

2019

# Vaccination Levels of Fresno County Schools: 2017-2018 School Year



**Department of Public Health  
Community Health Division  
Epidemiology Program**

# **Vaccination Levels for Fresno County Schools:** **2017-2018 School Year**

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## ABBREVIATIONS & KEY TERMS

### *Concern Level*

*Low level concern:* ≥95% of students up-to-date on required vaccinations

*Moderate level concern:* 90-94% of students up-to-date on required vaccinations

*High level concern:* 80-89% of students up-to-date on required vaccinations

*Extreme level concern:* <80% of students up-to-date on required vaccinations

*DTaP:* Diphtheria toxoid, tetanus toxoid, and acellular pertussis vaccine

*Fully vaccinated (Kindergarten):* 4 doses of polio vaccine (3 doses if at least 1 dose was received on or after 4th birthday), 5 Dtap/DTP/DT vaccine doses (4 doses if at least 1 dose was received on or after 4th birthday), 2 doses of a measles-containing vaccine (at least 1 dose must be measles, mumps, and rubella combined and both doses on or after 1st birthday), 3 doses of hepatitis B vaccine, and 1 dose varicella vaccine or physician-documented varicella disease

*Hib:* Haemophilus influenzae, type B vaccine

*Hep B:* Hepatitis B vaccine

*MMR:* Measles, mumps, and rubella vaccine

*PBE:* Personal belief exemption

*PME:* Permanent medical exemption

*School of concern:* Any school with less than 95% of students up-to-date on required vaccinations

*Varicella vaccine:* Chickenpox vaccine

## EXECUTIVE SUMMARY

The following summary is for schools with greater than 20 enrolled kindergarten students, all other schools were omitted for confidentiality reasons.

- I. The number of schools with at least 95% of enrolled kindergarteners up-to-date on vaccinations increased in the 2016-2017 school year as compared to prior years
  - a. This increase was maintained in the 2017-2018 school year
- II. For the 2017-2018 school year:
  - a. Out of the 197 schools represented, 87.31% reported that at least 95% of their kindergartners met the vaccination requirements
    - i. Over 2,500 kindergarten students were enrolled in schools with less than 95% of their kindergarten students up-to-date on vaccinations
  - b. Out of the 267 childcare facilities represented, 83.15% reported that at least 95% of their enrollees met the vaccination requirements
  - c. Out of the 75 middle schools represented, 94.67% reported that at least 95% of their 7th graders met the vaccination requirements
- III. For the 2017-2018 school year, the lowest vaccination coverage among kindergartners was for DTP (90.36% of schools had at least 95% of kindergartens up-to-date); the highest vaccination coverage was for Varicella (96.95% of schools had at least 95% of kindergartens up-to-date)
- IV. For the 2017-2018 school year, the percentage of private schools ranked as 'high' concern (80-89% of kindergarten students up-to-date on vaccinations) or 'extreme' concern (less than 80% of kindergarten students up-to-date on vaccinations) was higher than the percentage for public schools
- V. Although Personal Belief Exemptions were eliminated, the number of Permanent Medical Exemptions increased in the 2017-2018 school year
- VI. Zip code 93727 had the highest number of schools (4 out of 13 total schools) with less than 95% of their kindergarten students up-to-date on vaccinations; zip codes 93621, 93652, 93703, 93721, and 93728 all had greater than 59% of schools with less than 95% of their kindergarten students up-to-date on vaccinations (*Please note there may be additional zip codes that would be included in this list if no schools were omitted*)

## BACKGROUND

California law (California Health and Safety Code, Sections 120325-120375) requires that children receive certain vaccinations in order to attend childcare, primary school, and secondary school (see Appendix A for a list of requirements). All schools and facilities that fall under this law are required to enforce these requirements and maintain vaccination records on all children enrolled.<sup>2</sup> Effective as of January 2016, personal belief exemptions (PBEs) are no longer permitted in California; students are not required to have vaccinations for entry into home-based schooling or independent study programs with no classroom components.<sup>3,4</sup> Additionally services for students who have an individualized education program are not reliant on vaccination status.<sup>1</sup>

This report summarizes vaccination coverage estimates for Fresno County's private and public schools, primarily for the 2017-2018 school year. The bulk of this report focuses on vaccination coverage at the kindergarten level; however, coverage for childcare facilities and middle schools is also described.

## METHODS AND DATA SOURCES

California Law requires all schools to report the vaccination status of their students annually. Data on vaccination coverage for childcare, kindergarten, and 7<sup>th</sup> grade students is publically available on the Shots for Schools website associated with Immunization Branch of the California Department of Public Health (<https://www.shotsforschool.org/k-12/reporting-data/>).<sup>1</sup> All schools registered with the California Department of Education are required to report on students; however, data from schools with less than 20 students in the reported grade is omitted by Shots for Schools to protect confidentiality. Schools were requested to include all specific immunization series for all students regardless of exemption status.

School demographic data was obtained from the Education Data Partnership (<https://www.ed-data.org/school/Fresno/>), a collaboration of the California Department of Education, EdSource, and the Fiscal Crisis and Management Assistance Team/California School Information Services (FCMAT/CSIS) and from the California Department of Education (<https://www.cde.ca.gov/ds/dd/>).

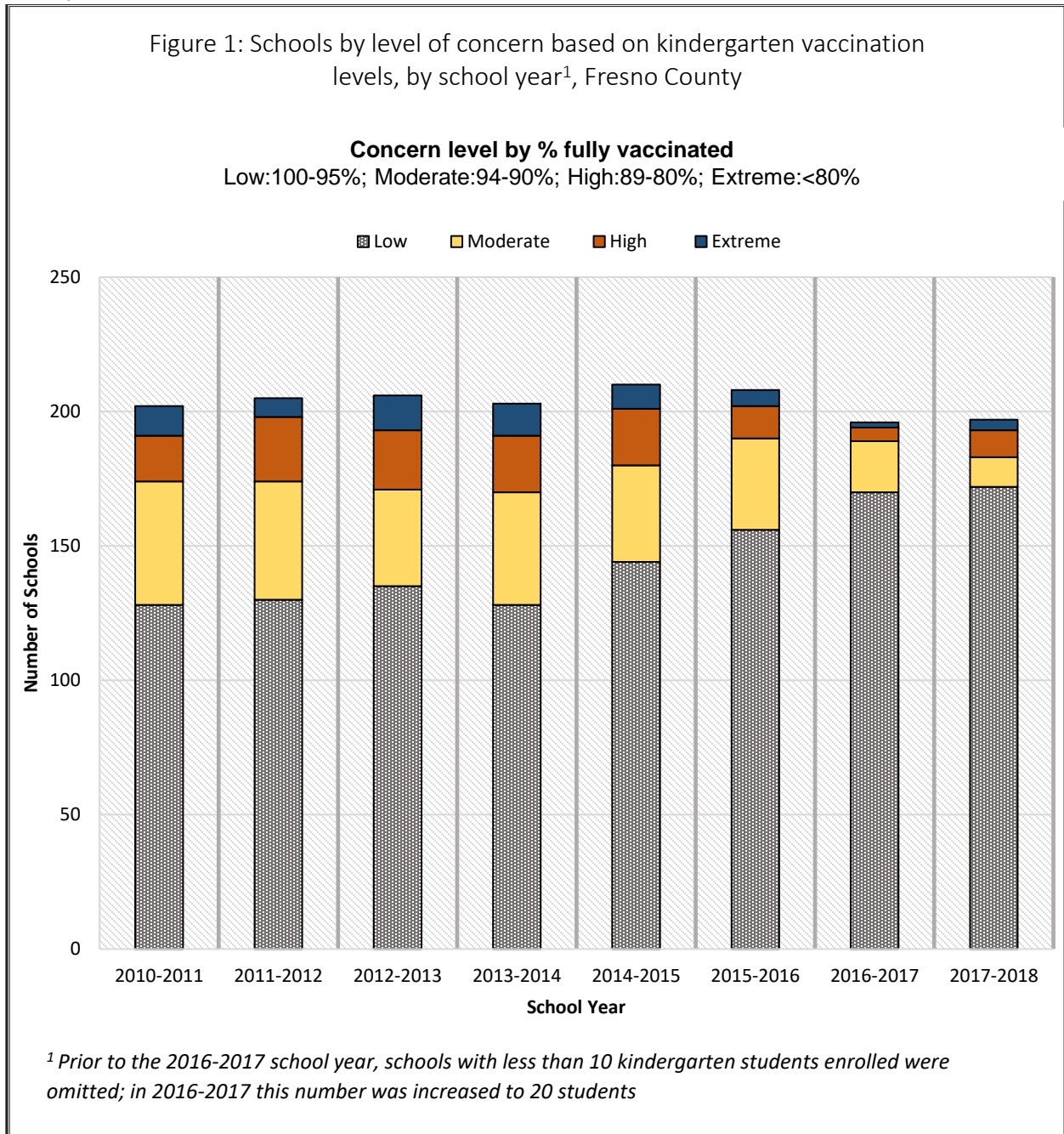
Geographic location of schools, including zip codes, was acquired utilizing the Shots for Schools website, California Department of Education data, and searches in Google Maps.

All statistical analyses were conducted in SAS software, Version 9.4 (SAS Institute Inc., Cary, NC).

## KINDERGARTEN VACCINATIONS

### All Required Vaccine Doses

#### Temporal Variations



- The number of schools with at least 95% of enrolled kindergarteners up-to-date on vaccinations increased in the 2016-2017 school year as compared to prior years. This increase was maintained in the 2017-2018 year [Figure 1]
- Although the number of schools of low concern (≥95% of enrolled kindergarteners fully vaccinated) stayed approximately the same between the 2016-2017 to 2017-2018 school year, the number of schools classified as high (80-89% of kindergarten students fully vaccinated) or extreme concern (<80% of kindergarten students fully vaccinated) increased [Figure 1]



Recent School Year (2017-2018)

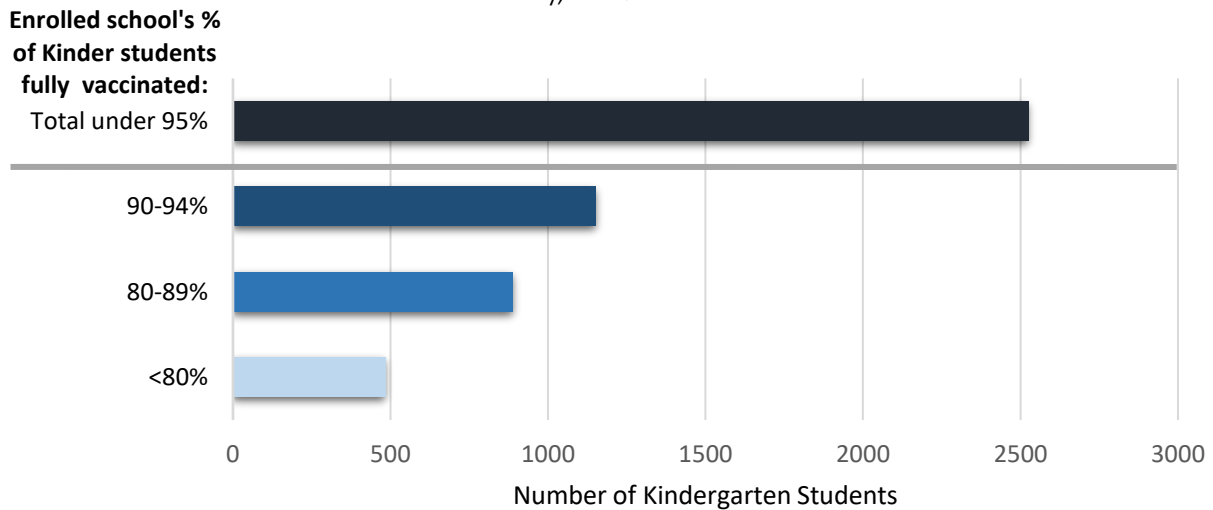
Table 1: Number of schools per level of concern based on percentage of kindergarten students with all required vaccine doses<sup>1</sup>, Fresno County Schools<sup>2</sup>, 2017-2018 School Year

Level of concern	# of schools	% of total schools
Low (95-100% fully vaccinated)	172	87.31
Moderate (90-94% fully vaccinated)	11	5.58
High (80-89% fully vaccinated)	10	5.08
Extreme (less than 80% fully vaccinated)	4	2.03

<sup>1</sup> 4 doses of polio vaccine (3 doses if at least 1 dose was received on or after 4th birthday), 5 Dtap/DTP/DT vaccine doses (4 doses if at least 1 dose was received on or after 4th birthday), 2 doses of a measles-containing vaccine (at least 1 dose must be measles, mumps, and rubella combined and both doses on or after 1st birthday), 3 doses of hepatitis B vaccine, and 1 dose varicella vaccine or physician-documented varicella disease

<sup>2</sup> Schools with <20 kinder enrollees are omitted (n=29)

Figure 2: Kindergarten student enrollment in schools of concern<sup>1,2</sup>, Fresno County, 2017-2018 School Year



<sup>1</sup> Schools with less than 95% of their kindergartens reported as having all required vaccine doses

<sup>2</sup>Schools with <20 Kinder enrollees are omitted (n=29)

- For the 2017-2018 school year, school coverage for the percentage of kindergarten students with all required vaccine doses ranged from 28% to ≥99% in Fresno County [data not shown]
- Out of the 197 schools represented, 87.31% reported that at least 95% of their kindergartners were fully vaccinated [Table 1]
- Over 2,500 kindergarten students were enrolled in schools of concern (i.e. schools with less than 95% of their kindergarten students fully vaccinated) [Figure 2]

Vaccination Levels by Vaccine Type

Table 2: Number of schools<sup>1</sup> with ≥95% of kindergarten students having all required DTP<sup>2</sup> vaccine doses, Fresno County , 2017-2018 School Year

≥95% of students	# of schools	%
Yes	178	90.36
No	19	9.64

<sup>1</sup>Schools with <20 Kinder enrollees are omitted (n=29)  
<sup>2</sup>4 or more doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any acellular

Table 3: Number of schools<sup>1</sup> with ≥95% of kindergarten students having all required Polio<sup>2</sup> vaccine doses, Fresno County , 2017-2018 School Year

≥95% of students	# of schools	%
Yes	180	91.37
No	17	8.63

<sup>1</sup>Schools with <20 Kinder enrollees are omitted (n=29)  
<sup>2</sup>3 or more doses of polio vaccine; oral polio vaccine (OPV) or inactivated polio vaccine (IPV) or any combination of these

Table 4: Number of schools<sup>1</sup> with ≥95% of kindergarten students having all required MMR<sup>2</sup> vaccine doses, Fresno County , 2017-2018 School Year

≥95% of students	# of schools	%
Yes	180	91.37
No	17	8.63

<sup>1</sup>Schools with <20 Kinder enrollees are omitted (n=29)  
<sup>2</sup>2 doses of measles-mumps-rubella vaccine

Table 5: Number of schools<sup>2</sup> with ≥95% of kindergarten students having all required Hep B<sup>1</sup> vaccine doses, Fresno County , 2017-2018 School Year

≥95% of students	# of schools	%
Yes	189	95.94
No	8	4.06

<sup>1</sup>Schools with <20 Kinder enrollees are omitted (n=29)  
<sup>2</sup>3 or more doses of Hepatitis B vaccine

Table 6: Number of schools<sup>1</sup> with ≥95% of kindergarten students having all required Varicella<sup>2</sup> vaccine doses, Fresno County , 2017-2018 School Year

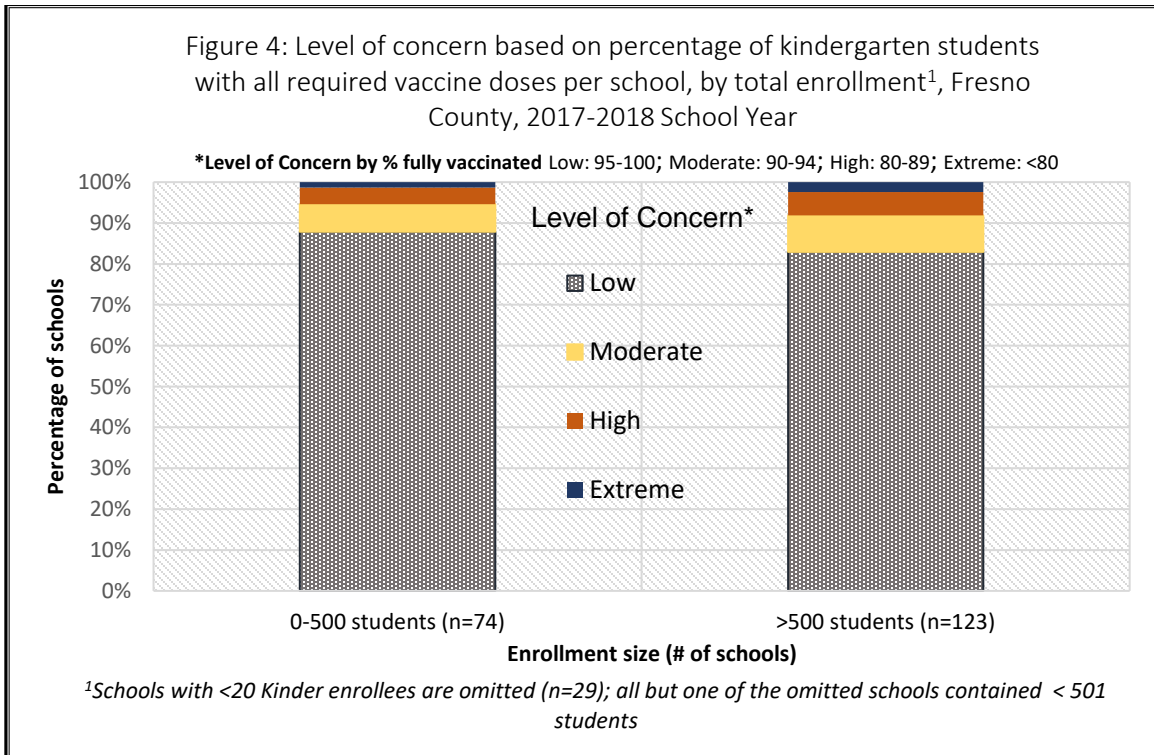
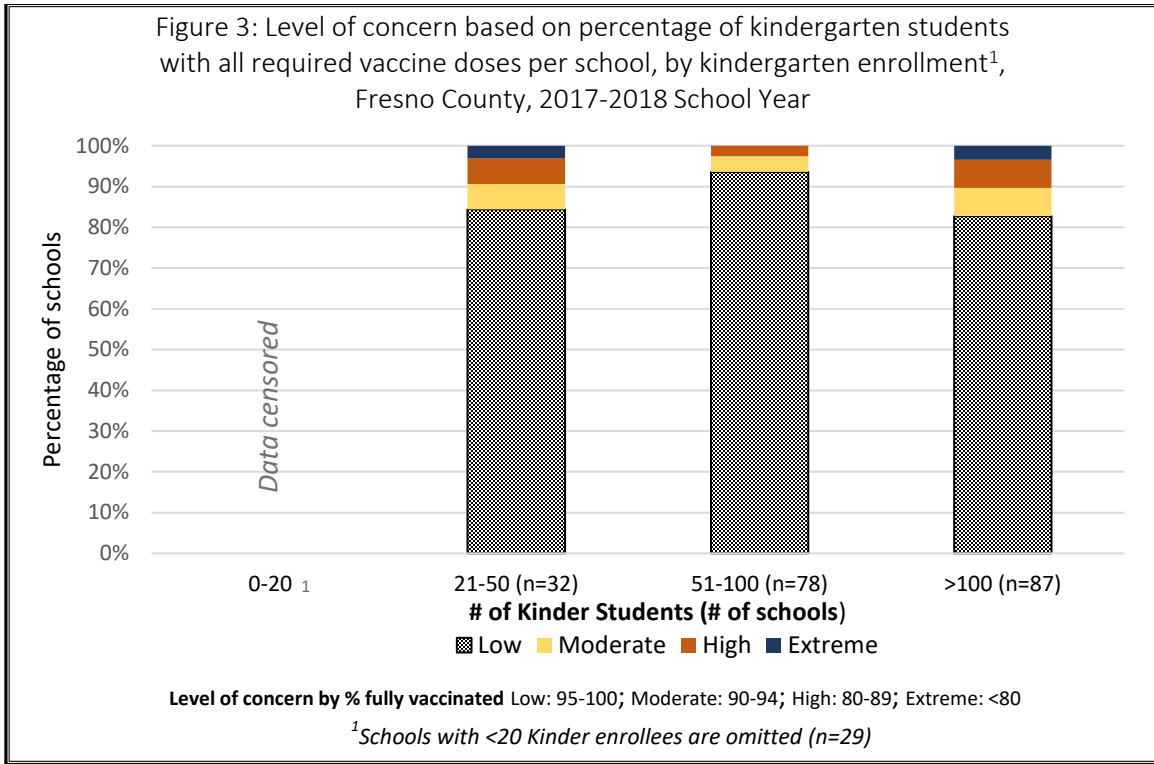
≥95% of students	# of schools	%
Yes	191	96.95
No	6	3.05

<sup>1</sup>Schools with <20 Kinder enrollees are omitted (n=29)  
<sup>2</sup>1 or more doses of varicella at or after child's first birthday, unadjusted for history of varicella illness

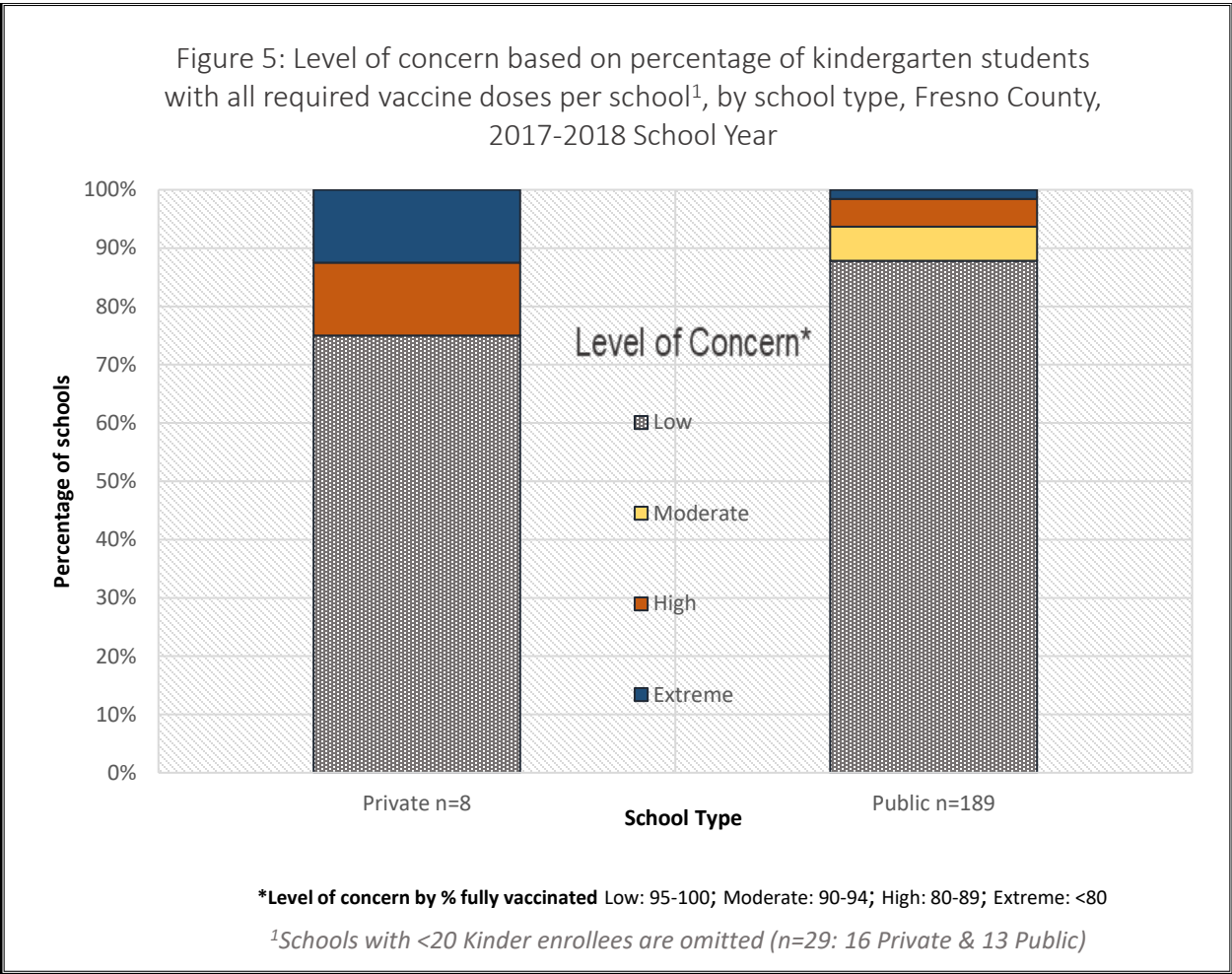
- For 2017-2018 school year, at least 90% of schools had a minimum of 95% of all enrolled kindergarten students up-to-date on all required doses of DTP, Polio, MMR, Hepatitis B, and Varicella [Table 2-6]
- The lowest coverage<sup>1</sup> was for DTP and the highest was for Varicella [Table 2-6]
  - ✓ 90.36% of schools had ≥95% of kindergartens up-to-date for all required DTP vaccine doses (requirement 4 or more doses) [Table 2]
  - ✓ 96.95% of schools had ≥95% of kindergartens up-to-date for all required varicella vaccine doses (requirement 1 dose) [Table 6]

## Vaccinations by School Characteristics

### School Size



School Type



Demographics

Table 7: Race/ethnicity composition<sup>1</sup> of public schools by level of concern<sup>2</sup>, Fresno County Public Schools<sup>3</sup>, 2017-2018 School Year

Predominate race/ethnicity	Low concern schools		Schools of concern		All Schools	
	n	%	n	%	n	%
Hispanic	129	77.71	19	82.61	148	78.31
White	11	6.63	2	8.70	13	6.88
No predominate race	26	15.66	2	8.70	28	14.81

<sup>1</sup> To be considered the predominate race/ethnicity group for a school, the race/ethnicity group must represent >50% of the total student enrollment and contain ≥ 20% more students than any other race/ethnicity group

<sup>2</sup> Low concern= ≥95% of kindergarten students fully vaccinated; Schools of concern= <95% of kindergarten students fully vaccinated

<sup>3</sup> Schools with <20 kinder enrollees are omitted. Private schools were omitted due to lack of available demographic data

- No significant differences were seen for enrollment size [Figure 3 & 4]
  - Differences by kindergarten enrollment size for smaller schools was not possible since these schools were omitted from the data for confidentially reasons
- Although overall there was a greater number of public schools of ‘concern’ (<95% vaccination coverage) when compared to private schools [data not shown], the percentage of private schools ranked as ‘high’ (80-89% of kindergarten students fully vaccinated) or ‘extreme’ (<80% of kindergarten students fully vaccinated) concern was higher than the percentage for public schools [Figure 5]
- No major differences noted by race/ethnicity of student body [Table 7]
- Based on the available data, no statistically significant predictors of level of concern could be determined [data not shown]

Overdue, Conditional Acceptance, and Exemptions

Table 8: Number of kindergarten students overdue for vaccinations<sup>1</sup>, by enrolled school concern level, Fresno County Schools<sup>2</sup>, 2017-2018 School Year

School level of concern	# of students	% Kinder enrollment
Low (95-100% fully vaccinated)	24	-*
Moderate (90-94% fully vaccinated)	56	4.86
High (80-89% fully vaccinated)	76	8.56
Extreme (less than 80% fully vaccinated)	90	18.60
<b>Total</b>	<b>246</b>	<b>-*</b>

<sup>1</sup>Overdue for one or more vaccination  
<sup>2</sup> Schools with <20 kinder enrollees are omitted (n=29); 114 other schools missing data (these schools were all of 'low' concern schools with <2-5% overdue enrollment)  
 \*Percentage not valid due to large amount of schools missing for 'low' concern level

Table 9: Number of kindergarten students with conditional enrollment<sup>1</sup>, by enrolled school concern level, Fresno County Schools<sup>2</sup>, 2017-2018 School Year

School level of concern	# of students	% Kinder enrollment
Low (95-100% fully vaccinated)	128	-*
Moderate (90-94% fully vaccinated)	29	2.52
High (80-89% fully vaccinated)	40	4.50
Extreme (less than 80% fully vaccinated)	4	0.83
<b>Total</b>	<b>201</b>	<b>-*</b>

<sup>1</sup>Conditional entrant is a student who does not currently meet all requirements. This student must be followed up because he/she lacks but is not yet due for a required dose; has a physician affidavit of Temporary Medical Exemption for 1 or more doses; or is a transfer student who has no available record yet  
<sup>2</sup> Schools with <20 kinder enrollees are omitted (n=29); 114 other schools missing data (these schools were all 'low' concern schools with <2-5% conditional enrollment)  
 \*Percentage not valid due to large amount of schools missing for 'low' concern level

Table 10: Number of kindergarten students with exempt entrance status, by school year, Fresno County Schools<sup>1</sup>

	School Year							
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17 <sup>3</sup>	2017-18 <sup>3</sup>
<i>Schools represented<sup>1</sup>, n</i>	202	205	206	202	210	208	84	83
<i>Personal Belief Exemption, n</i>	184	221	254	278	173	175	17	0
<i>Permanent Medical Exemption, n</i>	16	12	5	12	26	14	24	37
<i>Conditional Entrance<sup>2</sup>, n</i>	570	667	675	744	654	507	251	201

<sup>1</sup> In the 2016-2017 school year censoring of data became more strict. Schools with fewer than 20 kinder students (previously 10) were omitted. In previous years the exact count of students with exemptions was provided; in 2016-2017 publically available data no longer provided exact counts for certain schools but listed them as 'less than' 5% for schools with less than 50 enrollees, 2% for 50-99 enrollees, or 1% for schools with at least 100 enrollees. Schools with non-exact count data were not usable for this table and thus omitted.

<sup>2</sup> Conditional entrant is a student who does not currently meet all requirements. This student must be followed up because he/she lacks but is not yet due for a required dose, has a physician affidavit of Temporary Medical Exemption for 1 or more doses, or is a transfer student who has no available record yet

<sup>3</sup> In July 1, 2016, California law (S.B. 277) eliminated provisionals for personal belief exemptions. The bill allows students who, prior to January 1, 2016, have a letter or affidavit on file at a school stating beliefs opposed to immunization, to be enrolled until the pupil enrolls in the next grade span

- The number and percentage of kindergarten students with overdue vaccination increased as the vaccination coverage level of schools decreased [Table 8]; the same trend was not seen for conditional enrollment [Table 9]
- Out of 8 private schools, the percentage of students with overdue vaccinations was ≤5% in all but 1 school. Out of 189 public schools, 12 schools had a percentage higher than 5% [data not shown]
- No schools reported entrance of a kindergarten student with a PBE (personal belief exemption) for the 2017-2018 school year [Table 10]. This corresponds to elimination of PBE initiated on January 1, 2016 (Senate Bill 277)
- Although PBEs were eliminated, PME increased
  - ✓ Even though less schools were represented in the data (83 schools in 2017-2018 compared to a range of 202-210 schools during 2010-2016), the number of PME students was highest in the 2017-2018 school year [Table 10]
- For the 2017-2018 school year, out of 83 schools with exact count PME (permanent medical exemption) data publically available
  - ✓ 61 schools had no reported PME
  - ✓ 15 schools had 1 reported PME student
    - 14 of which were in schools ranked as a 'low' level of concern
  - ✓ 6 schools had 2-3 PME students
    - 4 of which were in schools ranked as 'low' level of concern
  - ✓ 1 school had 7 PME students
    - Ranked as 'extreme' level of concern [data not shown]
- Out of the total 197 schools, 1 private school and 0 public schools had a percentage higher than 5% for students with PME [data not shown]

Spatial Trends

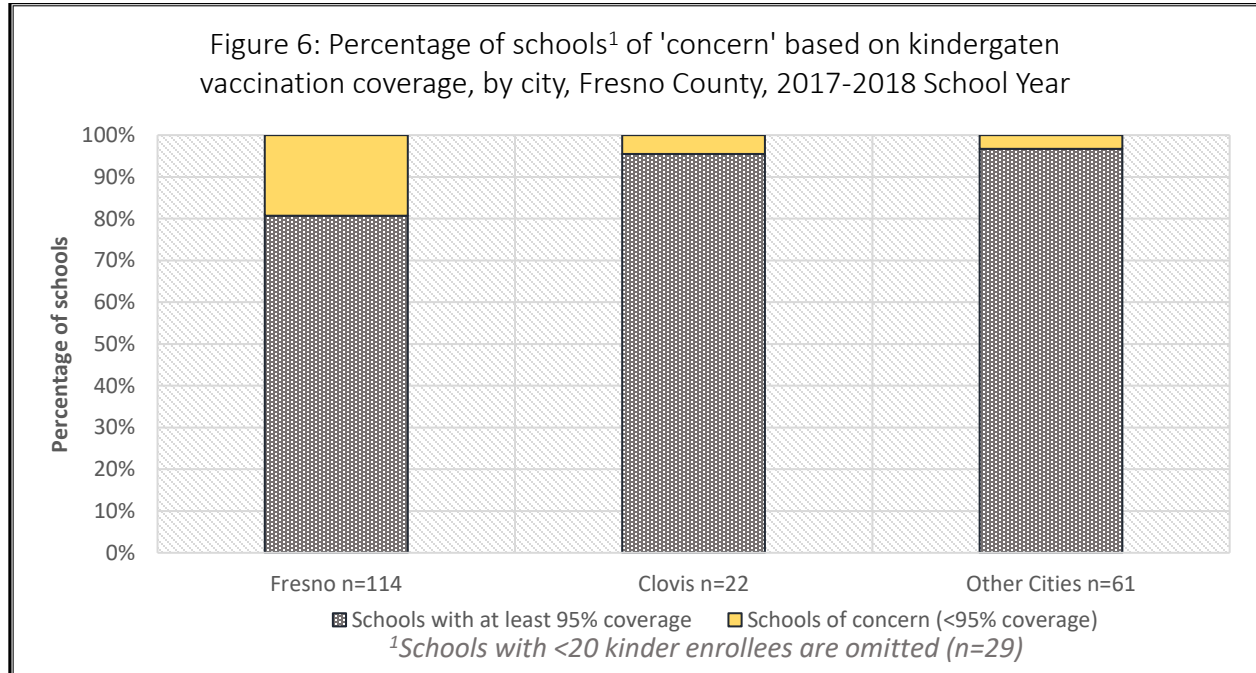


Table 11: Zip codes containing schools<sup>1</sup> with less than 95% vaccination coverage, Fresno County, 2017-2018 School Year

Zip codes	# of schools		% <95% coverage
	<95% coverage	Total # of Schools	
93612	1	6	16.67
93621	1	1	100.00
93652	1	1	100.00
93701	1	4	25.00
93702	2	8	25.00
93703	3	5	60.00
93704	1	8	12.50
93705	3	7	42.86
93706	1	14	7.14
93720	1	9	11.11
93721	2	3	66.67
93722	1	10	10.00
93727	4	13	30.77
93728	3	4	75.00

<sup>1</sup> Schools with <20 kinder enrollees are omitted (n=29); Virtual schools completed online omitted (n=1)

- Fresno city had the highest percentage of schools with less than 95% vaccination coverage among kinder students [Figure 6]
- ✓ Out of 114 city of Fresno schools, 22 were ranked at a level of concern [data not shown]
- Zip code 93727 had the highest number of schools (4) of concern [Table 11]
- ✓ This zip code contained the second highest count of total schools for a Fresno County zip code [data not shown]. The zip code with the highest count of total schools (93706) had 1 school of concern out of 14 total [Table 11]
- Zip codes 93621 and 93652 contained only 1 total school each and in both zip codes the school failed to reach 95% vaccination coverage [Table 11]
- Zip codes 93703, 93721, and 93728 had between 3-5 schools total and all had ≥60% of their schools ranking as schools of concern [Table 11]

-See Appendix B for a map of vaccination coverage-



## OTHER SCHOOLS/CARE FACILITIES

### Childcare Facilities

Table 12: Number of childcare facilities<sup>1</sup> per level of concern based on percentage of attendees with all required vaccine doses<sup>2</sup>, Fresno County, 2017-2018 School Year

Level of concern	# of facilities	% of total facilities
Low (95-100% fully vaccinated)	222	83.15
Moderate (90-94% fully vaccinated)	21	7.87
High (80-89% fully vaccinated)	15	5.62
Extreme (less than 80% fully vaccinated)	9	3.37

<sup>1</sup> Facilities with <20 enrollees are omitted (n=33)

<sup>2</sup> 3 doses of polio vaccine, 4 doses DTP or DTP combination vaccine, at least 1 dose of a measles, mumps, and rubella containing vaccine on or after 1st birthday, at least 3 doses of hepatitis B vaccine, and at least 1 dose of varicella vaccine or physician-documented varicella disease

- For 2017-2018 school year, facility coverage for the percentage of enrollees with all required vaccine doses ranged from 65% to ≥99% in Fresno County *[data not shown]*
- Out of the 267 facilities represented, 83.15% reported that at least 95% of their enrollees were up-to-date on vaccinations *[Table 12]*

### 7<sup>th</sup> Grade

Table 13: Number of schools per level of concern based on percentage of 7th grade students with all required vaccine doses<sup>1</sup>, Fresno County Schools<sup>2</sup>, 2017-2018 School Year

Level of concern	# of schools	% of total schools
Low (95-100% fully vaccinated)	71	94.67
Moderate (90-94% fully vaccinated)	2	2.67
High (80-89% fully vaccinated)	1	1.33
Extreme (less than 80% fully vaccinated)	1	1.33

<sup>1</sup> Completed Pertussis-containing booster (Dtap, DTP, or Tdap) on or after 7th birthday

<sup>2</sup> Schools with <20 7th grade enrollees are omitted (n=48)

- For 2017-2018 school year, school coverage for the percentage of 7<sup>th</sup> grade students with all required vaccine doses ranged from 25% to ≥99% in Fresno County *[data not shown]*
- Out of the 75 schools represented, 94.67% reported that at least 95% of their 7<sup>th</sup> graders met the vaccination requirements *[Table 13]*

## APPENDICES

### Appendix A: Vaccination Requirements

#### Child Care/ Pre-Kindergarten Requirements

*In order to start childcare the following vaccinations are required:*

<b>Age starting</b>	<b>Polio</b>	<b>DTaP</b>	<b>Hep B</b>	<b>Hib</b>	<b>Varicella</b>	<b>MMR</b>
<i>2-3months</i>	1 dose	1 dose	1 dose	1 dose		
<i>4-5months</i>	2 doses	2 doses	2 doses	2 doses		
<i>6-14months</i>	2 doses	3 doses	2 doses	2 doses		
<i>15-17months</i>	3 doses	3 doses	2 doses	1 dose*	1 dose	1 dose*
<i>18months-5years</i>	3 doses	4 doses	3 doses	1 dose*	1 dose	1 dose*

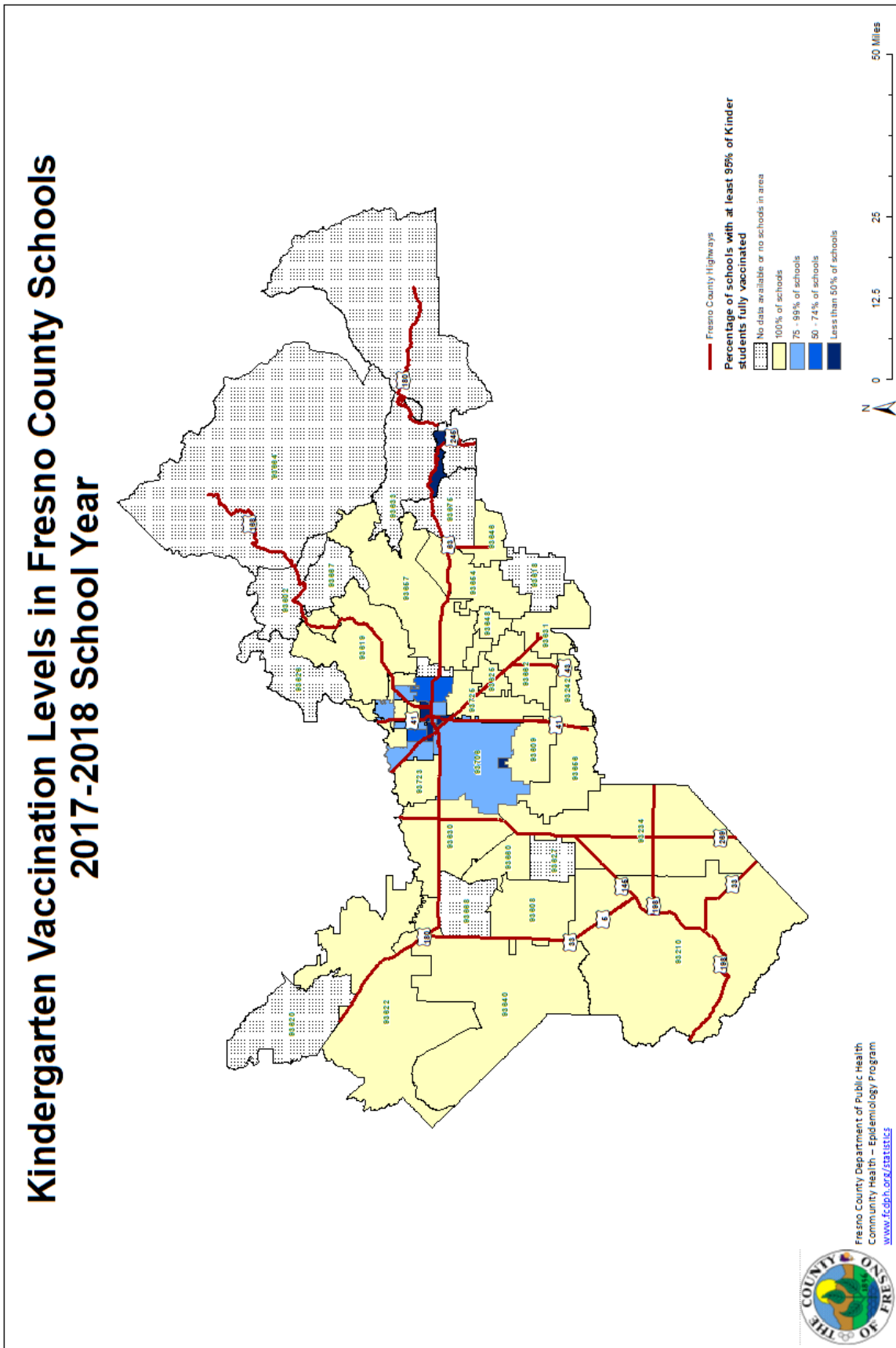
\* On or after 1<sup>st</sup> birthday regardless of previous doses. Hib required only for children younger than 5 years of age

#### K-12 Requirements

*In order to start grades K-12 the following vaccinations are required:*

<b>Circumstances</b>	<b>Polio</b>	<b>DTaP, DTP, Tdap, or Td</b>	<b>Hep B</b>	<b>Varicella</b>	<b>MMR</b>
<i>Kinder</i>	4 doses	5 doses	3 doses	2 doses	2 doses on or after 1 <sup>st</sup> birthday
<i>If one dose given on or after 4<sup>th</sup> birthday</i>	3 doses	4 doses			
<i>If one dose given on or after 7<sup>th</sup> birthday</i>		3 doses			
<i>7<sup>th</sup> graders</i>		1 dose pertussis containing vaccine required on or after 7 <sup>th</sup> birthday	Not required for 7 <sup>th</sup> grade entry		

Appendix B: Percentage of schools per zip code with at least 95% of kindergarten students fully vaccinated  
 Schools with less than 20 kinder students omitted



## REFERENCES

<sup>1</sup> Immunization Branch. Shots for Schools. California Department of Public Health. Retrieved from <https://www.shotsforschool.org/>

<sup>2</sup> California Legislative Information. Health and Safety Code- HSC, Division 105. Communicable disease prevention and control [120100 -12477], Part 2. Immunizations [120325-120480]. Retrieved from [https://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=HSC&division=105.&title=&part=2.&chapter=1.&article](https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=HSC&division=105.&title=&part=2.&chapter=1.&article)

<sup>3</sup> California Department of Education. Immunizations Requirements, SB277. Retrieved from <https://www.cde.ca.gov/ls/he/hn/immunization.asp>

<sup>4</sup> California Department of Public Health, Immunization Branch. 2017-2018 Kindergarten Immunization Assessment- Executive Summary. Retrieved from <https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/Immunization/2017-2018KindergartenSummaryReport.pdf>