
PERSPECTIVES FROM THE FIELD

Perspectives from a mass gathering deployment - Field Epidemiology Trainees at the Gold Coast 2018 Commonwealth Games

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Introduction

From 4–15 April 2018, the Gold Coast (GC), Australia, hosted the 21st Commonwealth Games (the Games), which was the largest sporting event in Australia this decade and ever held on the GC (1, 2). Mass gatherings, such as large multi-sport events, increase the complexity of public health surveillance and response efforts due to the increased potential for communicable disease transmission, outbreaks from gastroenteritis and influenza, and pressure on the existing health system (3–7). The Gold Coast Public Health Unit (GCPHU) was the local agency responsible for providing public health surveillance and outbreak response for the Games during the operating period, 20 March–18 April 2018. Field Epidemiology Trainees (FETs) from the Master of Philosophy in Applied Epidemiology (MAE) program, Australian National University, have previously provided surge capacity for mass gathering events, such as World Youth Day 2008 (8). To meet the increased demands of the Games, current FETs were deployed to assist the GCPHU in the enhanced surveillance of potential communicable disease threats. The MAE program, Australia's Field Epidemiology Training Program, is a two-year research degree program that trains field epidemiologists in the detection and response to public health problems. This perspective piece summarises our experience in the field.

Identified risks and surveillance

There was enhanced surveillance of diseases deemed to have a potential impact on the Games, including gastroenteritis and influenza. Norovirus infection was highlighted as a public health risk following outbreaks at recent high-profile international sporting events (5, 7). The surveillance system consisted of strategies which were developed for, existed prior to, or were enhanced for the Games. An Emergency Department Syndromic Surveillance System (EDSSS) and electronic questionnaire provided a mechanism to characterise hospital presentations (9, 10). Daily counts of defined illnesses were received from sentinel health services including private Emergency Departments, general practices, pharmacies, telephone helplines, and partner agencies' reports. Enhanced international communicable disease surveillance activities provided daily analysis and

reporting of communicable disease threats that could potentially affect health in Australia, particularly at the Games. Routine disease notifications were also a key information source.

A robust risk assessment process involving the GCPHU's epidemiology, communicable disease, and environmental health teams ensured that identified signals were followed-up with further investigation and public health action. Although an increase in gastrointestinal reports was identified, no Games-related outbreaks were detected. The implementation of a sensitive and well-planned surveillance system and coordination of timely public health action feasibly contributed to this success. Selected surveillance systems continue to operate in the GCPHU, leaving a post-Games surveillance legacy.

Operations

We played a key role in operational activities in surveillance and the Emergency Operating Centre (EOC) during the operating period. FETs were independently responsible for surveillance, analysis, reporting, and communications as part of a rotating roster within teams.

Surveillance and outbreak response

Pre-Games surveillance efforts included testing surveillance systems to improve readiness and identify gaps. During the Games, outbreak prevention activities included: monitoring EDSSS data, analysing electronic exposure questionnaires, undertaking investigations and contact tracing, assisting with Situation Reports (SitRep), and following-up with sentinel sites. Daily surveillance involved conducting, recording, and analysing three-day food histories from gastroenteritis cases to identify clustering and determine common exposures. Monitoring surveillance data to identify potential signals and risks guided food and water venue site inspections and public health action.

Emergency Operating Centre

The GCPHU EOC was the single point of contact during the operating period. Prior to the Games, processes such as a daily rhythm of meetings and reports and communications with key stakeholders were agreed upon by all involved. During the Games, the EOC coordinated horizontal and vertical

information sharing with stakeholders, including the Organising Corporation, delivery partners and emergency services. The EOC also facilitated incident management and response between the various GCPHU teams. Key daily outputs included a centralised incident log, records of activities and decisions, a communications SitRep, and Ministerial briefings to ensure stakeholders were informed of public health threats and response efforts by the GCPHU.

Lessons learnt

Being part of a localised epidemiological unit provided us with hands-on experience in mass gathering surveillance. We were part of high-level operational meetings where we could directly observe emergency management structures, procedures and cooperation between response agencies. It highlighted to us that successful mass gathering surveillance requires thorough planning and preparation of systems, early collaboration with stakeholders, robust data management, multi-disciplinary teams, and strong communication and leadership.

A key strength of the enhanced surveillance system was the cohesive integration of diverse multi-disciplinary teams, which enabled systems to function effectively and fulfil their goals. This was achieved through clearly designated responsibilities and reporting lines, the collective celebration of achievements, and a spirit of cooperation. Being part of an experienced and inclusive team environment facilitated our skill development in the collection, analysis and interpretation of surveillance data and allowed us to contribute to actionable disease intelligence, evidence-based decisions, and public health measures.

Future mass gathering surveillance and response systems need to be flexible to adapt to changing priorities and workloads. One recommendation would be the implementation of a communication system that regularly relays impromptu changes to internal processes either via a daily update email, as a daily meeting agenda item, or a rolling, centralised standard operating procedure that records what the agreed processes are on that day. Processes could also be put in place to allow staff movement to share the workload in areas of most need and facilitate skill development.

We came from across Australia and from a wide network of health and research institutions to fulfil a temporary resource base required by the GCPHU, enabling additional Games surveillance and outbreak response to occur and routine public health investigations and surveillance to continue unaffected. FETs were able to merge quickly into a team environment, develop critical relationships, and undertake public health action. Our experience emphasises the importance and benefits of FET training and engagement for surge capacity in resource-limited and emergency settings, enhancing public health system readiness for high-impact future

events. Working under the direct supervision and mentorship of experienced epidemiology, communicable disease, and environmental health staff provided us with a broader perspective of field epidemiology and practical skills to become Australia's future field epidemiologists and public health leaders.

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Competing Interests

The authors have no competing interests to declare.

Author's Contributions

All authors contributed equally to the preparation of this article.

References

1. Queensland Government. About the Gold Coast Commonwealth Games 2018 [Available from: <https://www.business.qld.gov.au/industries/communications/government/monwealth-games/about-gc2018>].
2. Minister for Innovation and Tourism Industry Development and Minister for the Commonwealth Games The Honourable Kate Jones. Gold Coast 2018 Commonwealth Games by numbers [Available from: <http://statements.qld.gov.au/Statement/2018/5/1/gold-coast-2018-commonwealth-games-by-numbers>].
3. World Health Organization. Public Health for Mass Gatherings: Key considerations. Geneva, Switzerland: World Health Organization; 2015.
4. Kelner M, Rawlinson K, Gayle D. London 2017: 30 people fall ill after norovirus hits athletics event. *The Guardian*. 9 August 2017.
5. Snyder M. Olympic fever: infectious diseases at the winter games: *Outbreak Observatory*; February 8, 2018 [Available from: <https://www.outbreakobservatory.org/outbreakthursday-1/2/8/2018/olympic-fever-infectious-diseases-at-the-winter-games>].
6. Blyth CC, Foo H, Van Hal SJ, Hurt AC, Barr IG, McPhie K, et al. Influenza outbreaks during World Youth Day 2008 mass gathering. *Emerging Infectious Diseases*. 2010;16(5):809. DOI: <https://doi.org/10.3201/eid1605.091136>.
7. Gautret P, Steffen R. Communicable diseases as health risks at mass gatherings other than Hajj: what is the evidence? *International Journal of Infectious Diseases*. 2016;47:46–52. DOI: <https://doi.org/10.1016/j.ijid.2016.03.007>.
8. Fizell J, Armstrong P. Blessings in disguise: public health emergency preparedness for World Youth

- Day 2008. *Medical Journal of Australia*. 2008;189(11-12):633-6.
9. Elliot AJ, Hughes HE, Hughes TC, Locker TE, Shannon T, Heyworth J, et al. Establishing an emergency department syndromic surveillance system to support the London 2012 Olympic and Paralympic Games. *Emergency Medicine Journal*. 2012;29(12):954-60. DOI: <https://doi.org/10.1136/emered-2011-200684>
10. Muscatello DJ, Churches T, Kaldor J, Zheng W, Chiu C, Correll P, et al. An automated, broad-based, near real-time public health surveillance system using presentations to hospital Emergency Departments in New South Wales, Australia. *BMC Public Health*. 2005;5:141. DOI: <https://doi.org/10.1186/1471-2458-5-141>

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