

High Interoffice Variability in Pediatric Influenza Vaccination

Stan L. Block, MD,¹ Praful Bhatt, MD,² Seth L. Toback, MD,³ Christopher S. Ambrose, MD³

¹Kentucky Pediatric Research, Bardstown, KY; ²Pediatric & Adolescent Medicine, Lock Haven, PA; ³MedImmune, LLC, Gaithersburg, MD

For additional information, please contact
Christopher S. Ambrose, MD
(AmbroseC@MedImmune.com).

Introduction

- All children 6 months through 18 years of age are recommended to receive annual influenza vaccination.¹
- Children ≤9 years of age who have not previously received 2 doses of vaccine are recommended to receive 2 doses of vaccine.
- It is recommended that vaccination efforts should begin as soon as vaccine is available and continue through the influenza season.
- Currently, limited data exist pertaining to availability and utilization of influenza vaccines in US pediatric offices.

Objective

- To describe office-level influenza vaccination in regard to timing, uptake, and vaccination-related activities in a geographically representative sample of US pediatric practices

Methods

- An observational study was conducted in 2008–2009 in 84 US outpatient pediatric offices located in 34 states. Sites were recruited from a random sample of licensed US pediatricians.
- Influenza vaccine availability was assessed in children <18 years of age.
- Offices prospectively tracked influenza vaccinations administered by age group and vaccination-related activities.
- Office-level results were summarized, and the number of first vaccinations administered per 100 children and the ratio of second to first vaccinations administered to children <9 years requiring 2 doses were calculated.

Results

- The characteristics of all offices assessed in this study are presented in **Table 1**.
- Influenza vaccines were offered for a median of 199 days per office (range, 82–249 d), with a median first available date of September 1 (range, July 31–November 14), last available date of March 31 (range, February 14–May 18), and availability of 45 hours per week (range, 4–72 h; **Table 2**).
- In the majority of offices, vaccine was available between 175–259 days (**Figure 1**) and between 30–60 hours per week (**Figure 2**).

- The timing of influenza vaccination varied considerably across offices (**Figure 3**). No differences were seen at the regional level.
- The median number of first vaccinations per 100 children was 23 (range, 2–79; **Figure 4**), and the median ratio of second to first vaccinations was 0.57 (range, 0.05–1.11; **Figure 5**).

Figure 1. Number of days that influenza vaccines were available to patients by office

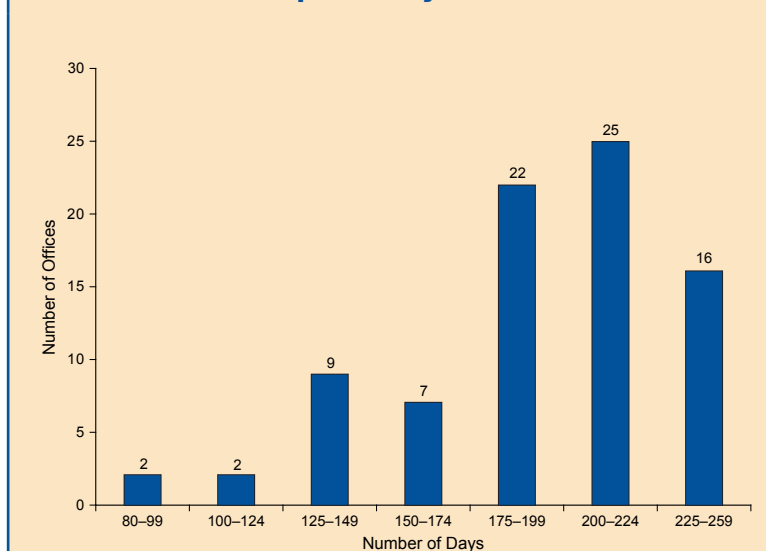


Table 2. Timing of Vaccine Availability and Administration

| Category | Value (Range) |
|--|-----------------------------------|
| Median initial vaccine shipment arrival date | August 21 (July 25–November 1) |
| Median first date vaccine offered to patients | September 1 (July 31–November 14) |
| Median last date vaccine offered to patients | March 31 (February 14–May 18) |
| Median number of days vaccine available to patients | 199 (82–249) |
| Median hours per week vaccine available to patients | 45 (4–72) |
| Average percentage of influenza vaccinations by reported setting of delivery | |
| During well visits | 51 (0–100) |
| During sick visits | 16 (0–60) |
| Vaccination clinics during normal hours | 28 (0–100) |
| Vaccination clinics outside normal hours | 5 (0–70) |

Table 1. Characteristics of Offices

| Office Characteristic | n |
|---|-------------------|
| Number of pediatric offices | 84 |
| Total staff, n | 937 |
| Physicians, n (mean, range) | 243 (3.1, 1–9) |
| Nurses, n (mean, range) | 262 (3.4, 0–17) |
| Nurse practitioner/physician assistant, n (mean, range) | 49 (0.6, 0–5) |
| Other, n (mean, range) | 383 (5.1, 0–32) |
| Patients per office, mean (range) | 5965 (940–36,531) |
| Patients per physician, mean (range) | 3323 (393–13,160) |
| Location within the United States, n (%) | |
| Northeast | 20 (24) |
| South | 29 (35) |
| West | 18 (21) |
| Midwest | 17 (20) |
| Geographic setting, n (%) | |
| Rural | 13 (16) |
| Suburban | 55 (65) |
| Urban | 16 (19) |
| Distribution of practices by percentage of children in the VFC program, n (%) | |
| 0 | 11 (13) |
| 1–25 | 28 (33) |
| 26–50 | 27 (32) |
| 51–75 | 11 (3) |
| 76–100 | 7 (8) |

VFC=Vaccines for Children.

Figure 2. Number of hours per week that influenza vaccines were available to patients by office

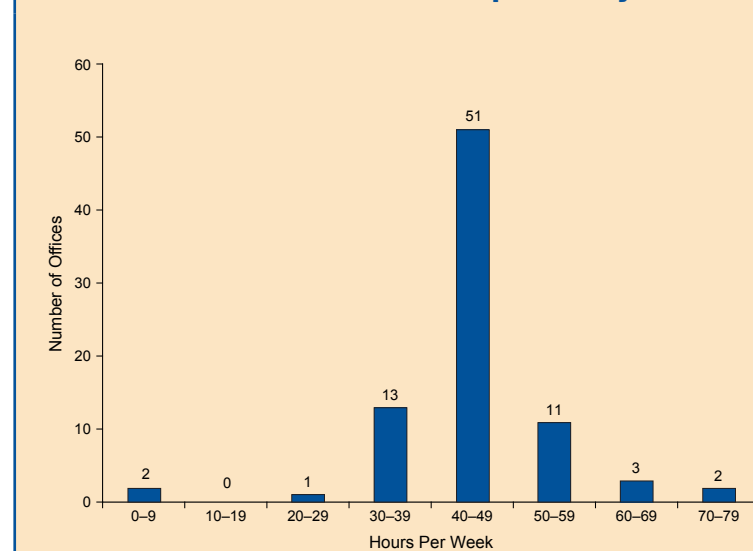


Figure 3. Percentage of influenza doses administered over time for each office

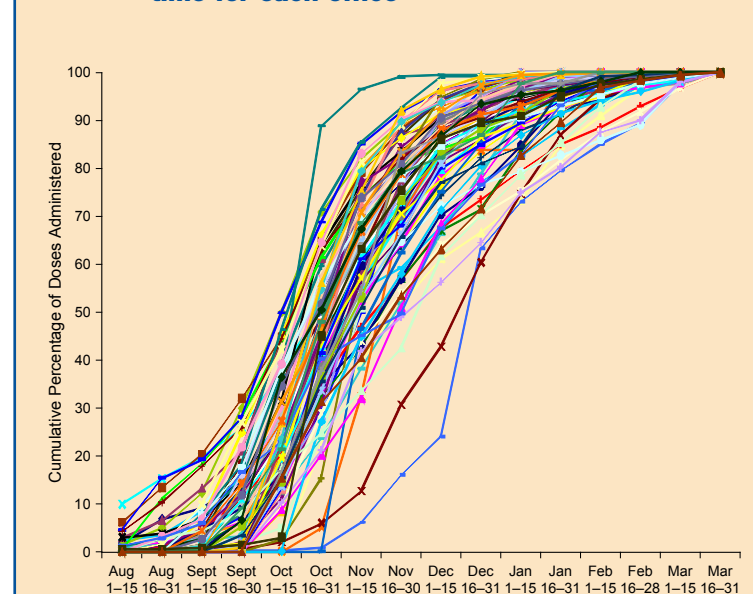
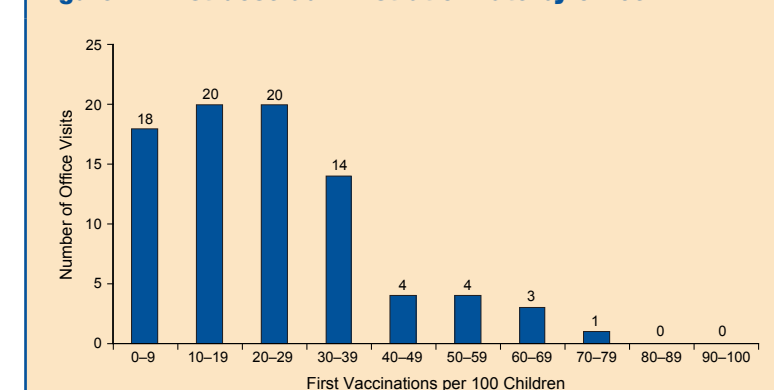
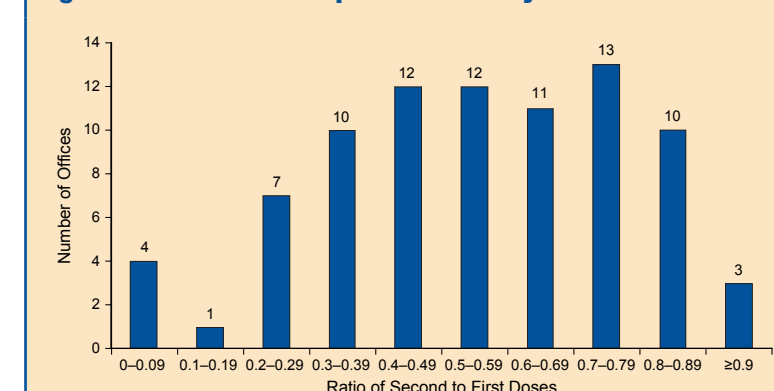


Figure 4. First-dose administration rate by office



Each line represents activity in an individual office.

Figure 5. Two-dose compliance rates by office



Conclusions

- Among US pediatric offices, there is considerable heterogeneity in the timing and delivery of influenza vaccinations.
- National estimates of pediatric influenza vaccination rates should be interpreted in this context, and educational efforts should target offices with low vaccine utilization.

References

- Fiore AE, Shay DK, Broder K, et al. *MMWR Recomm Rep*. 2009;58:1-52.

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