

Childhood Vaccination Coverage by Clinic Specialty, 2010 to 2011

Background. Montana continues to rank among the lowest 10 states for childhood vaccination coverage. In 2011, only 66.8% (95% confidence interval = 58.2%–75.4%) of Montana children aged 19 to 35 months were estimated to have received the modified vaccine series (4:3:1:3:1:4) with *Haemophilus influenzae* type b vaccine (Hib) excluded. In Montana, it is unknown whether childhood vaccination coverage is influenced by clinician specialty. To investigate the association between vaccination coverage and clinician specialty, we analyzed data from Vaccines for Children (VFC) clinic reviews.

Clinic Reviews. Each year, the Montana Immunization Program conducts in-person reviews for one-half of the VFC clinics in the state. Hence, each VFC clinic is reviewed every other year. Program staff reviews vaccination histories for children aged 24 to 35 months. For clinics participating in Montana’s immunization information system (IIS), vaccination histories are first extracted from the IIS. Medical records are reviewed in the clinic for all patients with incomplete vaccination histories. Program staff reviews all medical records for patients attending clinics not participating in the IIS. Medical records for all eligible patients are reviewed for clinics with ≤50 eligible patients, whereas only 50 records selected at random are reviewed for clinics with >50 eligible patients. Data are entered into CDC’s Comprehensive Clinic Assessment Software Application (CoCASA) for analysis. Data from the 2010 and 2011 VFC clinic reviews were included in this analysis. Clinic specialty designation was ascertained by phone call to the clinic, clinic website review, or information gathered previously by program staff. Clinics were classified as ‘family medicine’ if Family Medicine was the only specialty practiced by the clinic’s providers, ‘pediatric’ if Pediatrics was the only specialty practiced, and ‘mixed’ if both Family Medicine and Pediatrics specialties were practiced. Data included visits to both physicians and non-physician clinicians. Individual clinic vaccination coverage was calculated by dividing the number of children known to have completed the recommended doses for each antigen and the modified series by the total number of children assessed. Clinics operating for less than one year or those with no eligible patients, and health departments, were excluded from the analysis.

Trends. In 2010 to 2011, 135 clinics were visited, including 105 (78%) clinics classified as family medicine, 15 (11%) as pediatric, and 15 (11%) as mixed. Of those, 82 (78%) family medicine clinics, 12 (80%) pediatric, and 13 (87%) mixed, were eligible for this analysis (Table). Over 3300 patient records were reviewed; the median reviewed per clinic was 28 (family medicine = 23, pediatric = 50, mixed = 50). Compared with family medicine and mixed clinics, pediatric clinics had higher mean vaccination coverage for both the modified series and for all antigens assessed. Only the differences in coverage for the fourth dose of diphtheria, tetanus toxoid, and acellular pertussis vaccine (DTaP), fourth dose of pneumococcal vaccine (PCV), and modified series met statistical significance.

Prevention. All clinicians, regardless of specialty, should implement evidence-based practices aimed at improving vaccination coverage among their patient population. These practices include: 1) not missing opportunities to vaccinate — using each patient encounter as an opportunity to assess vaccination status and administer needed vaccines; 2) scheduling return visits for vaccinations; 3) using reminder/recall systems to alert clinicians and the parents of children who are due (**reminder**) or overdue (**recall**) for vaccinations; and, 4) using Montana’s IIS (imMTtrax) to access a patient’s consolidated vaccination history. Local health departments should consider strengthening their collaboration with Family Medicine clinicians to improve vaccination coverage in these practices. Additional effort is warranted to determine existing barriers to administering vaccines that might exist in Family Medicine clinics.

Table. Mean vaccination coverage for children aged 24 to 35 months by antigen and clinic type

Antigen	Family Medicine (n=82)	Pediatrics (n=12)	Mixed (n=13)	p ^a	Healthy People 2020 Goal
DTaP-4	69.4	85.4	74.7	.01	90
Hep B-3	85.9	94.2	85.8	.19	90
MMR-1	85.7	92.0	83.9	.34	90
PCV-4	72.3	89.5	82.4	.02	90
Polio-3	90.7	97.1	94.3	.16	90
VAR-1	75.1	88.4	78.2	.17	90
Series ^b	51.3	73.7	53.3	.01	80

Abbreviations: DTaP = diphtheria, tetanus toxoid, and acellular pertussis vaccine; Hep B = hepatitis B vaccine; Hib = *Haemophilus influenzae* type b conjugate vaccine; MMR = measles, mumps, rubella vaccine; PCV = pneumococcal vaccine; Polio = poliomyelitis vaccine; VAR = varicella vaccine

^aMean vaccination coverage was compared among specialties using an analysis of variance (ANOVA). The F-statistic was used to determine the p-value. A p-value <0.05 was considered statistically significant.

^bModified vaccine series (4:3:1:3:1:4) with Hib excluded includes ≥4 doses DTaP, ≥3 doses Polio, ≥1 dose MMR, ≥3 doses Hep B, ≥1 dose VAR, and ≥4 doses PCV.