

Flu Alert: Influenza Vaccine Alerts for Providers in the Electronic Health Record

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| Organization: | Columbia University |
| Mechanism: | PAR: HS08-270: Utilizing Health Information Technology to Improve Health Care Quality Grant (R18) |
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| AHRQ Funding Amount: | \$1,198,851 |

Summary: The Advisory Committee on Immunization Practices recommends that all children age 6 months and older receive the influenza vaccine. Despite this recommendation, vaccine delivery rates are low, even when the vaccine is available. This project aimed to tailor, implement, and evaluate influenza vaccine alerts in an electronic health record (EHR) for pediatric providers serving minority low-income populations at four community health centers.

Each of the four study sites is affiliated with the New York-Presbyterian Hospital Ambulatory Care Network (ACN) and Columbia University and is located in a federally-designated Health Professional Shortage Area. All providers in the study are part of the same general pediatric group practice and receive uniform influenza vaccine-related provider education. In 2008, the practices had a volume of nearly 64,000 visits by approximately 22,000 children, the majority of whom were covered by Medicaid and were Latino. The Vaccine for Children Program provides most of the vaccines given at the practices.

In the first year of this project, Dr. Stockwell and her research team conducted focus groups, individual interviews, and surveys of health care providers, nurses, and parents to elicit information for customizing the content, format, and features of the electronic alerts (FluAlert). In the second year, the alerts were iteratively refined and piloted among beta users based on end-user feedback. In the third year, the alerts were pilot tested within the four study sites using a cluster cross-over design. Throughout the study, the research team tracked process indicators, such as user rates, and obtained feedback from clinical sites. At the end of the project, user satisfaction will be assessed using survey data. Costs will be measured by comparing alert costs with published vaccine effectiveness rates and determining the costs for influenza-associated hospitalizations, outpatient visits, and impact on parent productivity.

Specific Aims:

- Integrate tailored provider influenza vaccine alerts into the EHRs of urban pediatric community health centers. **(Achieved)**
- Evaluate the impact of tailored provider influenza alerts on pediatric influenza vaccine delivery rates. **(Ongoing)**
- Evaluate the impact of tailored provider influenza alerts on pediatric influenza coverage rates. **(Ongoing)**

2011 Activities: The FluAlert pilot study that began August 2010 was finished in the beginning of 2011. Data from the pilot study was collected and analyzed. Following pilot testing, the research team gathered feedback from physicians and nurses to assess the functionality of FluAlert. Based on this feedback, the following system modifications were implemented: 1) every person who accessed the visit note received an alert, rather than only the individual who initiated the note; 2) print buttons were added to allow providers to print educational information about vaccination; 3) guidelines about egg allergies and thimerosal were updated; and 4) cosmetic changes were made to the graphic user interface.

The FluAlert cluster cross-over trial began in October 2011 and will continue until March 2012. Two clinics were randomly assigned to begin the study with the FluAlert activated and two clinics with it off. After 4 weeks, the activation status was reversed. The activation process will be switched twice so that each clinic will have two 4-week periods when FluAlert is active and two 4-week periods when it is off, not including holiday weeks. In this manner, the cluster cross-over design uses each clinic as its own control group. Vaccine delivery performance will be compared during periods when the FluAlert is active to periods when it is off.

As last self-reported in the AHRQ Research Reporting System, project progress and activities are mostly on track and the project budget funds are slightly underspent to conserve funds to complete the trial and subsequent data analysis.

Preliminary Impact and Findings: Analysis of the transcripts from focus groups with physicians identified several barriers to influenza vaccine delivery, including clinic resource issues, problems with multiple sources of immunization information, and lack of time to complete the vaccination process. The physicians also identified ways to improve the computerized reminder, such as timing of presentation, ability to access multiple sources of immunization records, and facilitation of vaccine ordering and documentation. These [results](#) were published in the March-April 2011 volume of *Preventive Medicine*.

Focus groups were also held with parents to learn more about their experiences with the flu vaccine and their thoughts about how to improve communication with providers. Parents indicated the importance of hearing about both benefits and potential risks of the vaccine, especially when vaccine safety is a concern. Thematic analysis indicates that parents want to learn about their child's risk for influenza and the side effects, safety, effectiveness, and timing of the vaccine.

In the 10-week pilot period, FluAlert generated 1,949 alerts. Fifty-four percent of the time (n=1,048), the alert indicated that the child was in need of an influenza vaccine. For those 1,048 instances, the vaccine was ordered 29 percent of the time; declined 34 percent of the time; and deferred 37 percent of the time. In cases when the vaccine was declined, the reason for declining the vaccine was documented 93 percent of the time. Children had a 1.29-greater odds of being vaccinated for flu when FluAlert was turned on than when it was turned off (95 percent confidence interval: 1.13-1.48).

Target Population: Low SES/Low Income*, Medicaid, Pediatric*, Racial or Ethnic Minorities*: Latinos, Teenagers

Strategic Goal: Develop and disseminate health IT evidence and evidence-based tools to improve health care decisionmaking through the use of integrated data and knowledge management.

Business Goal: Knowledge Creation

* This target population is one of AHRQ's priority populations.