



All Theses and Dissertations

2017-01-01

Identifying United States and Territory Requirements for Childhood Vaccination Exemptions

Emily Groth Dunn
Brigham Young University

Follow this and additional works at: <https://scholarsarchive.byu.edu/etd>



Part of the [Nursing Commons](#)

BYU ScholarsArchive Citation

Dunn, Emily Groth, "Identifying United States and Territory Requirements for Childhood Vaccination Exemptions" (2017). *All Theses and Dissertations*. 6202.

<https://scholarsarchive.byu.edu/etd/6202>

This Thesis is brought to you for free and open access by BYU ScholarsArchive. It has been accepted for inclusion in All Theses and Dissertations by an authorized administrator of BYU ScholarsArchive. For more information, please contact scholarsarchive@byu.edu.

Identifying United States and Territory Requirements for
Childhood Vaccination Exemptions

Emily Groth Dunn

A thesis submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of

Master of Science

Karlen E. (Beth) Luthy, Chair
Janelle L. B. Macintosh
Renea L. Beckstrand
Lacey M. Eden

College of Nursing
Brigham Young University

Copyright © 2017 Emily Groth Dunn

All Rights Reserved

ABSTRACT

Identifying United States and Territory Requirements for Childhood Vaccination Exemptions

Emily Groth Dunn
College of Nursing, BYU
Master of Science

Background: Children are required by law to receive vaccinations to enter school. States and territories offer exemptions for parents who refuse to vaccinate their children. Types of exemptions vary by state or territory, as does the exemption claiming process. The purpose of this research was to identify the various education-related processes implemented by states and territories which allow parents to exempt children from vaccinations.

Methods: A questionnaire was distributed to immunization managers in the 50 United States, District of Columbia, the United States Indian Health Service, and eight United States territories. Managers reported vaccination requirements for their jurisdiction (collectively referred to as “state”). Education-related questions, identified which states required parents to: 1) read and sign a vaccination risk/benefit statement prior to exemption; 2) complete mandatory vaccine education before obtaining vaccination exemption; 2a) complete education within a certain time period before school admission; and 2b) have parental vaccine education regulated.

Results: A parent-signed risk/benefit statement was required by 25 states for religious exemptions, 12 states for personal exemptions, 10 states for medical exemptions, and 1 state for temporary medical exemptions. Thirteen states required mandatory parental vaccine education prior to obtaining an exemption. Vaccine education could be completed at various times prior to school admission. For most states, the mandated parental vaccine education prior to exemption was regulated by law, administrative rule, or policy.

Conclusions: Implementing a risks/benefits statement prior to granting an exemption may not be helpful in reducing religious and personal exemption rates. The process of providing vaccine education prior to exemption varies greatly between states. Familiarity with various state vaccine education requirements may aid policymakers who are considering enacting mandatory vaccine education in his or her state.

Keywords: vaccination, exemption, immunization, state requirements, education

ACKNOWLEDGEMENTS

I would like to express my deep gratitude to the faculty at Brigham Young University and particularly to the College of Nursing for dedicating so much time and energy toward each student's success. They have encouraged, supported, and given me opportunities to stretch myself. I would also like to thank my fellow students for helping to make this a great experience. Thank you for sharing your talents, stories, humor, and time.

I would especially like to acknowledge the devotion of my committee: Dr. Beth Luthy, Dr. Renea Beckstrand, Dr. Janelle Macintosh, and Assistant Teaching Professor Lacey Eden. Beth, your enthusiasm is contagious and you inspire me to make a difference. Thank you for sharing your wisdom, energy, and humor. Thank you for all the time you have dedicated to this research and to guiding me through this process. I feel very blessed to have worked so closely with you.

I would also like to thank my family and close friends; from parents who taught me to dream and then work hard, to siblings who encouraged me, and friends who proof read every draft. You have supported me through this experience. Thank you for your love. I also want to thank my devoted husband, Jeff, who inspires me to push myself. Thank you for taking on a plethora of roles in order to keep our family going, and giving me the time I needed to devote to school and homework. This journey could not have been possible without all of you.

TABLE OF CONTENTS

Abstract	ii
Acknowledgements	iii
Table of Contents	iv
List of Tables	v
Identifying United States and Territory Requirements for Childhood Vaccination Exemptions	1
Research Questions	3
Methodology	3
Participants	3
Setting	4
Design	4
Tool	4
Results	5
Risk/benefit Statements	5
Parental Vaccine Education Requirements	5
Discussion	6
Limitations	8
Conclusion	9
References	10

LIST OF TABLES

Table 1 <i>States requiring risk/benefit statement for each type of exemption form and kindergarten exemptions for 2014-15 school year</i>	13
Table 2 <i>Risk/benefit Vaccination Statements on Exemption Forms</i>	14
Table 3 <i>States requiring mandatory education prior to exemption and kindergarten exemptions for 2014-15 school year</i>	15
Table 4 <i>Required Vaccine Education Prior to Exemption (check only one)</i>	16
Table 5 <i>Regulation of mandatory vaccine education</i>	17

Identifying United States and Territory Requirements for Childhood Vaccination Exemptions

Vaccines are one of the greatest public health accomplishments of all time (Kraemer & Gostin, 2011). In the early 1900's, vaccine-preventable diseases (VPDs) were the leading cause of death in the United States (U. S.). Before the widespread use of vaccines, 100 out of every 1,000 children born in the U. S. died within the first year of life. Vaccines have not only played an important role in dramatically decreasing infant mortality, vaccines have also prevented disabilities commonly associated with VPDs such as blindness, deafness, and paralysis (Anderson, 2015). Over the lifespan of children born between 1994 and 2014, the Centers for Disease Control and Prevention (CDC) (2014) predict that vaccines will have prevented 322 million illnesses, 21 million hospitalizations, and 732,000 deaths. The prevention of VPDs saves the American public an estimated \$1.38 trillion annually in healthcare costs (Centers for Disease Control and Prevention [CDC], 2014).

Ironically, a reduction in disease is historically followed by a decreased perception of susceptibility to VPDs, and an increased fear of vaccine side-effects. This shift in perception leads to a decrease in overall vaccination rates and vaccine coverage in communities. Unfortunately, vaccination concerns may remain until VPDs are again seen as an imminent threat (Atwell & Salmon, 2014).

Compulsory vaccination laws were enacted at the beginning of the 20th century (Hodge & Gostin, 2002). Massachusetts was the first state to implement a mandatory vaccination law in 1905, requiring all residents age 21 years and older to receive the smallpox vaccine (Stewart & Rosenbaum, 2010). However, the Massachusetts' smallpox vaccination law met some resistance from residents claiming compulsory vaccination was a violation of their Constitutional rights

(Marshall, Marshall, & Valladares, 2010). The conflict eventually became the seminal court case and well-known legal precedent, *Jacobson v. Massachusetts*.

Since the *Jacobson v. Massachusetts* case, other vaccination laws have been enacted requiring all school-aged children to receive vaccinations prior to school admission (CDC, 2015a). By the early 1980s, all 50 states enforced similar vaccination laws (Malone & Hinman, 2007). However, states have also retained the ability to allow citizens to legally exempt their children from receiving vaccinations while allowing the children to attend school (Diekema, 2014). Currently, vaccine exemption laws vary by state. There are three common categories of exemptions: religious, personal, and medical (CDC, 2015b). Currently, 47 states permit religious exemptions, 18 states allow personal exemptions, and all 50 states grant vaccination exemptions for medical reasons (Billinton & Omer, 2016). Some states also offer temporary medical exemptions.

Common reasons for which parents claim vaccine exemptions include concerns regarding vaccination safety, namely, the belief that vaccines cause a wide variety of conditions such as Autism, autoimmune disorders, diabetes, and allergies (Salmon, Dudley, Glandz, & Omer, 2015). Therefore, educating parents on the risks/benefits of vaccines and the dangers of refusing vaccines is a key component of increasing vaccination rates and decreasing vaccination exemption rates (Horne, Powell, Hummel, & Holyoak, 2015; Joshi, Lichenstein, King, Arora, & Khan, 2009).

However, not all states require parental vaccination education prior to obtaining an exemption. Available data are, in fact, scarce regarding the process of educating parents on vaccine safety. Therefore, the purpose of this research was to collect data from vaccination programs in each of the 50 U. S. states, District of Columbia, U. S. Indian Health Service, and

eight U. S. territories regarding: 1) need for parental signature after reading vaccine risk/benefit statement; 2) mandatory vaccine education prior to exemption; 3) cutoff date for mandatory vaccine education; and 4) regulation of mandatory vaccine education.

Research Questions

- 1) Which states require parents to read and sign a vaccine risk/benefit statement prior to granting an exemption?
- 2) Which states require mandatory vaccine education prior to obtaining an exemption?
 - a. Of the states requiring mandatory vaccine education, how close to school admission does the education need to be completed?
 - b. Of the states requiring mandatory vaccine education, how is mandatory vaccine education regulated?

Methodology

Participants

Because the sample included state immunization managers and asked for their expert opinion, rather than personal perceptions, the Institutional Review Board deemed the study exempt. The sample included the immunization managers of all 50 states, District of Columbia, the U. S. Indian Health Service, and eight U. S. territories (American Samoa, Guam, Marshall Islands, Federal States of Micronesia, Commonwealth of the North Mariana Islands, Puerto Rico, Virgin Islands, and Palau) for a potential sample of 60 entities (collectively, hereafter to be referred to as “states”). The list of managers was generated from state health department websites and cross-checked with the membership of the Association of Immunization Managers (AIM), which is the professional organization for immunization managers. To be eligible for participation, the immunization managers needed to read English and have first-hand knowledge of the immunization exemption procedures for his/her jurisdiction. Managers from all 50 states

and 2 U. S. territories (American Samoa and Guam) completed the Qualtrics online questionnaire, resulting in an 86.6% response rate (52/60).

Setting

The study took place in the U. S. states and territories where childhood vaccinations are required prior to school enrollment in all public and private schools.

Design

This study was a descriptive design. Managers were initially contacted by AIM via email to explain the study and eligibility requirements. Following the initial contact, AIM sent an electronic link to all the immunization managers which could be utilized to access a Qualtrics online questionnaire. Three weeks after the distribution of the questionnaire, AIM generated a reminder for all non-responders. A \$50 Visa gift card was offered as an incentive for all eligible managers who completed the study.

Tool

The questionnaire was designed by a group of researchers in collaboration with representatives from AIM, the Immunization Action Coalition, and the CDC. The Qualtrics online questionnaire used skip logic, which created unique pathways for each manager to navigate through questions; although each participant responded to the same 18 core questions. Depending on responses to the 18 core questions, some managers were directed to follow-up questions where they could provide additional information. Thus, the number of questions varied for each manager, ranging from 18-27 items.

Data presented in this article are part of a larger study with the results of 2 core and 2 follow-up questions being presented. For the two core questions, participants could select their response from Yes/No/Not Sure/Not Applicable choices. Follow-up questions included one open-ended item and one multiple choice. Remaining data are reported in a separate article.

Data Analysis

Quantitative data were entered into SPSS 23 (SPSS Inc., Chicago IL, 2015). After the data were entered, two individual researchers checked the data for accuracy. The primary investigator read the responses and the second investigator reviewed the entered data.

Results

Risk/benefit Statements

Participants were asked if parents seeking exemption needed to read a risk/benefit statement and provide a signature, affirming the parents understood the benefits of vaccinations and the risk to their child's health and the health of others by refusing. Of the states who responded, 25/52 (48.1%) outlined the risks/benefits of vaccinations for religious exemptions, 12/52 (23.1%) also included risk/benefit statements for personal exemptions, 10/51 (19.6%) also reported the inclusion of risk/benefit statements for medical exemptions, and 1/50 (2%) provided risk/benefit statements for temporary medical exemptions (See Tables 1 and 2).

Parental Vaccine Education Requirements

States were asked whether or not mandatory parental education was required prior to obtaining an exemption. Only 13 (24.5%) states reported a parental vaccine education requirement. Of the 13 states reporting a mandatory parental education requirement, nine (69.2%) confirmed parents needed to complete vaccine education prior to obtaining religious exemptions, seven (53.8%) reported a parental education requirement for personal exemptions, and four (30.8%) required parental education for medical exemptions. No states reported mandatory vaccine education for parents seeking a temporary medical exemption (See Tables 3 and 4).

The 13 states reporting a mandatory education requirement were also asked to indicate whether the parental education needed to be received within a certain time frame prior to school

admission. Four states responded: two states (American Samoa and Oregon) reported that the mandatory education could be received “any time” a parent sought an exemption, and one state (California) required parental vaccine education within 6 months of admission. Another state (Utah) reported that the acceptable parental vaccine education time frame differed with each local health department.

The 13 states with a mandatory vaccine education requirement were also asked how the parent vaccine education was regulated for each type of exemption. Thirteen states specified how personal exemptions were regulated, while 12 states reported regulations for religious, medical, and temporary medical exemptions (see Table 5).

Discussion

In the U. S., childhood vaccine requirements are established and regulated at the state level for public and private schools, pre-schools, and daycare (CDC, 2015c). Despite existing laws, the number of religious and personal vaccine exemption rates continue to rise in the U. S. (Bradford & Mandich, 2015; Omer, Richards, Ward, & Bednarczyk, 2012). It is, therefore, prudent for states to actively promote public policy that effectively decreases vaccine exemption rates (Wang, Clymer, Davis-Hayes, & Bittenheim, 2014).

In response to the steady increase in vaccination exemption rates, the Department of Health and Human Services (1999) issued a statement in which they strongly recommended “...that parents, providers, and the general public should be fully informed about the benefits and risks of vaccination” (para. 42). Recognizing that having an in-depth vaccine conversation with parents can be time intensive, some public health organizations have instead opted to offer a vaccine risks/benefits statement for the parents to read and sign. In this study, almost half of the

states required parents to read and sign a vaccine risks/benefits statement for religious and personal exemptions.

It is difficult, however, to confirm that the inclusion of a risks/benefits statement deters parents from filing vaccination exemptions. Alabama, Kentucky, Louisiana, Maryland, New York, North Carolina, and West Virginia have the lowest kindergarten exemption rates in the U. S. (Seither et al., 2015). Of these seven states, only Alabama and North Carolina required parents to read and sign a vaccination risks/benefits statement. Interestingly, Arizona, Idaho, Michigan, Oregon, and Vermont have the highest kindergarten exemption rates in the U. S. (Seither et al., 2015). Nevertheless, these five states required parents to read and sign a vaccination risks/benefits statement for religious and personal exemptions. Therefore, inclusion of a vaccine risks/benefits statement may not be helpful in effectively reducing the number of religious and personal exemptions.

Education can be an effective tool to help parents understand the benefits of vaccinations and the risks associated with refusing vaccinations (Luthy, Sperhac, Faux, & Miner, 2010; Poland & Poland, 2011). The overall goal in requiring vaccine education prior to exemption is that educated parents will choose to vaccinate their children because they more fully understand the risks and benefits of vaccinations (Yang & Silverman, 2015). Nevertheless, only 13 states in this study reported mandatory vaccine education for exempting parents. Interestingly, of the states with the lowest kindergarten exemption rates (Alabama, Kentucky, Louisiana, Maryland, New York, North Carolina, and West Virginia (Seither et al., 2015)) only Alabama required parents to receive education prior to claiming an exemption. In contrast, of the states with the highest number of kindergarten exemptions (Arizona, Idaho, Michigan, Oregon, and Vermont

(Seither et al., 2015), three states (Michigan, Oregon, and Vermont) required mandatory vaccine education prior to exemption.

The delivery of education, however, varies widely from state-to-state. For example, Arizona parents must either acknowledge potential risks associated with vaccine exemptions via waiver forms, or receive written materials prior to claiming an exemption. California, Oregon, and Washington take a more interactive approach by requiring exempting parents to either engage in a conversation with a health care provider or complete online modules discussing the benefits and risks of vaccinations (Yang & Silverman, 2015). Thus, there may not be a correlation between mandatory vaccine education and low numbers of kindergarten vaccine exemptions. Additional research is needed to determine which mandatory educational approach is the most effective in reducing exemption rates.

Regulation of mandated vaccine education also varies between states. In this study, states were asked if the mandatory vaccine education was legislated by law, regulated through administrative rule, or reinforced with policy. Interestingly, three of the states (Michigan, Oregon, and Vermont) mandating vaccine education through legislative law also reported some of the highest kindergarten exemption rates in the nation, 5.3%, 6%, and 6.1%, respectively. However, it should also be noted that since enacting a mandatory vaccine education law, Oregon's 2013-14 kindergarten exemption rates rapidly declined from 7.1% to 6% in one year (Seither et al., 2015).

Limitations

There are limitations to this study. While the questionnaire was developed and tested by a team of vaccination experts and researchers, this was the first time it was used in a large-scale study.

Conclusion

Vaccines are the most effective method of preventing VPDs. Nevertheless, all states have enacted medical, temporary medical, personal, and/or religious vaccine exemptions, allowing unvaccinated children to enroll and attend public or private school. This study reports on state education-related requirements for parents seeking to obtain a vaccination exemption for their school-aged children. Familiarity with various state vaccine education requirements may aid policymakers who are considering enacting mandatory vaccine education in his or her state.

REFERENCES

- Anderson, V. L. (2015). Promoting childhood immunizations. *The Journal for Nurse Practitioners, 11*(1),1-10. doi: <http://dx.doi.org/10.1016/j.nurpra.2014.10.016>
- Atwell, J. E., & Salmon, D. A. (2014). Pertussis resurgence and vaccine uptake: Implications for reducing vaccine hesitancy. *Pediatrics, 134*(3), 602-604. doi:10.1542/peds2014-1883
- Billington, J. K., & Omer, S. B. (2016). Use of fees to discourage nonmedical exemptions to school immunization laws in US states. *American Journal of Public Health, 106*(2), 269-270. doi:10.2105/AJPH.2015.302967
- Bradford, W. D., & Mandich, A. (2015). Some state vaccination laws contribute to greater exemption rates and disease outbreaks in the United States. *Health Affairs, 8*(2015), 1383-1390. doi:10.1377/hlthaff.2014.1428
- Centers for Disease Control and Prevention. (2014). Benefits from immunization during the Vaccines for Children Program era – United States, 1994-2013. *Morbidity and Mortality Weekly Report, 63*(16), 352-355.
- Centers for Disease Control and Prevention. (2015a). *Vaccines and immunizations: State vaccination requirements*. Retrieved from <http://www.cdc.gov/vaccines/imz-managers/laws/state-reqs.html>
- Centers for Disease Control and Prevention. (2015b). *What is an exemption and what does it mean?* Retrieved from <http://www.cdc.gov/vaccines/imz-managers/coverage/schoolvaxview/requirements/exemption.html>
- Centers for Disease Control and Prevention. (2015c). *Improving vaccination coverage fact sheet*. Retrieved from <http://www.cdc.gov/vaccines/imz-managers/laws/downloads/Improving-Vax-Coverage-Factsheet.pdf>

Department of Health and Human Services. (1999). *Statement on risk vs benefit of vaccinations*.

Retrieved from <http://www.hhs.gov/asl/testify/t990803a.html>

Diekema, D. S. (2014). Personal belief exemptions from school vaccination requirements.

Annual Review of Public Health, 35, 275-292. doi:10.1146/annurev-publhealth-032013-182452

Hodge, J. G., & Gostin, L. O. (2002). School vaccination requirements: Historical, social, and legal perspectives. *Kentucky Law Journal, 90*(4), 831-890.

Horne, Z., Powell, D., Hummel, J. E., & Holyoak, K. J. (2015). Countering antivaccination attitudes. *Proceedings of the National Academy of Sciences, 112*(33), 10321-10324.

doi:10.1073/pnas.1504019112

Joshi, A., Lichtenstein, R., King, J., Arora, M., & Khan, S. (2009). Evaluation of a computer-based patient education and motivation tool on knowledge, attitudes and practice toward influenza vaccination. *International Electronic Journal of Health Education, 12*, 1-15.

Kraemer, J. D., & Gostin, L. O. (2011). Vaccine liability in the Supreme Court: Forging a social compact. *The Journal of the American Medical Association, 305*(18), 1900-1901.

doi: <http://dx.doi.org/erl.lib.byu.edu/10.1001/jama.2011.615>

Luthy, K. E., Sperhac, A. M., Faux, S. A., & Miner, J. K. (2010). Improving immunization rates in the clinic and in the community. *Contemporary Pediatrics, 27*(9), 54-60.

Malone, K. M., & Hinman, A. R. (2007). *The public health imperative and individual rights*. In R. A. Goodman, R. E. Hoffman, W. Lopez, G. W. Matthews, M. Rothstein, & K. Foster (Eds.), *Law in Public Health Practice*. New York: Oxford University Press.

- Marshall, L. W., Marshall, B. L., & Valladares, G. (2010). Federal and state public health authority and mandatory vaccination: Is Jacobson v Massachusetts still valid? *American Journal of Disaster Medicine*, 5(2), 107-112.
- Omer, S. B., Richards, J. L., Ward, M., & Bednarczyk, R. A. (2012). Vaccination policies and rates of exemption from immunization, 2005-2011. *New England Journal of Medicine*, 367(12), 1170-1171. doi:10.1056/NEJMc1209037
- Poland, C. M., & Poland, G. A. (2011). Vaccine education spectrum disorder: The importance of incorporating psychological and cognitive models into vaccine education. *Vaccine*, 29(37), 6145-6148. doi:10.1016/j.vaccine.2011-07-131
- Salmon, D. A., Dudley, M. Z., Glanz, J. M., & Omer, S. B. (2015). Vaccine Hesitancy. *American Journal of Preventive Medicine*, 49(6), S391-S398. doi:http://dx.doi.org/10.1016/j.amepre.2015.06.009
- Seither, R., Calhoun, K., Knighton, C. L., Mellerson, J., Meador, S., Tippins, A.,...Dietz, V. (2015). Vaccination coverage among children in kindergarten – United States, 2014-15 school year. *Morbidity and Mortality Weekly Report*, 64(33), 897-904.
- Stewart, A. M., & Rosenbaum, S. (2010). Vaccinating the health-care workforce: State law vs. institutional requirements. *Public Health Reports*, 125(4), 615-618.
- Wang, E., Clymer, J., Davis-Hayes, C., & Bottenheim, A. (2014). Nonmedical exemptions from school immunization requirements: A systematic review. *American Journal of Public Health*, 104(11), e62-e84. doi:10.1056/NEJMp1508701
- Yang, Y. T., & Silverman, R. D. (2015). Legislative prescriptions for controlling nonmedical vaccine exemptions. *The Journal of the American Medical Association*, 313(3), 247-248. doi:10.1001/jama.2014.16286

Table 1

States requiring risk/benefit statement for each type of exemption form and kindergarten exemptions for 2014-15 school year

State	Religious Exemption	Personal Exemption	Medical Exemption	Temporary Medical Exemption	Total Kindergarten Exemptions %*
Alabama	√	--	--	--	0.8
American Samoa	√	--	√	--	+
Arizona	√	√	√	√	4.8
Arkansas	√	√	√	--	1.3
California	√	√	--	--	2.7
Delaware	√	--	√	--	1.3
Georgia	√	--	--	--	2.1
Guam	√	--	--	--	0.1
Hawaii	√	--	--	--	3.3
Idaho	√	√	√	--	6.5
Illinois	√	--	√	--	+
Indiana	√	--	√	--	1.1
Michigan	√	√	--	--	5.3
Minnesota	√	√	--	--	+
Missouri	√	--	--	--	+
North Carolina	√	--	--	--	1
Ohio	√	√	--	--	2.1
Oregon	√	√	--	--	6
Rhode Island	√	--	--	--	1.1
South Carolina	√	--	--	--	1.2
Tennessee	√	--	√	--	1.1
Texas	√	√	--	--	+
Utah	√	√	√	--	4.3
Vermont	√	√	--	--	6.1
Washington	√	√	√	--	4.6
National Average					1.7

*Seither et al., 2015

+No data available

Note: Data collected prior to 2016 changes in California vaccination exemption laws.

Table 2

Risk/benefit Vaccination Statements on Exemption Forms

Responses	Religious n = 52 n(%)	Personal n = 52 n(%)	Medical n = 51 n(%)	Temporary Medical n = 50 n(%)
Yes	25(48.1%)	12(23.1%)	10(19.6%)	1(2%)
No	25(48.1%)	10(19.2%)	39(76.5%)	25(50%)
Not sure	1(1.9%)	2(3.8%)	2(3.9%)	1(2%)
Type of exemption not offered	1(1.9%)	28(53.9%)	0	23(46%)

Table 3

States requiring mandatory education prior to exemption and kindergarten exemptions for 2014-15 school year

State	Religious Exemption Form	Personal Exemption Form	Medical Exemption Form	Temporary Medical Exemption Form	Total Kindergarten Exemptions %*
Alabama	Y	--	§	§	.8
American Samoa	Y	--	Y	--	+
Arkansas	Y	Y	Y	--	1.3
California	N	Y	N	N	2.7
Delaware	+	--	+	--	1.3
Florida	Y	--	N	N	2.1
Michigan	Y	Y	N	--	5.3
Oregon	Y	Y	N	N	6
South Carolina	§	--	¶	--	1.2
Texas	§	§	N	--	+
Utah	Y	Y	Y	--	4.3
Vermont	Y	Y	N	N	6.1
Washington	Y	Y	Y	--	4.6
National Average					1.7

Y=Yes

N=No

§ Required to offer education but parents can refuse

+ No data

¶ Not sure

-- Type of exemption not offered

* Seither et al., 2015

Note: Data collected prior to 2016 changes in California vaccination exemption laws.

Table 4

Required Vaccine Education Prior to Exemption (check only one)

Responses (n = 13)	Religious	Personal	Medical	Temporary Medical
	n(%)	n(%)	n(%)	n(%)
Yes	9(69.2)	7(53.8)	4(30.8)	0
No	1(7.7)	0	7(53.8)	5(38.5)
Not sure	1(7.7)	0	1(7.7)	0
Required to offer but parents can refuse	2(15.4)	1(7.7)	1(7.7)	1(7.7)
This type of exemption not offered (N/A)	0	5(38.5)	0	7(53.8)

Table 5

Regulation of mandatory vaccine education

Regulated by:	Religious n = 12	Personal n = 13	Medical n = 12	Temporary Medical n = 12
Law	AS OR AR VT	CA OR AR VT	AS MI OR	OR
Administrative rule	MI TX WA	MI TX WA	WA	--
Policy	AL FL SC	--	AR	--
Not sure	DE UT	UT	AL FL DE SC UT	AL SC FL
Other	--	--	VT	VT
This type of exemption not offered (N/A)	--	AS AL SC FL DE	TX	AR AS DE TX MI UT WA

States listed by postal abbreviation

-- No responses

Note: Data collected prior to 2016 changes in California vaccination exemption laws.