

doi:10.1111/j.1753-6405.2007.00123.x

Priorities for planning and prevention of infectious disease outbreaks at large international events

Cate Wallace

*Public Health Training and Development Branch,
New South Wales Health Department*

Andrew Marich

*Communicable Diseases Branch,
New South Wales Health Department*

John Turahui

*Public Health Unit, North Coast Area Health Service,
New South Wales*

Jenny Zirkler

*Macksville Hospital, North Coast Area Health Service,
New South Wales*

Paul Corben

*Public Health Unit, North Coast Area Health Service,
New South Wales*

International sporting, cultural and religious events bring together many people from different geographical areas. These events have implications for communicable disease control because they may involve mixing of infectious people with those who may be susceptible. There may also be more opportunities for person-to-person transmission when people congregate in large groups or where accommodation is shared. We describe a mumps cluster associated with a gathering of 6,700 children and

teenagers who attended a South Pacific religious camp held on the mid north coast of New South Wales, Australia, that serves as a timely warning for events such as the upcoming World Youth Day in Sydney, 2008.

In January 2007, five laboratory-confirmed cases of mumps among camp participants were reported to the local Public Health Unit (two cases from the Solomon Islands, two from Vanuatu and one case from Fiji). Based on their onset dates and clinical symptoms, the cases appear to have been infected in their homelands before travelling to Australia and were otherwise unrelated. Approximately 2,900 camp participants were overseas visitors and many were from countries where measles-mumps-rubella (MMR) vaccine is not included in the standard immunisation schedule.¹

Public health measures included isolation of all cases and implementation of active surveillance by camp organisers and medical staff. Written information about mumps and measles-mumps-rubella (MMR) vaccination was given to all camp participants. No secondary cases of mumps were reported among other children attending the camp, nor were any other infectious diseases identified. This was fortunate as a more highly infectious disease such as measles or pertussis would have caused considerable disruption and may have been more challenging to contain.

Information about immunisation status was not collected from any of the participants at registration. The large majority of Australian and New Zealand children at the camp were likely to have received two doses of MMR vaccine, as MMR vaccination coverage is high in these countries.^{2,3} Immunisation of overseas participants who were likely never to have received mumps-containing vaccine was not feasible, as informed consent could not reliably be obtained for these children.

Large-scale international events, such as World Youth Day 2008, should include evaluation of participants' likely immunisation status in risk assessments and risk management plans. There may be opportunities to recommend some immunisations prior to travel and to recommend against travelling overseas if symptomatic. The registration process affords an opportunity to collect information about prior immunisation and past medical history. Simple health education messages about reducing transmission of communicable diseases could be included in information packages given to registrants prior to leaving their country of origin. Active identification of overseas infectious disease outbreaks by State or Territory health departments and local health services in the host country prior to international events may be a useful means of identifying the potential for an outbreak to occur.

Basic measures for the prevention of infectious diseases outbreaks among participants at mass gatherings, particularly where accommodation is shared, include vaccination, education about risk behaviours, effective surveillance and prompt diagnosis and treatment.⁴ Factors to be considered when planning mass gatherings and events such as this include the type and length of the event(s), facilities such as designated triage and quarantine areas, the existence of evacuation plans, and estimating the

local response capacity for laboratory diagnosis and emergency medical treatment in the event of a large-scale outbreak.⁵ Weather conditions, provision of shade, drinking water, healthy food and adequate sanitation are also important considerations. Planning for such events needs to be consistent with local and State health and environmental emergency management plans to facilitate rapid detection of outbreaks and enable effective and timely public health interventions.⁵

References

1. World Health Organization [data and statistics page on the Internet]. Geneva (CHE): Immunization Surveillance, Assessment and Monitoring, WHO; 2007 [cited 2007 Feb 10]. *WHO Vaccine Preventable Diseases Monitoring System Immunization Schedules by Antigen, Selection Centre*. Available from: http://www.who.int/immunization_monitoring/en/globalsummary/ScheduleSelect.cfm
2. Hull B, Lawrence G, MacIntyre CR, McIntyre P. *Immunisation Coverage: Australia 2001*. Canberra (AUST): Commonwealth of Australia; 2002.
3. New Zealand Ministry of Health. *The National Childhood Immunisation Coverage Survey 2005*. Wellington (NZ): Government of New Zealand; 2007 April.
4. Perdomo R, Rivera M, Becerra A, Rodriguez S, Frontera W, Martin E, et al. Public Health Surveillance during XVII Central American and Caribbean Games – Puerto Rico, November 1993. *MMWR Morb Mortal Wkly Rep*. 1996;45(27):581-4.
5. Coletta M, Dewey L, White-Russel M, Powell T, Toney D, Cheek J, et al. Surveillance for early detection of disease outbreaks at an outdoor mass gathering – Virginia, 2005. *MMWR Morb Mortal Wkly Rep*; 2006;55(3):71-4.

Correspondence to:

Ms Cate Wallace, Public Health Officer Training Program, NSW Department of Health, North Sydney, New South Wales 2160.
Fax: (02) 9391 9232; e-mail: cawal@doh.health.nsw.gov.au