Field Guide to Crowds

GLOBAL
CROWD
MANAGEMENT
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Íse Murphy-Morris, Justin Argent & Simon James, Ross Ambrose, Ira Rosen, Anthony Davis, Steve Lemon, John Drury, Steven Adelman

First Edition: January 2024

Thank you to our partners

Foreword

by Steven Adelman

Why is this called a "*Field Guide to Crowds*?"

Usually, a field guide discusses wildlife, plants, or minerals as elements of our natural environment. This is a field guide to crowds because it is based on a recognition that participating in shared experiences is an equally essential part of our man-made environment.

The word "crowd" is not pejorative, even if some people use it that way. Like birds or flowers, mass gatherings can be delightful or dangerous, and may be both simultaneously. It is up to crowd managers and their colleagues in operations, security, and public safety to make spaces for group activity as safe as possible under the circumstances of each event.

This *GCMA Field Guide to Crowds* does not seek to be comprehensive. That would require many more pages than are contained in this First Edition, which would reduce the likelihood you'd read any of them. Rather, we have organized this as a series of eight monographs, each a deep dive into a situation you probably haven't heard about before. We hope the stories, which range from amusing to heartbreaking, will stick with you.

Each chapter can be processed at two different levels. On a micro level, there are takeaways on a specific subject which are applicable for any crowd manager. On a macro level, we take seriously a point which is often stated, then ignored – safety guidance must be scalable. Authoritative works such as the National Incident Management System in the United States assert that they are equally applicable to events of all sizes, yet much conversation about mass gatherings focuses on large scale disasters like the Route 91 Harvest Festival shooting in Las Vegas, the Manchester Arena bombing, the Itaewon crowd crush on the streets of Seoul, South Korea.

We choose a less sensational approach.

Our first three chapters, by Ise Murphy-Morris, Justin Argent and Simon James, and by Ross Ambrose, consider how the physical environment of an event can influence crowd behavior. In their discussions of Zone Ex at sports grounds, the UK's Boomtown Fair, and placement of portable restrooms at bespoke events, each author explores the interrelationship between site design, crowd management, and guest service.

Next, Ira Rosen turns our attention to the planning aspect of crowd management, specifically the relationships between public and private stakeholders at a Chinese Lantern Festival in Philadelphia. Then Anthony "AD" Davis and Steve Lemon tell stories of personal interventions to save a festival security team and an Ozzy Osborn show, proving that even one creative and persistent individual can break a chain of failures and deliver a safe show.

Finally, Professor John Drury and I explore different manifestations of a crowd's identity when seeking to manage the people within it. He tells about a festival in Brighton, UK where the willingness to heed authority varied dramatically depending on who was asking and how they asked. My story is about a small-town parade in Colorado involving rule-following church members and their respected pastor, which nonetheless resulted in tragedy.

We are big believers in takeaways. Collectively, these stories are intended to accomplish the following:

- Challenge received wisdom, even if it is relatively recent. Industry guidance should adjust to keep pace with rapidly changing crowds and events.

- Identify your allies and use them as a force multiplier. Crowd managers will always be outnumbered by our crowds, so we need all the smart friends we can get.

- Avoid both complacency and hopelessness. The variety of these stories and countless more like them, reminds us that no type of venue, genre of entertainment, or crowd demographic is necessarily more dangerous, or safer, than any other. The circumstances of each event must be evaluated on their own merits.

It is our job as crowd managers to honor the diversity of our crowds and the circumstances in which they gather. We must tailor our plans and resulting actions to their physical and emotional needs. We hope this *GCMA Field Guide to Crowds* will stimulate your thinking, and that of your colleagues, to help create safer gatherings. Because the one certainty is that we human beings will continue to gather.

December 2023
Norwalk, Connecticut, USA

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ZONE EX

by Íse Murphy-Morris Msc (IE)

In the wake of the Manchester Arena Attack in 2017 and the Wembley Euro Final in 2021, the subject of who was responsible for crowd safety within the public realm became a topic of focus. This issue regarded the delineation of responsibility for crowd management within the space outside the venue where crowds arrived and departed from. This space can be publicly or privately owned, is usually publicly accessible by crowds, and includes train stations, car parks, bus load zones, taxi drop off/pick up, fan zones, brand activations, pop-up stores and entertainment. Although there are clear lines of safety responsibility within the venue perimeter, anywhere outside of it becomes more of a grey space regarding the responsibility of managing the safety of people arriving and departing the venue.

As events draw greater global attention and the ambiguity of who is responsible for crowd safety on publicly accessible land, coupled with the impending counter terrorism law in the UK (Martyn's Law) appears to have resulted in stakeholder hesitancy surrounding crowd safety in this grey space a.k.a Zone Ex. This hesitancy directly impacts crowd safety as lack of agreements and decision making between stakeholders and agencies results in ineffective policies, protocols, contingency and emergency response plans.

Floral Tribute at Victoria Station.
© David Dixon on geograph.org.uk/p/5420205 CC-BY-SA/2.0

What is Zone Ex?

Zone Ex, meaning *External Zone*, is a term coined by the Sports Ground Safety Authority (SGSA) (UK) in the latest edition of the Green Guide (6th Edition of the Guide to Safety at Sports Grounds) and refers to the external zone outside of a sports ground; usually relating to ports of entry, transport hubs or the places crowds gather before they transition into or out of Zone 5 (the external concourse of stadium/sports ground). It is defined by the Green Guide as; *"the external zone…sometimes referred to as 'the last mile', is in the public realm and is likely to encompass the main pedestrian and vehicle routes leading from Zone 5 to public car parks, local train stations, bus stops and so on."* (SGSA, 2018).

Although this Guide is only applicable for sports grounds that fall under the Safety of Sports Ground Act 1975, the contents of The Guide have been applied to a plethora of events worldwide. Previous to this definition, the area was often referred to as *'Last Mile'*, referring to the journey taken on foot by the crowd en route to or from the venue. Before Last Mile, the term was known as *'Grey Space'*.

This 'Grey Space' can be owned by private or public organisations, private individuals or the local authority; and while there are laws in the UK concerning Occupier's Liability (Act 1957), land owners are rarely willing to take responsibility for the safety of people passing through their space arriving and departing an event, especially if they have nothing to do with the event. Public Space or Public Realm is space accessed by the public and managed by the state on the public's behalf (Mitchell, 2003[1]) and accessibility is the key word here as it refers to the dimension of ownership, which distinguishes between private and public (Madanipour, 2003[2]). Zone Ex therefore can be either public space, private space or a mix of both, which in itself contributes to the ambiguity surrounding safety primacy.

1 Mitchell, D. (2003) *The right to the city: social justice and the fight for public space.* Guilford, New York, NY

2 Madanipour, A. (2003) *Public and private spaces of the city.* Routledge, London, and New York, NY

EURO 2020 FINAL, Wembley Stadium, London 11 July 2021 by Kwh1050 on commons.wikimedia.org under a CC BY-SA 4.0

Why Has it Become so Topical?

Over the last decade, the vagueness over safety primacy in non-venue owned space appears to have increased in the UK as the police have decreased crowd management support for events. The high frequency and size of events has put a strain on police services, with the issue of publicly funded policing of football events becoming the subject of parliamentary debate (BBC, 2008[3]; Furniss, 2019[4]). As police services have scaled back resources for the events industry to focus on their primary roles, it appears to have left a 'safety primacy gap' in Zone Ex.

For example, the UK's Met Police state; "Ensuring public safety at a public event is not the first responsibility of the police. Police are responsible for maintaining the peace, preventing breaches of the law and taking action against people breaking the law" (Metropolitan Police, n.d.[5]). In addition they state; "One of the main responsibilities of an event organiser is the

safety of the people taking part, as well as for those in any way affected by it." This statement clearly sets out the police's remit, and suggests who is responsible for public (crowd) safety.

Greater Manchester Police elaborate the above statement to detail their role as well as the event organiser's, and note the importance of collaboration; "The organisers' role of maintaining public safety can best be accomplished if there is no crime or disorder taking place. Equally, the police role of preventing lawlessness and disorder can best be accomplished when public safety is assured. Since these roles are clearly interdependent, it is in the interest of both organisers and police to work together with joint responsibility for the regulation of the event. Greater Manchester Police firmly believes that this partnership approach is the most effective way forward for all parties involved." (Greater Manchester Police, n.d.[6]).

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3 BBC (2008) *Football 'should pay for police.'* news.bbc.co.uk/1/hi/uk/7553875.stm

4 Furniss, G. (2019) *Cost of Policing Football.* hansard.parliament.uk/Commons/2019-06-04/debates/7FBCA7DA-C3B1-4CC1-8C3C-FFC9F31115E2/CostOfPolicingFootball

5 Metropolitan Police (n.d.) Guidance for event organisers. www.met.police.uk/advice/advice-and-information/e/events-and-processions/guidance-event-organisers/

6 Greater Manchester Police, (n.d.) *Guidance for event organisers*. www.gmp.police.uk/advice/advice-and-information/gmp-events/guidance-for-event-organisers/

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Looking abroad, the approach of Victoria Police in Australia is similar to that of the UK police; "Event organisers have a responsibility to provide adequate measures to ensure the safety of event participants, spectators, and the general public. Victoria Police has a responsibility to preserve the peace, and to detect and prevent offences." Here the police are clearly stating their level of responsibility, placing management of crowd safety within the remit of the event organisers.

Seeking Clarity

Although police are responsible for ensuring public safety in the public realm, the movements of crowds pre and post a football match, for example, can be intrusive and require significant crowd management. The impact of this over time has resulted in financial and resource implications on policing services as they end up managing the crowd in Zone Ex. Some arguments between venues and police have resulted in court cases partly due to the lack of legal definition on safety responsibility. For example, in 2012, West Yorkshire Police took Leeds United Football Club to court regarding who bears responsibility for the policing costs in public streets and car parks before and after a football match (Blackstone Chambers, 2012[7]). Leeds United won.

In 2016, Ipswich Town Football Club appealed a decision where they were made to pay Suffolk Police for policing the grounds and highway around the stadium, and also won (BBC, 2017[8]), with Lady Justice Gloster clearly stating where she believes the responsibility for decision making on this subject lays:"It is for parliament to change the law, if it considers it appropriate to make football clubs pay for police attendance at football matches on the highway, outside the stadium or other privately owned land."

Zone Ex was a key area of discussion in the Wembley Euro 2020 Final report as the question of who was responsible for public safety outside the venue was listed as a contributing factor to the disorder that built up before the event. It was included in the third recommendation, stating: "The SGSA, the events industry, the police and local government [must] agree on a way forward on who is accountable for Zone Ex".

Itaewon, Seoul Halloween Crowd Crush on October 29th, 2022 by 열린공감 TV on commons.wikimedia.org – CC-BY-3.0

The report from the Manchester Arena Inquiry recommended that "cooperation is required from everybody and attempts should not be made to pass on responsibilities to others".
Even in 2022, the Seoul Halloween crowd disaster demonstrated the gravity of what is at risk when there is no collective oversight of a crowded space. The prime minister has now directed his government to "establish a crowd-control system for events in the future that lack a single organizer" (Martin, 2022[9])

It appears that when parties are hesitant in taking a coordinating role in responsibility of Zone Ex, or avoid interoperability, the risk to crowd safety increases. Speed and precision are two key elements by which the effectiveness of crisis response is measured (Avanzi et al, 2017[10]), and so without an agreed framework of collaborative working increases the risk to crowds through delayed and inaccurate response.

7 Chambers, B. (2012) *Leeds United FC v West Yorkshire Police*. www.blackstonechambers.com/news/case-leeds_united_fc/

8 BBC (2017) *Ipswich Town win appeal in battle over police costs*. www.bbc.co.uk/news/uk-england-suffolk-41567252

9 Martin, T. (2022) *Pressure Mounts on South Korean Officials Over Deadly Halloween Tragedy*. Wall Street Journal. www.wsj.com/articles/pressure-mounts-on-south-korean-government-and-police-over-deadly-halloween-tragedy-11667389028

10 Da Silva Avanzi, D. (2017) *A framework for interoperability assessment in crisis management* www.sciencedirect.com/science/article/abs/pii/S2452414X16300929

Importance of Interoperability

All agencies/stakeholders at some stage of an event will have a crowd passing through their space, and so are jointly responsible for ensuring crowd safety depending on their role and legal obligation. This can be from the perspective of public safety (local authority, police), preventing crime and disorder (police), occupier's liability (local authority or land owner), or spectator safety (venue/event management). This multi-faceted approach can help to ensure that safety is considered holistically.

If an organisation agrees to take on a coordinating role, but the responsibility lays across all agencies, it is an opportunity to remove the concern of holding all liability in case something goes wrong. Could, in this instance, a law be enacted to support this joint operability? A holistic way of working that has been proven to be more effective in successful delivery? Just like the Health & Safety at Work Act 1984 informs us that everyone is responsible for safety, can the same approach be taken for crowd safety in Zone Ex?

The creation of the Joint Emergency Services Interoperability Protocol (JESIP), underpinned by the Civil Contingencies Act 2004, demonstrates just how salient working together is, and how the lack of collaboration carries serious repercussions. JESIP was set up after identifying that collective working was the most effective way of reducing death or injury during a disaster, and needed to improve between emergency services. Their principles include co locate, communicate, co-ordinate, jointly understand risk and shared situational awareness. These principles can easily be applied to managing Zone Ex, providing a base line for agencies to develop protocols from.

The UK's Health & Safety at Work Act 1974[11] reminds us we all have a collective responsibility for ensuring safety of ourselves and others, so far as reasonably practicable, and the ambiguity of responsibility and level of responsibility within Zone Ex makes for a significant challenge to crowd safety that may perpetuate for events to come.

TAKEAWAY

Regardless of whether or not legislation is brought in to decide who is responsible for crowd safety in Zone Ex, we are still collectively responsible. The sooner agencies can agree on a way to move forward, the sooner interoperability can grow, which only allows for faster, precise and effective responses to incidents.

Ultimately, events are only going to continue and the positive impact they bring to communities and economies hugely benefit our wellbeing as society. Zone Ex is here to stay so it is in our best interest to take collective responsibility in keeping people safe during ingress and egress as well as the event itself. As Charles Darwin reminds us "in the long history of humankind, those who learned to collaborate and improvise most effectively have prevailed."

Íse Murphy-Morris Msc is an events consultant specialising in crowd safety, event transport and zone ex based on her fifteen year background in major sport events, public events and festivals. As an Associate Lecturer in Crowd Behaviour and Managing Event Safety at the University of Plymouth, Íse shares her knowledge with the next generation of event professionals. She is the UK Deputy on the board of GCMA and is an active member of the UK Crowd Management Association (UKCMA). In 2023, she co-founded Meliorem Eventus and launched Safety Sistas: A podcast about the people who keep us safe. Through her teaching, podcasts and blog, she is committed to combining research with industry practice, facilitating conversation and working with industry colleagues to improve crowd safety for all.

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11 Health and Safety at Work Act 1974. London: HMSO

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SITE DESIGN & CROWD MANAGEMENT AT THE BOOMTOWN FAIR

by Justin Argent & Simon James (UK)

Boomtown Fair is a spectacular showcase of the British alternative creative arts industry. The festival space is styled to appear as a town with themed districts. Modelled like many British towns, the street network feels organic with complex winding routes interconnected by alley ways, with large civic buildings such as rail depots, palaces, and power stations. Woven into the web of streets is an array of small venues boasting music and theatre tuned to the local district's theme. Artistic offerings range from huge drum and bass acts to alt-rock, punk and reggae bands from around the world. The "story" of the city is acted out by performers who present theatre shows and lead mass gathering events.

Boomtown Fair Opening Ceremony 2019 Chapter 11.
by Sam Warrenger / TheFestivals.UK on wikimediacommons.org CC BY-SA 4.0

The Challenge

The festival arrived at its current home near Winchester in the south of the UK in 2010. It began life with 4000 attendees situated in the natural amphitheatre known as Matterly Bowl. Over the next 10 years it grew to its current size of 65,000 (64,999 if you are into licensing). It was often labelled during this time as Britain's fastest expanding festival. The original site occupied only the bowl floor, but the physical site has more recently expanded to include the nearby Temple Valley and Chilcomb Down areas, spreading the entertainment and camping out over 250 acres.

In 2020, Luke Mitchell and Chris Rutherford (the festival's founders) were keen to take it back to its roots and return all the entertainment to the bowl itself. The tricky part of this plan was to ensure that it could be done whilst retaining the full audience capacity of 65,000. The bowl is approximately 18 Hectares (45 acres) of rolling meadow surrounded on three sides by steep 40m high embankments. It is accessed from the one open side via a tracked road that circumnavigates the entire bowl at the base of the slope.

The event site previously had several pinch points that, while not obviously dangerous, indicated that the site was at capacity. The creative vision is of winding streets and back alleys that feel close and intimate, which is contrary to crowd management principles that prioritise clear open spaces and readily discernible crowd flow routes.

We were asked to help design a site that felt intimate while being safe for 65,000 people.

Planning the Site for Crowd Movement

We began by establishing a set of crowd management design rules by which the site design should be assessed against. Alongside the artistic vision, these rules needed to be flexible

Map of the Boom Town Fair, (2019)

enough to encompass the normal artistic and logistical challenges of running a festival, such as getting artists to stages, good sound coverage, ability to access services, provision of space for traders, bars and other vital infrastructure. Once the core rules were established, any design decision made within the larger team was tested to make sure it did not break the rules.

We divided the site into Entertainment areas, Campsites, and other space, such as chill out areas, flow routes, and food and beverage courts.

We set the following rules.

All entertainment arenas must have either three routes in or out, or "blow out" emergency-only exits built into the street sets. The total entertainment floor space must accommodate a capacity crowd at 2 people per square metre. And each entertainment area must have a similar or larger sized non-entertainment evacuation space nearby which does not require crossing another entertainment area.

All circulation flow routes must be wide enough to accommodate peak audience flows and must have multiple alternatives.

An advantage of working as crowd managers at Boomtown was the management team's desire to foster a collaborative approach to site design. Early in the design process, the operations manager organised a crowd management working group which included set designers, theatre producers, circus performers and story writers, all the departments who actively engage the crowd. We were not having to fight a rear-guard action that often presents itself to crowd managers when presented a site plan as a fait accompli which you are then expected to fix its problems with no support. In many ways it was the dream crowd management design project.

Cigarette butt ballot box at Paradise Heights, Boomtown Fair by Sam Warrenger / TheFestivals on commons.wikimedia.org CC BY 4.0

This became one of the most popular meetings at BT HQ, as it enabled different departments to contextualise the impacts of their decisions on crowd choice and site flow. For example, a bar queue positioned in the wrong direction or a walkabout theatre show blocking a street at a critical moment could cause repercussions across the whole site. The impact on crowds suddenly became understood by everyone involved, which made everyone an ally not a hindrance to the crowd management plan. Effectively, we were convening a monthly tabletop exercise in which we tested the impacts of even minor tweaks to the site design.

Once a site design drawing emerged from these sessions, we static modelled scenarios to test the layout and the routes. We subdivided the bowl and then subdivided again down to individual entertainment areas or even more localised spaces. Then we applied the crowd management model of examining each area's design, information, and management during the three temporal phases of the event – ingress, circulation, and egress – to obtain a comprehensive picture of how the crowd was likely to move through the site we had designed. At times the modelling felt so granular as to be inconsequential in the bigger picture, but we saw the value when the operation was active, and we could see how a situation would impact the wider show as we had played out similar

scenarios during planning. The models identified necessary adjustments and enabled us to return precious real estate to the creative team.

All our planning, and the resulting confidence in how the site would work, led us to make some unconventional decisions. We deliberately excluded wayfinding signage from major routes to major stages to encourage the audience to find their own preferred routes through the city. The usual purpose of route-finding signage is to get people from outside an event space to their seat/destination by the most direct or fastest route. Boomtown, however, is all about exploration and discovery, so rather than encouraging guests to take a direct route to their destination, we helped them experience different theatrical worlds that they may not have considered.

Using Topography for Wayfinding

Under the circumstances, this was not as radical a decision as it may sound. The topography of the bowl offers easy visual reference points, which in turn helped the audience know where they were and where they were heading. A 30-metre-high spire in the middle of the site helped people stay oriented.

The natural topography, particularly the site's natural undulations and deliberately created curves, broke up sight lines and gave the impression that wide avenues were narrower and more complex than they actually were. At a more macro level, the topography of the bowl itself allowed the audience to see areas of congestion or free space within arenas. This information helped them choose where to watch a show, meaning that the crowd filled in less congested spaces naturally rather than us having to physically intervene and get people to move. Utilising lay of the land thus enabled us to do naughty things like load a main stage from stage left near the stage. On arrival the audience could see the whole visage and then make the decision to walk around the crowd to the other side of the stage. Additional street furniture (shade areas and picnic areas) and some gentle stewarding at peak times was all

that was needed to prevent serious overloading on the stage left side.

With this ability to navigate by scanning the horizon or using smart phone maps, we left the audience to familiarise themselves with the city. If you ask three Londoners how to get somewhere by walking, you will receive three different answers – we believe the same of Boomtowners. Because no one path was recognised as the "main" flow route, people spread more evenly during large crowd movements.

The Paradise Heights district at Boomtown Fair Chapter 11 (2019) by Sam Warrenger / TheFestivals on commons.wikimedia.org CC BY 4.0

No Plan Survives First Contact with the Enemy

Not to minimise the importance of our carefully considered and vetted safety plans, but adaptability was another key part of our process.

During the festival we decided to shield one side of a main stage using tents and seating areas so we could divert people to the other side, with the goal of avoiding too much one-sided loading of the viewing area. Late line-up changes due to artists dropping out could have derailed our plans to split the crowd at peak times, but the music team rearranged the programme at the last minute. The team's decisions were aided significantly by management's decision to withhold the stage line up until the week of show and not sell the festival on headliners, which made sense for a festival where more than fifty DJs and bands could be playing at a time, any one of whom could prove popular and create unpredictable crowd movements.

We needed to be able to quickly gather intelligence to respond to events on site. With support from the Head of Operations, the ground operational team embedded ourselves into the event operations infrastructure.

We had access to immediate information such as the Boomtown customer app likes for artists, the CCTV feed, as well as a close relationship with security that included a desk and controller in the event control room. Perhaps the most useful tool in monitoring crowd movement was a drone equipped with a high-definition infrared camera with live feed to the control desk.

In addition to intel, Boomtown equipped the crowd management team well. We could set video messaging screens around the site to show one-way routes or that specific areas or stages were terribly busy.

The final tool in the box was an experienced team of security personnel who were on duty at busy crowd times. Led by our group of professional crowd managers, each security team was dedicated to a crowd manager in a distinct zone, allowing us to react quickly to any incident rather than having to first "round up the team". If the nearest deployment was not large enough to deal with the incident, we could use the control desk's communications system to bring in support from an adjacent team from another zone.

TAKEAWAY

The public safety authorities were pleased that the festival crowds flowed with minimal intervention, and we were gratified that most of our plans, with some tweaking, turned out well. We attribute our success primarily to three issues.

Early Involvement. As crowd managers, we were involved from the first mark on the paper to the last member of the public leaving. This gave us perspective on the entire event, and gave the festival operational continuity of knowledge, which in turn gave us the confidence to deviate from our written plan when we learned of changed circumstances on the ground.

Stakeholder Collaboration. The collaborative approach of the Crowd Management group within the site design team was critical to creating a physical environment tailored to the festival's unique topography and entertainment offerings, and the fact that all interested parties were part of conversations from the outset made decision-making faster and more cooperative during the event. Proper use of industry guidance. We are firm believers and eager students of event industry safety guidance. But it is just that, guidance. Each event presents its own challenges and opportunities. The value of crowd managers is that we can build upon our understanding of academic theory and consensus standards to make decisions tailored to the circumstances of the events and crowds before us.

Proper Use of Industry Guidance. We are firm believers and eager students of event industry safety guidance. But it is just that, guidance. Each event presents its own challenges and opportunities. The value of crowd managers is that we can build upon our understanding of academic theory and consensus standards to make decisions tailored to the circumstances of the events and crowds before us.

Justin Argent - *My journey to becoming a safety advisor has been a colourful one. Beginning my career in the UK's underground music and art scene twenty years ago, to today working for tess, advising some of the world's biggest festivals and tours, my experience is pretty eclectic.*

My specialism is working on projects with artists who present unique challenges ranging from structural complexity to flash mob style surprise gigs and the associated crowd management challenges.

If it's weird, I'm there.

Simon James - *My love of adventure sent me out on the road with the stars of the 80's including Tina Turner, Dire Straits, the Who and Michael Jackson, which cemented my love of rock 'n' roll and live events. Life on the road, however, opened my eyes to some 'less professional' aspects of big tours. Witnessing a few awful accidents made me seriously think about what could be done to stop deaths within the sector - but not the fun. A timely meeting with Tim and Mike and their fledgling event safety company tess inspired a fortuitous change in career.20 years down the line I am immensely proud of what the talented team at Tess has achieved in making events safer across the world. We led the way, along with a couple of other dedicated early adopters, driving the safety agenda and helping organisers realise that it didn't have to be a "can't do that" attitude when thinking about safety. Our enabling approach to creative event safety has kept hundreds of thousands of people safe, from artists and production professionals to audiences, so they all go home with a smile on their faces.*

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EVERYONE HAS TO GO
Portable Restrooms as Crowd Management
by Ross Ambrose (US)

"Community Night" was going to be a huge success. Ticket sales were strong, the weather was perfect, the first bands had started playing, and people were enjoying themselves.

Food and beverage sales were robust. A local charity group sold barbecue while food trucks served hot dogs, cheese fries, cotton candy, and snow cones. The beer tent was busy. People staked their claim to spots on the lawn to eat, drink, and watch the show. As the sun set, many guests trekked to the porta potties set up in the open space to the far side of the stage, away from food, drinks, and points of egress. They went early, before conditions in the toilets worsened or the lines became too long to catch the first act.

The organizers had worked hard to plan a bigger and better event. They understood that food and beverage sales, even more than admission tickets, were vital to financial success. They also knew people would need bathrooms, but they thought about this only as a drain on the bottom line, not as a part of either the event's economic or experiential success. They did not want to spend valuable planning time thinking about portable restrooms.

Most people don't. But they *should*.

Other than building codes, which often require public accommodations to provide more toilets for women than men, there is little data on how the public uses portable restrooms.

One valuable, if dated resource is a study in the Journal of Environmental Health, Determination of Requirements for Sanitation Facilities at Large Gatherings, known as the "Missouri Study."[12]

The Missouri Study reached several alarming conclusions.

32% of all people arriving at events hope or intend not to use portable toilets;

61% of women feel this way.

22% of respondents claim to have never used portable toilets.

Only **15%** of portable toilet users describe them as "good;"

50% describe them as "adequate."

The data matters for crowd management because people who move in foreseeable patterns are easier to manage, in that careful location of portable restrooms can help disperse a crowd and avoid creating chokepoints in paths of travel. Moreover, a comfortable crowd is likely to stay longer, which puts a greater emphasis on a robust egress procedure.

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12 Journal of Environmental Health, Vol 48. No. 5 (March/April 1986), pp. 250-258. The study data was collected by the University of Missouri-St. Louis School of Management. Also, the Portable Sanitation Association International (PSAI.org) is currently updating two key standards. Standard Z4.3 provides guidance for users of portable sanitation in a work environment; Z4.4 regards portable sanitation for public use.

Here are several ways in which portable restroom facilities can affect – and be affected by – crowd management at an event.

Location, Location, Location

As with real estate, a critical issue regarding bathrooms is where they are located relative to other attractions. Obviously, some should be near the areas where food and beverages are sold. If there are parts of the event site more likely to attract children or young families, portable facilities should be installed there too. And if restrooms are placed on the way into and out of the event site, then each visit will have the happy effect of reacquainting guests to the location of the nearest exit, which will help with both a normal egress at the end of the event as well as with an emergency evacuation.

Design Matters

In a row of toilets, the most used units will be in the center and at the ends. Where there are two rows of toilets facing each other, people tend to stand at the ends and wait for a door to open, which creates a needless line. Anyone brave enough to step around the queue to check the doors for themselves is generally rewarded by finding an empty unit. This is both bad crowd management and poor resource utilization because empty toilets waste valuable site space and prevent guests from engaging in more enjoyable and remunerative activities. Toilets that zigzag or are in the shape of a U naturally attract more even use. The line for a group of toilets in a U-shape enhances the visibility of all the doors, thereby reducing the number of underused toilets.

Quantities Matter

Once the event capacity is determined by event organizers working with public safety officials, and then the number of tickets is determined, the next planning issue is to identify the number of restrooms needed to serve the foreseeable crowd. It is important that the number of toilets should be based on times of likely greatest usage – after mealtimes, before major performances, and after the event. The longer guests have to search for a restroom, or wait in a queue to use one, the less time they have to participate in the event or purchase items that contribute to the event's economic success.

Let There Be Light

At night, the interior of portable restrooms must have enough illumination so people can see what they're doing, which is both a safety and a hygiene issue. The outside of the restroom area must have sufficient light so guests can read the door indicators, usually red for Occupied and green for Unoccupied, and also to make the area feel safe and deter misconduct. One of the principles of Crime Prevention Through Environmental Design ("CPTED") is that criminal activity is more likely to occur in areas that are obscured from view, so adequate lighting and open pathways around portable restrooms are consistent with crowd management, crowd security, and crowd health.[13]

Portable toilets lined up along street toward the capitol in Washington DC by myotus on commons.wikimedia.org CC BY-SA 4.0

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13 ISO 22341:2021, Security and Resilience – Protective Security – Guidelines for Crime Prevention Through Environmental Design. See 3.1, which defines crime prevention through environmental design.

TAKEAWAY

Just as most performers relish playing the lead role, it is understandable that event organizers would rather focus on the pretty and shiny parts of their event. A modest amount of consideration of the issues set forth above, however, will keep an event from becoming memorable because of a toilet situation. Given the ways in which portable restroom placement and utilization follow general principles of crowd management, it would be an unforced error for any event to be memorable because of the portable restrooms

Ross Ambrose *is Managing Partner of AAA Event Services, LLC, a portable sanitation company in Florida, USA. Mr. Ambrose is also President of the Portable Sanitation Association International (PSAI.org). He is a member of PSAI's Training Committee that is updating the American National Standards for situations that require portable sanitation, and he is a Master Trainer for the PSAI.*

Portable toilet with Michelangelo's David decoration, found in Italy
by Lucarelli on commons.wikimedia.org CC BY-SA 3.0

THE PHILADELPHIA CHINESE LANTERN FESTIVAL

A Study of Successful Public/Private Cooperation
by Ira Rosen (US)

In the spectrum of challenges event organizers face, rapidly increasing popularity of their events is one of the happier problems. Most safety literature is expressly intended to be scalable, meaning that its central concepts should work as well for small events as for much larger ones. Nonetheless, no plan is infinitely elastic. Sometimes, it's necessary to call in the cavalry for reinforcements. This is about one such event.

The Philadelphia Chinese Lantern Festival is an annual event begun in 2016 as a partnership between Historic Philadelphia, Inc. (HPI) and Tianyu Arts and Culture. HPI is a not-for profit company dedicated to strengthening Greater Philadelphia's role as a destination to experience American history; Tianyu Arts and Culture is the largest producer of Chinese lantern festivals in North America. The Festival takes place over more than six weeks during the Summer. It is held in Franklin Square, a family-friendly area in the heart of Philadelphia. HPI operates the Square under a license agreement with the City of Philadelphia's Parks and Recreation Department.

中文（简体）：一串灯笼挂在夜空中。 A set of Chinese lanterns hanging on the sky in a night by tookapic on commons.wikimedia.org CC0 1.0

From its inception, the Festival raised crowd management issues. The first challenge was to convert a public park to an access-restricted site for a ticketed event. Fortunately, the Philadelphia Office of Special Events, which issues all event permits within the City, has a "one-stop shopping" approach to special events, including a robust website that provides a great deal of information for prospective event organizers. HPI then developed a perimeter fencing plan with one primary entrance, two primary exits, and six emergency gates in consultation with the Philadelphia Fire Department and the City's offices of Emergency Management, Special Events, and Risk Management. I served as operational consultant for the new event.

Initial assumptions about the event led us to pay relatively little attention to documenting our Emergency Action Plan or the crowd-related risks it was intended to mitigate. Many of the plan's contributors and reviewers were familiar with both the National Incident Management System (NIMS) and the Incident Command System (ICS), but because the festival was considered a "minimal risk event," neither of these open-source government resources was formally consulted by planners or cited in the final safety plan. In other words, because we started small, we thought small too.

This relatively ad hoc crowd management plan worked without incident for the first year as crowds were not very large. The second year

attracted a much larger turnout, however, which caused us to rethink our assumptions. The ingress plan did not accommodate the number of people who wanted to see the Festival, so there was a significant queue to enter. This crowd buildup occurred on the sidewalk of a busy city street, which raised the risk of either an accidental or intentional vehicle incursion. During after-action review, the stakeholders were tasked with developing a more formalized crowd management plan for the 2018 Festival.

The parties involved in developing the original event safety plan were joined by the Franklin Square Director of Operations and the contracted private security company. I led the updated plan development project.

Generally, we followed a common step by step process, most recently documented in "The Sports Event Management and Marketing Playbook," which consists of the following.

1. Identify areas of risk exposure and the likelihood of their occurrence.

2. Project possible outcomes flowing from areas of risk exposure.

3. Determine possible risk mitigation measures.

4. Act on feasible strategies to prevent undesirable outcomes.

5. Identify possible reactions to risks that cannot be avoided.

6. Formalize crisis management and communications procedures.

The initial risk assessment identified several crowd management issues.

1. Risk to crowds queuing along Sixth Street.

2. Inadequate capacity management plans.

3. No bag search/screening procedures.

4. Inadequate egress capabilities in case of mass evacuation.

5. Inadequate emergency communication processes.

Because the event industry has a growing body of authoritative safety guidance upon which to draw, we hit the books. The team reviewedNFPA 101® - Life Safety Code®[14], particularly Chapter 7 regarding emergency egress. We studied how to calculate occupancy limits for outdoor events and how to document our work. We reviewed relevant provisions of the NIMS/ICS training documents. Festival management also met with City officials to ensure that every stakeholder was informed and comfortable with our operational decisions.

Before issuing a permit for the 2018 Festival, stakeholders met several times, did a careful walkthrough of the site, and reviewed the safety plan, which included the following elements.

1. Capacity was determined to be 7,000 invitees. This was calculated based on the square footage of space within the perimeter minus floor space consumed by structures such as tables, chairs, and equipment. Festival management then decided to reduce this to 5,000 people to ensure that it could manage its crowds safely. Crowd density was monitored through electronic ticket counts at ingress and manual counts at egress.

2. An additional entrance was added for weekends, which helped disperse the crowd waiting to enter and separate pedestrians from vehicular traffic using barricades.

3. In addition to the two entrances, we created six emergency exits, each staffed by a security person to prevent unauthorized ingress while facilitating emergency egress. Each exit had elevated battery backup illuminated emergency exit signs, emergency light towers, and a fire extinguisher.

4. An emergency communications plan was developed by the Office of Emergency Management using the ICS 213 General Message template.

In 2018, our risk assessment concluded that bag screening was not required due to the nature of the event. As we planned to reopen after two years off for the pandemic, we revisited this conclusion and instituted a mandatory screening process, discussed further below.

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14 www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=101

The 2018 Festival enjoyed great crowds and no significant incidents. We followed up with a post-event review, which led us to further revise our safety plan for 2019, which was also a rousing success.

Just as we were getting the hang of this event, the pandemic shut us down for two years. When we began planning to reopen for 2022, we naturally started with our last version from 2019. Unfortunately, the passage of time forced us to accommodate further changes.

1. Gun violence at mass gatherings have continued to plague live events in the United States. More specifically, since this was a Chinese lantern Festival taking place next to Philadelphia's Chinatown district, our risk assessment and safety plan needed to address the heightened risk of post-pandemic anti-Asian violence.
2. Due to construction by the local port authority, no emergency egress was possible on one of the four streets that border the Festival site.
3. The area where we were permitted to serve alcohol was expanded, creating a need for additional police to support private security's ID checks and to remove any intoxicated or unruly guests.

The Philadelphia Chinese Lantern Festival
Photograph courtesy Ira L Rosen

As we considered how to mitigate these further risks, the team undertook a comprehensive study of crowd management standards, including ANSI ES1.9-2020[15], Crowd Management, which was released early in the pandemic and was therefore not part of our previous analysis. This became a primary guideline for the 2022 Festival crowd management plan. We also spent a significant amount of time meeting with our safety and security stakeholders.

Here are some of the most significant risk mitigation measures we implemented.

1. We decided to screen all attendees for weapons, including staff and vendors as well as guests. We selected a walk-through system that uses digital sensors so people could keep walking. Then, because no system is perfect, we added a secondary bag check station for anyone who raised an alert during their mechanical screening. Faster ingress helped mitigate the risk of pedestrians mixing with vehicles, which we further addressed by adding water-filled barricades along the most exposed side of the Festival site.

2. We worked around the construction-related street closure by obtaining City approval to add an emergency exit on a different street, which we marked with additional exit signage.

3. On the recommendation of local police and the City Office of Special Events, the number of off-duty police officers was increased from 2 to 3, which included at least one sergeant. The officers provided an additional uniformed presence to mitigate any threats within the event footprint.

TAKEAWAY

The 2022 Festival was extremely successful, attracting almost 150,000 attendees from 40 U.S. States. At the conclusion of that Festival, as we do every year, we met with the various public and private agencies associated with the event and made a few minor tweaks for the 2023 Festival, which include repositioning the gates and barricade and enhanced lighting for the emergency exits. The 2023 Festival encountered some bad weather which caused several closures, but still attracted over 120,000 people from 49 states.

Each year, in cooperation with our public and private stakeholders, we revisit our safety plan, including the assumptions and risk assessments underlying our plan. As pleasant as it would be to rest on our past successes, we have come to appreciate that time marches on, risks change for reasons beyond our control, but it's still our job to provide a safe event for our guests, staff, and vendors. The Philadelphia Chinese Lantern Festival shows that with extensive cooperation between private event promoters and a broad range of municipal agencies, we can reach this important goal.

Mr. Ira L. Rosen is a highly regarded festival and event consultant with decades of global industry experience. Although he has a very comprehensive industry background, he specializes in the areas of event risk assessment, evaluation and planning for festivals and events, and practical strategic development. From 2008 to 2023, he taught many different event management courses at Temple University in Philadelphia and developed their award-winning Event Leadership Executive Certificate program. Additionally, for over thirty years he owned and operated Entertainment On Location, Inc. (EOL), a full-service event production and consulting company based in New Jersey. Prior to opening EOL, Ira worked for over seven years with Radio City Music Hall Productions. His production background includes the Super Bowl half-time show, multi-million-dollar parades, major corporate events around the world and tourism development projects for many different organizations.Ira has spoken at conferences and conventions and has done training programs around the world. He has written and spoken extensively on key industry topics ranging from risk management to sponsorship to the financial and operational management of events. Ira holds Bachelor of Arts and Master of Arts degrees from Montclair State University in New Jersey and is a Certified Festivals and Events Executive (CFEE). In 2005, he was inducted into the International Festivals and Events Association Hall of Fame, becoming one of only 70 people in the world to hold this honor.

CONTINGENCY PLANNING,

or The Importance of Relationships

by Anthony "AD" Davis (US)

This starts as a Boston story. Any Red Sox fan of a certain age can tell you how Doug Mirabelli saved the 2006 season. For the previous five seasons, Mirabelli had been the personal catcher for Sox starting pitcher Tim Wakefield. Mirabelli wasn't much of a hitter so the team let him go. But it quickly became apparent that no one left on the roster could catch Wakefield's knuckleball, which fluttered away from Mirabelli's hapless successor.

After a few misadventures, Red Sox management reacquired Doug Mirabelli on May 1, 2006. The challenge was that Tim Wakefield was scheduled to pitch at Fenway Park in Boston that night, and Mirabelli was in San Diego, California. The deal was finalized around 10 AM EDT, just nine hours before the first pitch of the Sox game. The club really wanted Mirabelli to catch Wakefield, so they immediately got him on a cross-country flight.

Mirabelli's plane landed in Boston just 12 minutes before game time. Massachusetts State Troopers provided a police escort from the airport to the ballpark while he changed into his uniform in the back seat. Years later, a police spokesperson said, "As a public safety agency, that was not an appropriate use of our assets." Given that Tim Wakefield pitched seven strong innings to his favorite catcher and the Red Sox beat the Yankees 7-3, most Red Sox fans would respectfully disagree.

Boston Red Sox catcher, Doug Mirabelli before the Red Sox' spring training game at City of Palms Park in Fort Myers, Florida by Wknight94 CC BY-SA 3.0

I had a similarly dramatic, if less famous, situation in Boston with my event production company a few years ago. We had just finished working a festival in New York City and were preparing to move my management team to a festival in Boston the next weekend.

All our plans were set. We had retained a local company to provide 100 security guards and event staff. However, on that Wednesday our security vendor backed out, leaving us a day and a half to find 100 qualified security guards who could work a three-day festival on short notice.

Fortunately, we had just worked with a crew that size in New York. Our coordinators re-signed most of them for the Boston event. Check. Then we had to get 100 staff four hours north. We gritted our teeth and paid last-minute rates for two charter coaches from a company we knew. Check. Meanwhile, our other coordinators went to the festival site in Boston to do their usual pre-event vetting and meetings, on the assumption that we would manage to fill the security call. Check. Finally, an essential member of our team was the chief of a local police department, a longtime friend of my company, who served as our liaison with public safety agencies working the festival. By show time, everything seemed to be in place.

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16 The Doug Mirabelli Trade: An Oral History, The Hardball Times, April 29, 2016.

Bus route 39 on Huntington Avenue in Boston.
by Grk1011 on wikimediacommons.org CC BY-SA 3.0

Except for the buses. In another common Boston issue, the drivers had gotten lost in the city's meandering and poorly marked streets. By the time doors were scheduled to open at noon, about 10,000 people were queued up on a hot, sunny day. With each passing minute, the crowd got more agitated, as did the festival promoter. Candidly, I was worried about the potential for both gate crashing and heat-related health issues. Here's what we did.

I instructed our police chief to ask his colleagues in the Boston Police Department if they would send two marked police units to escort our buses to the venue. Perhaps figuring that if a Red Sox player deserved a ride, they could help with the Guinness Fleadh Festival, they agree. Meanwhile, I picked up a bullhorn and told the crowd our dilemma, and I assured them we would open the gates as soon as we could. There were jeers from people near the front who could hear me, but it bought us a few minutes of grace. Then in our final Doug Mirabelli move, we had our staff change into their uniform shirts and receive their pre-event briefing in transit so they could go straight to their posts as soon as the buses parked.

Thanks to our police escort, the buses dropped our briefed and uniformed staff at the main entrance, where they jumped right into line management, ingress searching, ticket scanning, and perimeter security positions. We had golf carts ready to deploy our team to festival attractions, stages, and backstage compounds simultaneously. Rarely are my crews cheered like professional athletes, not even like backup catchers. But after overcoming so many obstacles, this time there was applause and gratitude even though gates opened 30 minutes later than scheduled.

In Boston, there were anxious minutes around the scheduled time for doors to open when festival ingress teetered on the edge between crowd management and crowd control. Fortunately, we were able to provide just enough information for just long enough so that, with a big assist from local officials, tensions did not escalate to the point where the crowd got out of control. It could have easily gone the other way – we know this was a near miss – which is why this is a story worth telling.

TAKEAWAY

We avoided a crowd management disaster and had a great show, despite a cascade of early mishaps, because at each step we had a backup plan and people ready to do their part. I like to think my company runs a tight ship and doesn't need a lot of contingency planning. Periodically I am reminded that our contingency planning is what helps us look like we had it under control all along.

Anthony "AD" Davis is the President/CEO of AD Davis Entertainment Group, Inc. AD has been a pioneer and innovator of security and crowd management solutions for over 40 years. He has served as security director or security coordinator of some of the largest and most prestigious concerts, festivals, and film and television projects in the world, including Woodstock 1994 & 1999, Lollapalooza 1992-97, Aerosmith, Michael Jackson, Ozzy Osbourne, LORDE, Arianna Grande, Grammy Awards, People's Choice Awards, MTV VMA's, Call of Duty Championships, and Riot Games e-sports global tournaments.

"DON'T BE A D*@K!"
My First Show-Stop
by Steve Lemon (US)

Back in 1986, I was the production manager for Ozzy Osbourne on the Ultimate Sin Tour, with Metallica opening. We were doing a gig on the west coast of North America and during the changeover from Metallica to Ozzy, I noticed the promoter rep shouting and waving at me from the side of the stage, urgently motioning for me to come join him.

With the typical attitude of anyone who views a minute's delay as a minute's less sleep that night, I grumbled expletives under my breath and trotted over to see what could possibly be so important as to break me away from the change-over and possibly delay the start of the show. He pulled back the mid-stage drape and then I saw it, my first conscious memory of involuntary crowd movement on a large scale, thousands moving in a sea of fluid-like motion.

Don't be a dick by Robert Occhialini on Flickr.com CC BY-NC 2.0

It was beautiful, mesmerizing, even hypnotic, how the people ebbed and flowed in ways I'd never seen people do before! It was like the fluid dynamics of tidewater flowing into a cove with no outlet, and then the severity of the situation began to sink in.

Sure, I'd seen dense crowds and aggressive behavior plenty of times, but this was just… different. The kids were not enjoying themselves; some were cringing in pain, drenched with sweat, taking breaths as the physical pressure allowed. Some appeared unconscious and were being passed overhead to the pit for extraction. A tell-tale that I carry to this day was the look in their eyes. So many of their eyes were not looking at the stage waiting for the show to start, their eyes were open but

didn't appear to be focused on anything, like a distant stare. This was the US in the mid-1980s, people with crowd management experience were in short supply.

There was a point when something clicked in my head, and I realized starting the show late was unimportant compared to this situation in front of me and that what I was doing to remedy the problem, which was nothing at that moment, was unacceptable. We had to do something and failure was not an option. After about ten seconds, or was it two minutes? I looked over at the promoter rep and shouted "Hey, that's dangerous! Somebody's going to get hurt!"

The promoter rep shouted back, "Yeah! That's why I came to you!" I asked, "What do you want to do? Can you say something?"

"No, it can't be me, you're with the artist, it needs to come from you." he responded. Remembering we had an emcee I countered, "What about the DJ, they'll listen to him, right?"

No joy. The promoter rep called me out, "That guy's a poser, plus he's more wasted than they are. Let's go buddy, it's you." We made our way downstage. "Me?" I protested, "I don't know anything about this kind of stuff."

You know the expression, 'If all you have is a hammer, everything looks like a nail?' A production manager uses production manager tools, so that's what I did. I was familiar with the artist and their type of audience, the promoter rep did over 250 shows a year in this market and he knew the audience and the venue. This was his city, and together we walked out to the front edge of the stage.

Because it was a set change, the house lights were already up. I grabbed a microphone and instructed my crew to kill the house music and activate my mic. As usual, when the house music goes out the crowd goes nuts for a bit, thinking the show is about to start. As I considered my options, they finally responded to the "dead air" coming from the PA and gradually calmed down. It was taking too long though, there was still considerable crowd movement occurring. Our presence on the front of the stage was obvious, especially once the lighting director, as a joke, had a spotlight pick us up so the kids would know who was talking to them. I was not ready to do this but I took a breath and started talking.

I informed them that I was Ozzy's production manager and we had a serious problem down front. To solve it we needed their help. Nothing fancy, I simply played it straight. I told them people were getting hurt and I wouldn't be able to bring Ozzy out until we fixed it. By now, the crowd was almost still and very tightly packed, definitely more than 7 people per square meter for the first 30 meters in front of the stage.

There, in a brightly lit and unexpectedly quiet arena, was a guy on stage who they didn't know, guiding them in a civil tone through a series of tasks required to start the show and give them what they came for, Ozzy. It turned out that by changing the environment so much from what they expected, they started to resemble the individuals they had been earlier in the day before they ever got to the show and became a crowd.

I drew an imaginary line about 30 meters back by the mix area, where the crowd looked less dense. I asked the people there to slowly take

Ozzy Osbourne during the Diary of a Madman Tour (1982) by Ted Van Pelt on creativecommons.org CC BY 2.0

five steps back and I counted it off as they stepped back…and of course nothing happened. When they didn't react, I recall making a joke about how they must not speak English, so I counted it off again in German, which drew a laugh and a little engagement, and at that point people gradually started to engage with the process and began stepping back. Next, we did French, Spanish, Italian, we'd announce which language we were going to say it in, and the audience would say it with us.

This situation would have been challenging at any show, but metal shows are not known for compliant crowds. Since they obviously had no loyalty to me, I used the artist they came to see as motivation. I prodded them with lines like, "Ozzy's getting tired of waiting, let's do this so we can get started." Starting a few minutes late was always an issue, but in this case, with public safety at risk the venue and promoter were on board so there would be no issues at settlement later on.

Eventually we talked the crowd back to a point where it looked like we had relieved enough

pressure near the stage for people to breathe. We thanked them for their cooperation and signed off saying we'd start the show in just a few minutes.

The spot went out, the house music came on and shocker, just as I turned to check the stage to start the show, a guy down in the front began swinging his fists at other fans and security. I didn't see what started this, only that security and other people in the audience had surrounded him and he was behaving like a cornered animal. Still riding the wave from my earlier success with the audience manoeuvre I jumped into 'guy who likes to hear himself speak over a loud PA mode', and exclaimed, "Hey dude! Don't be a dick!" A second later, an arena of metalheads were chanting, "DON'T BE A DICK! DON'T BE A DICK!" I didn't see that coming…

moshing by GothEric on commons.wikimedia.org CC BY-SA 2.0

During the entire sequence of events, which probably lasted only a few minutes but felt like a lifetime, I was the dog that finally caught up to the car. They first looked out of control, until they began to exercise some collective will over their own safety. Rather than turning against me, or security, or public safety, at the end they settled on a target among themselves, and they directed their rage against the guy who was delaying the show, their show.

In retrospect, two things stood out as key take-aways: we engaged the crowd by using some

impromptu absurdity and humour by counting in other languages; and, by stating we were not starting the show until the problems were fixed, they became stakeholders in the success of the exercise.

I introduced Ozzy, the show went on. There were no more than the anticipated number of medical incidents. Another night at the office. I was lucky that night.

I don't know when I would have intervened had I not been enlisted by the promoter rep to do something at that moment. I had never thought about how I would get the crowd's attention before I reached for a mic that night. I didn't know if asking people to step back would work. Using humour certainly wasn't part of my plan but it worked that day. I suspect that being in the middle of a set change with the house lights up was a big advantage. I didn't know what the crowd's reaction to me talking to them would be, and I may have been partially saved by a guy fighting in the audience who I accidentally got them to dislike, even more than me.
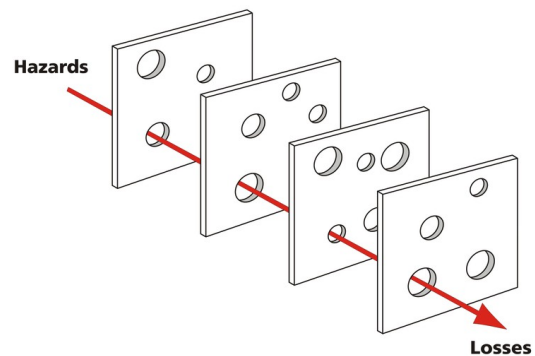
Swiss cheese model of accident causation by Davidmack on commons.wikimedia.org CC BY-SA 3.0

I often think about James Reason's "Swiss cheese model" of risk management.[17] The basic idea is that a reasonable risk management plan will have lots of risk mitigation measures, not just one. Some things we plan will work some of the time, but every event is different so almost nothing has the same effect every time. The Swiss cheese model uses Swiss cheese slices to represent risk mitigation measures, and an

17 The Swiss cheese model of safety incidents: are there holes in the metaphor? National Library of Medicine, BMC Health Serv Res. 2005; 5:71

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arrow to represent a risk. If you put enough risk mitigation measures in place – enough slices of Swiss cheese – when the risk arrow attempts to travel through the cheese, the risk will probably be mitigated or eliminated by one measure or another. We can't always predict which measure will work best for every show or crowd or venue, but in the end you and your crowd will likely be saved by cheese.

TAKEAWAY

To avoid disaster that night, a lot of things had to go right. Our job is to make complex events look effortless so our guests can focus on enjoying the experience.

The great majority of shows work out just fine, despite occasional glaring issues and near misses that lead us to say things like, "We were very lucky today."

Steve Lemon began working professionally in the entertainment industry in 1975. With roots in music touring, Steve enjoyed success in festival production beginning with the Moscow Music Peace Festival and Woodstock 94, while continuing a successful festival career he continued to branch out into large scale events, producing events including Centennial Olympic Park and the AT&T Global Olympic Village at the 1996 Summer Olympic Games (Atlant) and the Nike Human Race 780,000 runners in 22 cities worldwide. Today Steve considers himself a 'student' of safety. He is a Founding Board Member of the Event Safety Alliance, a primary contributor to the Event Safety Guide v.1 and is currently working with ESA on the Event Safety Guide v.2.

CROWD SAFETY MANAGEMENT MEETS CROWD PSYCHOLOGY

by John Drury (UK)

Big Beach Boutique II was a music event which took place in Brighton, UK, in 2002. It is now legendary for ravers and crowd safety managers alike. Organizers expected a crowd of up to 60,000, but around 250,000 crowded onto the beach that day, as people travelled from all over the country. The media described the event as a 'near-disaster' and even an 'apocalypse': emergency exit routes were blocked, the density of the crowd was dangerous, and some attendees climbed up the lighting rigs. 160 people suffered minor injuries, 11 were taken to hospital, and six were arrested. Certainly the safety staff, the emergency services, and the facilities were overwhelmed. And yet it wasn't the disaster that some feared; and for many attendees it was an outstanding experience.

Big Beach Boutique II was exceptional in a number of ways, but it also has features in common with many live events. Therefore, it serves to illuminate some general processes in crowd psychology, crowd safety management, and the relation between the two. This is why I carried out a research study into the event -- interviewing and surveying participants, organizers and staff, and gathering statements people made at the time. This is also why the event features in my teaching and in the training I provide to professionals working in the live events industry.
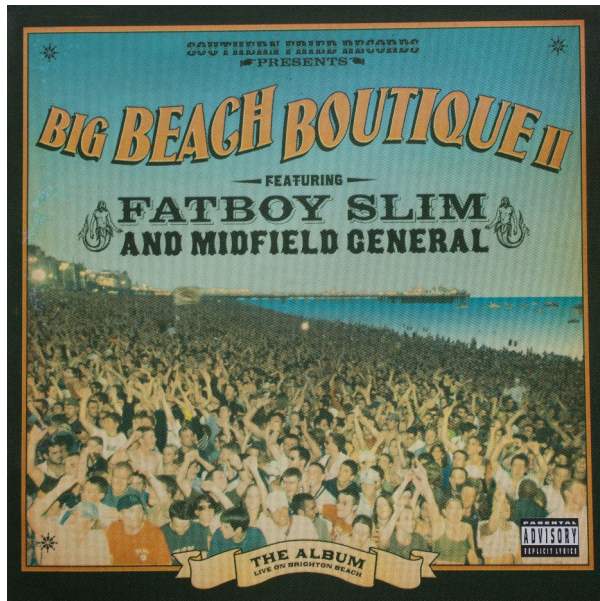
CROWD BEHAVIOUR AND PSYCHOLOGY

What is the psychology of the crowd at live events? It's sometimes assumed that the relevant psychology begins and ends with individual biases and heuristics. But biases, heuristics and indeed all cognitions and motivations operate through the prism of identity. What seems important, what we notice, is judged as a function of who 'we' are. And we each have multiple 'we's, or identities, corresponding to our multiple group memberships. For example, experiments show that when people who define themselves as rock music fans hear the same victim of an accident described as an ingroup member (e.g., 'music fan') rather than an outgroup member ('classical music fan') they perceive risks to be higher.[19]

Live events are crowd events, which not only makes particular identities salient, it also transforms attendees' relationships with those around them. All of this means that the psychology we need to understand behaviour and experiences at live events is a crowd psychology. But not any old crowd psychology. The 'mob mentality' theory of Gustave Le Bon and others has long been discredited.[20] Today, modern psychology understands crowd behaviour through the concept of social identity. Shared social identity enables people in a crowd spontaneously to act as one; it defines who we want to cooperative with; and it specifies norms providing common definitions of appropriate and desirable behaviour.

18 Drury, J., Novelli, D., & Stott, C. (2015). Managing to avert disaster: Explaining collective resilience at an outdoor music event. European Journal of Social Psychology, 45(4), 533-547. https://onlinelibrary.wiley.com/doi/pdf/10.1002/ejsp.2108

19 Spears, R. (2010). Group rationale, collective sense: Beyond intergroup bias. British Journal of Social Psychology, 49(1), 1-20. https://bpspsychub.onlinelibrary.wiley.com/doi/full/10.1348/014466609X481308

CROWD BEHAVIOUR AND UNDERLYING PROCESSES AT BIG BEACH BOUTIQUE II

Big Beach Boutique II The Album: CD Cover
Courtesy John Drury

But what about relations with staff and organizers? Another feature that contributed to the atmosphere at Big Beach Boutique II was partygoers' sense that organizers had lost control: 'the kind of spontaneity of it and the fact that it was so almost disorganised and you know snowballed into something much bigger than it was meant to be really added to the experience made it feel like it was a real one-off experience'. The link between the failure of control by the organizers and the sense of excitement was contrasted with the experience four years later, at Big Beach Boutique III. This was a ticketed event, which was much more securitized and commercialized. It was objectively much safer, but in the views of attendees it lacked the atmosphere that characterized the earlier event.

Three features of the behaviour and experiences of the crowd at Big Beach Boutique II stood out and illustrate processes observed at live events more generally: creating atmosphere, experiences of crowdedness, and feeling safe.

Creating atmosphere

Those attending Big Beach Boutique II often talked passionately about the atmosphere: 'the most amazing event I have ever been to. The living atmosphere was unlike anything I have ever witnessed'. Good atmosphere tends to be linked to positive emotion (joy, happiness etc.). And what are the key factors that contribute to a good atmosphere and the associated positive emotion? A short answer is social relations – in particular sharing identity with others at the event.[21] At Big Beach Boutique II, many of attendees' accounts of 'positive atmosphere' referred to friendliness and positive interaction with strangers.

Experiences of crowdedness

While Big Beach Boutique II attracted many people who saw themselves as ravers or clubbers, an event as big as this also attracted people with a more casual interest in the music and who didn't identify strongly with the dance crowd. This variability in levels of identification had consequences for people's experiences of crowdedness. The Safety Manual for the event stated that the site was 50,605 metres^2 in size, and therefore allowed for 0.5 metres^2 per person in a standing crowd of 60,000. However, most estimates put the size of the crowd that day at around 250,000, giving only 0.2 metres^2 of space per person. Prima facie, therefore, this was a very crowded event.

We found that people's sense of identification with the crowd was linked to their feeling less crowded. As people reported greater levels of crowdedness, low identifiers found this less and

20 Drury, J. (1895). Gustave Le Bon's "Psychologie des Foules": A commentary and evaluation. In Psychologie Des Foules. La Société Enrick B. Editions.
www.researchgate.net/profile/John-Drury-2/publication/356378565_Gustave_Le_Bon's_Psychologie_des_Foules_A_commentary_and_evaluation/links/61976f6e07be5f31b79989a0/Gustave-Le-Bons-Psychologie-des-Foules-A-commentary-and-evaluation.pdf

21 Neville, F., & Reicher, S. (2011). The experience of collective participation: shared identity, relatedness and emotionality. Contemporary Social Science, 6(3), 377-396.
researchgate.net/publication/233219317_The_experience_of_collective_participation_Shared_identity_relatedness_and_emotionality

less enjoyable, whereas high identifiers were not negatively affected and continued to enjoy the event.[22] There is a 'common sense' view that people always seek 'personal space'. But at live events committed fans will seek out and enjoy the most crowded parts. They see others' presence as part of the atmosphere, not an invasion of their space.

Feeling safe and creating safety

Where there are high levels of identification with a crowd, people in a crowd event can feel safe at objectively unsafe levels of density (Hani). This was certainly the case at Big Beach Boutique II. Why do high identifiers feel so safe in these high-density contexts? Looking at the factors that are associated with these feelings of safety, it's evident that relations with others in the crowd are again important. It's not just the organizers' perceived competence that makes attendees feel safe, but also attendees' expected support and trust in other attendees-their belief that others would help if needed.

High density makes it difficult if not impossible to help those around you. But such impulses and efforts have been noted at well-known crowd crushing incidents, including the Who concert crush, Hillsborough, and Astroworld.[23]

Indeed, in many emergency incidents, the expectation that others in the crowd will provide support is actually a realistic one. And it's more likely to happen when there is shared social identity in the crowd.[24] At Big Beach Boutique II, the crowd faced a number of dangers. As the tide came in people, density increased and some people became distressed. But the spontaneous mass evacuation from the beach was not panicked and competitive, but orderly and coordinated. Further examples of coordination were observed in the way the crowd managed more mundane dangers. Thus, people in the crowd formed circles to protect the privacy of women urinating, and used friendly interaction to regulate the drunken behaviour of some individuals when it was becoming annoying for those around them.

View of the 2002 Big Beach Boutique II, Brighton, UK, 17th July 2002.by AJB83 Public Domain, commons.wikimedia.org/w/index.php?curid=104302

23 edition.cnn.com/2021/11/07/us/astroworld-festival-what-happened/index.html

24 Drury, J. (2018). The role of social identity processes in mass emergency behaviour: An integrative review. European Review of Social Psychology, 29(1), 38-81. www.tandfonline.com/doi/pdf/10.1080/10463283.2018.1471948?casa_token=zS8nkVjLXLMAAAAA:cZnHNKVS--kzD8Lfpl178BxDZn--nGLck--d-g0N48Ok9Dy01vLhEjVAW11y8I4NZm8nr7Dagw

APPLICATION FOR EVENT PROFESSIONALS: WORKING WITH CROWD PSYCHOLOGY

At Big Beach Boutique II, both partygoers and some of the crowd safety staff said that the crowd saved the day. Indeed, the professionals often felt powerless to act as there were so few of them relative to the size of the crowd. However, this event also illustrates how crowd safety professionals can work with crowd psychology to contribute to safety. There are three recommendations here.[25]

Know crowd psychology, know the social identity

The (mistaken) assumption that crowds tend naturally towards 'panic' and disorder rationalizes forms of crowd management (including withholding information and prioritizing coercion) that make anxiety, distress, and hostility in the crowd more likely, in a kind of self-fulfilling prophesy.[26] If crowd behaviour is rather based on a psychology of identity, then one of the first tasks for those working with the crowd is to get to know that identity. What are the values, aims and norms of the people attending? How do they define themselves? At Big Beach Boutique II, it was notable that the police officers on duty at the event had a much more difficult, even 'traumatic', experience than some of the other crowd safety professionals. To the police, the crowd seemed to be chaotic, hostile, disorderly, and dangerous. To those professionals more familiar with rave and clubbing culture, however, while the crowd's behaviour did not fit societal norms, nevertheless the majority of people were friendly ('loved up'), conforming to their own norms, and therefore had clear behavioural limits based on their shared identity. Knowing and understanding the crowd's identity can enable event professionals to connect with the crowd and to work with it, rather than against it.

To enhance safety and atmosphere, become ingroup to the crowd

A key reason why members of a crowd cooperate with each other is because they share identity – they see each other as ingroup – even if they don't know each other personally. Therefore, to get the crowd to cooperate with you (whether asking them to avoid the most crowded areas or advising them on the correct exit in an emergency), you need to become ingroup to the crowd. Sure, you are 'the experts', so in that sense you're different from the crowd; but you can be seen as 'our experts' rather than 'other' to the crowd.

Being seen as ingroup to the crowd also matters for atmosphere. Why did attendees experience the loss of control by organizers at Big Beach Boutique II as exciting, and the increased safety measures at Big Beach Boutique III as detracting from that enjoyment? Because such safety procedures were felt to be an external imposition. Yet if safety measures are done 'by us' not 'to us' – and ideally developed by co-production -- they are no longer such an external imposition.

Work with not against group identities to enhance safety

There are lots of ways to 'become ingroup' to the crowd. Many of them are simple: badge yourself as 'crowd safety' rather than 'security'; provide information attendees find useful; communicate in a friendly way; help attendees achieve their aims. All these create connections. But there may be limits to this. When the crowd don't see you as ingroup, what will you do?

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25 These and other recommendations are described in more detail in the following: Drury, J., Carter, H., Cocking, C., Ntontis, E., Tekin Guven, S., & Amlôt, R. (2019). Facilitating collective psychosocial resilience in the public in emergencies: Twelve recommendations based on the social identity approach. Frontiers in Public Health, 7, 141. www.frontiersin.org/articles/10.3389/fpubh.2019.00141/full

26 Drury, J., Novelli, D., & Stott, C. (2013). Psychological disaster myths in the perception and management of mass emergencies. Journal of Applied Social Psychology, 43(11), 2259-2270. https://onlinelibrary.wiley.com/doi/pdf/10.1111/jasp.12176? casa_token=g9ft1jUhfbAAAAAA:nzIaKGYl_Sl-ygYyQlaFoEV5o32cP1odf_qdxNu7s3aqxm0W5mq67PceVyu_Ww9mzFBCuuaNjrI

At Big Beach Boutique II, when people climbed up the lighting rig, it was no use the staff simply asking them to come down. And if the police had tried threats of coercion, most likely people would have disobeyed further, as the police were weak and the crowd was strong. But some of the safety personnel knew the crowd identity well enough to understand who would be influential with a safety message – who was the crowd 'prototype' or embodiment – the headline DJ Fatboy Slim. So staff asked him to ask people to get down from the lighting rigs. The people came down, the crowd cheered rather than expressed hostility -- and no one else climbed a lighting rig that night. In effect by involving the group protype a new safety norm had been established.

TAKEAWAY

Crowd safety relevant behaviours and positive atmosphere in crowds are both related to social identity processes. Event professionals need to understand and work with the identity of the crowd at their event to manage crowd safety and enhance positive experience.

John Drury is Professor of Social Psychology at the University of Sussex. His research on collective behaviour in crowd events and mass emergencies has informed the training of stewards and crowd safety managers across UK and Europe, and informs the Civil Contingencies Secretariat's National Risk Assessments. As part of the response to the Covid-19 pandemic, he participated in the UK Government SAGE behavioural science subgroup SPI-B.

Big Beach Boutique silhouettes by Jay Gooby on flickr.com CC BY 2.0

SEE ME, HEAR ME
Perception and Reaction in Crowded Places
by Steven Adelman (US)

A neighborhood church entered a float in a small-town parade over a summer holiday weekend. The float was a flatbed trailer pulled by a pickup truck. A tall, narrow "mobile billboard" frame was mounted on the trailer to advertise the church, including its welcoming slogan, "You Belong Here." To underscore the invitation, the pastor asked his parishioners to help promote the church. More than sixty people responded by accompanying the float along the parade route, including entire families. The church gave adult and child parishioners matching tee shirts to wear, as well as candy, Frisbees, soda, and church flyers to hand to spectators.

By the time the float neared the end of the route that hot morning, some of the children were tired of walking. Several joined the pastor, who was sitting on the exposed portion of the mobile billboard trailer holding his two young children on either side of him. Parents walked on the passenger side of the trailer next to them.

Church members later told police that kids were "running around before and during the parade and were getting on and off of the float throughout the parade."

Other than the twin wheels that extended beyond the width of the floor, the trailer was completely flat. There were no railings, handholds, warnings, markings, or safety measures of any kind.

Near the end of the route, an eight-year-old boy sitting next to one of the pastor's children stepped or jumped or fell off the trailer. His head was immediately crushed under the wheels, causing his death. His parents were walking just a few feet away.

Small Town 4th of July Parade by Mobilus In Mobili on commons.wikimedia.org CC BY-SA 2.0

A young parade observer, decked out in patriotic regalia, waves the American flag
West Virginia National Guard photo by Edwin L. Wriston. Public Domain Dedication via **picryl.com**

WHAT CROWDS PERCEIVE, AND WHY

In the search for explanations for unimaginable horror, one looks at the thoughts and motivations of everyone involved, including the victims. In this instance, it is not unfair to ask how loving parents could allow their young son to ride on a moving vehicle with nothing to hold onto while they walked near enough to see, but too far to help if anything went awry. How could the danger not have been obvious to them? Were they irresponsible? Did they deserve blame as they grieved?

Let's begin by exploring the relationship between authority figures and an audience.

The evidence in the resulting lawsuit showed that the boy's parents were prudent people who were well-liked in their community. They were also loyal parishioners who unflinchingly did as church leaders asked. When the pastor asked for a show of support, they gathered their family to walk in the parade together. They wore shirts

promoting the church and handed out treats and church flyers because they were asked from the pulpit.

Given the likelihood (and intention) that parishioners would trust church leaders not to put them in harm's way, the parents' faith would foreseeably have made them less likely to believe otherwise, even if the danger were visible right next to them. We may not believe our own eyes when it conflicts with what we fervently want to believe, particularly if that belief is part of our very identity.

As is usually the case, the evidence was hardly unambiguous. Although the lack of any safety measures was plain to see, the pastor was equally visible holding his own children right next to their son. The parents identified with their church strongly enough to assume that what was safe for the pastor's children was safe for theirs too.

This level of identification and trust between participants and authority figures is a fixture at live events. Whether the authority is an artist, team, or company, people attending events routinely suspend their own judgment of the circumstances around them, confident in their belief that the leader of their group would not put them in harm's way. Analysis of crowd disasters routinely show that "confirmation bias," in which people disbelieve what they know or should know when the evidence conflicts with pre-existing belief, slows recognition and response to safety hazards.[27]

The human brain works by identifying patterns. It uses information from the past to understand what is happening in the present and to anticipate the future. This strategy works elegantly in most situations. But we inevitably see patterns where they don't exist. In other words, we are slow to recognize exceptions.[28]

One important reason people are slow to recognize exceptions is "inattentional blindness," from which we all suffer to varying degrees. Two aspects of inattentional blindness are we have limited attention, but most people believe they notice more than they actually do. As the authors of a famous perception experiment discuss,

> Looking is necessary for seeing – if you don't look at it, you can't possibly see it. But looking is not sufficient for seeing – looking at something doesn't guarantee that you will notice it.[29]

Rather than blaming event attendees for deferring to the authority of the people they came to see, event professionals should plan their safety measures for the trusting crowds most likely to visit.[30]

USING AUTHORITY TO MANAGE CROWD SAFETY

Even if sheep are not known for their leadership qualities, they are nice animals that are good at following shepherds. If one accepts that crowds of people may exercise only limited powers of observation, but they will take direction if it breaks through their confirmation bias, then event organizers should plan to be the best shepherds possible.

Shepherd and Sheep, photograph by WCKagio on commons.wikimedia.org CC BY-SA 4.0

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27 In the United States, there are more than 100 years of examples of confirmation bias slowing perception and reaction time even where the only life-saving action is to run. Notable examples from the world of live events, many involving either structure fires or gunfire, are compiled in Steven A. Adelman, Run, Hide, Fight, Protocol, Summer 2016, at 12-21.

28 Amanda Ripley, The Unthinkable, Three Rivers Press, 2008, at 9. Ripley explores why so many people's "disaster personality" leads them to do nothing helpful when faced with an unexpected danger. Suffice to say that the admonition to "See Something, Say Something," while a worthy idea, is not very practical for most humans.

29 Christopher Chabris and Daniel Simons, The Invisible Gorilla, Crown Publishing, 2010, at 16. Here is a link to the experiment. There is a substantial body of social psychology literature supporting the observation that "[w]e have limited attention resources, and devoting some attention to unexpected events means that we have less attention available for our primary task." Id. at 36. The takeaway for crowd managers is the more we design our events to draw attendees' attention to our attractions, the less attention they have left for trip hazards, bottlenecks, poor communication, or any of the other hazards that can endanger the participants in any mass gathering.

30 For context, a useful starting place is the National Institute of Occupational Safety and Health's simple "Hierarchy of Controls" chart to help triage any kind of risk. The elements of this chart are codified in consensus standards such as ANSI/AIHA Z10-2005. See, e.g., "ANSI/AIHA Z10-2005, The new benchmark for safety management systems," Safety Management, 2005. The U.S. Occupational Safety and Health Administration ("OSHA") has codified this hierarchy of hazard controls since 1989.

The foreseeable tendency of crowds to follow authoritative instructions underscores the importance of communication. The history of event-related disasters reveals that an initial communication breakdown often leads to other operational problems.

In the context of using authority constructively, here are some key communication issues.

- **Timing**

  It is essential to have direct lines of communication from staff on the ground up to safety decision-makers in a command center or control room, and then back down to the people in charge of conveying information to the crowd. In the United States, the Incident Command System sets forth a scalable communication model that can serve as a starting point for any event. The longer it takes event organizers or public safety officials to appreciate a hazard, the longer the crowd will remain ignorant of and exposed to that hazard.

- **Process**

  There is no "best" way to convey information to a crowd at an event. As with most safety decisions, this should be tailored to the circumstances and the resources available to deal with them. For example, an artist already holding a microphone may be an obvious choice to communicate emergency messaging – unless that artist cannot be counted on to be clear, calm, and concise, or they do not know what to say, or a manager is trying to hustle them offstage for their own protection. Upon further reflection, it might be better to use the crowd's focus on the stage or playing field to broadcast messages on video, or play announcements read with assurance by staff trained to perform this function. In our increasingly diverse world, advance planning can also ensure that the needs of people with varying language proficiency, hearing and reading ability, and mobility issues can all be addressed.

- **Content**

  Once event organizers break through the audience's confirmation bias and make them understand that safety authorities now require them to follow safety instructions, the content largely writes itself. The key is to convey to the audience whatever action they must take as authoritatively as necessary for them to do it immediately. A good shepherd need not be a poet to be effective.

TAKEAWAY

A crowd's faith in and identification with an artist or other authority is valuable for more than ticket sales and social media likes.

Event organizers can use the audience's focus to help manage crowd perception and reaction during an emergency.

Steven A. Adelman is a sports and entertainment lawyer based in Connecticut, USA. He is principal author of ANSI ES1.9-2020 and ANSI ES1.40-2023, the authoritative standards in North America for Crowd Management and Event Security, respectively. He currently leads the task group writing an American National Standard for parade safety. Mr. Adelman is the Global Crowd Management Alliance's Deputy Chair.

Field Guide to Crowds

Edited by

Steven Adelman, Eric Stuart, Jacob Worek, Anne-Marie Chebib, Kate James, Ben Kidd

Designed by

Ben Kidd

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