

Care of Children at a Large Outdoor Music Festival in the United Kingdom

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Abbreviations:
MGSE = mass gathering or special event
PRF = patient report form

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Abstract

Introduction: Limited data exist on the standard of care provided for children at mass gatherings and special events (MGSE). Some studies provide valuable insight into the proportion of pediatric patients that can be expected at various types of MGSEs, but an accurate breakdown of the range of pediatric conditions treated at major events has yet to be produced. Such data are essential for the preparation of MGSEs so that the health and safety of children at such events can be adequately safeguarded. The aim of this study is to examine the care requirements for children at a large, outdoor music festival in the United Kingdom.

Methods: A retrospective review of all patient report forms (PRFs) from a large, outdoor music festival held in Leeds (UK) in 2003. Data were extracted from the PRFs using a standardized proforma and analyzed using an Excel computer program.

Results: Pediatric cases contributed approximately 15% to the overall workload at the event. Children presented with a range of conditions that varied from those seen in the adult population. Children were more likely than adults to present for medical attention following crush injuries (OR = 2.536; 95% CI = 1.537–4.187); after a collapse/syncopal episode (OR = 2.687; 95% CI = 1.442–5.007); or complaining of nausea (OR = 3.484; 95% CI = 2.089–5.813). Alcohol/drugs were less likely to be involved in the precipitating cause for medical attention in children compared to adults (OR = 0.477; 95% CI = 0.250–0.912). No critical care incidents involving children were encountered during the event.

Conclusions: Mass gatherings and special events in the UK, such as outdoor music festivals, can involve a large number of children who access medical care for a different range of conditions compared to adults. The care of children at large, outdoor music events should not be overlooked. Event planning in the UK should include measures to ensure that appropriately trained and equipped medical teams are used at music festivals to safeguard the welfare of children who may attend. Further research into this exciting area is required.

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Introduction

The planned and organized activity of >1,000 people is defined as a *mass gathering or special event* (MGSE).¹ These events include sporting events, celebrations, concerts, or larger outdoor music festivals. Over the last 20 years, there has been a rapid increase in the number of groups, both charitable and profitable, involved in the provision of medical care at such events. Many of these organizations employ doctors, nurses, and paramedics as members of multi-disciplinary teams, while some rely solely on lay volunteers with basic training in first-aid and life-support skills.^{2–3}

Many reports detailing the range of conditions treated at a variety of different MGSEs across the globe exist. With the expansion in the data available about MGSEs, there is a move toward a more robust, evidence-based approach to the care of casualties at MGSEs, and agreed quality standards for event planning.^{4–7}

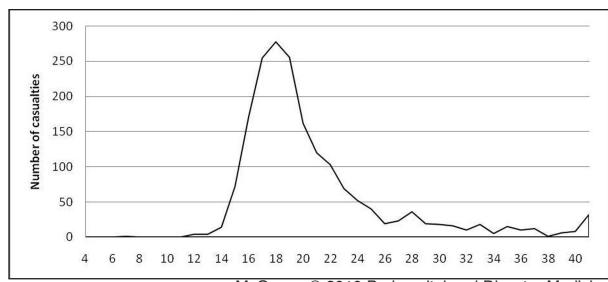


Figure 1—Breakdown of casualties by age at the event

While a number of case reports and review articles on the care of adult casualties at MGSEs exist, limited data exist on the standard of care provided for children and adolescents at such events. One study from Australia noted that 48% of all casualties treated at the Royal Adelaide Show involved the care of children and young people. Unfortunately, no detailed breakdown of age-group-specific health problems was reported in this study.⁸ Other studies on sports arenas in the United States indicate that children present with a different range of conditions during events compared to adults.^{9–10}

Accurate data on the care needs of pediatric populations at MSGEs are required in order that adequate preparations can be made for such events to ensure that the health and safety of children at such events is safeguarded.

The aim of this study is to examine the care requirements for children at a large, outdoor music festival in the United Kingdom. This study identifies the number of cases at the event that involved children. It will provide a breakdown of the illness/injury profile for children, and compares it to the illness/injury profile of adults treated at the event.

Methods

The patient report forms (PRFs) from a large, outdoor music festival in Leeds (UK) held in 2003 were analyzed retrospectively. The event was held during four days and attended by >100,000 people. Medical cover at the event was provided by mixed volunteer teams consisting of doctors, nurses, and lay volunteers with training in basic first aid. None of the lay volunteers had received any training in core pediatric care above Basic Life Support Skills prior to the event.

A “child” was taken to be anyone ≤16 years of age who still was in full-time, secondary education. A standardized proforma was used to extract data from the PRFs. Key fields on the proforma were: (1) age of casualty; (2) presenting complaint (using the clinical coding categories detailed in the event Major Duty Plan); and (3) grade of the caregiver. Data abstraction was completed by one individual. The results were processed using an Excel computer program (2007 Microsoft, Inc., Redmond, WA).

Results

During the four days of the event, 2,043 casualties were treated by the volunteer teams. Of the records, 191 were excluded from the analysis, as no age or date of birth was recorded on the patient report form. Of the remaining 1,852 cases, 266 (14.4%) were pediatric cases. Casualties in

the 17–25 year age range most commonly presented for medical care (72.2% of overall workload). Smaller numbers of casualties were seen from the 26–40 years age range (216 cases, 11.7% of workload) and the >40 years age range (32 cases, 1.7% of workload) (Figure 1).

The range of presenting complaints seen in children showed some variation from that observed in adults at the event. Children were more likely than adults to present for medical attention having been crushed in a crowd (OR = 2.536; 95% CI = 1.537–4.187); after a collapse/syncope episode (OR = 2.687; 95% CI = 1.442–5.007); or complaining of nausea (OR = 3.484 95% CI = 2.089–5.813). No children were recorded as having presented acutely intoxicated with drugs or alcohol during the event compared to 45 adults (2.4% of the adult workload). The use of alcohol and/or illegal drugs were recorded as having been implicated in the precipitating causes for request for medical attention in 3.8% of pediatric cases compared to 7.6% of adult cases (OR = 0.477; 95% CI = 0.250–0.912). The remaining categories of presenting complaints had similar incidence in both cohorts (Figure 2).

A similar proportion of pediatric and adult cases were seen by a doctor/nurse (24% vs. 27%, no statistically significant difference). The remaining cases in each cohort were seen by volunteers qualified in first aid only.

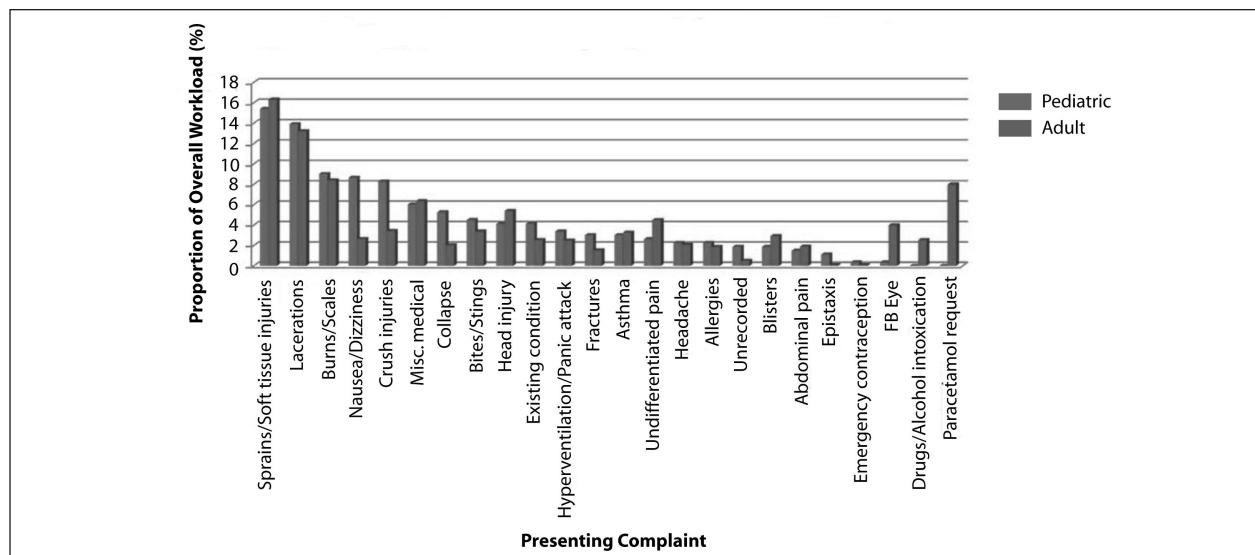
Discussion

This study is limited by its retrospective design and the uniqueness of the type of event that was studied. By their very nature, music festivals will attract older children and adolescents rather than younger children and toddlers. Although the data from this study are more than five years old, the format of music festivals and their popularity in the UK has changed little over the last few years. While not generalizable to all events that children may attend, these results do give an insight into the care of children and adolescents at music festivals in the UK.

In keeping with studies from the US,^{9,10} children at this event presented with a slightly different pattern of injury and illness than did the adults. In the cases of injuries resulting from being squashed by the crowds, this is not surprising given their smaller size compared to adults. More research, with better designed studies, is needed to accurately determine the differences in pediatric and adult presentations at major outdoor events and the factors that contribute to the problem.

Pediatric cases accounted for the second largest proportion of overall workload for medical staff at this event. As might be expected at an event of this nature, the vast majority of casualties accessing the medical care facilities were aged 17–25 years. A notable proportion of casualties, however, were ≤16 years of age. The youngest child presenting for medical treatment at the event was only seven years old.

There are no accurate data on the exact number of people in each age range that attended the event. Tickets for this festival were sold online, and there was no registration process on-site to check the identity of the ticket holder. Published data suggest that approximately 1–2% of attendees at a MGSE seek medical assistance.¹¹ At this event, 2,043 people out of an estimated total attendance of



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Figure 2—Breakdown of presenting complaint as a proportion of overall workload for pediatric and adult cohorts at the event

100,000 sought medical attention (approximately 2%). Using this logic, an estimate of the number of children and adolescents that attended the event is approximately 13,000 (of which 250 were <12 years of age).

Estimations such as these in the context of this event are limited by the poor quality of documentation on the PRFs. Almost 10% of all cases had no recorded age for the casualty. While this prevents accurate estimation of the proportion of children and adolescents in the crowd, the data from this study show that young children were present.

It is somewhat troubling that despite contributing almost 15% of the overall workload for medical care at the event, the medical teams deployed on site were not adequately prepared to provide care for children. Prior to the event, lay volunteers received no training in the care of acutely ill and injured children above Basic Life Support skills. Healthcare professional staff on duty at the event included doctors and nurses from a variety of different medical backgrounds. No formal training had been provided in the care of pediatric illness and injury. It is likely that the skills and experience of individuals in the assessment and management of the acutely ill/injured child varied significantly.

Critical care interventions are uncommon at MGSEs.¹² Despite the fact that no children required advanced care at this festival, preparations should have been made prior to the event to assemble a team with the appropriate training,

experience, and equipment to manage pediatric emergencies. The lack of training in the care of injured/ill children for the volunteers at this event was a major shortcoming.

At future events, measures should be taken to ensure that a coherent plan and referral pathway is in place for pediatric cases, so that they are streamlined to staff that have appropriate training and experience in the care of children.

The education and training program for both lay volunteers and healthcare professionals should be improved to include more relevant material on the management of acutely ill/injured children in the Event Medicine environment. There should be a dedicated member of the medical staff with experience in the care of children identified at the beginning of each shift who can consult in difficult cases.

Conclusions

Mass gatherings and special events in the UK, such as outdoor music festivals, can involve a large number of children who access medical care for a different range of conditions compared to adults. The care of children at large outdoors music events should not be overlooked. Event planning in the UK should include measures to ensure that appropriately trained and equipped medical teams are used at music festivals to safeguard the welfare of children who may attend. Further research into this exciting area is required.

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