

between the plans prepared by the football match organizing committee, police, local government, and nearest referral health facilities. This was identified by the absence of a medical director at the referral health facility, the absence of in and out access for the medical team to the mass gathering event location, and the absence of crowd management at the site of the incident resulted in 720 injured and 135 of them dead. This made the incident the second worst football stampede incident in history.

**Conclusion:** Specific mass gathering regulation specific to football matches is required as Indonesia has a risk of hooliganism in some areas. This will be mandatory for the organizing committee to comply with and involve relevant stakeholders, especially the local health sector.

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### Managing Hajj Mass Gathering Throughout the Pandemic

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**Introduction:** The rise of the COVID-19 pandemic caused significant concerns due to the risk of transmission in such mass gatherings. Too many variables for such a critical challenge made it more of a complex situation, with an enormous negative impact on either decision. In this paper, we aimed to summarize the experience of Saudi Arabia in hosting and managing Hajj throughout the pandemic for three seasons, the public health strategies to control the COVID-19 transmission during Hajj, and the policies and regulations that were implemented for the safe return of Hajj.

**Method:** This is a summary of our experience in managing Hajj seasons throughout the COVID-19 pandemic for the period 2020, 2021, and 2022. A description of the factors, models, and tools used to assess the situation for each year, and the bundles of measures followed to mitigate the events aiming to hold a "Safe Hajj".

**Results:** 2020 was a unique year, with the pandemic at its height with no vaccination available. So, the decision was to hold a symbolic strict Hajj of only 1,000 pilgrims residing within Saudi Arabia. In 2021, as the World was easing restrictions and distributing vaccines, around 60,000 internal pilgrims got to perform Hajj, and 2022 hosted one million international pilgrims. That is still 40% of 2019 Hajj with 2.5 million due to considerations to avoid usual overcrowding and mandating COVID-19 full vaccination status.

**Conclusion:** Our experience with the COVID-19 pandemic over the past three years has informed us that huge MGs can be conducted safely during the pandemic if adequate measures were implemented. That would include an accurate and reliable risk assessment to inform policymakers about the most effective strategies.

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### The UK Health Security Agency (UKHSA) Planning, Preparation, and Response to the Birmingham 2022 Commonwealth Games—Learning for Future Mass Gatherings, Including Multi-sport Events

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**Introduction:** The Birmingham 2022 Commonwealth Games (CWG) met the World Health Organization (WHO) definition of a mass gathering: events attended by sufficient people to strain the planning and response resources of a community, state or nation'. It was a key opportunity for the UK in terms of tourism and economy, but a major challenge in terms of the potential for adverse events e.g. infectious disease outbreaks, terrorist attacks. This increased scrutiny and threatened reputational risk. For UKHSA, as a new organization amidst a rapidly changing public health landscape—continued COVID-19 pandemic and increases in Monkeypox, this was a very public test.

**Method:** In 2021, a small team was established to accelerate preparation including:

- assurance structures
- advice to the Organizing Committee and Government departments
- advice on COVID-19 including testing policy
- staff/stakeholder preparation through exercising/training
- increased staff numbers and skill mix able to adapt
- budget
- operational response structure
- plans in place and tested for a health protection response in the event of an incident
- other mass gatherings reviewed for transferable learning enhanced surveillance systems

**Results:** Daily epidemiology reporting provided reassurance that there were no significant public health issues requiring escalation. Enhanced surveillance provided reassurance to the community that there were no population ill effects linked to the CWG. Overall, COVID-19 positivity was low. No outbreaks were detected linked to the CWG.

**Conclusion:** The UKHSA successfully identified, planned and prepared for and mitigated the risks of a mass gathering of 1.5 million people. Early engagement, support, advice and cross-government collaboration has been regarded as exemplary with surveillance data indicating no outbreaks linked to the Games. Despite the breadth of risks visitors were able to attend the event in contrast to the restrictions placed at the Tokyo Olympics. This contributes to the worldwide body of knowledge for planning and delivering mass gatherings – sporting or otherwise.

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### Review of Canadian Legislation on Mass Gathering Medical Response

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**Introduction:** Mass gatherings have become more frequent since the beginning of the 21st century. In Canada alone, music festival and sporting event industries will each represent yearly revenues over one billion USD by 2025. Such events require adequate medical planning, as they are associated with a greater prevalence of injuries and incidents than daily life, despite most participants having few comorbidities. Most often, the responsibility of medical planning lies with event producers. This study aims to compare the existing legislative requirements for mass gathering medical response in the ten provinces and three territories of Canada.

**Method:** This study is a cross-sectional descriptive study of legislation. Lists of legislative requirements were obtained by contacting via email or phone the emergency medical services (EMS) directors and Health Ministries of all the provinces and territories of Canada, and asking about any legislation or provision within existing laws regarding mass gatherings. Simple statistics were performed to compare legislation across provinces and territories.

**Results:** Data collection and analysis are planned to be completed by December 31, 2022. Initial data collection and analysis revealed that none of the seven provinces who answered our emails have provincial legislations. Two referred to specific provisions in the Public Health laws of their province, though nothing specifically refers to mass gatherings. One confirmed that mass gathering medical response was a municipal/local concern to be addressed by the event producers and the locality where the event takes place, and one referred to guidelines published in 2014.

**Conclusion:** Although some provinces and territories referred to provisions contained in public health legislation, none of the provinces reached to date could list specific legislation on mass gathering medical response. If this trend continues through full data analysis, it will highlight once more the need to provide more standardized guidance to organizers and municipalities in planning medical response.

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### Management of Uncomplicated Acute Alcohol Intoxication at a Mass Gathering Event: Stop the Intravenous Fluids

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**Introduction:** Uncomplicated acute alcohol intoxication (UAAI) requiring medical management is common at some mass gathering events. Most of the mass gathering literature reporting on medical management involving UAAI are single case studies. The common clinical practice for UAAI at mass gatherings reported in the literature involves intravenous fluids and antiemetics. However, emergency department evidence suggests that administration of intravenous fluids does not enhance patient outcomes, and in some cases extends emergency department length of stay and costs.

**Method:** Using a retrospective cohort design of routinely collected data over a nine-year period (2010–2013 and 2016–2020), this study was set at an annual end-of-year ‘schoolies’ youth mass gathering event. The primary study aim was to determine the intravenous fluid management practices of UAAI at this event. Secondary study outcomes included patient demographic, clinical characteristics, and patient outcomes. Data were analyzed using time series and descriptive statistics. Ethical approval was obtained.

**Results:** In total, 378 patients were identified with UAAI at the event over the nine-year period. The median patient age was 17 years (IQR: 17–18), with 47.2% (n=179) being male. Overall, the median length of stay was 74 minutes (IQR: 40 – 144). Only 7.9% (n=30) patients received intravenous cannulation and 6.3% (n=24) patients received intravenous fluids. Proportionately, the use of intravenous fluids for the management of UAAI decreased over the study years [2010, 28.6%; 2011, 32.1%; 2012, 15.6%; 2013, 6.3%; 2016, 2.6%; 2017, 0%; 2018, 1.8%; 2019, 0%; 2020, 0%].

**Conclusion:** Some mass gathering events have a higher incidence of UAAI presentations. This is particularly true for those mass gathering events with young adults and at music festivals. Knowledge translation from the emergency department context regarding UAAI clinical management could be applied to the mass gathering event setting. This clinical management should include a conservative approach to the management of UAAI.

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### Feasibility of Live Video Feed Transmission from UAVs for Medical Surveillance During the 2022 Montreal Marathon

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**Introduction:** In recent years, unmanned aerial vehicles (UAVs) have been increasingly used for medical surveillance purposes in mass gathering events. No studies have investigated the reliability of live video transmission from UAVs for accurate identification of distressed race participants in need of medical attention. During the 2022 Montreal marathon, the aim of this study was to determine the proportion of data collection time during which live medical surveillance UAV video feed was