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Trends in US Pediatric Influenza Vaccination From 2006 to 2010

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Background

- Before 2004, in the United States, only children with high-risk medical conditions were specifically recommended to receive an annual influenza vaccination.¹
- The Advisory Committee on Immunization Practices (ACIP) expanded pediatric influenza vaccination recommendations to include children 6–23 months of age in 2004,¹ children 24–59 months of age in 2006,² and children 5–18 years of age in 2008.³
- In 2007, the ACIP recommended that vaccination should begin as soon as vaccine became available⁴.
 - The ACIP has consistently recommended influenza vaccination throughout the influenza season, even as late as early spring.
- Other than influenza vaccination coverage estimates, limited data are available regarding other aspects of influenza vaccination by US pediatric providers in response to these recommendations.

Objective

- To describe US pediatric influenza vaccination during the current and previous 4 influenza seasons

Methods

- Electronic private insurance healthcare reimbursement claims data representing >60% of all medical claims from the US outpatient setting were analyzed.
- Weekly counts of influenza vaccinations administered to children 6 months through 18 years of age between August 1 and March 31 for the 2006–2007 through 2009–2010 influenza seasons and between August 1 and January 1 for the 2010–2011 influenza season were collected.
- Based on the available sample of claims and the known physician universe, vaccination counts for each season were projected (or scaled-up) to generate a national estimate of all influenza vaccinations administered in US physicians' offices and submitted for private healthcare insurance reimbursement.
- Preservative-containing and preservative-free injectable trivalent inactivated vaccine (TIV) and the nasal spray live attenuated influenza vaccine (LAIV) were 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 and CPT codes for the vaccine and its administration.

Results

- Total projected seasonal influenza vaccinations increased 38% from 2006–2007 to 2009–2010 (2010–2011 total not yet available).
- From 2006–2007 through 2010–2011 (excluding the pandemic season of 2009–2010), influenza vaccination began approximately 1 week earlier each season (Figure 1).
- The 2009–2010 seasonal influenza vaccine was administered approximately 4 weeks earlier than the 2008–2009 seasonal influenza vaccine.
- Seasonal influenza vaccination peaked in November in 2006–2007 and 2007–2008, October in 2008–2009 and 2010–2011, and September in 2009–2010.
 - In all seasons, vaccination dramatically declined in December.
- The proportion of influenza vaccinations delivered before November 1 increased each season from 2006–2007 through 2009–2010 (Figure 2).
- There was no pattern of increasing influenza vaccination in later months.
- In 2009, H1N1 influenza vaccination began in early October, peaked in mid-December 2009, and continued at lower levels through spring 2010 (Figure 3).

Figure 1. Influenza Vaccines Administered to Children Aged 6 Months Through 18 Years During 5 Influenza Seasons.

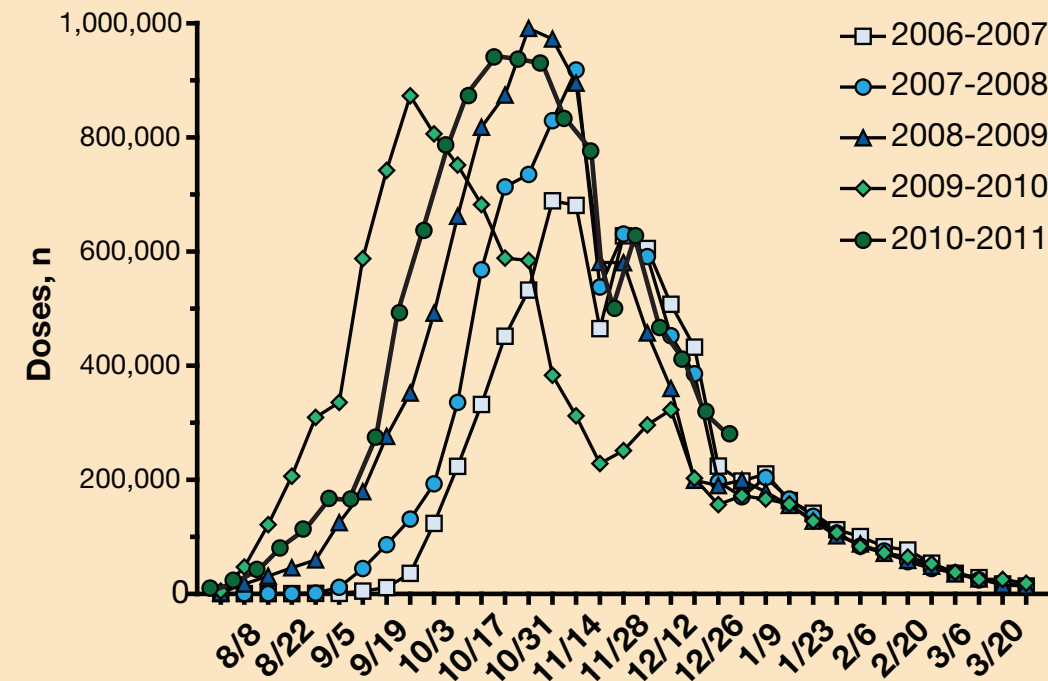


Figure 2. Percentage of Influenza Vaccine Administered to Children 6 Months Through 18 Years by All Providers Early and Late in the Vaccination Season.

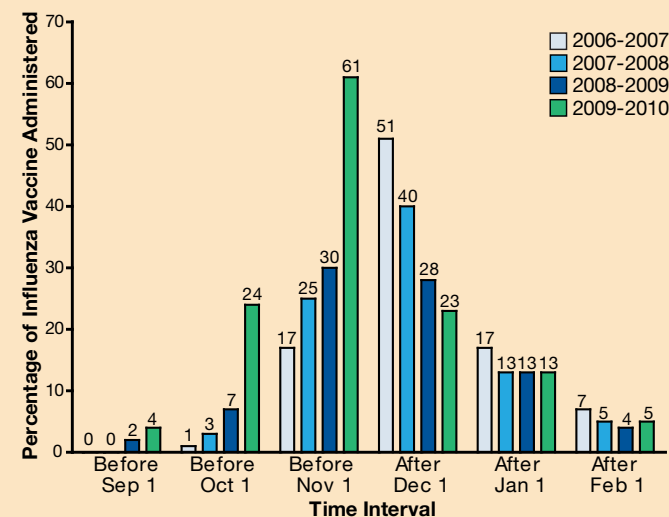
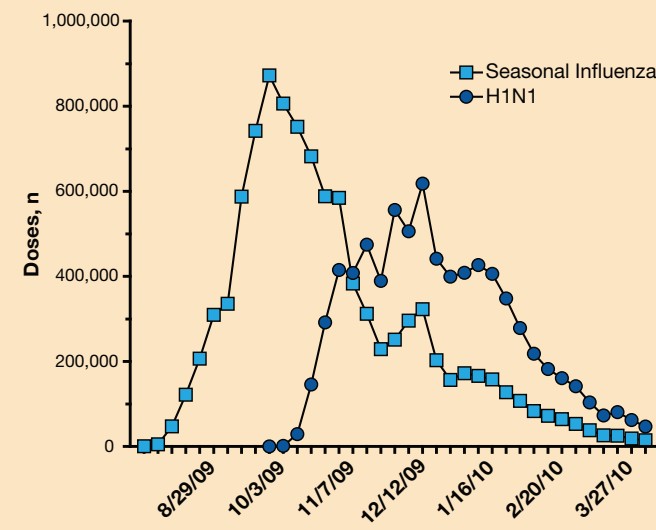


Figure 3. Seasonal and H1N1 Influenza Vaccine Delivery to Children Aged 6 Months Through 18 Years, 2009–2010.



- The types of vaccines used changed during the study period.
- Among children 6–23 months, preservative-free injectable vaccine use increased each year, to 63% of 2010–2011 vaccinations (Figure 4).
- Among children 2–18 years, intranasal vaccine use increased each year, to 38% of 2010–2011 vaccinations (Figure 5).

Figure 4. Percentage of Vaccine Administered to Children Aged 6 to 23 Months by Vaccine Type.

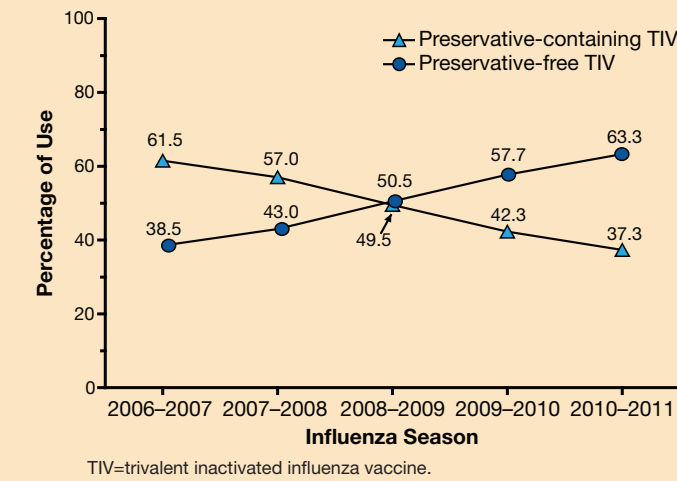
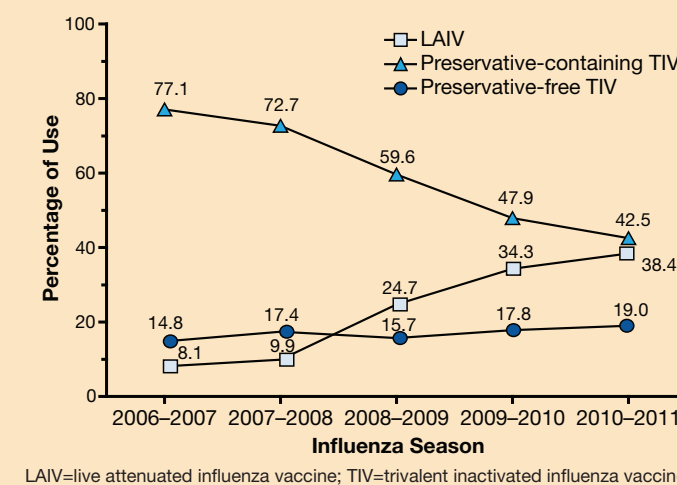


Figure 5. Percentage of Vaccine Administered to Children Aged 2 to 18 Years by Vaccine Type.



Conclusions

- Consistent with national recommendations, pediatric influenza vaccination has increased substantially in recent years.
- Pediatric influenza vaccination has started and peaked earlier in recent seasons.
- Despite efforts to extend vaccination into later months, there was no evidence of increased late-season vaccination.
- The use of preservative-free TIV and LAIV in children 6 to 23 months and 2 to 18 years of age, respectively, has increased from 2006–2007 to 2010–2011.
- Additional research is needed to identify barriers to late-season vaccination.

References

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2. Smith NM, et al. *MMWR Recomm Rep.* 2006;55:1-42.
3. Fiore AE, et al. *MMWR Recomm Rep.* 2008;57:1-60.
4. Fiore AE, et al. *MMWR Recomm Rep.* 2007;56:1-54.

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