

## Immunization Coverage and Vaccine Exemption Rates in New Mexico, 2017-2018 and 2018-2019 School Years

Immunizations against vaccine-preventable diseases are consistently ranked among the greatest public health achievements of the last century.<sup>1,2</sup> However, outbreaks of vaccine-preventable diseases are increasing in recent years, largely in under-immunized populations.

As of May 2019, the United States is experiencing the highest number of measles cases since 1994. The majority of cases are in people who are unvaccinated.<sup>3</sup> Pertussis (whooping cough) is still considered endemic in the United States, with 18,975 cases reported to CDC in 2017.<sup>4</sup> New Mexico recently had a large community-wide outbreak of pertussis in McKinley County in 2018.<sup>5</sup>

A key population in which to ensure adequate vaccination is school-aged children. Currently, New Mexico law allows vaccine exemptions in school children for medical or religious reasons. Medical exemptions require a certificate from a licensed physician stating that immunization would seriously endanger the life or health of the child. Religious exemptions require either an affidavit from an officer of a recognized religious denomination affirming that the child's parents or legal guardians belong to a denomination that forbids immunization, or an affidavit from the child's parent or legal guardian affirming that their individual religious beliefs do not permit immunization ([NM Stat § 24-5-3](#)).

As immunization coverage drops below herd immunity thresholds, outbreaks of vaccine-preventable diseases are likely to keep causing illness, missed days of work and school, hospitalizations, complications, and even deaths. The purpose of this report is to characterize the risk of vaccine-preventable disease outbreaks in New Mexico based on immunization coverage and non-vaccinated children.

### Methods

Immunization, exemption, and compliance data were collected for the 2017-2018 and 2018-2019 school

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years from a statewide annual school survey of kindergarteners attending public and private schools in New Mexico. These data were entered into an online survey by an employee at each school, who assessed their students' immunization records and exemptions using the respective year's New Mexico School Entry Immunization Requirements. In 2018-2019, 91 schools were chosen for validation on-site chart audits and in 2017-2018, data from 51 schools were validated.

A map of immunization coverage was created using a scale based on the herd immunity threshold for measles of 95%. Counties with fewer than 50 students in a grade were not included in the map, due to the disproportionate impact that a single student could have on the county's rate.

### Results

*Immunization Rates from the School Survey.* Among kindergarteners in the 2018-2019 school year, the percent of students up-to-date (UTD) on all school-required vaccinations by county ranged from 83.9% to 100%. Statewide, 93.7% of kindergarteners are UTD. Twelve counties (36%) had  $\geq 95\%$  of kindergarteners UTD, although three of the twelve (Mora, Harding, and De Baca) had fewer than 50 students (Figure 1).

Compared to the 2017-2018 school year, 21 counties had a decrease in the percent of students UTD, by a median difference of -2.6 percentage points (range -0.2 to -12.6 percentage points). Eleven counties had an increase in the percent of students UTD, by a median difference of 2.2 percentage points (range 0.3 to 25 percentage points). One county had no change in immunization coverage.

Public schools had the highest UTD rate in kindergartens (95.9% in 2017-18, 94.5% in 2018-2019), while private schools had the lowest rate (85.0% in 2017-18, 83.6% in 2018-2019). Charter schools were intermediate with 92.0% UTD in 2017-18 and 90.6% in 2018-2019.

*Exemption Rates from the School Survey.* Excluding counties with small populations, 2018-2019 kindergarten exemption rates ranged from 0% to 6.3%, with the highest exemption rates in Taos (6.3%) and Santa Fe (5.3%) counties. Compared to the 2017-2018 school year, 16 counties had lower or equal exemption rates in kindergarteners. Statewide, most exemptions are categorized as religious, accounting for 78.2% of kindergarten exemptions. Private and charter schools had 3- to 4-fold higher exemption rates than public schools (Figure 2).

*In-Process Students and Non-Compliance.* Besides exemptors, which accounted for 29% of non-UTD kindergarteners in 2018-2019, there are two other groups of students that are not considered fully immunized. The largest, at 36%, are those who are in process. These are students who are behind on their vaccines and are in the process of catching up. In-process status should be temporary, but without close monitoring (usually by a nurse), it can become non-compliance. Non-compliance accounts for the second largest group (35%) of non-UTD students. These students do not have a complete immunization record on file, nor do they have a valid exemption or in-process status. While 96.4% of all New Mexican kindergarteners were in compliance with immunization law in 2018-2019 (i.e., have an UTD vaccination record, valid exemption, or valid in-process status filed with the school), seven counties with at least 100 kindergarten students enrolled are missing records for  $\geq 5\%$  of their kindergarteners, primarily in the Southwest and Northeast regions. These include Dona Ana, Otero, and San Miguel counties, in which non-compliance accounts for 84.5%, 69.2%, and 66.7%, respectively, of all kindergarteners in those counties who are not UTD. The remaining counties with low compliance are Cibola, Rio Arriba, Sierra, and Socorro.

## Discussion

Statewide, vaccine exemption rates are increasing, and immunization coverage is decreasing in kindergarten students. While most of the state's kindergarteners are at or above the 95% immunization coverage rate required for herd immunity for measles, pockets of the state are becoming increasingly vulnerable to an outbreak of a vaccine-preventable disease. These pockets

include Taos and Santa Fe counties, where lower immunization coverage is largely driven by high vaccine exemption rates. Other counties, including Otero, Cibola, San Miguel, and Dona Ana, have low exemption rates but have many students out of compliance (i.e., no records of vaccination or exemptions on file), making their true vulnerability to an outbreak unknown.

Most vaccine exemptions filed in New Mexico are for non-medical reasons (i.e. religious beliefs). However, a previous report in 2014 found that 54.9% of exemptors in New Mexico had chosen not to vaccinate for philosophical reasons<sup>6</sup> or personal ones such as parents feeling there is no time to take off from work to get vaccines. It is reasonable to assume some parents have continued to misuse the religious exemption by substituting philosophical or personal reasons for a religious reason.

This study is limited by the reliability of immunization data that are self-reported from schools. Almost 20% of online survey entries for kindergartens were completed by someone other than a nurse, and the different validation practices each school year had different impacts on the data. After validation in 2018-2019, the up-to-date kindergarten immunization rate in private schools decreased by an average of 3.5%, while the rate in public schools increased by an average of 1.4 percentage points. However, after validation of a smaller random sample in 2017-2018, the up-to-date kindergarten immunization rate in private schools decreased by an average of 10%, while the rate in public schools decreased by an average of 4 percentage points. These may have been due to smaller school populations being included in the sample. NMDOH has typically used data from the New Mexico State Immunization Information System (NMSIIS) for each vaccination exemption, but the online survey data was used in this assessment to also be able to assess non-compliance with record keeping. Because a different data source was used to assess vaccination exemptions in this assessment, exemption rates are not comparable to rates typically reported by NMDOH.

Strong enforcement of school vaccination requirements is important for maintaining herd immunity against vaccine-preventable diseases in communities. Adults who were not fully vaccinated as children will risk exposure to diseases like measles or chickenpox that are more serious in adulthood, and also put their own families and communities at risk of disease. The impact of current immunization coverage, exemption rates, and compliance with vaccination laws affects the health

and outbreak vulnerability in New Mexico for generations.

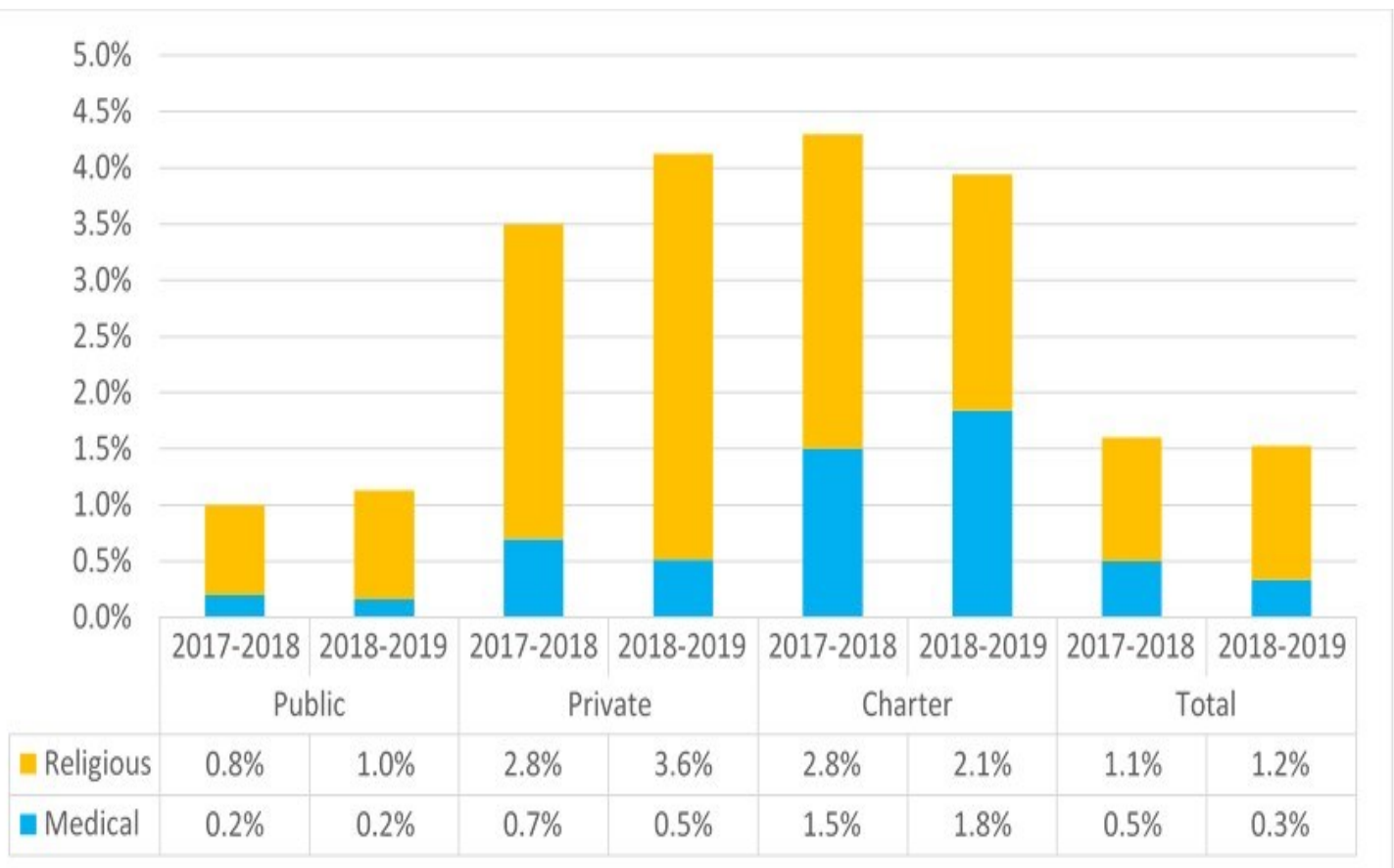
### Recommendations

- Advocate for all schools to have a school nurse or at least nursing support to improve capacity to track and increase vaccine coverage.
- Enforce and strengthen New Mexico vaccination laws to reduce noncompliance and misuse of exemptions.
- Continue training of school administrators, particularly schools without nurses on staff, to ensure knowledge of immunization laws, and thus improved compliance.
- Continue surveillance and control of vaccine preventable disease.

### References

1. Centers for Disease Control and Prevention. Ten Great Public Health Achievements – United States, 1900-1999. *Morbidity and Mortality Weekly Report*. 1999. 48(12);241-243.
2. Centers for Disease Control and Prevention. Ten Great Public Health Achievements --- United States, 2001-2010. *Morbidity and Mortality Weekly Report*. 2011. 60(19);619-623.
3. Washington Post. U.S. officials say measles cases hit 25-year record high. 2019 Apr 29. [https://www.washingtonpost.com/health/2019/04/29/us-officials-say-measles-cases-hit-year-record/?noredirect=on&utm\\_term=.2a64a7580319](https://www.washingtonpost.com/health/2019/04/29/us-officials-say-measles-cases-hit-year-record/?noredirect=on&utm_term=.2a64a7580319)
4. Centers for Disease Control and Prevention. Pertussis Cases by Year. 2017 Aug. <https://www.cdc.gov/pertussis/surveillance-reporting/cases-by-year.html>.
5. New Mexico Department of Health. Whooping Cough Outbreak in McKinley County. 2018 Apr. <https://nmhealth.org/news/alert/2018/4/?view=679>.
6. Tang A, Selvage D, Glaser E, Baumbach J. Vaccine Exemption of Children in New Mexico. *New Mexico Epidemiology*. 2014 May;2014(5).

**Figure 2. Kindergarten Exemption Rates by Exemption and School Type, NM, 2017-2018 and 2018 –2019**



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**Figure 1. Vaccination Coverage by County among Kindergarteners, New Mexico, 2018-2019**

