Overview

The purpose of this study was to develop a model comparing costs of a fully electronic data entry system for immunization data versus a paper hybrid system during the H1N1 pandemic in 2009.

In Ontario, costs from 30 public health units were compared with 6 unit that had used a paper hybrid system. The hybrid system involved transfer of client information (demographics and medical history) from paper forms into an electronic database by a clerk. In the fully electronic system, data was entered directly into the database by the clerk. Nursing reviewed the record prior to administering the vaccine and entering vaccine information into the electronic system.

Anticipated costs were assessed over a 5 year period in 2009 CDN dollars and discounted 5% per year. It was assumed that year 1 was a pandemic year (equipment purchase) and years 2-5 were seasonal vaccination campaigns (support and maintenance costs). Assumptions were made that equipment would be replaced every 5 years.

Costs were determined for midrange hardware, software, staffing costs for clerks, nursing, and IT personnel and other miscellaneous costs during the pandemic. Hours trained and worked during the H1N1 campaign for nurses, clerks, and IT personnel were obtained by a convenience survey of managers and IT staff from 6 PHUs who had used the electronic system during the pandemic but the hybrid system for recent seasonal campaigns. were obtained to estimate comparative resource use for seasonal influenza. Paper and other miscellaneous costs were based on assumptions and data entry and sorting from published studies by the authors and others. The model assessed costs comparing the two systems that served populations ranging from 100,000, 500,000, and 1,000,000 from year 1 through year 5.

Overall, costs of the electronic system were less compared with the hybrid system for the largest PCUs during a pandemic, but more costly for seasonal influenza campaigns for every size PCU. However, once the initial expenses for the electronic system are made, costs would be more modest as the system can be reused for up to 5 yrs before replacement. In addition, nursing hours are expensive requiring 30% more staffing than the hybrid system.
Limitations to the study were estimates of IT support for hybrid systems and effect of direct electronic entry on the quality of the data. Other benefits of the electronic system vs hybrid system beyond cost were not studied.

Comments: This is a well and clearly written cost analysis of implementation of a fully electronic data system for tracking immunizations during influenza season. The Ontario experience in this area is unique and provides important guidance to other government agencies worldwide. I am not an economist or modeling expert, the methodology seems to be well described and the cost assumptions seem reasonable.

Major Compulsory Revisions

Minor Essential Revisions One limitation that the authors do not mention is the generalizability of the study results to other provinces or countries. The software appears to be Provincial property and may not be available elsewhere. Depending upon the ease and costs of the software used, different programs used elsewhere could entail entirely different costs in terms of training time and staff hours.

Discretionary Revisions none

**Level of interest:** An article of outstanding merit and interest in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.