Event First Aid & Medical Emergency Planning
Introduction

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Acknowledgement

- Portions of this presentation were created in collaboration with Dr. Adam Lund, UBC Mass Gathering Research Group

- This presentation refers to predominantly to events but the concepts apply equally to film/TV shoots, races, festivals or any other special event or situation that could require a medical response in the field
Take Home Message

There exists inherent increased risk of medical problems occurring at planned mass gatherings and events of all types.

Thoughtful pre-event planning can optimize safety and medical response for all stakeholders, without sacrificing the quality or viability of the event or the participants’ experience.
Medical Planning – Outline of Session

Consider common and rare - but serious, health & safety issues and variables at shows, events and mass gatherings

Medical Plan Development:
- Define the event and the likely patient profile/volume + rare but serious presentations
- Assessment of event specific risk and context/constraints
- Stakeholder needs and local/regional EHS support systems
- Risk Identification Mitigation strategies
- Desired Level of Service – Harm Reduction
- Medical Coverage Planning
- Stress Testing of Coverage Plan
- Responsibilities/Risk of an event Medical Director
- Case Examples
Are you even producing a Mass Gathering?

- Mass Gatherings (MG) are special events that attract crowds of spectators and/or participants and could cause delays in emergency care or impact local communities.
- MG’s occur in most communities year-round.
- MG’s require special planning to ensure participant safety, and to mitigate impact on the host community.
Do you need EMS (Event Medical Services) Coverage?

• Could there be a higher frequency of illness or injuries on this site?
• Could there be an actor, singer, technician, or VIP who requires specialized or complex medical care in order for your event to go on?
• Could there be a delay in getting to, or transporting a patient, who is at or near your event - to hospital?
• Is there an increased risk of a large number of people requiring medical care at the same time?
• Will your event result in increased numbers of patients requiring ambulance transfer to a local ER?
• Does your local ER have the capability to handle increased numbers of patients
Key First Questions?

For Producer

• What type of patients will be presenting – age, fitness, drugs, alcohol, what will they be doing at the event?

• Overnight activities/camping on site?

• How will they present? Will we need to find them and bring them to care or will they find us? Or both?

• What is the site of the event like? How far from emergency services? Forest, rough terrain, dark, fenced in, near hazards?
Key First Questions?

For Medical Director

• How many patients will we likely see? Will they come all at once? How long will they need treatment before they can safely go on their own?

• How sick will the patients be? ...will most of the patients exceed the scope of basic first aid?

• Will every patient who needs more than first aid need to be transported to (ER) or will we provide higher level care on site and require Medical Direction to allow decision capacity?
“Come on… it’s just boo-boo’s, sunburns, and a few drunks - we don’t need to spend money on Professional Medical, we’ll get some volunteer Fire Fighters”

We can just call 911 if something “real” happens… the hospital is only a few blocks away!

“I have been producing shows for years and never had a problem!”
“Real” Stuff Does Occur with Predictable Frequency Will Occur
Mass Casualty Incidents (MCI)

Stage Barricade Collapse Vancouver 2010
Traumatic Events Will Happen
There will be Substance Use
...There Could be Deliberate Events

Boston Marathon Bombing 2013
If you are in this business long enough, someone will eventually die at one of your events….and that is the best case. Worst case is that they will be horribly maimed and live forever!

RY 2013 - Producer of Large Scale events worldwide
Trauma & Mass Casualty Scenarios

• Disasters & Mass Casualty Incidents (MCIs) are well documented at events world-wide
  • Recent systematic review showed 290 MCI’s involving 10 or more DEATHS in last 20 yrs.
• Some events have unique risks that increase the probability of traumatic injury or other illness
What Level of Medical Coverage do I need to get a special event permit?

What is my liability if I don’t have “appropriate” Medical support for my event?

• There are no **national, provincial (BC), or municipal** standards for medical planning for events. (2016- “loose guidelines”)

• Level of medical support requested is mostly dependent on the experience and level of risk aversion of producers and local permitting agencies who have variable experience and expertise – **event driven**.
Event Medical Services

• “The standard of care is whatever the event producer feels they can afford for first aid and medical services with respect to their appreciation of the level of risk they face.”

• Expectations for medical coverage vary widely across jurisdictions

• Producers often already have a conditional permit – “Medical coverage tends to be the last thing to be considered...long after security, fencing, and toilets”
So What do you do?
Determining the appropriate level of Medical Coverage required

• Consider the many stakeholders
• Define your event and expected patient load
• Consider impact of variables such as weather, crowd behavior, risk of natural disasters or threats – Risk of increased number and acuity of patients
• Budget and available resources/providers
Many Stakeholders

- Event Producer/Promoter
- The Talent/Management
- Municipality
- Police
- Fire
- Ambulance/911 system
- Bylaw & Traffic
- Health Authority
- Stunts and Special FX

Suppliers

- Work Safe BC
- Liquor Control
- Local hospital ERs
- Media
- Host Venue/Site owner
- Neighbors/Community
- Local Business
- First Nations
- Venue Owners

- Medical/First Aid
- Security
- Logistics
- Power
- Structures/Shelter
- Vendors
- Parking
- Camping
- Merch
- Bar & Liquor
- Stage/Rigging

- First Nations
- Local Business
- Bylaw & Traffic
- Health Authority
- Stunts and Special FX

- Venue Owners
- Host Venue/Site owner
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- Work Safe BC
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- Media
Defining your event
Parameters and Variables

- Size, scope, duration
- Concert vs Festival
  - Onsite overnight camping
- Participants vs attendees vs spectators
- Location – permanent vs temporary, terrain, bounded vs open
  - Venue staff – security or dedicated first aid
- Local hazards (Rivers or lakes, railroad, highway)
- Natural Disaster risk – Fire, Flood, Tornado
- Local resources (Ambulance/Heli, ER/hospitals, Contingency and Restock)
Parameters and Variables

• Programming – Insane Clown Posse vs Neil Diamond vs Snoop Dogg vs Deadmau5 vs Ironman vs MMA/Kickboxing
• Participant Activities – Triathlon, Adventure Race, Combat Sports
• Crowd behavior – Mosh Pit/Stage Diving, Chicken Fights
• Alcohol & Drugs – Fentanyl – What is the drug of choice?
• Location – permanent vs temporary, terrain, bounded vs open
• Local hazards
• Environmental stressors – heat, humidity
• Additional risks - high profile or “a target”
Estimate Patient Volume and Acuity

- Your own past experience as a medical provider
- Other industry veterans – producers, security, venue managers
- Ambulance providers
- Literature – UBC MGM Research Program
- Event Medical Services Consultants
- Prior dates on the same tour
Estimate Patient Volume

- Talent – Age, History, number of performers
- Crew/staff – Local vs Touring, number of tours eg. Festival
- Attendees/Participants – Estimate using TAS/DAS Scoring System
  - White – Dispensary – bandaid, diaper change, sunscreen, Tylenol,
  - Green – Minor Treatment – First Aid Scope
  - Yellow – Acute – collapse, intoxicated, heat stress, vomiting, anxiety, confusion
  - Red – Serious/Critical – Unconscious, Chest pain, Major Trauma

- No Prospectively validated formulas or decision rules
Estimate Patient Acuity

- Talent – generally low medical acuity but highly stressful to promoter and management
  - Can jeopardize show – throat problem, tendonitis, anxiety
- Crew/staff – Touring crews tend to have ongoing chronic problems – high blood pressure, diabetes, chronic pain, *addictions*
- Participants:
  - Trauma – Cycling, adventure race, Chicken fights, alcohol
  - Environmental Stress- Endurance events, outdoor summer events, winter running races
  - Intoxications – Opiate/ Fentanyl, Molly, Multi- Drug use, Alcohol (all ages)
  - Cardiac – runs (including short fun runs), symphony in the park, Opera
  - Trip and fall – outdoor night concerts, steps in permanent venues, wet entrance

- No Prospectively validated formulas or decision rules
Theatre Show

Examples

• Queens of the Stone Age at QE theatre
• Nutcracker at the Stanley Theatre
• Slipknot at the Commodore ballroom

Top risks

• What do you think?
• What will be common?
• What is uncommon, but high risk?
Arena Show

Examples

• Metallica at Rogers Arena (GA on floor)
• Drake at Rogers Arena
• Adelle
• Green Day at PNE
• Steve Aoki at Thunderbird Arena

Top risks

• What do you think?
• What will be common?
• What is uncommon, but high risk?
Stadium Show

Examples

• AC/DC BC Place
• EDM Festival at a Stadium
• U2 at BC Place
• Vans Warped Tour at UBC Thunderbird Std

Top risks

• What do you think?
• What will be common?
• What is uncommon, but high risk?
Concerts & Festivals

Examples

• Outdoor multi day music festival
• Symphony in the park series
• Stadium and venues
• Electronic Dance Music Events (EDME’s)

Top risks

• What do you think?
• What will be common?
• What is uncommon, but high risk?
Variable Distance Runs

Examples

- 5-8 km
- 10 km
- Half marathon 21.1 km
- Full Marathon 42.2 km
- Ultra Marathon 75 + km

Top risks

- What do you think?
- What will be common?
- What is uncommon, but high risk?
Multi-sports (Bi, Tri)

Examples

- Duathlon 5-40km cycle, 10-15km run
- Triathlon 400m-2km swim
- Ironman 3.86 km swim, 112 mile bike, 42.2 km run.

Top risks

- What do you think?
- What will be common?
- What is uncommon, but high risk?
Stunts or “Special Risks” Set

Examples

• Basic Film Set with no increased risks
• Min to moderate stunts – controlled fall from height
• High Risk – Explosives, High velocity

Top risks

• What do you think?
• What will be common?
• What is uncommon, but high risk?
Risk Mitigation Strategies

Site Planning
- Shade/Shelter
- Free Water
- Campsite design
- Food and Sanitation
- Crowd Movement planning
- Fencing, Lighting, Terrain
- PSAs

Harm Reduction
- Alcohol Management Planning
- Searching/interdiction
- Social Media
- Safe Space & Safety Ambassadors
- Drug Testing
- Programming/Timing of egress

Key is to get medical provider involved in event planning early!
Understanding the risks and the capacity of the EMS provider

• Is a security guard with a First Aid ticket adequate for the risk?
• Is a Private Ambulance Service or mobile first aid post adequate for the risk?
• Is a paramedic on standby adequate?
• Do I need Medical Direction and decision capacity? On call? On site?
• Do I need a risk and Event Medical Services consultant?
Medical Program vs Basic First Aid?

• Important to understand the different types of EMS providers
  • Training and experience with events
  • Training and Scope of practice
  • Decision Capacity
  • Medical Direction
  • Liability
Key Questions when considering EMS providers and staff

• How many hours is the training of various staff
• Are the providers experienced full time health care providers or part time/inexperienced?
• What can they treat and what must they transport off site
• How will patients who require transport to hospital be transported?
  • Private vehicles, on site ambulances, regional ambulances called in?
• What patient volume/acuity is the local receiving hospital able to handle? Willing to handle
• How will transports affect the overall success of my event?
  • Will multiple high acuity transport create negative perception of the “safety” of my event?
Scope of Practice

First Aid = protocol driven

- CPR + AED (2 hours)
  - BASIC CPR, Choking, AED use

- Basic FA (4 hours)
  - CPR + AED, Choking, AED Use, Simple minor wound treatment
Scope of Practice

First Aid= protocol driven

- **OFA 1 (8 hours)**
  - Mandated and regulated by Worksafe BC
  - CPR + AED, Choking, AED use, simple minor wound treatment, paperwork required for records

- **OFA 2 (5 days)**
  - OFA 1 plus:
    - Airway, breathing, circulation critical interventions including:
      - Oropharyngeal airway, oxygen therapy, bag valve mask, pressure points
      - Detailed patient assessment
      - Minor wound management and upper limb splinting

- **OFA 3 (10 days)**
  - OFA 1 & 2 plus:
    - Preparation for handover to higher level of medical care (land/air ambulance, hospital)
      - Hard collar, spine board immobilization
    - 2-person CPR
    - Suction
    - Lower limb splinting
Scope of Practice

Paramedic = protocol driven + delegated acts under medical direction of a licensed physician

- **EMA/FR (First Responder) (42 hours)**
  - Medical Direction/Scope of Practice under BC Ministry of Health
  - Primary and Secondary Assessments
  - Airway, Breathing, Circulation critical interventions including OPA, Oxygen, Bag-Valve-Mask, CPR/AED Emergency Childbirth and Hypoglycemia treatment
  - Basic Wound/Fracture Management

- **Emergency Medical Responder (15 days)**
  - EMA/FR plus:
    - Blood Pressure, Auscultation, Glucometer, Nasopharyngeal airway, IV maintenance, Pulse Oximeter, Some medication administration via PO, SL & inhalation routes
  - Transporting Patients in Ambulance

- **Primary Care Paramedic (8 months)**
  - EMA/FR/EMR plus:
    - Extraglottic Airway management, Medication Administration including IM & Nebulization routes
      - Narcotic Antagonists, Histomine Antagonists, Bronchodilation Agents, Simpathomimetic
    - Initiate peripheral IVs
      - IV meds & fluid administration
Scope of Practice

Paramedic = protocol driven + delegated acts under medical direction of a licensed physician

• Advanced Care Paramedic (20 months)
  • EMA/FR/EMR/PCP plus:
  • Endotracheal Intubation
  • Advance Cardiac Life Support
  • Medication administration
    • Narcotics and Controlled Meds
    • Other meds with orders
Scope of Practice

Nurse = Limited autonomous decision capacity + delegated acts under medical direction of a licensed physician

- **Licensed Practical Nurse (LPN) (16 months Diploma)**
  - LPNs have a degree of autonomous practice,
  - LPNs make a nursing diagnosis of a limited number of condition before determining an appropriate plan of care
  - Wound Care, Some meds

- **Registered Nurse (RN) (4 year Degree)**
  - Broad range of autonomous practice
  - Health care for promoting, maintaining and restoring health
  - Prevention, treatment and palliation of illness and injury, primarily by assessing health status, planning and implementing interventions, and coordinating health services
Scope of Practice

MD= Autonomous decision capacity to determine appropriate care for patients

• **MD (4 year post undergrad plus 2 yr family med residency)**
  - Primary Care with a limited number of basic procedures
  - Individual Medical Malpractice insurance
  - Ability to diagnoses and treat a range of basic complaints

• **ER MD (MD plus 1-3 additional years)**
  - Specialty training and certification in Emergency Medicine
  - Individual Medical Malpractice insurance
  - Familiarity and comfort managing critically ill and complex patients
  - Experience working closely with paramedics and RNs/LPNs in acute situations
Scope of Practice

• **Event Medical Director**
  • Medical Malpractice Liability for overall medical program
  • Medical Malpractice Liability for delegated acts by medical staff
  • Liability for errors and omissions Insurance
  • Liability for medical policies and procedures
  • Limited liability for disaster and emergency plan
  • Equipment and supplies
  • Staffing – screening, vetting, criminal records checks, training, coordination
  • Coordination of Medical services on site
  • Stakeholder Relationships and liaison
  • Coordination of patient transports
Scope of Practice

• Ambulance
  • By Law, Only BC Ambulance Service is legally allowed to transport patients on public roads in BC!
    • St. John Ambulance - Cannot transport patients on public roads
    • Private “ambulance companies” - Cannot transport patients on public roads
  • Scope of practice is dependent on the training and licensing of the private ambulance attendants and whether they have medical direction

• Understand the likely number of patients who will require emergency care beyond the scope of First Aid and the risk of rare but serious or high volume of sick patients at once and plan accordingly.
Service Level Considerations

- Desired Level of Customer Service Experience
  - Talent, Staff, Patrons, VIPs, other
- Vulnerable Populations – What is the level of vetting of staff required?
- Minimize number of Transports to ER
- Budget
- Local expectations/requirements
- Litigation Risk
- Reliability of provider
Caring for the “Talent”

• Unique considerations
  • Confidentiality and visibility
  • Multiple stakeholders with different agendas

• Specialized Problems
  • Throat, tendonitis – repetitive use injuries

• Substance abuse
Proposed Medical Coverage Plan

• Talent, performers and Crew
  • MD on call to the venue and hotels
    • RMT
    • Chiro
    • DDS
    • Specialist MDs (ENT, Derm, imaging)

• Crew/staff –
  • CSO/Safety Officer and OFA2/3 – Worksafe Driven
  • MD On call
Proposed Medical coverage Plan

• Event Participants – A huge range of options
  • Security guard who also has a first aid ticket
  • Contracted BC EHS Ambulance on standby – No first aid, only transport, may get called off site
  • Volunteer First Aid
  • Professional Event Medical Supplier
    • First Aid Scope
    • Paramedic Scope
    • Decision Capacity - Full Time Medical Direction
• Field Hospital with Medical Dispatch, ER MD/RN and Response Teams
  • Integrated Transport System and Higher Level Care
Canadian MGM Providers

• Legacy committees (Folk Fest)
• Volunteer organizations (St. John’s Ambulance, event-specific community)
• Contracted providers (few dedicated professional EMS, variable staff, experience, medical direction)
• Provincial, municipal ambulance services
  • Different “rules of engagement” in different places
    • BCAS – transport and Code 3 response only- no First aid
    • Toronto EMS – Event team with medical direction
• Or EVENT DRIVEN external standards
  • i.e. IOC, WPFG, World Cup events
Coverage Proposal

Identify appropriate level of on-site services proportional to risk of illness and injury.

- Infrastructure – Tent or first aid room, climate controlled, running water, etc.
- Staff mix – Decision capacity, definitive care vs. triage and transfer, first aid
- Predicted PPR/MTR
- Equipment & Supplies – resupply?
- Communications requirements and strategy
- Disaster & Emergency and Contingency Planning
Constraints

• Medical Budgets are typically small
  • Line items often come from least experienced on the ground or from other jurisdictions
  • “I have never had a problem before, so why spend any money on what is unlikely to happen?”
  • “I get a community non profit volunteers, and they are free”
  • My security provider has an OFA on duty, so we are covered”

• Range 0.5%-5% of total event budget (variable)
  • $0.25-$23 per ticket or participant
Right-sizing Medical Coverage

• There is no one “right” answer, but there are lots of incorrect answers
• Balance of risk tolerance and budget
• Determine how important it is to minimize patient transports to hospital and what you will need to safely treat on site
  • Estimate the patient volume and acuity and the likely variable that will impact this
  • Consider contingency to handle additional volume based on variables
  • Consider MCI/Disaster and “worst case scenario” volume and acuity
• Determine the staff needed to meet the above goals
• Determine the equipment needed to meet the above goals.
Stress-Test Assessment

- Run a variety of mock scenarios to assess for resiliency of plan with different possible stressors
- Patient Mix (*historical? other city?*)
- Patient Volume
- Site Constraints, Access/Egress, traffic constraints
- Local EHS resources
- Local Hospital staffing and resource levels and capacity to accept surge
- General Community service levels
- Community Expectations/Experience
Considerations when selecting Medical Providers

- Reliable Staff recruiting and Scope - can they deliver the required numbers of experienced staff?
- Credential verification & licensing
- Criminal Records checks for vulnerable populations
- Code of Conduct/Expectations of behavior
- Medical Direction – Experienced ER MD on call or onsite
- Critical Incident policy and procedures
- Social Media and Media policies
- Treatment Policy and procedures, OH&S, Worksafe
- Documentation & medical records & Confidentiality
- Medical Malpractice Insurance
Case Examples

Critique two event case examples presenting sub-optimal and optimal event trauma services respectively.
Case 1 – Help a Guy Out

A buddy asks:

“Would you help me out as the medical director for this really cool community event I’m helping to organize? It’s an adventure race to raise money for charity, followed by an awesome concert and beer garden near the finish area”

“It’ll be awesome!”
Case 1 – Race & Concert

- ~8000 participants
- Base of local mountain resort
- Spring conditions
- Already has a “BUNCH of medical volunteers”
- No budget, but you are welcome in the beer garden and we will put up your signs

Discuss – What’s wrong with this so far?
What could go wrong here?

- Adventure race = trauma
- Access and egress
- Alcohol
- Weather
- Transport challenges

- Medical malpractice insurance?
- Policy & Procedures?
- Liability?
- Volunteer pool unknown and unvetted
Case 2 – Major Triathlon

• Event organizer seeking medical lead for major triathlon, 1 year prior to event date.

“We are looking for an experienced team to manage the safety and medical response for a swim-bike-run event, which will include substantial road closures.”
Case 2 – Triathlon

• Provides data from previous cities
• Requests proposed plan for event coverage
• Requires engagement of local ambulance service & hospital

• What planning is required to make this a “best practice” event?
Limitations

• Planning for EMS is very location specific
  • Variation in EHS systems and structures and costs – budgets are often created elsewhere based on other systems and contexts
• The evidence base is expanding but remains thin for MGM
  • UBC Mass Gathering Medicine Research Group is amongst the global leaders
• Much based on experience & consensus
• Increasing political will to create a minimum standard
• Transient nature of events prevents systematic scrutiny w.r.t. safety
• Increasing expectations of stakeholders
  • WCB
  • Municipalities
  • Police, Fire, Ambulance
Take Home Message

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Thoughtful pre-event planning can optimize safety and medical response for all stakeholders, without sacrificing the quality of the event or the participants’ experience.
Questions?
References

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