

The health legacy of hosting major sporting events

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Olympic Games, World Cups and other global sporting events showcase the best young athletes on the planet. One might expect some payoff to the host nation in health-related physical activity and to the local sports medicine community, but there are also potential health risks with mass gatherings of people from around the world. In the light of Toronto's decision not to bid for the 2024 Olympic Games despite the success of the 2015 Pan Am and Parapan Am Games, we might ask if this is a missed opportunity.

The public health legacy was an integral component of the London 2012 Olympic bid in the expectation that the games would increase mass participation in sports. This was built on a myth, however, since there is insufficient evidence that a major multisport event can influence health and the socioeconomic determinants of health in the host city.¹ In an overview of systematic reviews,² only two studies looked at increased participation in physical or sporting activities following an Olympic or Paralympic Games and found little evidence of increased participation or health benefits. Although the review included only Summer Games, the 2010 Winter Olympic Games in Vancouver had no impact on physical activity or sports participation among Canadian children.³

Lack of evidence of a direct public health benefit does not mean lack of influence, and there may be other downstream effects. Infrastructural legacies, not just in facilities or stadiums but also in transport and housing, may influence public health. Improved highway safety may reduce road crashes, and improved housing has well-known health benefits. Similarly, there may be immeasurable gains in public self-confidence and national well-being. Resources used in the Vancouver Games, including the Olympic Village, the Vancouver Convention Centre, the Canada Line and the improved Sea-To-Sky Highway, are actively in use. Local clinical facilities created in London are now part of an innovative health and well-being centre that also hosts a general medical practice, and the extraordinary mobile medical unit used at the Vancouver Games, a high-tech hospital on wheels, retains an important role in British Columbia.

A major sporting event that brings together large groups of people in circumstances that optimize disease transmission also brings potential public health risks. However, in Atlanta (1996), Sydney (2000) and Athens (2004), infectious diseases accounted for a very small proportion of health care visits. In Beijing (2008), there was a 40% reduction in cases of communicable diseases compared with the previous year, possibly owing to improved health protection measures, including food hygiene.⁴ The London 2012 Olympics recorded few outbreaks of gastrointestinal and respiratory infections; the London team believed the requirement for improved surveillance and reporting systems enhanced the public health service in the United Kingdom.⁴

The 2012 Union of European Football Associations championship (Euro 2012) was perhaps a greater public health challenge. Involving eight million fans, the tournament was hosted by Poland and Ukraine, with different languages and a differing time zone. The organization was impressive, acting as a template for future events, and contributed to the development of the World Health Organization Mass Gatherings Group.⁵ For the 2014 World Cup in Brazil, concerns about the risk of dengue fever proved unfounded, with just three reported cases,⁶ and the risk at the Olympic Games in Rio this coming August will likely prove to have been minimal.

Catalyzed by the London 2012 Olympic bid, the UK recognized sport and exercise medicine as a new medical specialty in 2005 and established the National Centre for Sport and Exercise Medicine.⁷ Some have criticized the lack of subsequent developments in establishing dedicated clinics in the National Health Service and universities;⁸ however, hosting the Olympics certainly accelerated developments in sport and exercise medicine in the UK.

Toronto would be a superb venue for the Olympic Games, and there is potential for socioeconomic benefit, with the creation of valuable infrastructure and a source of national pride. The decision not to be a candidate no doubt disappointed some, but in a medical context, despite the loss of some potential benefits, there can be no major regrets. The London precedent suggests some gains for the local sports medicine community, but there is little evidence of a missed public health opportunity to increase physical activity overall.

References

1. McCartney G, Thomas S, Thomson H, et al. The health and socioeconomic impacts of major multi-sport events: systematic review (1978–2008). *BMJ* 2010;340:c2369.
2. Mahtani KR, Protheroe J, Slight SP, et al. Can the London 2012 Olympics “inspire a generation” to do more physical or sporting activities? An overview of systematic reviews. *BMJ Open* 2013;3:e002058.
3. Craig CL, Bauman AE. The impact of the Vancouver Winter Olympics on population level physical activity and sport participation among Canadian children and adolescents: population based study. *Int J Behav Nutr Phys Act* 2014;11:107.
4. McCloskey B, Endericks T, Catchpole M, et al. London 2012 Olympic and Paralympic Games: public health surveillance and epidemiology. *Lancet* 2014;383:2083-9.
5. Strengthening health security by implementing the International Health Regulations (2005). Geneva: World Health Organization. Available: www.who.int/ihr/ith_and_mass_gatherings/mass_gatherings/en/ (accessed 2015 Sept. 24).
6. Aguiar M, Coelho GE, Rocha F, et al. Dengue transmission during the 2014 FIFA World Cup in Brazil. *Lancet Infect Dis* 2015;15:765-6.
7. Tew GA, Copeland RJ, Till SH. Sport and exercise medicine and the Olympic health legacy. *BMC Med* 2012;10:74.
8. Creaney L. Bad medicine: sports medicine. Leon Creaney responds to Des Spence *BMJ* 2011;342:d2572.

Competing interests: See www.cmaj.ca/site/misc/cmaj_staff.xhtml

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CMAJ 2015. DOI:10.1503/cmaj.151149