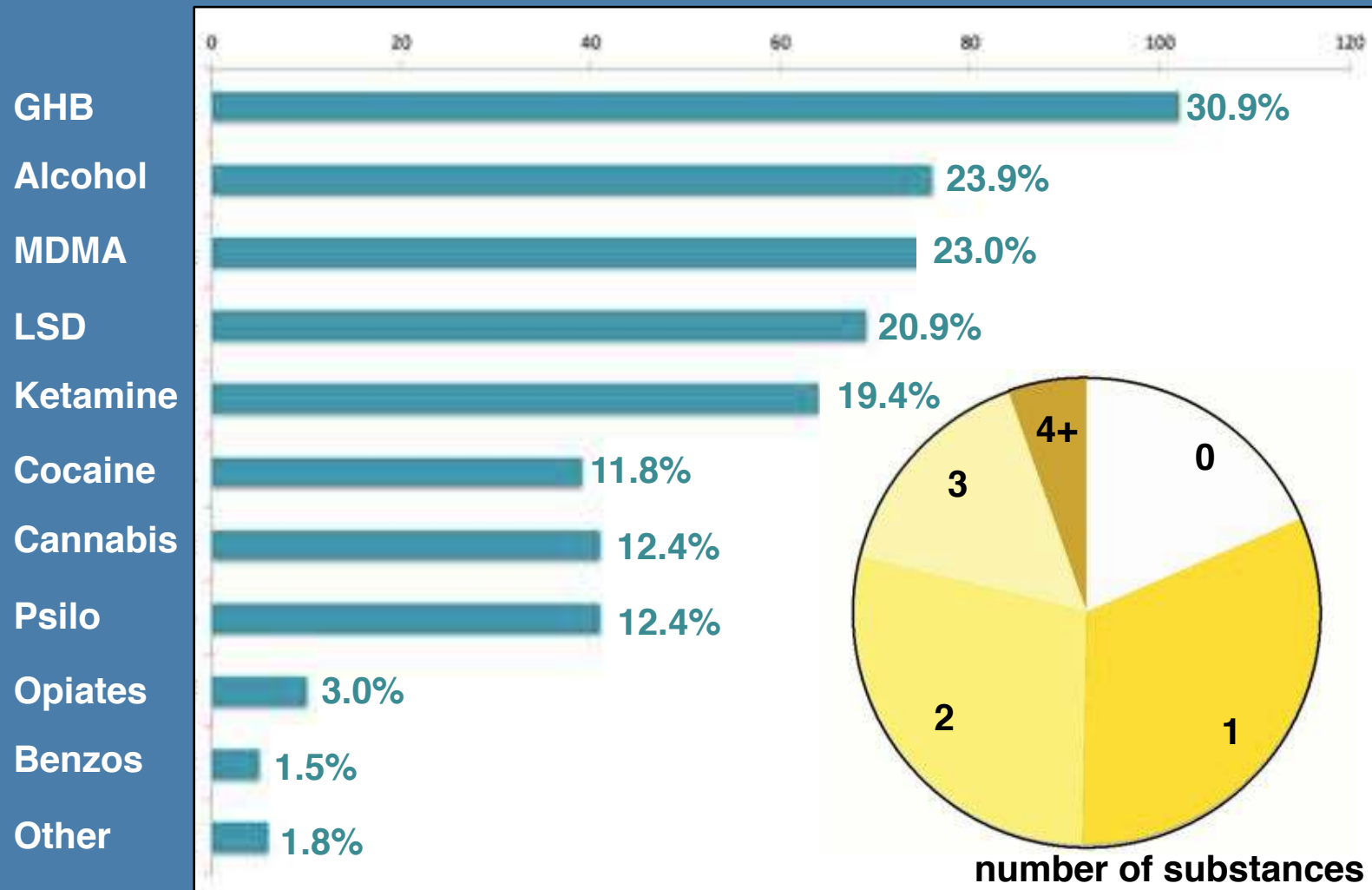
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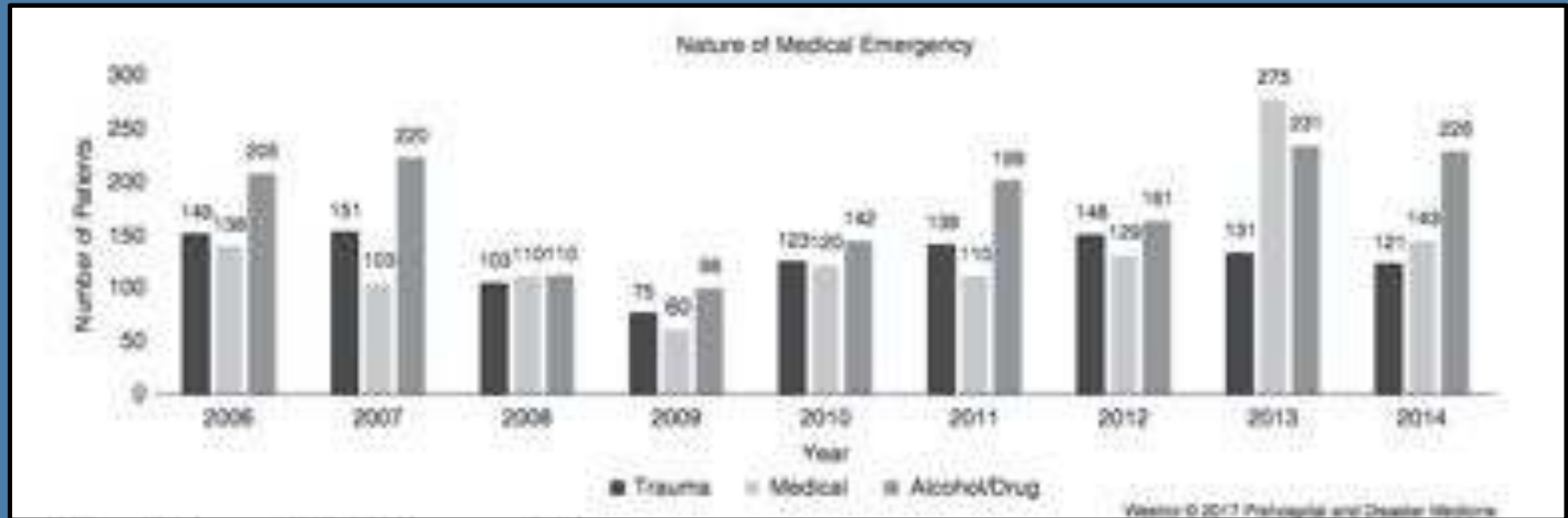
- 24.7% Krul (2009)
- 1.3% Stagelund (2012) MF
- 40.6% Westrol (2017)
- 8.5% Grange (1999)
- 17.0% Suy (1999)
- 2.5% Bledsoe (2012) MF
- 2.4% Sgjele (2006) MF
- 32.8% Calle (2018)
- 66.7% Hutton (2014) MF

DIMS vs **D**_iMS

AMS = 330 / 4032 (8.2%)



Part One – Music Festivals and Toxicology Overview



403 concerts 2004-2015 (NJ)
>2.4 million total attendees
4546 patient encounters

ORIGINAL RESEARCH

Music Genre as a Predictor of Resource Utilization at Outdoor Music Concerts

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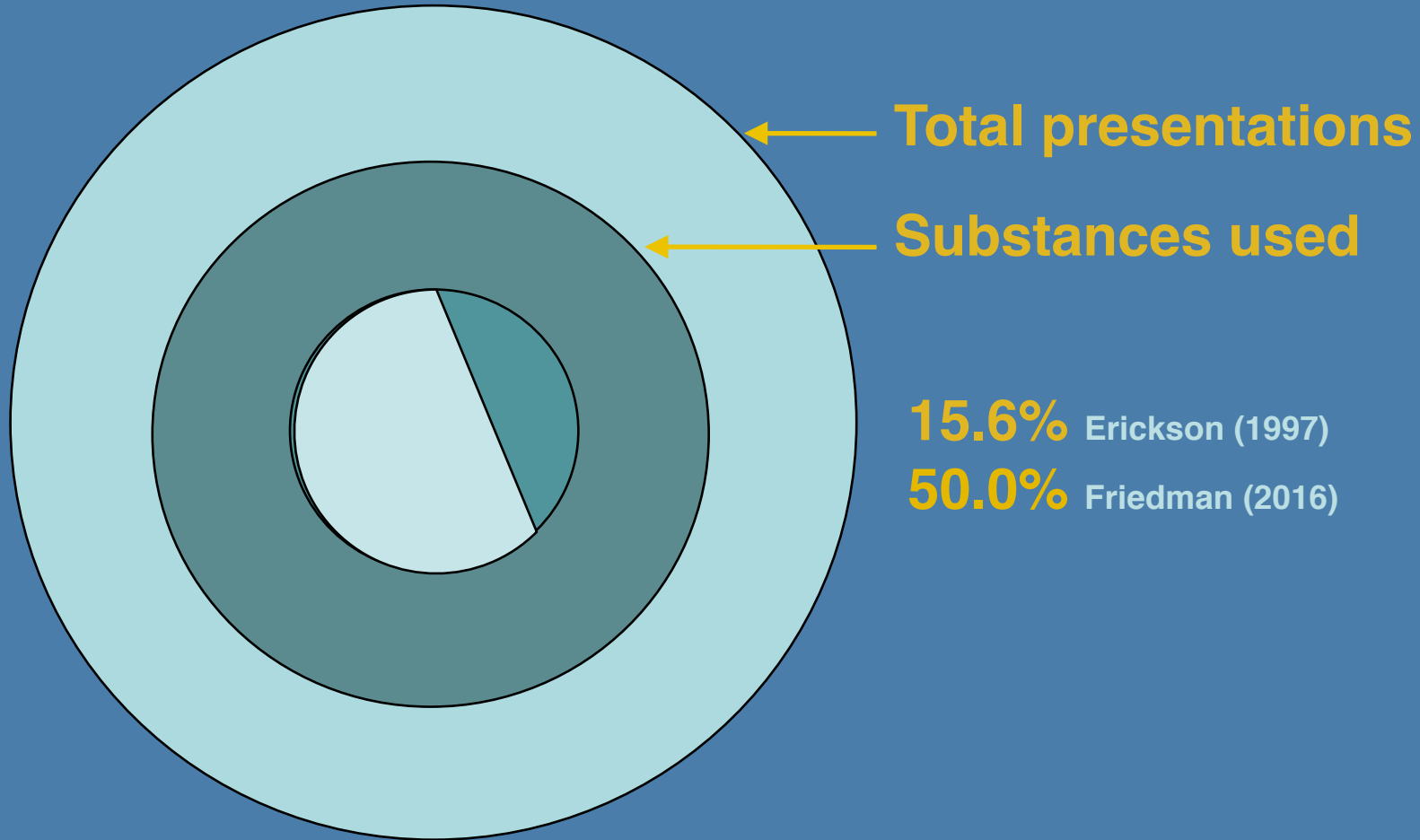
Abstract

Objectives: The aim of this study was to examine the various modern music genres and their effect on the utilization of medical resources with analysis and adjustment for potential confounders.

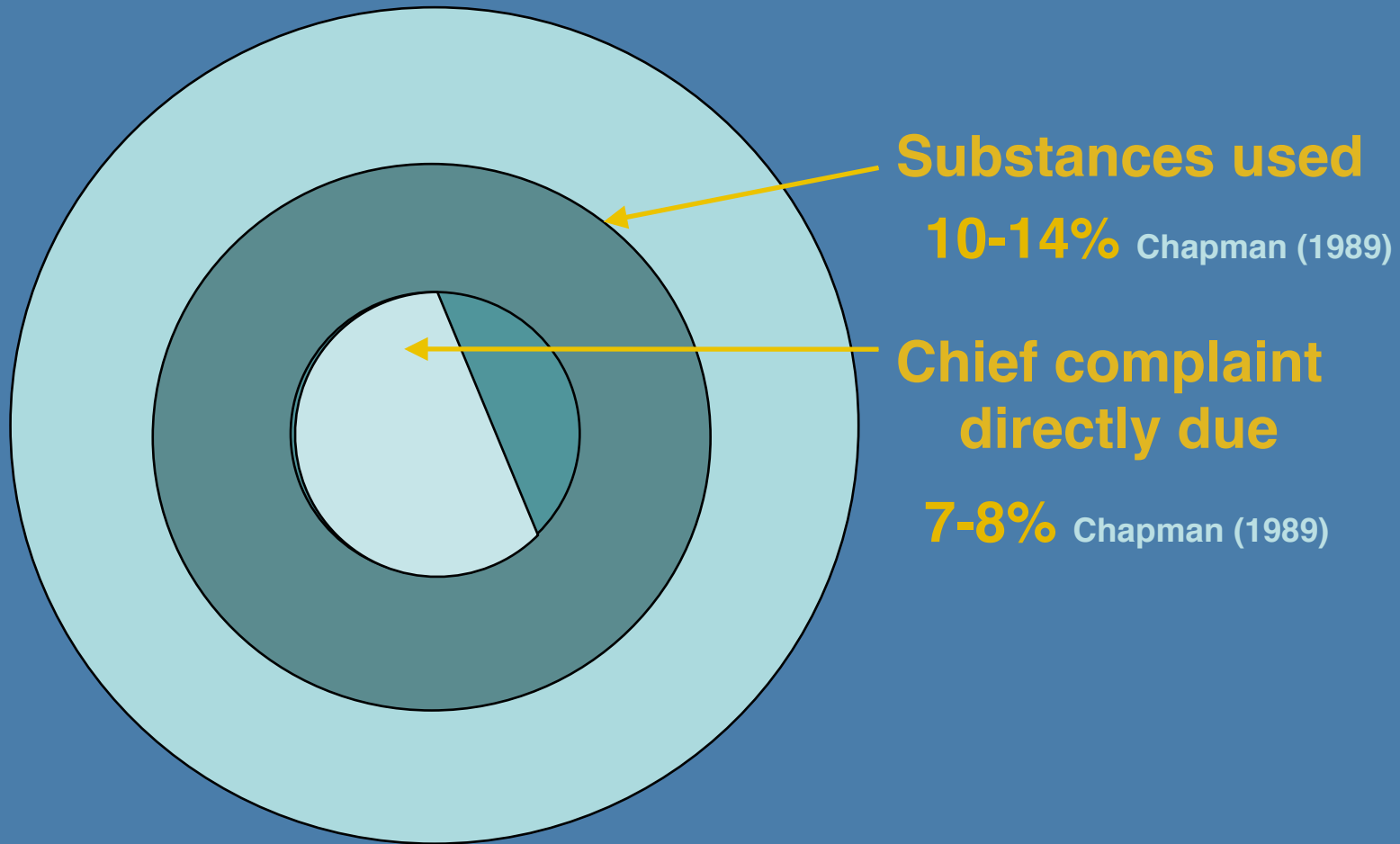
Methods: A retrospective review of patient logs from an open-air, contemporary amphitheater over a period of 10 years was performed. Variables recorded by the medical personnel for each concert included the attendance, description of the weather, and a patient log in which nature and outcome were recorded. The primary outcomes were associations of genres with the medical usage rate (MUR). Secondary outcomes investigated were the association of confounders and the influences on the level of care provided, the transport rate, and the nature of medical complaint.

Results: A total of 2,399,864 concert attendees, of which 4,546 patients presented to versus Emergency Medical Services (EMS) during 403 concerts with an average of 11.4 patients (annual range 7.1-17.4) each concert. Of potential confounders, only the heat index $\geq 90^{\circ}\text{F}$ (32.2°C) and whether the event was a festival were significant ($P = .027$ and $.001$, respectively). After adjustment, the genres with significantly increased MUR in

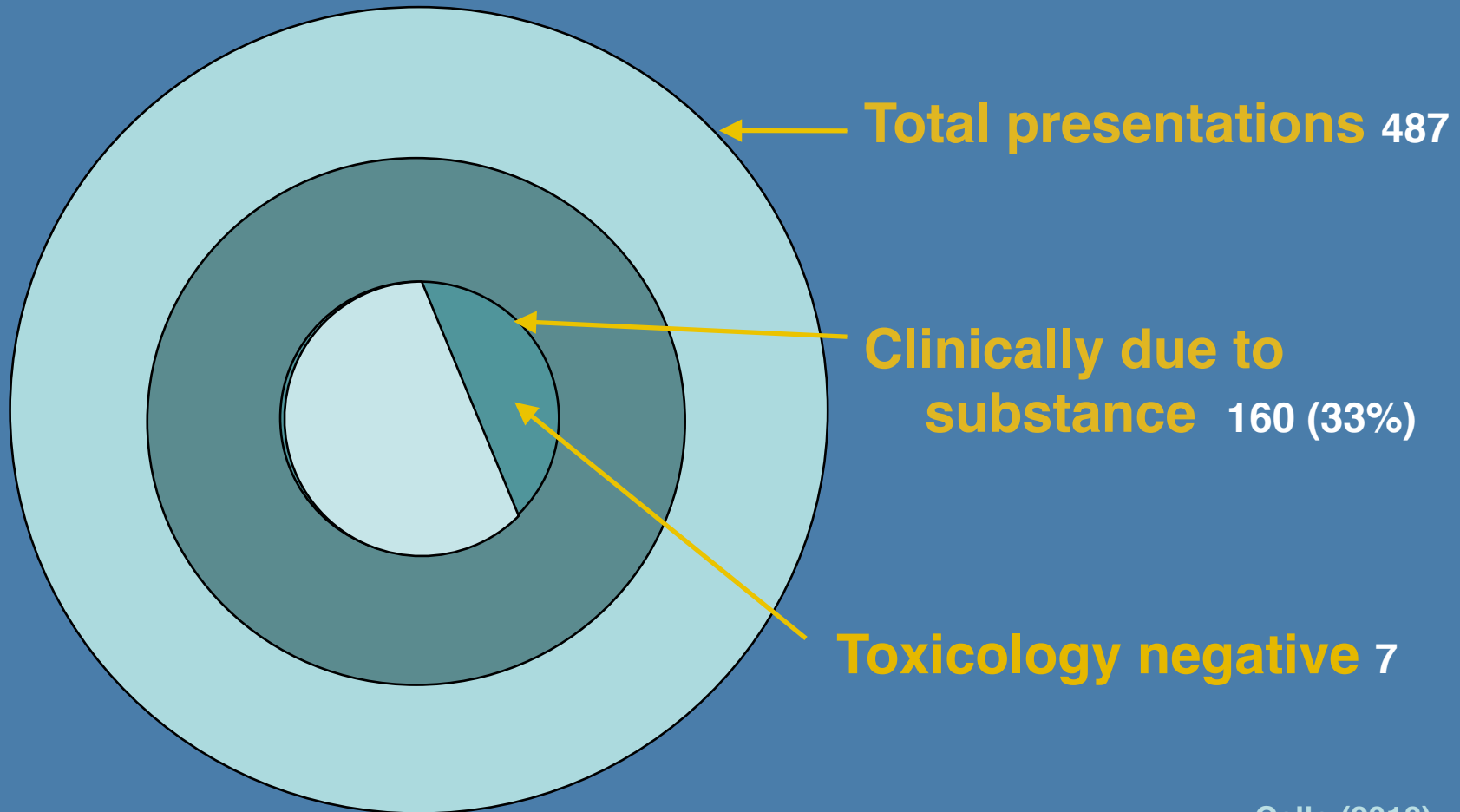
Part One – Music Festivals and Toxicology Overview



Part One – Music Festivals and Toxicology Overview



Part One – Music Festivals and Toxicology Overview



Calle (2018)

Part One – Music Festivals and Toxicology Overview

Factors in Substance Use : Music Genre

Genre	Risk Ratio	P
Adult Contemp.	0.49	<.0001
Variety/Other	0.53	<.0001
Pop	0.74	<.0001
Country	0.83	.0043
Modern Rock	1.00	reference
Classical	1.04	.82
Hard Rock	1.81	<.0001
Alternative	2.13	<.0001
Classic Rock	2.13	<.0001
Dance	2.47	<.0001
Hip Hop	2.7	<.0001

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

and Disaster Medicine

$$MUR = genre + F(0.223) + H(0.125)$$

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

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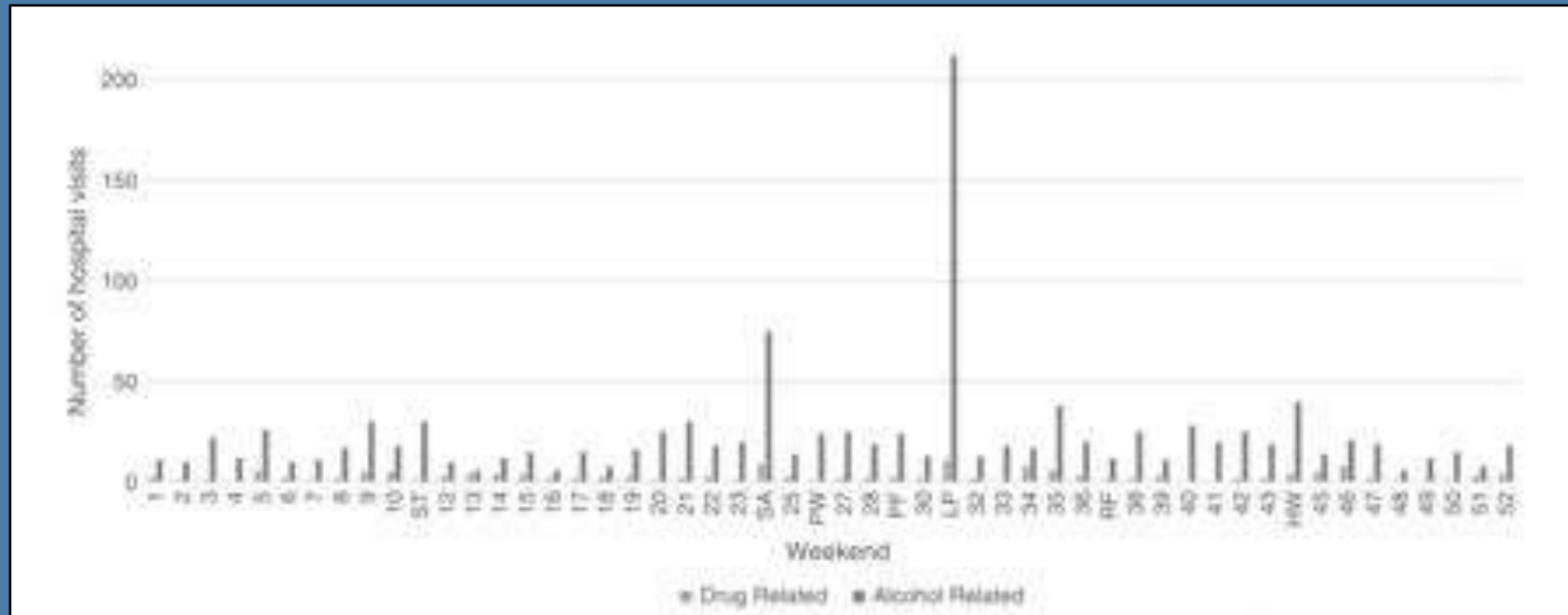
Burden on Local Health Services

Boonstock Festival 2014 Canada (80 transports in 3 days)

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

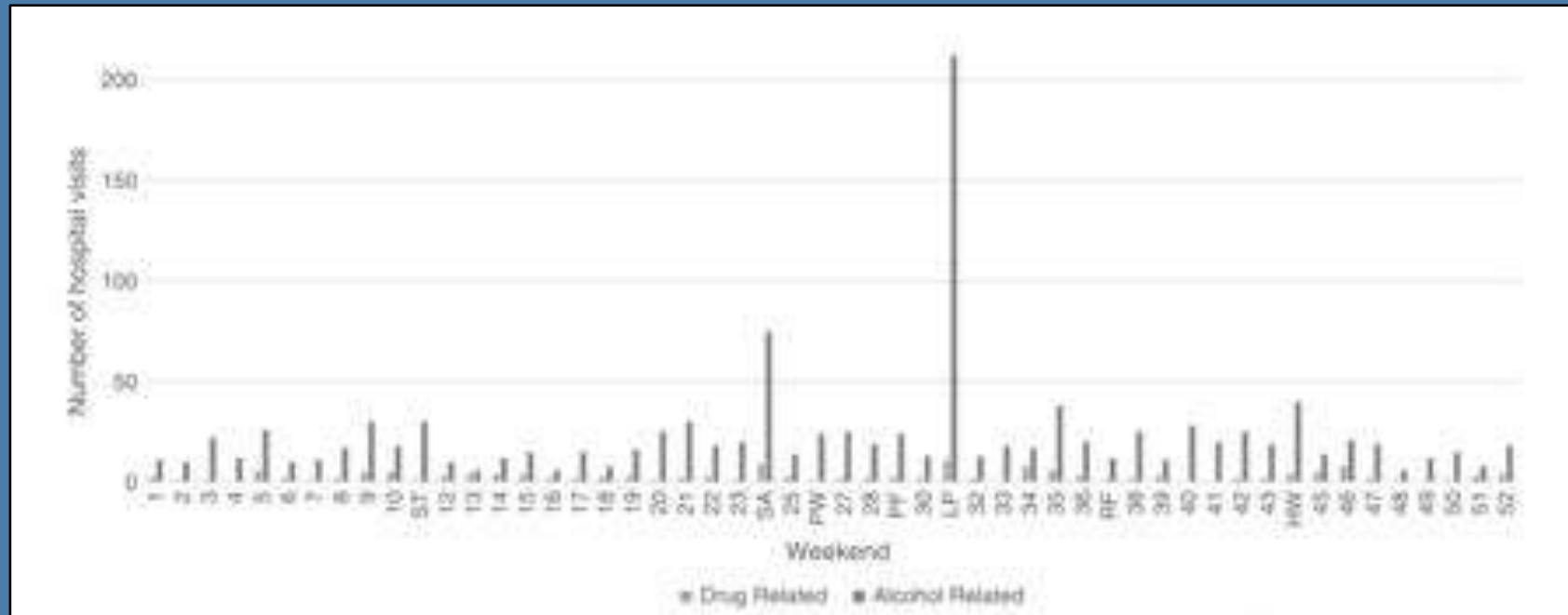
Higher Level of Care (HLC) providers prevented 73% of transports (Lund 2015)

Part One – Music Festivals and Toxicology Overview



McAndrew (2017)

Part One – Music Festivals and Toxicology Overview



McAndrew (2017)

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%)**

(Turriss 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

Mass Casualty*



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Sexual health

unsafe

involuntary

Communicable disease

sexually transmitted

blood borne illness

Others*

Part One – Music Festivals and Toxicology Overview

Common Presentations – Substance Use

Altered Case Series 3y EDM Festival n=330

	Total
Behavioural	126
Seizure	43
Dec LOC	258
Dec LOC + Behavioural	56
Dec LOC + Seizure	41
Dec LOC + Behav + Sz	11
Dec LOC	
Transient	145
Non-Transient	105
Unknown	8
GCS<14 / avPU	133
GCS<9	53

Munn (2017)

	2013	2014
Coma	7 (5)	3 (3)
Agitation/Anxiety	19 (13)	17 (12)
Convulsions	6 (5)	1 (1)
Syncope	9 (1)	10 (1)
Vomiting/Abdominal Pain	13	10
Chest Pain/Palpitations	4 (1)	1
Inebriety	29 (5)	23 (6)
Headache	2	5
Hallucinations	—	1
Total	89 (30)	71 (23)

Calle © 2017 Prehospital and Disaster Medicine

Table 2. Presenting Symptoms Related to Ethanol or Illicit Drugs

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

Calle (2018)

AMS – Self Report

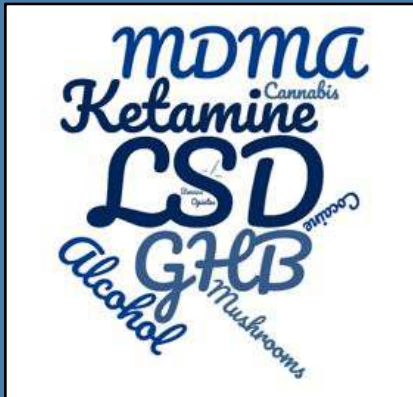
Seizure (43)



Dec LOC (258)



Behavioural (128)



Nontransient (145)



Transient (105)

Unknown (8)

Mass Casualty Incidents (MCIs) at Music Festivals

Direct

Overwhelming critical intoxications 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 intoxication 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 well-stocked car.

<http://www.cbc.ca/news/canada/british-columbia/shambhala-evacuation-alert-1.4245152>

Part Two – Mass Gathering Health

Medical

Public Health

Social Science



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Security/Policing

Prehospital Care

Addictions

Critical Care

Mental Health

Youth

Risk Taking

Toxicology

Harm Reduction

Infectious Disease

First Response

Behavioural Psych

Anesthesia

Emergency Medicine

Substance Use

Anthropology

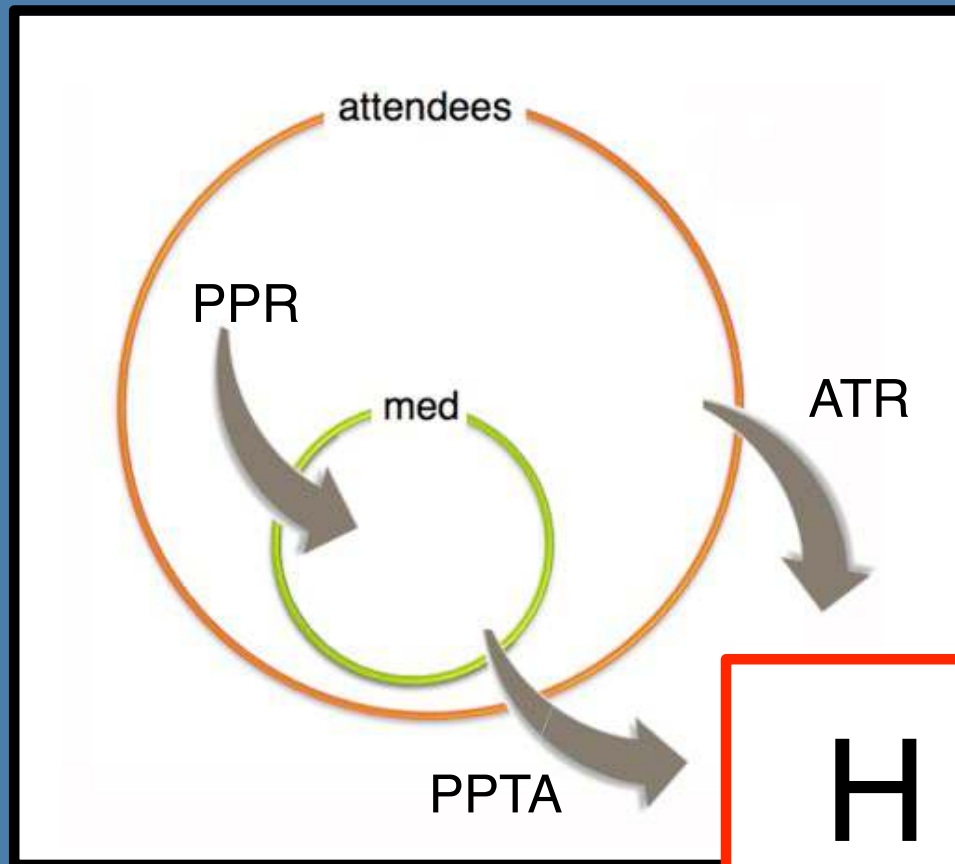
Surveillance

Transport Medicine

Sexual Health

Part Two – Mass Gathering Health

Recall : Metrics and outcomes



Medical

Morbidity
Mortality
Hospital Transports

Operational

Financial success
Attendee enjoyment
No headlines

*Post event

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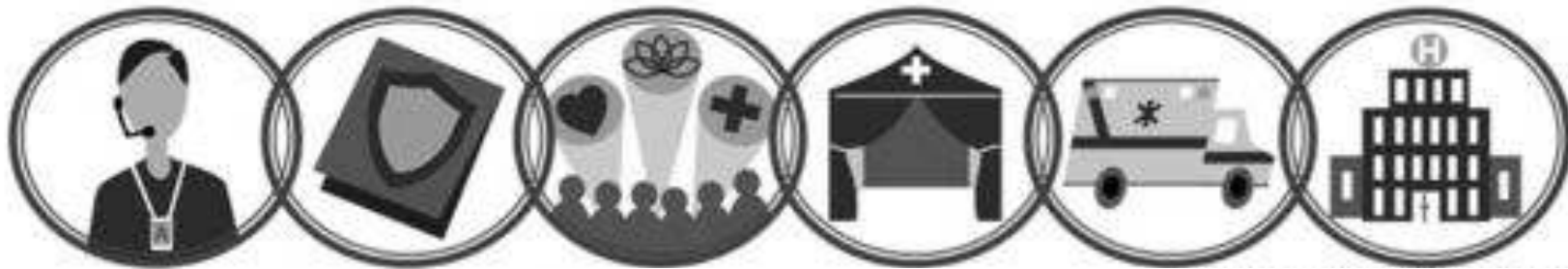
PPTA

Recap Part One : MFs

More patients, more acuity, more everything
Motivations and substance use factors
Great research medium!

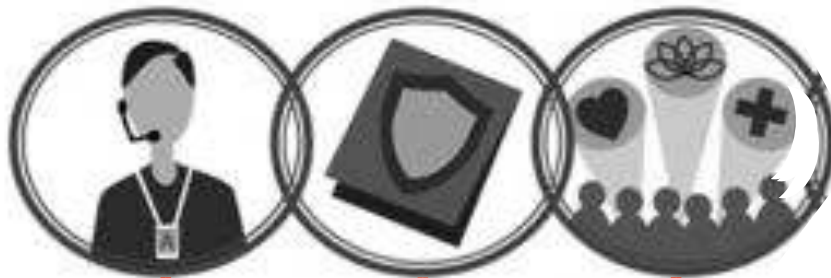


The Event Chain of Survival in the Context of Music Festivals: A Framework for Improving Outcomes at Major Planned Events



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

'Proactive'



Event Organizers

Policing & Security

Festival Health

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

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.

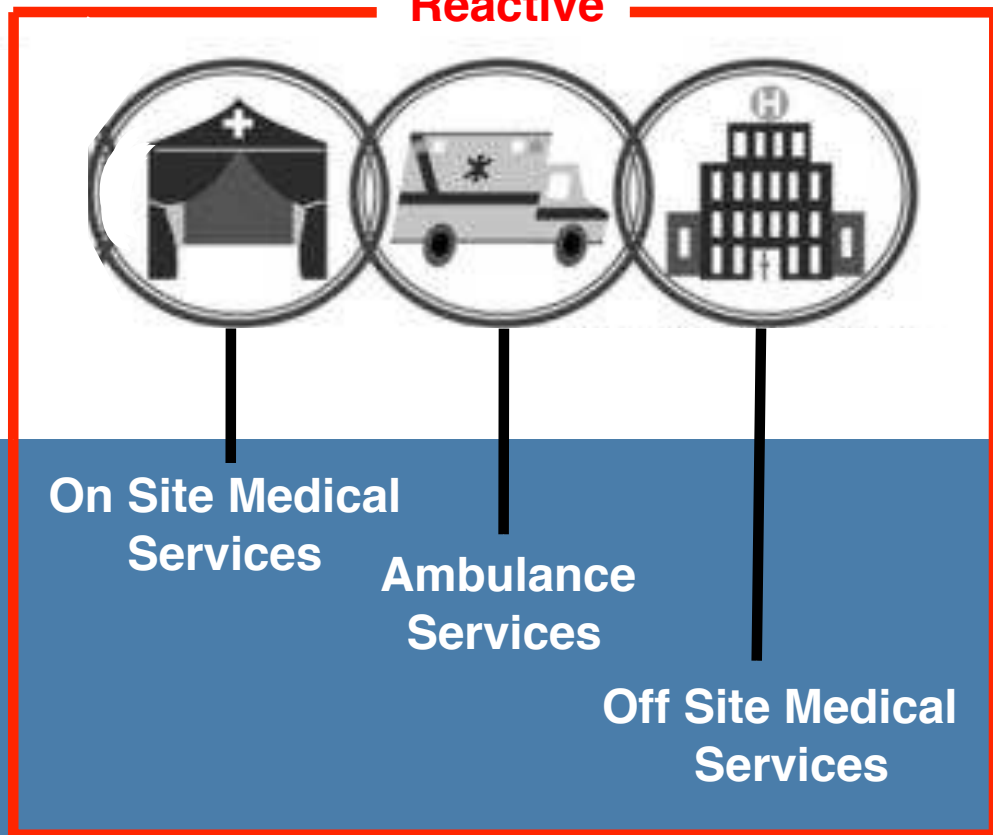
Equipment

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

Training

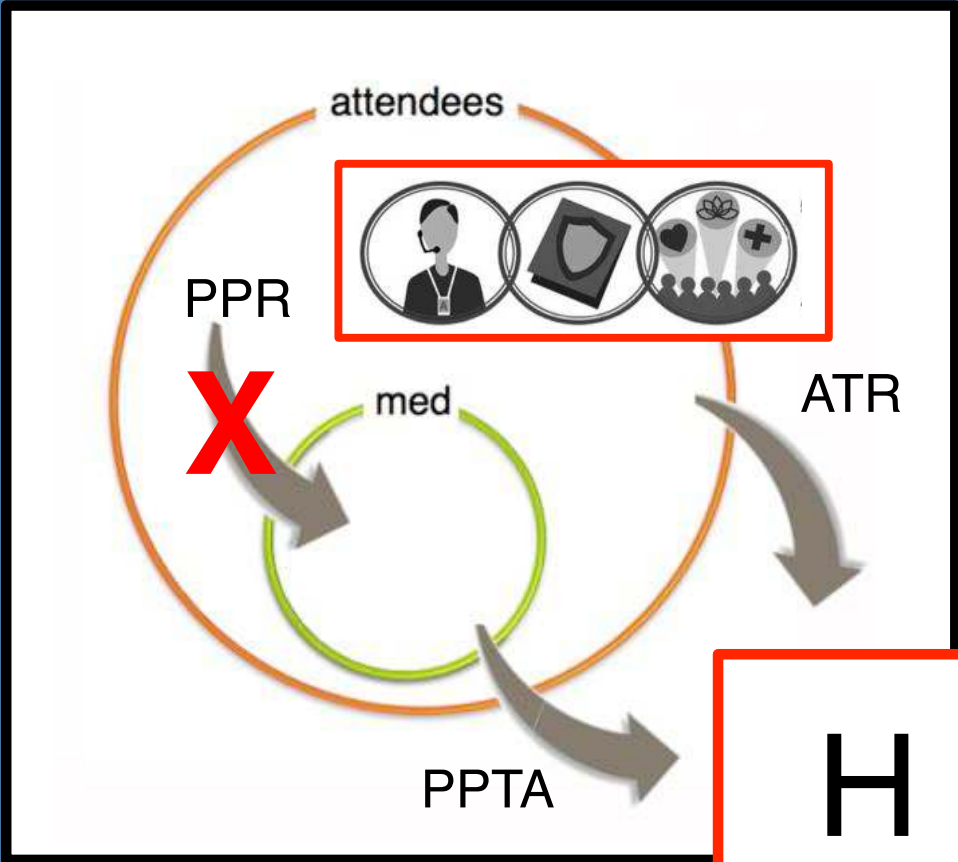
Any program or policy designed to reduce behavior-related harm without requiring the cessation of the behavior itself.

'Reactive'



Part Two – Mass Gathering Health

Proactive Response
Illness / Injury Prevention
Health Promotion
Harm Reduction

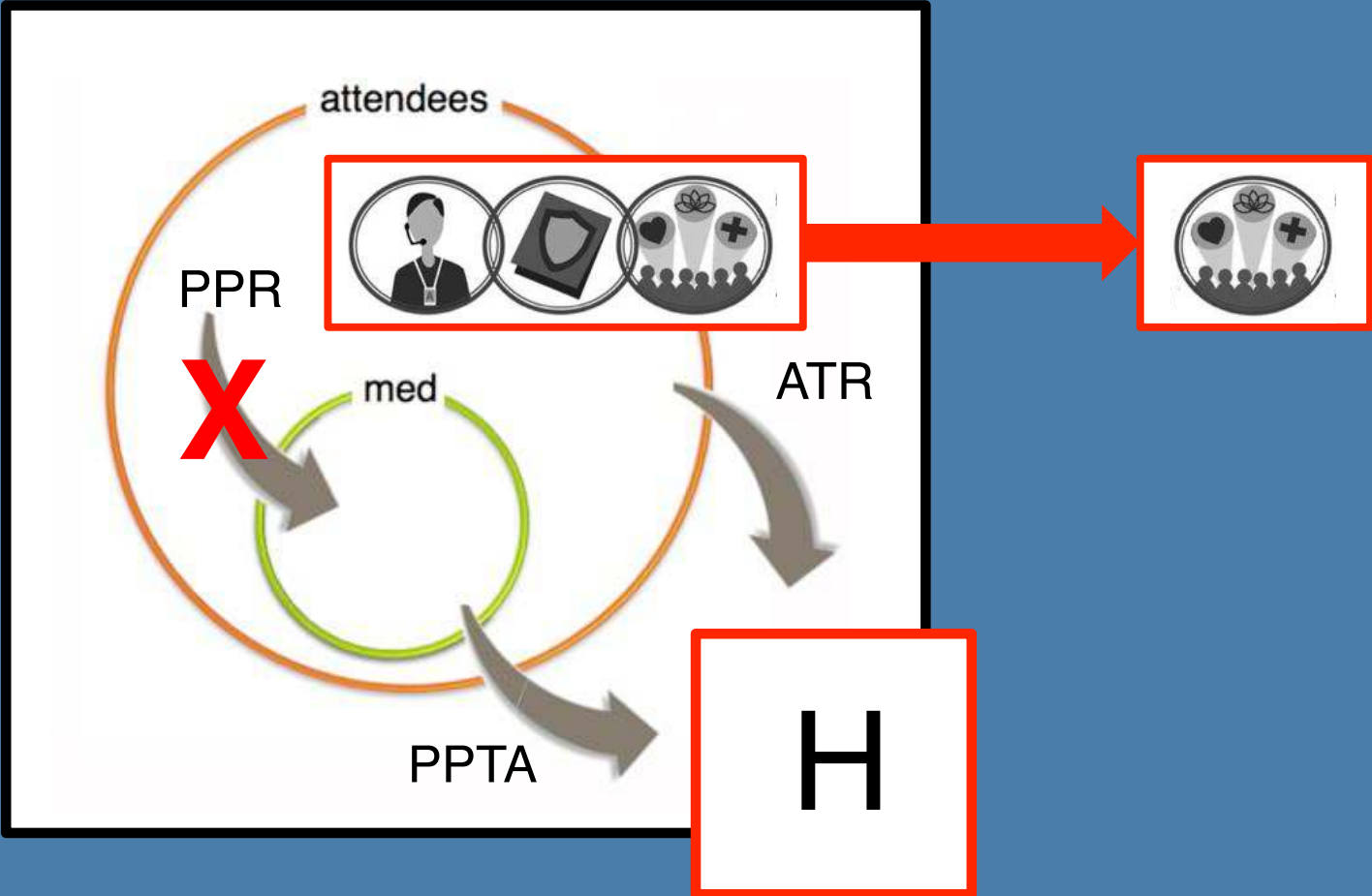


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Part Two – Mass Gathering Health

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



Considerations – Music Festival Mass Gathering Health

Education

Environmental

Supplies

Training

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



Part Two – Mass Gathering Health

Considerations (In Progress) – Music Festival Mass Gathering Health

Education

Environmental

Supplies

Training

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

Environmental

Supplies

Training

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

Environment (continued)

Presence of Specific Services

Focus on local community group partners

Mobile peer teams

Check on people / Educate / Distribute / Cool

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

Part Two – Mass Gathering Health

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

EDCCMA Documents 2003, 2006, 2009, CCSA (June 2015), Calafat (2009), Akbar (2011), Bellis (2002)

Part Two – Mass Gathering Health

Considerations (In Progress) – Music Festival Mass Gathering Health

Education

Environmental

Supplies

Training

Training

Attendee

- Basic first response
- Toxidrome recognition

Staff

- Responsible beverage s
- Intoxication and toxidr
- Basic first response / C
- Emergency notification
- Site Locating
- Communications
- Prevention of entry
- De-escalation
- Naloxone

Public Safety

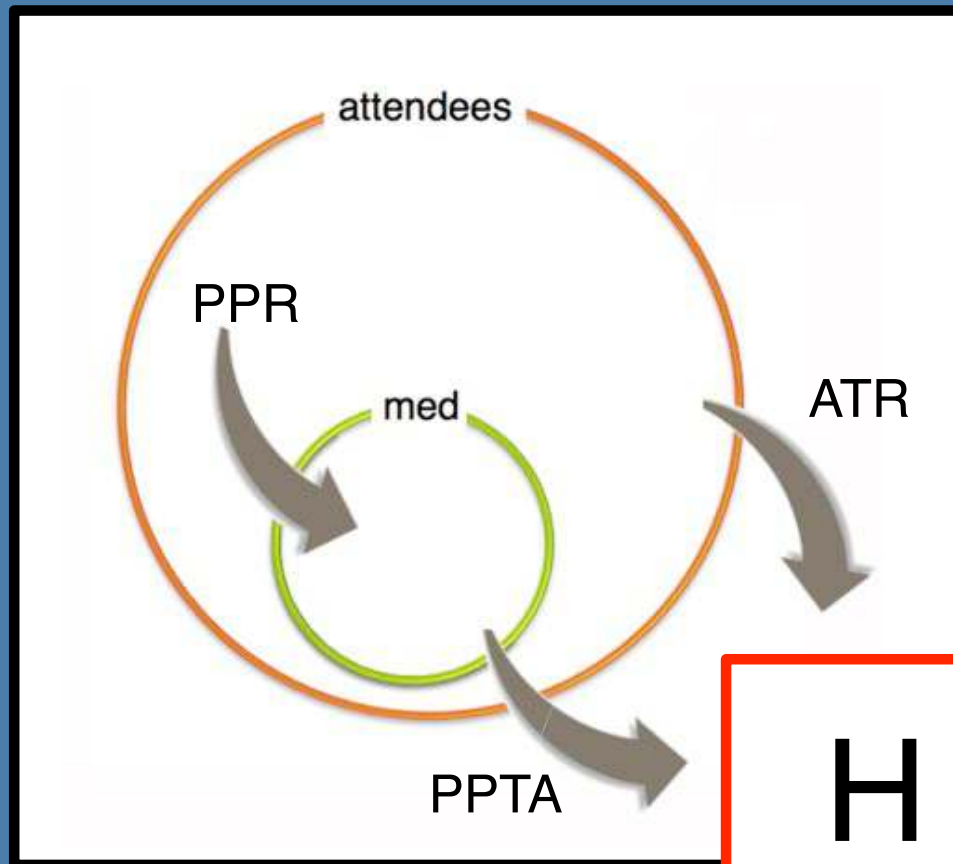
- Mass casualty plan and
- Evacuation plan and dr
- Excited delirium respor

Medical

Part Two – Mass Gathering Health

Illness / Injury Prevention
Health Promotion
Harm Reduction

Substance Use

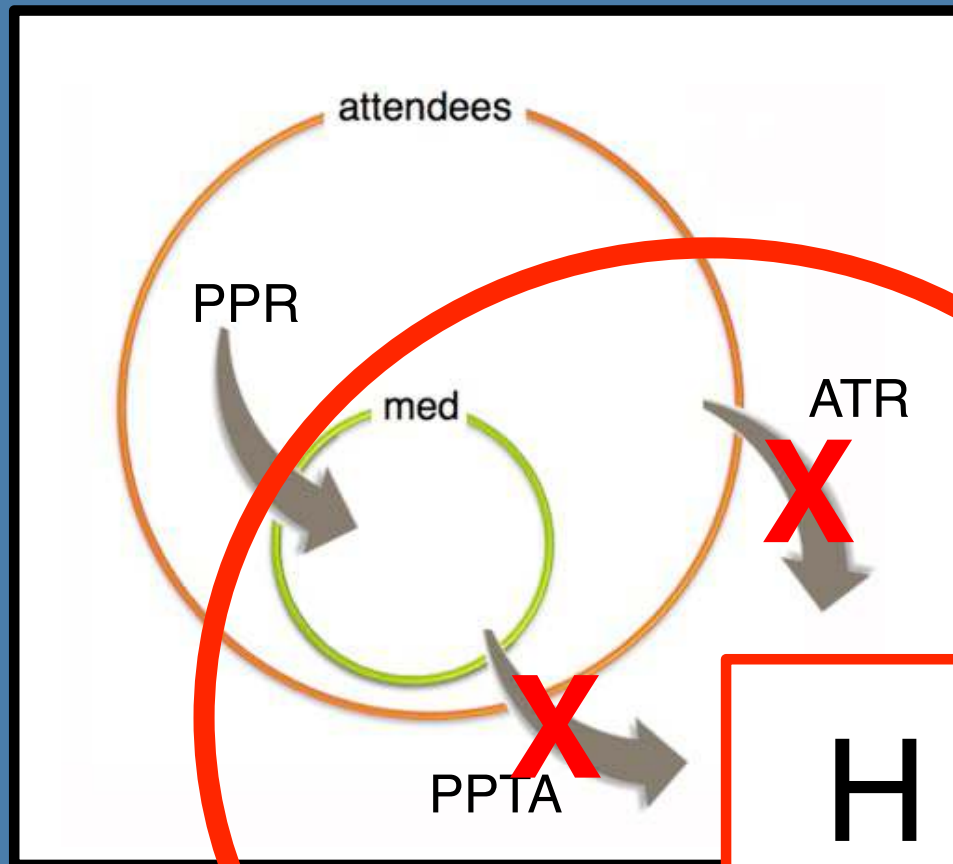


Increases presentations
Increases acuity / major cases
Increases ambulance need
Increases hospital utilization
Increases MCI risk / complexity
Increases deaths

Part Two – Mass Gathering Health

Illness / Injury Prevention
Health Promotion
Harm Reduction

Substance Use



Increases presentations
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H



Part Three – Medical Response

Medical Response : Determine Your Objectives

Critical Care? First Aid? Budget? Comfort? Capacity?

Cases : Coma/Seizure/Agitated/Inebriated

(+CP/sync/AP/HA/Trauma/Dehyd/Allergy/Resp/MCI)

Critical Care : Arrest, Aspiration, HypoNa, Hyperthermia

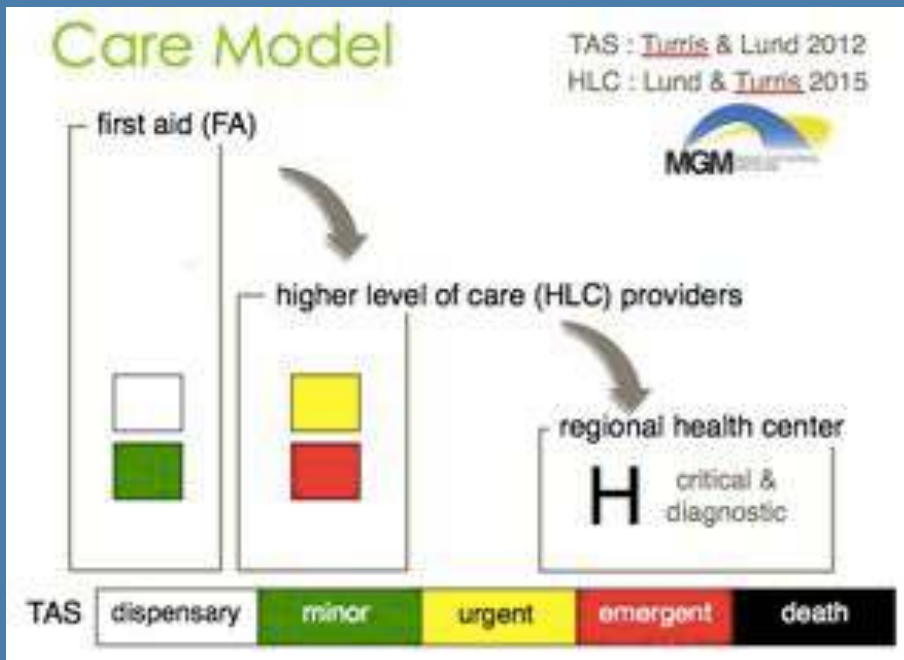
These dictate your needs:

- 1. Personnel**
- 2. Equipment**
- 3. Training**



Part Three – Medical Response

Medical Response : Personnel



MD / Nurse / Paramedic / First Aider

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

Part Three – Medical Response

Medical Response : Equipment

Coma	O2, airway, monitors, suction, iStat, Glu / Na, hyperNa
Seizure	same as coma plus restraints and benzos
Agitated	same as seizure +/- antipsychotics/ketamine
Inebriated	same as coma
CP/syncope	same as coma (no restraints), ECG, ASA, benzos
Arrest	ALS meds, intralipid, esmolol
Aspiration	O2, airway
Hyponatremia	same as coma
Hyperthermia	cooling fans, mist, ice packs

Medical Response : Training

30-60 minute modules improve skills & decrease liability



The image shows a training module cover. At the top, there are three logos: 'XO medical logistics' in red, 'MGM MASS GATHERING MEDICAL RESPONSE' with a blue and yellow arch, and a stylized blue eye logo. Below the logos is a photograph of two medical professionals in red and grey uniforms performing a procedure on a patient. To the right of the photo, the text reads: 'Module 1 Aspiration and Basic Airway Management at Electronic Dance Music Events' in white and yellow. Below that, it says 'M. Brendan Munn' and 'Online Training June 12, 2017'. At the bottom, a white banner contains the text 'MODULE ONE - ASPIRATION AND BASIC AIRWAY MANAGEMENT AT EDMEs'.

XO
medical logistics

MGM MASS GATHERING MEDICAL RESPONSE

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



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Module 2 Altered Mental Status at Electronic Dance Music Events

M. Brendan Munn

Online Training
June 21, 2017

MODULE TWO - ALTERED MENTAL STATUS AT EDMEs

MODULE ONE - ASPIRATION AND BASIC AIRWAY MANAGEMENT AT EDMEs



Module 3

Decreased Level Of Consciousness at Electronic Dance Music Events

M. Brandon Munn

Online Training
July 3, 2017

MODULE THREE - DECREASED LEVEL OF CONSCIOUSNESS AT EDMEs

MODULE TWO - ALTERED MENTAL STATUS AT EDMEs

MODULE ONE - ASPIRATION AND BASIC AIRWAY MANAGEMENT AT EDMEs

HOT AND ALTERED

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

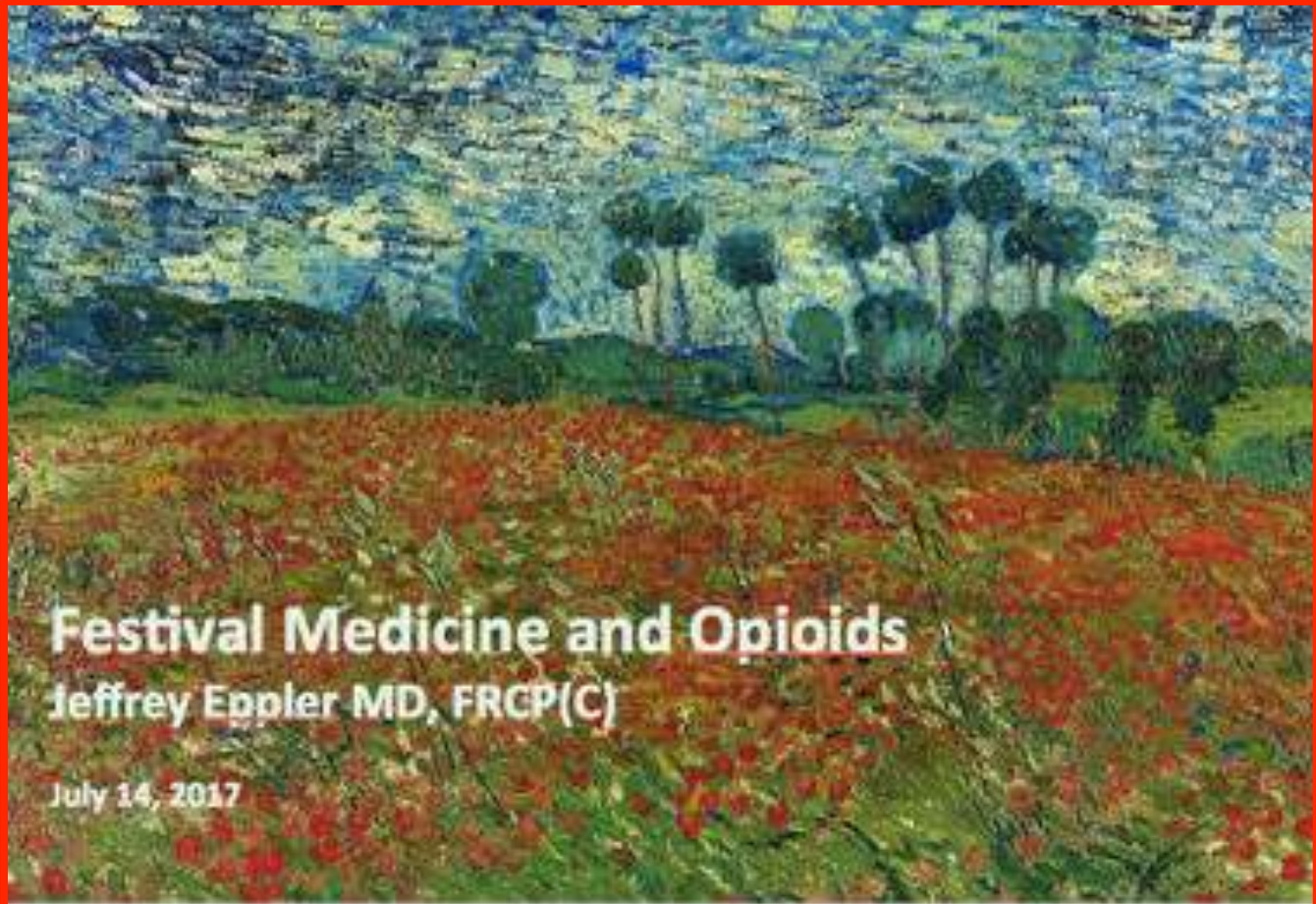
Dr Dharma McBride

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](#)



Festival Medicine and Opioids

Jeffrey Eppler MD, FRCP(C)

July 14, 2017

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](#)



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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](#)



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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 5 Part 2 On-Scene Critical Interventions at EDMEs

Nic Sparrow
Brendan Munn

Online Training
July 30, 2017



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MODULE FIVE PART 2 -ON SCENE CRITICAL INTERVENTIONS 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 - ASPRATION 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?

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