

School Year 2013-2014 Immunization Survey Summary

Montana Immunization Program

Introduction

The administration of an annual school immunization survey is mandated by the Administrative Rules of Montana (ARM 37.114.720) and requires each public and private school's governing authority or designee to submit the immunization status of all students in the school. The reports are due by December 1 of the current school year.

The survey assesses immunization coverage for vaccines required for school entry per ARM 37.114.705: Tetanus, Diphtheria and Pertussis (DTaP/DTP/Tdap/DT/Td), Polio (IPV), and Measles, Mumps, Rubella (MMR). Students must be vaccinated with the following antigens: 4 doses of DTaP/DTP/DT/Td; 3 doses of IPV; 2 doses of MMR.

The survey also collects information on the percentage of students without immunization records and the percentage of students reporting medical or religious exemptions from vaccinations. The survey collects cross-sectional data at a single point in time. Changes in vaccination coverage after initial submission of the survey are not captured. Vaccinations completed after the day of assessment are not included in the survey. Survey respondents are typically school nurses or other school administrators who have access to student immunization records. It is important to know the immunization status of all students in case of a disease outbreak in the school or county. The information is used by local health departments to determine who will need to be vaccinated and who must be excluded from social activities in order to protect those individuals.

School vaccination requirements are intended to protect the health of not only the student receiving the immunization, but also the health of students who, due to medical reasons are unable to be immunized. In addition to the potential health risk to an unvaccinated child being exposed to a disease, that child may be excluded from child care, school, sporting events, or other organized activities during a disease outbreak or a result of illness.

For Montana students enrolled in kindergarten–12th grade, medical or religious exemptions to the immunization requirements may be submitted in lieu of the required dates of immunization per Montana Code Annotated (MCA) 20-5-405. A medical exemption may be granted if a child has an allergy to a component of a vaccine or a medical condition that is a contraindication to receiving the required vaccine. The medical exemption form HES 105 can only be signed by a Doctor of Medicine (MD) or a Doctor of Osteopathy (DO). Physicians designate an expiration date for the exemption. Religious exemptions require a parent, guardian, or an emancipated minor to complete and sign form HES 103 in the presence of a notary, stating a religious objection to a single or multiple vaccines, allowing their child to be exempted from vaccine requirements. Religious exemptions must be completed and signed in the presence of a notary at the beginning of each academic year.

The majority of required vaccines include multiple doses. For students who have not completed all required doses, ARM 37.114.710 allows conditional school enrollment if they have received at least one dose of each of the required vaccines before enrollment and continue to receive the remaining vaccines on a defined schedule. Therefore, school staff needs to track the progress of children with conditional enrollments toward the completion of the required immunizations. Should a student not follow the conditional enrollment schedule that student must be removed from the school until the student is either back on schedule or claims an exemption.

The purpose of this report is to monitor and share school immunization coverage levels in all jurisdictions to ensure that Montana residents remain protected from vaccine-preventable diseases, either through direct immunization or community immunity. Community immunity also known as herd immunity arises when a high percentage of the population is protected through vaccination against a virus or bacteria, making it difficult for a disease to spread because there are few susceptible people left to infect. This is particularly crucial for protecting people who cannot be vaccinated, including infants, people with immune system problems and those who are too ill to receive vaccines.

Methods

The annual school immunization surveys are distributed in early September and are due by December 1 of that year. Surveys are mailed directly to all public and private schools registered with the Montana Office of Public Instruction. Private schools may be added to the list at the request of either the local health department, or the school itself by contacting the Montana Immunization Program. Each school has the option to directly enter their results into an online database or fax a hard copy for the Assessment Coordinator to enter the results. Once a school's immunization results are entered into the database, the local health department is automatically notified. This is required per ARM 37.114.720 Section 3 which states that a copy of the report must be sent concurrently from the school to the local health department or local board of health if there is no local health department. Results are compiled and reviewed for completeness. Individual respondents are contacted regarding inconsistent data or information requiring clarification.

Results

Of the 824 public schools on Montana's 2013 list, 439 (53%) are elementary schools, 214 (26%) are middle schools (7th–8th grades) and 171 (21%) are high schools (Facts about Montana Education 2013). Nearly 780 (95%) schools submitted an immunization survey. During the 2013–2014 academic year, data were available for 78,944 students enrolled in kindergarten–6th grades; 21,686 7th–8th grades; and 40,652 9th–12th grades. Students were considered up-to-date if they were known to have received all required vaccines. For all students, immunization coverage for individual antigens ranged from 93% (1+ dose Tetanus, diphtheria acellular pertussis or Tetanus diphtheria (Tdap/Td) among students enrolled in 9th–12th grades) to 99% (3+ doses polio among students enrolled in 9th–12th grades) (Table 1). Students entering into seventh grade are required to have a tetanus containing vaccine booster. It is recommended that they be given Tdap instead of Td in order to receive protection from pertussis.

During the 2011–2012 and 2013–2014 academic years, immunization coverage for required vaccines did not differ substantially except for the 1+ dose Tdap/Td which increased from 72% in 2011–2012 to 93% in 2013–2014 (Table 2).

The rate of medical and religious exemptions was low and did not vary substantially by grade level (Table 3). However, the rate of religious exemptions was higher for health planning region 5, northwestern Montana compared with other regions (Figure 1). Figure 2 (religious exemptions) and Figure 3 (medical exemptions) are maps of Montana showing the percentage of exemptions in each individual county. When reviewing the maps one must keep in mind the lower population in the northeastern portion of Montana as compared to the southeastern, central and western portions. Just one student with an exemption in northeastern Montana may create a higher percentage than ten students with exemptions in western Montana.

Table 1. Immunization coverage among students enrolled in kindergarten–12th grade by vaccine and grade level, Montana, 2013–2014 academic year

	<i>Grade level</i>		
	Kindergarten–6 th	7 th –8 th	9 th –12 th
Number of Students	78,944	21,686	40,652
4+ DTaP/DTP/Tdap/DT/Td	78,487 (98)	21,455 (98)	39,888 (98)
2+ MMR	78,866 (96)	21,456 (98)	40,131 (99)
3+ IPV	77,670 (97)	21,483 (98)	40,182 (99)
1+ Tdap/Td (7th–12th grades only)	N/A	20,683 (98)	37,777 (93)

Abbreviations: DTaP = diphtheria, tetanus toxoid, and acellular pertussis vaccine; IPV = inactivated poliovirus vaccine; MMR = measles, mumps, and rubella vaccine; Td = tetanus and diphtheria vaccine; Tdap = tetanus toxoid, diphtheria, and acellular pertussis vaccine.

Table 2. Percent Immunization coverage among students enrolled in kindergarten–12th grade by vaccine and academic year, Montana, 2011-2014

Academic year	2+ MMR	3+ IPV	4+ DTaP	Tdap/Td Booster 7-12 th grades
2011–2012	97.5	96.0	97.2	72.0
2012–2013	97.2	97.5	97.3	92.5
2013–2014	97.7	97.3	97.7	92.8

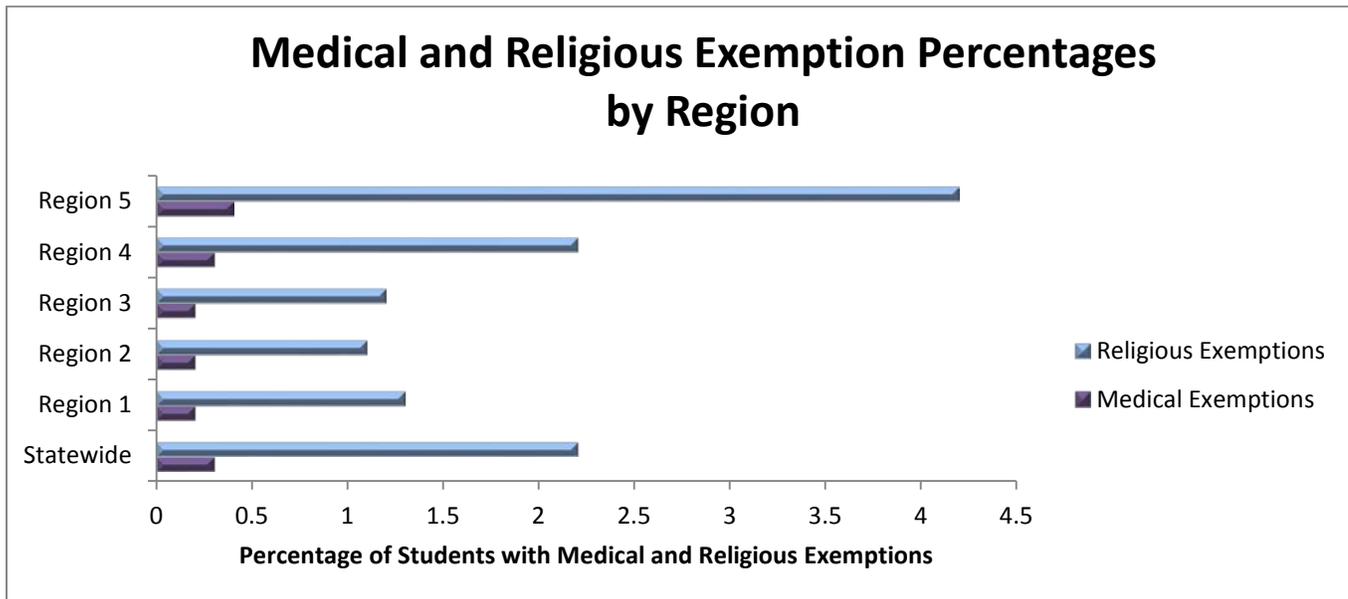
Abbreviations: DTaP = diphtheria, tetanus toxoid, and acellular pertussis vaccine; IPV = inactivated poliovirus vaccine; MMR = measles, mumps, and rubella vaccine; Td = tetanus and diphtheria vaccine; Tdap = tetanus toxoid, diphtheria, and acellular pertussis vaccine.

Table 3. Vaccination coverage characteristics by grade and antigen, Montana, 2013

Grade	Number of students	Conditional enrollments (%)	Medical exemptions (%)	Religious exemptions (%)	Antigen			
					2+ doses MMR (%)	3+ doses IPV (%)	4+ doses DTaP (%)	1+ dose Td/Tdap (%)
K	12255	276 (2)	35 (<1)	392 (3)	11498 (94)	11695 (95)	11632 (95)	—
1	11836	131 (1)	43 (<1)	340 (3)	11320 (96)	11469 (97)	11432 (97)	—
2	11928	111 (<1)	26 (<1)	315 (3)	11299 (95)	11431 (96)	11413 (96)	—
3	11238	87 (<1)	40 (<1)	302 (3)	10800 (96)	10885 (97)	10855 (97)	—
4	11012	221 (2)	26 (<1)	266 (2)	10585 (96)	10688 (97)	10682 (97)	—
5	10981	311 (3)	33 (<1)	276 (3)	10555 (96)	10647 (97)	10628 (97)	—
6	11127	197 (2)	26 (<1)	208 (2)	10829 (97)	10855 (98)	10844 (97)	—
7	11083	134 (1)	34 (<1)	242 (2)	10867 (98)	10883 (98)	10862 (98)	10340 (93)
8	10783	147 (1)	38 (<1)	212 (2)	10589 (98)	10600 (98)	10583 (98)	10343 (96)
9	11044	85 (<1)	28 (<1)	201 (2)	10846 (98)	10851 (98)	10810 (98)	10192 (92)
10	10469	95 (<1)	26 (<1)	225 (2)	10241 (98)	10258 (98)	10231 (98)	9696 (93)
11	9928	86 (<1)	23 (<1)	177 (2)	9735 (98)	9755 (98)	9704 (98)	9142 (92)
12	9469	68 (<1)	18 (<1)	157 (2)	9309 (98)	9318 (98)	9243 (98)	8747 (92)
Total	143153	1949 (1)	396 (<1)	3313 (2)	138473(97)	139335 (97)	139920 (98)	58460* (93)

Abbreviations: DTaP = diphtheria, tetanus toxoid, and acellular pertussis vaccine; IPV = inactivated poliovirus vaccine; MMR = measles, mumps, and rubella vaccine; Td = tetanus and diphtheria vaccine; Tdap = tetanus toxoid, diphtheria, and acellular pertussis vaccine. *58460 out of 62776 (7th-12th graders) or 93% had received a booster dose of Tdap/Td.

Figure 1. Percentage of students enrolled in kindergarten–12th grade with medical or religious exemptions to required vaccines, Montana, 2013–2014 academic year



- Region 1 Counties:* Carter, Custer, Daniels, Dawson, Fallon, Garfield, McCone, Powder River, Prairie, Richland, Roosevelt, Rosebud, Sheridan, Valley, Wibaux
- Region 2 Counties:* Blaine, Cascade, Chouteau, Glacier, Hill, Liberty, Phillips, Pondera, Teton, Toole
- Region 3 Counties:* Big Horn, Carbon, Fergus, Golden Valley, Judith Basin, Musselshell, Petroleum, Silver Bow, Stillwater, Sweet Grass, Treasure, Wheatland, Yellowstone
- Region 4 Counties:* Beaverhead, Broadwater, Deer Lodge, Gallatin, Granite, Jefferson, Lewis and Clark, Madison, Meagher, Park, Powell, Silver Bow
- Region 5 Counties:* Flathead, Lake, Lincoln, Mineral, Missoula, Ravalli, Sanders

Limitations

This survey was subject to several limitations. First, data were collected from reports submitted by school nurses, administrators, and teachers. Second, immunization records were not available for all students, which could affect overall coverage or exemption rates. Third, the survey collected cross-sectional data at a single point in time. Changes in immunization coverage because of changes in student enrollment or vaccines administered after the initial submission were not detected by the survey. Finally, this analysis only assessed immunization coverage for vaccines required for school entry. Immunization coverage for other vaccines recommended by the Advisory Committee on Immunization Practices (e.g. Hepatitis B, Varicella, Hepatitis A, influenza) may be higher or lower than the national average.

Conclusion

Measured immunization coverage levels statewide are above estimated herd immunity levels for diphtheria, measles, mumps, pertussis, polio, rubella, and tetanus. A small percentage of children have medical or religious exemptions to required vaccines. Fewer than 2% of students have medical exemptions and about 2% of students have religious exemptions. Schools with immunization coverage below 85% for at least one required vaccine are at risk for disease outbreaks.

Recommendations

Based on the results from the 2013 School Survey and advice from the 2013 Legislative Performance Audit, we offer the following recommendations for improving school immunization rates in Montana:

- The Department of Public Health and Human Services will propose rule changes and seek legislation to align Montana's school immunization requirements with the Advisory Committee on Immunization Practices recommendations.
- The Montana Immunization Program will update and develop a more comprehensive training program to notify schools about the requirements and their responsibilities as stated in ARM 37.114.721.
- Local health departments will track students excluded for failing to meet the requirements of a conditional enrollment and notify the Montana Immunization Program when each child has met the immunization requirements.
- Collaboration between the Montana Immunization Program and local health departments to develop a documented process of validating the accuracy of data submitted by schools with no school nurse or administrative personnel trained in interpreting school immunization requirements.

Figure 2. Percentage of students enrolled in kindergarten–12th grades with religious exemptions to required vaccines, Montana, 2013–2014 academic year

**Percent of Enrolled Pupils with Religious Vaccine Exemptions
Montana, 2013-14 School Year**

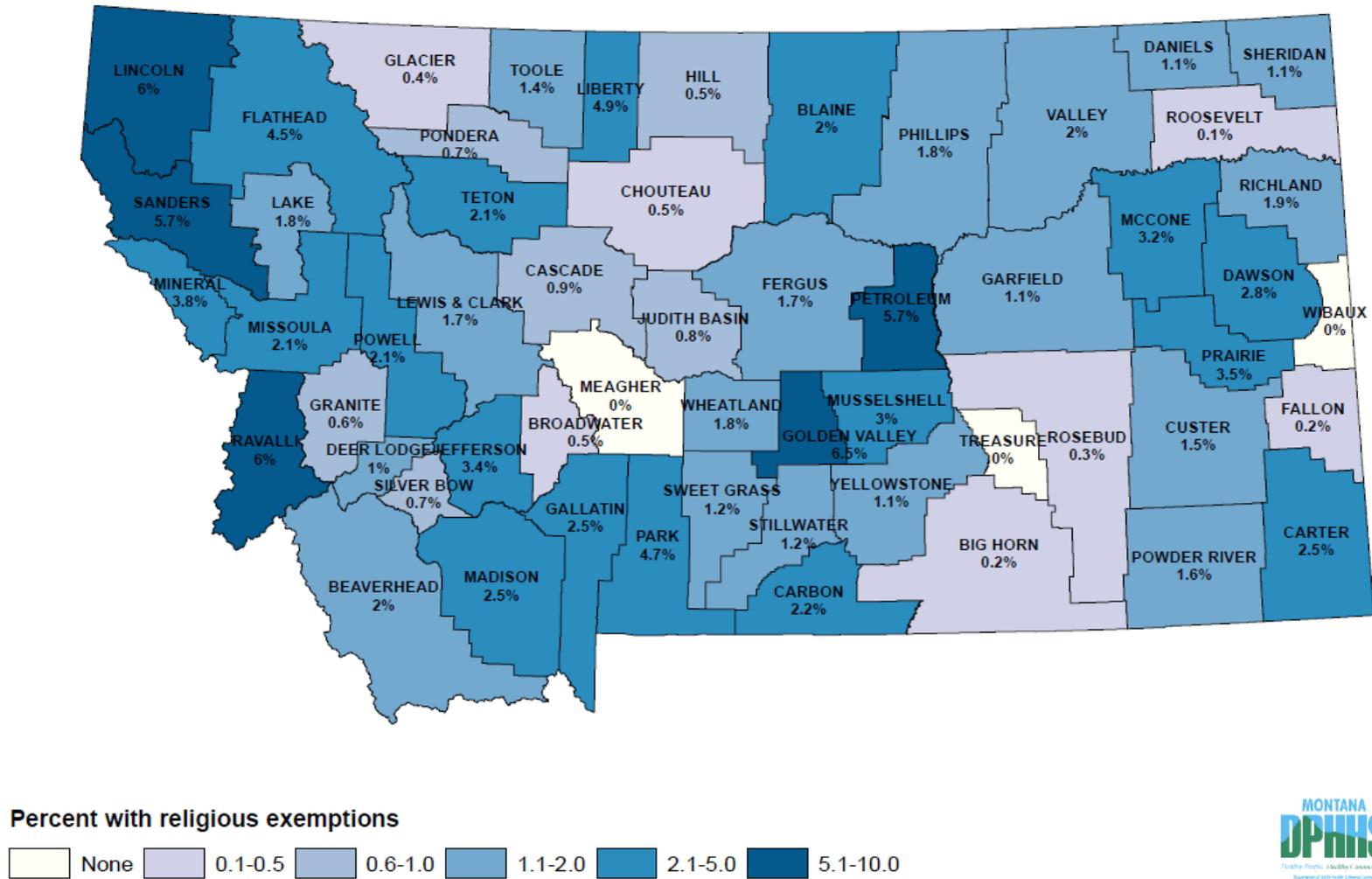
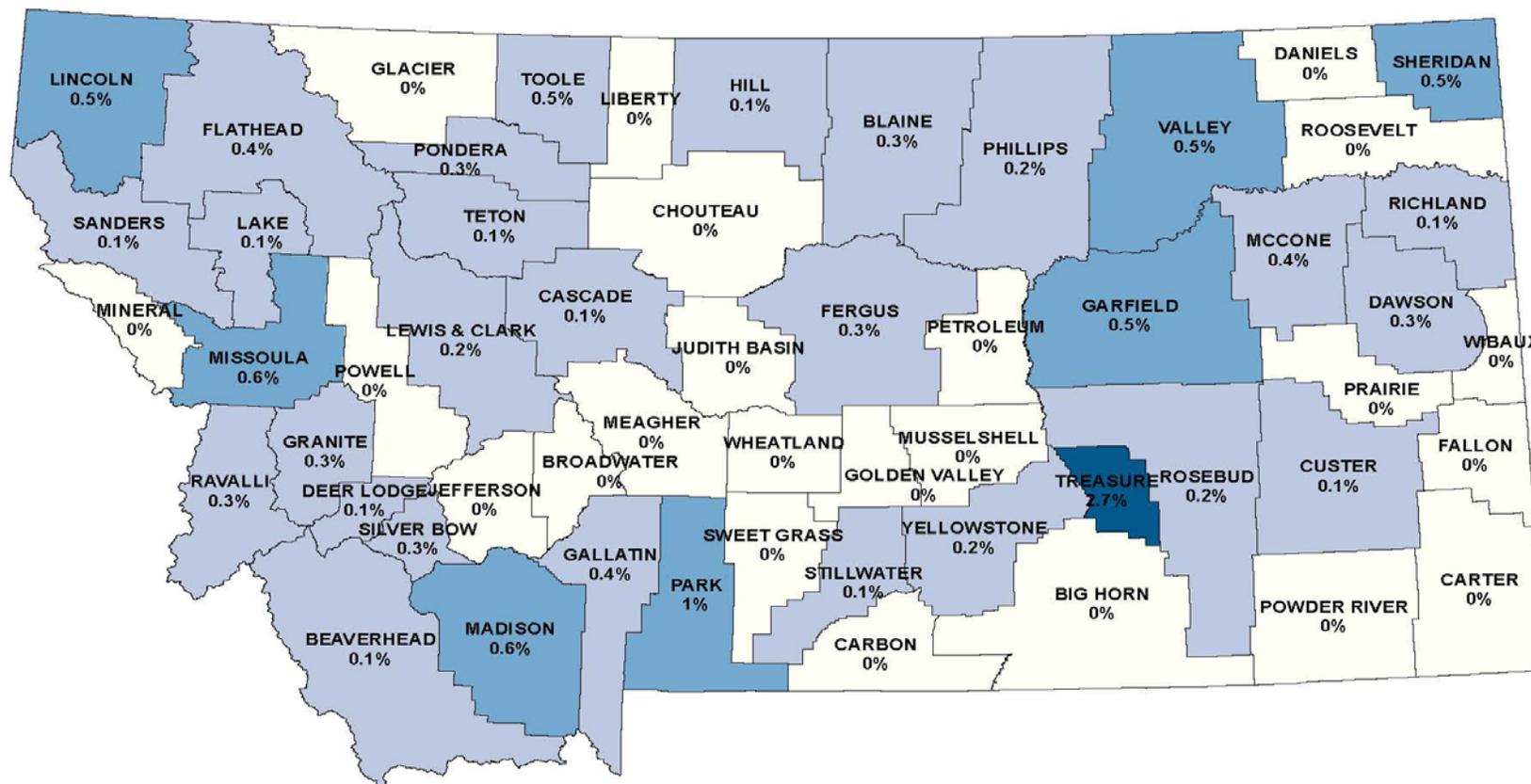


Figure 3. Percentage of students enrolled in kindergarten–12th grades with medical exemptions to required vaccines, Montana, 2013–2014 academic year

Percent of Enrolled Pupils with Medical Vaccine Exemptions Montana, 2013-14 School Year



Percent with medical exemptions

