Effects of a student pharmacist consultation on patient knowledge and attitudes about vaccines

Tony I-Fan Chou, David Benjamin Lash, Benjamin Malcolm, Layla Yousify, Julie Yennhi Quach, Sandy Dong, and Junhua Yu

Abstract

Objective: To measure the impact of student pharmacists' consultation on participant knowledge and attitudes about influenza and tetanus–diphtheria–acellular pertussis (Tdap) vaccines.

Design: Pre- and post-consultation surveys.

Setting: Free health care service and immunization clinics in Vallejo and Martinez, CA.

Participants: Children and adults 13 years of age or older.

Intervention: A convenience sample of participants completed a preintervention survey (PrIs) on basic vaccine knowledge and attitudes. Student pharmacists then delivered the intervention, which consisted of a 5-minute consultation on vaccines. A postintervention survey (PoIs) was administered immediately after the intervention.

Main outcome measures: Cumulative scores for eight knowledge-based questions and four attitude-based questions.

Results: 198 participants completed both PrIs and PoIs. Compared with the PrI scores, the PoI scores showed significant improvement in basic vaccine knowledge and attitudes toward receiving vaccinations. Participants also were more likely to view pharmacists as a source of information about vaccines after the intervention. Student pharmacists administered 109 total vaccinations during the study, including 68 influenza vaccinations and 41 Tdap vaccinations.

Conclusion: A short, 5-minute consultation by a student pharmacist may increase vaccination rates and help serve as a vehicle to change the public's view of vaccines as well as pharmacists and their role in primary and preventive care.

Keywords: Community pharmacy services, pharmacy practice, student pharmacists, diphtheria–tetanus–acellular pertussis vaccines, health knowledge, health attitudes, influenza vaccine, disease prevention and control.

J Am Pharm Assoc. 2014;54:130–137.
doi: 10.1331/JAPhA.2014.13114

Received June 4, 2013, and in revised form August 5, 2013. Accepted for publication September 24, 2013. Published online in advance of print March 7, 2014.

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Disclosure: The authors declare no conflicts of interest or financial interests in any product or service mentioned in this article, including grants, employment, gifts, stock holdings, or honoraria.

Funding: American Pharmacists Association Foundation Incentive Grants for Innovation in Immunization Practices, and California Society of Health-System Pharmacists Student Chapter Grants Program.

Previous presentations: American Public Health Association Annual Meeting, San Francisco, CA, October 27–31, 2012, and California Pharmacists Association Annual Meeting, March 15–18, 2013, Monterey, CA.

Pharmacists, who are now able to immunize in all 50 states and U.S. territories, play a significant role in the delivery of immunizations. Despite the dramatic increase in immunization access provided by pharmacists, however, immunization rates for the 2010–11 influenza season were reported to be 51.0% for children aged 6 months to 17 years old and 40.5% for adults aged 18 and older.[1] These rates are far below the 2010 and 2020 goals of the Centers for Disease Control and Prevention (CDC), which call for immunization of more than 80% for noninstitutionalized, non–high-risk children and adults.[2] Pertussis has been on the rise nationwide recently, with a peak of 27,550 cases in 2010, the highest since 1959.[3] Furthermore, in 2010, reported cases of pertussis totaled 9,156 in California, constituting a statewide epidemic that claimed the lives of 10 infants.[4] This triggered the California Department of Public Health's recommendation for all adults to receive a tetanus–diphtheria–acellular pertussis (Tdap) booster.

The ongoing burdens of disease associated with influenza and rising incidence of pertussis could be greatly reduced by increased vaccination rates among high-risk populations, especially those who are underserved due to lack of awareness and access to providers. This indicates a need for more potent immunization interventions in accordance with both national recommendations and local community needs. Several studies have found that noninteractive educational interventions such as pamphlets or written materials have little impact in changing patients' knowledge or attitudes about vaccinations.[5–7] A recent study showed that consultations by student pharmacists in a community setting increased patient knowledge of novel H1N1 immunization recommendations and confirmed an increasing comfort level in public perception of pharmacists as immunizers.[8] These results suggest that consultation by pharmacists is effective in promoting immunization awareness, yet how much impact these interventions can have on patients' attitudes toward common vaccinations such as influenza and Tdap is still undetermined.

At a Glance

Synopsis: A brief intervention by 17 student pharmacists at eight California health and immunization clinics had significant effects on patient knowledge and attitudes concerning vaccines and pharmacists' patient care roles. A convenience sample of 198 adolescents and adults completed a preintervention survey, received a 5-minute consultation by student pharmacists on influenza and tetanus–diphtheria–acellular pertussis (Tdap) vaccines and pharmacists' roles in vaccine information and delivery, and completed a postintervention survey. Results showed significant improvements in basic vaccine knowledge and attitudes and significant shifts toward viewing pharmacists as a source of information about vaccines. Student pharmacists also administered 109 total vaccinations during the study, including 68 influenza vaccinations and 41 Tdap vaccinations.

Analysis: *Vaccination rates for influenza have consistently been under national goals, and the recent pertussis epidemic has helped publicize the lack of proper vaccination. Several studies have shown that a pharmacist consultation improves medication adherence and outcomes, but few studies have investigated pharmacy consultations on vaccinations. This is the first study to show that a brief consultation on vaccines can improve patient knowledge and attitudes regarding vaccinations. Future studies are needed to investigate if these changes result in improved vaccination rates.*

Objectives

The study objectives were to (1) describe knowledge and attitudes about influenza and Tdap vaccinations within the Vallejo and Martinez, CA, populations; (2) assess the impact of a student pharmacist–delivered consultation on patient knowledge of the benefits of immunizations, as well as specific CDC recommendations for influenza and pertussis; and (3) assess the impact of a student pharmacist–delivered consultation on patient attitudes about receiving vaccinations and recommending vaccinations to others.

Methods

This study was approved by the Institutional Review Board at Touro University California.

Survey development and implementation

A preintervention survey (PrI) and postintervention survey (PoI) were designed to assess immediate changes in immunization knowledge of current influenza and pertussis immunization recommendations, attitudes regarding receipt and recommendation of immunizations, and patient demographics. Knowledge-based immunization questions were developed from educational CDC materials, including influenza and Tdap Vaccine Information Statements.

The intervention focused on the benefits of vaccines, including disease prevention; dispelling common vaccination myths, such as that vaccinations cause disease or autism; and general administration information and scheduling. Attitude-based immunization questions were adapted from previous studies.[9,10] Intervention consultation points were designed to address each question or piece of immunization knowledge.

Data from the PrIs served as baseline for comparison with the PoIs. Surveys were piloted for readability, clarity, and length at the Touro University Student-Run