

Emergency Department Surveillance of Alcohol-related Violence and Injuries to Enable Event Monitoring and Management

Kieran M Moore M.D., Bronwen L Edgar MHS, Don McGuinness MA, Kevin O'Connor MSc
Queen's University Emergency Syndromic Surveillance Team (QUESST), Kingston, ON Canada

OBJECTIVE

Historical Emergency Department (ED) visits were examined to characterize ED utilization for the weeks before, during and after Queen's University Homecoming weekend in Kingston, Ontario, Canada. This information was used to prospectively monitor the 2006 Homecoming period and inform key stakeholders.

BACKGROUND

Syndromic surveillance has been used as method of surveillance for various events in recent years. For example, post September 11th, 2001 anthrax attacks in New York City, World Youth Day in Toronto 2002, Salt Lake City 2002 Olympics, Democratic National Convention Boston 2004, and the G8 Summit in Scotland 2005.

Whereas retrospective analysis of these events can assist in characterizing the usage of acute care institutions, the ability to predict usage for planned events and monitor emergency room activity (volume, acuity) in real-time is extremely valuable for medical professionals. Queen's University (16,500 full-time students) Homecoming weekend is a planned event every fall in Kingston, Ontario (population 120,000). Traditionally a weekend for alumni to re-unite and perhaps take in the annual Homecoming football game, recent Homecoming celebrations have devolved to a "drunken street brawl" of 5000-7000 people (mostly students) (1), 2005 noticeably more out of control than 2004 (1). By comparison the local paper was void of articles detailing wild events in 2002 and 2003, but rather stated that "the illegal parties have become less of a problem"(2).

METHODS

Retrospective: Historical data 2002-2005 was obtained for ED visits to 2 local Kingston hospitals. The specific Homecoming weekend periods plus one month pre- and post-Homecoming were examined for patients 17-25yrs of age. Analysis was performed using the Centers for Disease Control and Prevention's Early Aberration Reporting System (EARS) (3). The 'Homecoming syndrome' was created to include the following chief complaints (and variations thereof): alcohol, intoxication, drinking, falls, injuries, assault and trauma (3). The overall ED volumes and triage acuity for all patients presenting to the ED as well as for those patients aged 17-25 years was examined to determine the impact, if any, Homecoming had on triage acuity and ED volumes. Alerts were investigated to determine whether any festivals, holidays and/or large events had taken place during that time – possibly explaining the aberrations.

Prospective: Analysis of historical data was used as a baseline for comparison and to enable prospective monitoring of the upcoming 2006 Homecoming (Sept. 15th-

17th) events. Data was analyzed for all age groups to compare the population of interest to other age groups. The ED syndromic surveillance system was monitored over Homecoming weekend and analyzed using EARS to: inform decision makers, engage stakeholders, enable resource planning for hospital ED and to demonstrate effective event surveillance.

RESULTS

EARS alerts (C1,C2,C3) were produced for the Homecoming syndrome for the most recent 3 Homecoming years, 2004, 2005 and 2006, but not for 2002 and 2003. Figure 1 displays the volume of Homecoming syndrome among 17-25yr olds for 2003 (left - no alerts during Homecoming) and 2006 (right - C1,C2,C3 alerts).

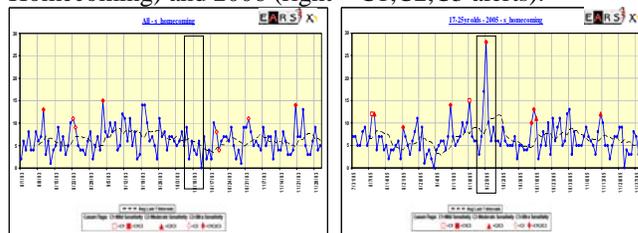


Figure 1– EARS graph of ED visit volumes for Homecoming syndrome – Queen's University Homecoming Kingston, 2003 (left) 2006 (right)

Documented reports of student parties, police charges and related activities in local newspapers correspond to the levels of Homecoming syndrome. Assessment of triage acuity did not show any substantial increase from Homecoming weekend to other weekends (data not shown). Despite less media attention in 2006, the ED was still largely impacted by volumes similar to 2005. An enhanced police and security presence as well as the assistance of community volunteers seemed to quell the violence, but the impact on the ED was the same.

CONCLUSIONS

A novel approach to syndromic surveillance has been used to highlight the resource impact on local EDs during Homecoming weekend, which has become a greater concern in recent years. This information may be used to plan ED resource allocation, monitor Homecoming events in real-time and inform decision makers including University administration, local police, city officials, Emergency Medical Services and hospitals. Further intervention to decrease ED volumes during Homecoming is necessary.

REFERENCES

- [1] Armstrong F. 'A drunken street brawl': How a Homecoming celebration disintegrated into violence. The Kingston Whig-Standard. 2005 Sep 26; pg.1 front.
 - [2] Elliot I. Police, Queen's beef up security for Homecoming. The Kingston Whig-Standard. 2002 Sep 27; pg.3.
 - [3] Hutwagner L, Thompson W, Seeman GM, Treadwell T. The bioterrorism preparedness and response Early Aberration Reporting System (EARS). J Urban Health 2003;80(2)S1:i89-96.
- FURTHER INFORMATION: Dr. Kieran Moore, moorek1@kgh.kari.net