A multi-season national estimate of adult influenza vaccination by US office-based pediatricians, 2006–2011

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There is no national estimate of adult influenza vaccination by US office-based pediatricians. De-identified patient-level data from an electronic healthcare claims database submitted to private and public insurers were analyzed for pediatric offices from the 2006–2007 through 2010–2011 seasons. An average of 321 000 (range: 225 000–434 000) influenza vaccinations per year were estimated to be administered to adults; 52%, 22%, and 26% were given to adults 19–49, 50–64, and ≥65 years of age, respectively. Consistent with the 2010 changes to national guidelines, recommending influenza vaccination of all individuals 6 months of age and older, pediatricians appear to be providing an increasing proportion of adult vaccinations against influenza to adults 19–49 years of age (probably parents of their pediatric patients).

Keywords Adult vaccination, influenza vaccination, national estimate, pediatrician.

Introduction

In 2010, the US Advisory Committee on Immunization Practices (ACIP) recommended that all eligible individuals ≥6 months of age be vaccinated against influenza annually, adding adults 18–49 years of age without high-risk medical conditions or contacts of the groups recommended for vaccination. Although the influenza vaccination rate in the USA for those ≥65 years of age has been consistently >60% for the last several years, the rate of influenza vaccination among younger, and particularly healthy, adults has historically been low. The US Centers for Disease Control and Prevention (CDC) estimated that 19% and 33% of healthy and high-risk adults 18–49 years of age, respectively, were vaccinated against influenza in 2008–2009. Interim data from the CDC suggest similar influenza vaccination rates during the 2010–2011 season. 

Convenience and enhanced access to the influenza vaccine have been consistently associated with an increased likelihood of adult vaccination, particularly among younger adults. A pediatric provider visit for a child could represent a potential opportunity for parents and guardians, and the child, to be vaccinated against influenza.

Little is known about the extent to which pediatricians vaccinate adults against influenza. A report from an observational study of 84 geographically diverse US pediatric offices found that pediatricians administered a median of 17 doses (range: 1–1075) of seasonal influenza vaccine to adults during the 2009–2010 season. Although the individual number of doses administered to adults per office may be small, a national survey conducted by the American Academy of Pediatrics in 2006 with a random sample of 629 pediatricians concluded that approximately 50% of pediatricians offer influenza vaccine to parents.

The American Academy of Pediatrics (AAP), in their annual influenza recommendations, states that “consideration of how best to administer influenza vaccine to parents of patients in pediatricians’ offices continues to be investigated.” The AAP also states that it is paramount that health care providers, such as adults working in a pediatric office, protect themselves against influenza. Recent AAP publications on the topic of vaccinating adults have continued to stress the lack of information concerning how extensively pediatricians are vaccinating adults. No previous studies have provided a national estimate of adult influenza vaccination by US office-based pediatricians.

Methods

A large, national sample of electronic healthcare reimbursement claims was provided by SDI Health. Each year, SDI receives approximately 950 million claims submitted for
third-party payment, corresponding to >60% of all medical claims from outpatient settings in the USA. The database from SDI has been previously shown by the CDC to correlate well with national survey data concerning influenza vaccine utilization, and influenza vaccine claims can be analyzed by vaccine type, patient age, and provider specialty. The methodology used in the current analysis is consistent with that of a previous analysis. Briefly, private and public healthcare insurance claims data for influenza vaccinations provided to adults >18 years of age and private health insurance claims for vaccinations provided to children 6 months to 18 years of age administered by pediatric providers in the outpatient setting were collected from August 1 through March 31 for the 2006–2007 through 2010–2011 influenza seasons. Claims for the 2009 H1N1 vaccine were collected from October 1, 2009 through March 31, 2010. Based on the number of pediatricians in the sample and the number of pediatricians known to be practicing in the USA, these counts were then extrapolated to generate a national estimate of the total number of influenza vaccines administered to adults in pediatric offices. It is important to note that no data would be captured for vaccinations provided, for which no claim for the vaccine was submitted to the insurance company for reimbursement. The 2 types of injectable trivalent inactivated influenza vaccine (TIV), the preservative-containing multidose vial and preservative-free prefilled syringe, and the nasal spray live attenuated influenza vaccine (LAIV) can be distinguished in claims databases by their specific Current Procedural Terminology (CPT) codes. For the 2009–2010 season, the 2009 monovalent H1N1 vaccine could also be identified by unique Healthcare Common Procedure Coding System (HCPCS) and CPT codes for the vaccine and its administration; however, differentiation of H1N1 vaccine by type (inactivated or live attenuated) was not possible. Because no patient-identifying information is included in the data collected, institutional review board approval was not sought.

Results

An average of 321 000 claims per year (range: 225 000–434 000) were estimated to have been submitted for adult influenza vaccination by US physicians identified as pediatricians. Over the five influenza seasons, an average of 52% of all claims were for young adults 19–49 years, 22% were for adults 50–64 years, and 26% were for adults ≥65 years of age (Figure 1). The proportion of vaccinations administered to adults 19–49 years of age increased during the study period, with the largest increase seen in the 2010–2011 season. In 2010–2011, 77% of adult vaccinations were administered to adults 19–49 years of age, compared with an average of 47% in the previous four seasons (Figure 1).

During the 2009–2010 H1N1 pandemic season, a total of 162 000 adult claims for the monovalent H1N1 vaccine were submitted by pediatric offices. Of these vaccine claims, 66%, 19%, and 15% were for adults 19–49, 50–64, and ≥65 years of age, respectively.

In the United States, traditional TIVs are approved for use in eligible adults 18 years of age and older, and LAIV is approved for use in eligible adults up to 49 years of age. In each season, the vast majority of adults 19–49 years of age who were vaccinated by pediatricians received TIV; however, the proportion that received LAIV increased from 6% in 2006–2007 to 24% in 2010–2011.

The timing of vaccine administration was generally similar among children and adults vaccinated in the pediatric office, with adult vaccination generally peaking slightly before vaccination in children (Figure 2). Both age groups demonstrated that seasonal vaccination began earlier each season, with the 2009–2010 pandemic season commencing the earliest. Both age groups also show that vaccination is occurring over a longer duration of time, again with the exception of the 2009–2010 pandemic season, which peaked sharply in late September 2009.

Discussion

The current analysis demonstrates that a substantial number of adults, the majority of whom are 19–49 years of age, are vaccinated by pediatricians each year. The estimated number of vaccinations in the current analysis significantly underestimates the actual number of vaccinations administered, because it has been shown that as many as one-half of US pediatricians do not submit insurance claims after vaccinating an adult parent or guardian in the office, because the parent pays cash for the cost of the vaccine
Therefore, one can estimate that pediatricians may currently vaccinate approximately 600,000 adults each year in the United States.

In the 2010–2011 season, there was an increase in the proportion of vaccinations administered to adults 19–49 years of age, which is probably a result of the new national recommendation to vaccinate all adults 19–49 years of age against influenza. Because most parents of young children would fall in this age group, the 2010–2011 increase suggests that pediatricians may play an increasing role in the future in providing influenza vaccinations to adults 19–49 years of age. An increase in the vaccination of pediatric office employees following the 2009–2010 pandemic may have also contributed to this trend.

Previous studies have demonstrated that parental vaccination by pediatricians can be highly successful if vaccination is encouraged and if other barriers such as cost are eliminated. One study investigated the acceptability of influenza vaccine by parents in the pediatric office setting. This study, which was conducted in an urban pediatric practice, found that 85% of caregivers of high-risk children were willing to be vaccinated in the pediatric office when the vaccine was offered at no charge. Another study conducted in the neonatal intensive care unit setting achieved a parental vaccination rate of 95% when the vaccine was offered at no charge.

The current study reflects “real-world” use of influenza vaccines by a large national sample of US pediatric physicians.
providers. It provides the first quantitative look at the role pediatricians can play in enhancing adult influenza vaccination. However, as stated earlier, this analysis is limited in that it would not capture influenza vaccinations for which a claim was not submitted. Some physicians who were identified as pediatricians in the database may have been board-certified in internal medicine and pediatrics and were, therefore, vaccinating their own adult patients rather than their patients’ parents/caregivers. In addition, the total number of influenza vaccine claims provided per year is the result of an extrapolation from a subset of all US pediatric offices and are accordingly subject to error. Given these limitations, the current analysis is most useful to assess trends in vaccination by age group and type and the general magnitude of estimated adult vaccinations rather than the season-specific estimates of total vaccinations.

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