

Ontario's Telehealth: A Novel Syndromic Surveillance System

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Objective

Following the lead established by the UK's NHS Direct Syndromic Surveillance system as well as the SARS Report's desire to "broaden the information collection capacity of Telehealth as a syndromic surveillance tool," (1) we are retrospectively evaluating the value of Ontario's Telehealth's health helpline as a syndromic surveillance system. To date, there have been no published descriptions of Telehealth. This article endeavours to address this lacuna.

Background

The Ontario Telehealth Telephone Helpline (henceforth referred to as "Telehealth") was implemented in Ontario in 2001. It is administered by Clinidata, a private contractor hired by the Ontario Ministry of Health and Long-Term Care, 24 hours a day, 7 days a week, including holidays, at no cost to the caller (2). The calls are answered by registered nurses in both official languages from four calling centres that use identical decision rules (algorithms) and store all call information into one centralized data repository. The calls are usually approximately 10-minutes, patient based, and are directed by a nurse-operated electronic clinical support system.

Methods

Anonymized data from Telehealth (June 1, 2004-June 31, 2006) were secured as part of a funded evaluation project. Three types of calls are routinely made to the Telehealth helpline (Health Information, Service Referral, and Symptom). For the purpose of evaluating Telehealth's usefulness as an early-warning system, only symptom calls were included in the descriptive analysis reported here.

Results

- Between June 2004 and June 2006, a total of over 2 million calls were made, (~2700 calls daily); 83.8% of those calls were symptom calls.
- 64.1% of calls were made by females, likely because mothers frequently call on behalf of others;
- The highest call volume was recorded in January 2005 (97,896 calls), followed by March 2005 (95,097 calls);
- The highest call volume in the 2005-2006 year was in March 2006, with 92,527 calls;
- Call volumes increased during influenza season (December-March), and were lower in the non-influenza months, which is similar to call patterns for other systems (27);

- Most calls were made during weekends – 15.2% made on Sundays, and 15.9% were made on Saturdays. The smallest proportion of calls were made on Thursdays (13.7%);
- Of the calls where time of day was recorded (97.8% of all calls), nearly half of calls (47.5%) were made in the late afternoon and evening (16:00-23:59), when physicians' offices are closed, followed by the daytime (08:00-15:59) (37.8%);
- The majority of calls were made for/by individuals aged 18-64 years of age (52.3%). The smallest percentage of calls were made by/for individuals aged 65 years and above.

At the end of a symptom call, once one of 480 decisions tree has been followed to its conclusion, a call is assigned one of 11 dispositions.

- The most commonly recorded disposition was "physician referral," (41.9%), followed by "self care" (31.1%);
- The top three most commonly assigned algorithms were vomiting (pediatric after hours (4.3%), followed by cough (pediatric after hours) (2.7%), followed by fever (2.7%) and, overall, 5 of the top 10 were pediatric.

For our purposes, the algorithms were categorized into prodrome categories (respiratory upper, respiratory lower, influenza-like illness, dermatological infectious – vesicular, dermatological infectious – not vesicular, neurological infectious, asthma, gastroenteritis) by an emergency medicine physician with experience in this area and were validated in an ED setting.

Conclusions

The project has looked at Telehealth's usefulness as an early warning influenza and gastrointestinal warning system. Future steps will also include quantitatively comparing Telehealth data with laboratory data and using the CDC Framework to evaluate its robustness as an early warning detection system.

References

(1) Ontario Expert Panel on SARS and Infectious Disease Control. For the Public's Health. Toronto (Canada): Ministry of Health and Long-Term Care; 2003.

(2) Career Connection. Toronto: Canoe; c1996-2007 [cited 2007 Mar 10]. Available from: <http://jobboomcc.canoe.ca/News/2005/04/13/1225887-sun.html>.

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