California's Senate Bill 277: Local Health Jurisdictions' Experiences With the Elimination of Nonmedical Vaccine Exemptions

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Objectives. To understand the experiences of local health jurisdictions with Senate Bill 277 (SB277), the California law that eliminated nonmedical vaccine exemptions for public- and private-school entry.

Methods. We conducted semistructured telephone interviews with health officers and local health department (LHD) staff in California between August and September 2017.

Results. Two overall themes emerged: (1) vague legislative and regulatory language led to variation in the interpretation and implementation of SB277, and (2) lack of centralized review of medical exemptions allowed medical exemptions that are not consistent with valid contraindications for immunizations to be accepted. Variation in the interpretation and implementation was commonly reported with provisions related to individualized education programs and special education, and independent study programs and homeschooling. Without a centralized review of medical exemption requests, respondents reported variation in the interpretation of which specialties of physicians can write medical exemptions, which conditions constitute a valid contraindication for immunization, and the process for reporting a questionable or suspicious medical exemption.

Conclusions. The regulatory language within SB277 led to variation in how the law was interpreted and implemented within and across LHD jurisdictions and school districts. (*Am J Public Health.* 2019;109:96–101. doi:10.2105/AJPH.2018.304768)

See also Galea and Vaughan, p. 28.

In June 2015, the California State Assembly passed Senate Bill 277 (SB277) in response to the 2014–2015 Disneyland measles outbreak,[1,2] increasing personal belief exemption rates[3] contributing to pertussis[4] and low measles vaccine coverage threatening herd immunity in a quarter of schools.[5] SB277 eliminated nonmedical exemptions (religious and personal belief exemptions) from state-mandated immunizations for children entering public or private schools.[6] The passage of SB277 made California the first state in nearly 35 years to eliminate nonmedical vaccine exemptions, and, beginning January 2016, nonmedical vaccine exemptions were no longer accepted for school entry.[6] Besides California, Mississippi and West Virginia are the only other states that do not recognize nonmedical exemptions for school entry; however, both Mississippi and West Virginia's nonmedical vaccine exemption policies existed before the contemporary antivaccine movements of the mid-1980s and 1990s.[7] In contrast, the passage of SB277 in California was a strongly partisan issue that provoked a fierce political debate among highly mobilized antivaccine groups in the state.[2]

In 2012, the California State Assembly passed Assembly Bill 2109 (AB2109), which made it more difficult to obtain personal belief exemptions by requiring parents to obtain a signature from a health care provider stating that they had received information about the risks and benefits of immunization.[8] In the school years following AB2109, immunization rates were increasing, personal belief exemption rates were declining, and medical exemption rates were steady.[9] Shortly after the passage of AB2109, SB277 went into effect in January 2016 and the proportion of kindergarten students receiving all required vaccines for school entry continued to increase from 92.8% in 2015–2016 to 95.1% in 2017–2018.[10] However, the rates of medical exemptions also increased 250% from 0.2% in 2015–2016 to 0.7% in 2017–2018.[10] After the first year of SB277 implementation, counties that had high personal belief exemption rates before SB277 also had the largest increases in medical exemptions, continuing the clustering of vaccine refusal and leaving portions of California susceptible to vaccine-preventable outbreaks.[11]

Since the passage of SB277, many states have considered bills to change their immunization-exemption laws.[12,13] The implementation and effects of SB277 in California have important implications for other states considering similar policies[14] and can be used as a guide for other states considering stricter exemption policies. The goal of this study was to understand the experiences of local health jurisdictions in California and challenges they faced while implementing SB277.

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METHODS

Between August and September 2017, we conducted semistructured telephone interviews with members of the Health Officers Association of California, an organization representing health officers in California's 61 local health jurisdictions (58 counties and 3 cities).[15] We approached all 61 local health jurisdictions via e-mail invitation. Among those who responded, health officers were able to invite or suggest other local health jurisdiction staff including communicable disease coordinators, immunization coordinators or directors, and public health nurses to participate in the interview. We selected health officers and local health jurisdiction staff to discuss SB277 because they have experience with implementing and enforcing public health laws.

We designed the interview guide to understand experiences and challenges with implementing SB277 (see the box on this page). We obtained verbal informed consent. All interviews were audio recorded, and a third-party transcription firm transcribed them verbatim.

We analyzed interview transcripts through line-by-line reading of a subsample of interview transcripts and using a priori codes informed by the interview guide to develop thematic codes. We developed a codebook through an iterative process of multiple investigators reading, coding, and discussing themes. We based themes on recurrent ideas and issues that emerged from multiple participants' interviews. Using the final codebook, we coded all interview transcripts with NVivo 11 (QSR International Pty Ltd, Victoria, Australia).

RESULTS

We conducted 34 interviews with 40 local health officers and immunization staff representing 35 of the 61 (57%) local health department (LHD) jurisdictions in California (1 participant represented 2 jurisdictions). Eighteen health officers (45%) and 22 immunization staff (55%) participated in the interviews. The mean interview duration was 31 minutes (range = 15–57 minutes).

We identified 2 major themes from the experiences of LHD staff during the first year of SB277 implementation: (1) vagueness of SB277's legislative and regulatory language left it open to interpretation, leading to considerable variation in implementation of the law, and (2) lack of centralized review of medical exemptions under SB277 has allowed medical exemptions to be accepted that are not consistent with scientifically justified medical contraindications to immunization per the Advisory Committee on Immunization Practices.

EXPERIENCES WITH THE ELIMINATION OF NONMEDICAL VACCINE EXEMPTIONS IN CALIFORNIA—SAMPLE QUESTIONS FROM INTERVIEW GUIDE, 2017

We're interested in understanding your experiences with the implementation of SB277. Can you talk a bit about how the roll out of SB277 has gone so far in your county?

- Are the schools having any issues with implementation?
- Are parents complaining or supportive of the new law?
- How are health care providers dealing with the change in exemption options?

Can you walk me through the process of how you are actually getting the medical exemption data from schools in your county?

- What types of information is the school collecting for medical exemptions?
- Are the data de-identified?
- Who in your office does any reviewing and verifying tasks?

If you notice a potentially invalid exemption, can you walk me through how you work with the school to figure out the next steps?

- Do you help the school reach out to the family?
- Do you contact the physician listed on the medical exemption?
- Does the child get excluded from school?

From your perspective, how do you feel the schools are handling medical exemptions under SB277?

- Are schools feeling prepared in terms of verifying medical exemptions?
- What have you heard from schools in terms of their level of comfort in tracking and verifying medical exemptions post-SB277?
- Are schools looking to you for guidance on enforcing SB277?
- Are schools doing an adequate job of reviewing and verifying medical exemptions?

What are the biggest challenges you face as a local health officer working under SB277?

- Enforcing the law?
- Getting information from the schools?
- Getting guidance from the state?

In your opinion, what do you think could be done better at the school level to enforce SB277?

In your opinion, what do you think could be done better at the local level to enforce SB277?

Note. SB277 = California Senate Bill 277.

Vagueness of SB277 Led to Variations in Implementation

The majority of LHD staff described how SB277 was written vaguely, leading to variation in how the law was interpreted and implemented within the state. Substantial time and effort were put into trying to interpret SB277 to provide guidance to schools that were on the front lines of reviewing medical exemptions:

> When the law first came out, we spent a lot of time internally here trying to interpret the law . . . trying to clarify what the language in it meant for schools in our communities . . . there has been a lot of questions about the ambiguity in certain sections. . . . [Communicable Disease Manager 1]

A health officer described how it can be difficult to implement laws in large states with many LHD jurisdictions:

> I think that the biggest challenge is that when you break something into 58 counties, 61 local health jurisdictions, you're going to get some inconsistency about interpretation and the way things are done. [Health Officer 1]

Two components of SB277 that were frequently mentioned among most of the LHD staff as having particularly vague legislative and regulatory language were (1) individualized education programs (IEPs) and special education and (2) independent study programs and homeschooling.

Individualized education programs and special education. Under the federal Individuals with Disabilities Education Act, schools are required to provide an IEP for students with an identified disability that has an impact on their learning.[16] According to Section 120335 of the California Health and Safety Code, "provisions do not prohibit a pupil who qualifies for an individualized education program, pursuant to specified laws, from accessing any special education and related services required by his or her individualized education program."[6] This regulatory language about IEPs caused confusion and led school districts to vary in their interpretation of these provisions[17]:

> There could be a lot more clarity on the [IEP] . . . before we were rolling this out, people were just like, what the heck does that mean? . . . that was really, really confusing for a lot of people, and I think it still is. . . . [Immunization Coordinator 1]

A health officer emphasized how the variation in interpretation led to differences in implementation at the school-district level:

> Some districts have come down on the side of saying an IEP does not allow you an exemption and others have come down on the side of saying an IEP does allow you an exemption. [Health Officer 1]

Ultimately LHD staff reported that "each school district can decide how they want to handle that IEP issue. . . ." [Immunization Coordinator 2].

In special education, there has been an increasing trend to include students with IEPs in general education classroom settings.[16] As a result, a few LHDs have raised questions about how much classroom time warrants immunization requirements. An immunization coordinator described the advice they give to schools to make the decision about students with IEPs in general education classroom settings:

> We suggested that if your student has speech therapy, they can come to school for their speech therapy, but they cannot come to school for regular classroom minutes. So, to be fair, if they want to attend regular school, they have to be immunized just like everybody else. [Immunization Coordinator 2]

Overall, respondents indicated that regulatory language related to IEPs led to considerable variation in how schools interpreted and enforced the vaccine mandate for students with IEPs.

Independent study programs and homeschooling. Section 120335 of the California Health and Safety Code exempts "pupils in a home-based private school and students enrolled in an independent study program and who do not receive classroom-based instruction" from immunizations.[6] This clause caused confusion among many LHDs as they stated that some independent study programs and homeschooling students still participate in group or classroom activities. The California Department of Education has a funding formula that defines "classroom-based instruction" as spending at least 80% of the instruction time at the school site.[18] A few LHD staff reported that some schools have interpreted this to allow students to be exempt from immunizations despite spending time in classroom settings with other students:

> People are finding alternatives to that so that children are continuing to congregate together, but they are saying it's under a program that is qualified for independent study with no classroom based instruction . . . several charter schools . . . believe that if they have less classroom time than 80 percent that they are an exception to SB277. [Health Officer 2]

While some schools have defined "classroom-based instruction" to allow independent study programs and home-schooled students to congregate in classroom settings, some LHD staff have advised school districts that any classroom time warrants immunization requirements:

> The bottom line was if they're home schooled, completely home schooled and they don't have any classroom time, then they don't have to be vaccinated. But if they do come to school one or two days a week or once a month or whatever and they're meeting in the classroom and they're meeting at school, then they do have to be vaccinated. [Immunization Coordinator 3]

A health officer described being unclear on how to determine the immunological risk of having these students in classroom settings:

> People who are home-schooled can be in a classroom. So suddenly epidemiologically . . . now they are a part of the classroom dynamic. So now there's this subjective thing about how many hours a week in a classroom constitutes immunologically relevant exposure for someone who's unvaccinated. And I don't want to be figuring that out myself. . . . [Health Officer 3]

Lack of Centralized Review of Medical Exemptions

Schools are the governing authority under SB277, but many LHD staff discussed wanting a central review system similar to West Virginia and Mississippi where all medical exemptions are reviewed at the state level:

> I think that it would be clearer if there were some standard review mechanism—not only whether a medical exemption meets certain criteria . . . but also a diagnosis and support for that diagnosis like West Virginia does. . . . [Health Officer 2]

Another health officer believed that the legislature had to make certain concessions in light of the antivaccine movement in California to pass SB277:

> In order to get the law passed, they had to leave the reasons for medical exemptions vague, and they had to make the process go through the schools. Because if they had done an information flow like Mississippi . . . the law probably wouldn't have passed. . . . So those laws were passed back when the memory of measles and polio was fresh in people's minds . . . it was a different—the anti-vaccination movement didn't exist. [Health Officer 4]

Without any central review of medical exemptions at the state level like West Virginia and Mississippi, a few LHD staff reported that a "black market" of suspicious medical exemptions has emerged. They describe examples of physicians who offer medical exemptions for a fee or without ever examining the patient:

> And the concern was after SB277, it essentially created a black market for medical exemptions where parents could go online to physicians' websites who supported the anti-vaccination community and were able to get medical exemptions from physicians who were not their child's treating physician. [Health Officer 4]

Without a centralized review and authority to deny medical exemption requests that are inconsistent with Advisory Committee on Immunization Practices–defined contraindications to immunizations, respondents indicated that there have been variations in interpretations of many aspects of the law that school and LHDs must decipher including (1) the specialties of physicians who can write medical exemptions, (2) which conditions constitute a valid contraindication for immunization, and (3) the process for reporting a questionable or suspicious medical exemption.

Types of physicians who can write medical exemptions. Many LHD staff indicated that in California there is no language within the law that specifies that the signing physician must be the child's pediatrician. An immunization coordinator described how her perception of who should be able to sign exemptions clashed with the actual law:

> It's supposed to be a real thing where the doctor knows you. . . . They evaluate you on a regular basis, and so when I see these medical exemptions from other providers . . . I don't think that that's how it's really supposed to be. But it's not written down that this is how it's supposed to be. [Immunization Coordinator 1]

Another immunization coordinator described the types of physicians who have been signing medical exemptions and her belief that many of these requests are questionable:

> I've seen anesthesiologists, cardiologists . . . I've seen surgeons. . . . Dermatology will sign them. So those I consider—my word is bogus. . . . [Immunization Coordinator 2]

While some LHD staff discussed being skeptical of some of the specialties of physicians signing medical exemptions, they reported that medical exemptions are still legally acceptable in California as long as they are signed by a licensed MD or DO.

Valid contraindications for immunization. According to Section 120370 of the California Health and Safety Code, medical exemptions should be granted when "medical circumstances relating to the child are such, that immunization is not considered safe . . . including, but not limited to, family medical history, for which the physician does not recommend immunization."[6] SB277 amended the previous provisions for medical exemptions to include family medical history as a valid reason to be exempt from immunizations.[19]

The majority of LHD staff wanted more-specific guidelines, including a list of conditions that are valid contraindications for a medical exemption, while others pointed out that the Centers for Disease Control and Prevention (CDC) provides a list of contraindications and precautions to commonly used vaccines.[20] A health officer explained that, without more specific guidelines on valid contraindications to immunizations, the reason for a medical exemption is completely up to the discretion of the physician:

> And if the law had said these are valid reasons for exemption, then I think you could read that and we'd be able to help them determine if the exemption met those valid criteria. But no such valid criteria exist. So a physician could write virtually anything, right?—In their judgment the child should not have immunizations. [Health Officer 2]

Similar to the specialties of physicians signing medical exemption requests, many LHDs believed that some of the reasons for medical exemptions seem questionable, but are valid reasons according to SB277:

> Most of them are stating autoimmune, family history of autoimmune history, which you know, it is to me, personally kind of nebulous, but it is a reason. . . . [Public Health Nurse 1]

Process for reporting a questionable medical exemption. Most LHD staff stated that they were unsure of what to do when they noticed medical exemptions that they deemed questionable or suspicious. A health officer described being unsure about the process and reaching out to the state health department for guidance:

> That's a topic I need to bring up with CDPH [California Department of Public Health], is what's the process? Are we reporting these to the medical board? Should we report these? . . . We haven't figured that out yet. [Health Officer 5]

Another health officer described how they had to evaluate what their role in SB277 was and how they reached out to the state health department for guidance:

> As we were trying to implement, we asked ourselves, what role do we have—responsibility, if any, to address physicians who provide medical exemptions that are inconsistent with the law? . . . We had to consider whether or not the medical board for California should receive reports from the health department for who we suspect or have evidence that the health care providers providing that weren't consistent with the law. [Health Officer 6]

When encountering questionable medical exemptions, some LHD staff reported reaching out to the state health department for guidance or utilizing a Web site CDPH created that has frequently asked questions related to SB277. A few LHD staff have reported physicians who write the questionable medical exemptions to the California Medical Board, while some accept these medical exemptions because, according to their interpretation, these medical exemptions meet the criteria established by SB277.

DISCUSSION

In the first year of SB277 implementation, health officers and LHD staff reported difficultly in interpreting provisions within the law. This difficulty in interpreting the regulatory language within SB277 led to variation in how the law was implemented across the state. Without the uniform implementation of vaccine exemption laws,

there is the potential for geographic clusters of underimmunized and unimmunized children, which lowers herd immunity and increases the chances for local vaccine-preventable disease outbreaks.[21,22] There is evidence that geographic clusters of underimmunized and unimmunized children still exist after SB277.[11] This suggests that, despite increased immunization rates after SB277, there are still areas in California that remain susceptible to vaccine-preventable disease outbreaks even with the removal of nonmedical exemptions.[11]

Vaccine exemption laws should have more-specific language about provisions within the law that exempt certain students from immunization mandates (e.g., students with IEPs and homeschooled students in SB277). More-detailed regulatory language will eliminate the need for LHDs or school districts to make their own interpretations of provisions within the law. Regulatory language that takes into account the complexity of provisions for students who may be exempt for vaccines would ensure that exemption laws are being implemented uniformly and fairly across a state. Some of these complexities and nuances have been highlighted through the rulemaking process where statements, arguments, or contentions relevant to SB277 were presented by interested groups to CDPH.[23] As a result of the most recent rulemaking process, changes to SB277, including provisions that state that the medical exemption must be signed by a California-licensed MD or DO and that temporary medical exemptions may be issued for no more than 12 months, will be put into effect during the 2019–2020 school year.[24]

Vaccine exemption policy that removes nonmedical exemptions will benefit from having more precise language on medical exemptions, including the types of physicians who can write medical exemptions and the medical conditions and circumstances that are considered contraindications to immunization. In West Virginia and Mississippi, physicians can grant a medical exemption request by filling out a standardized form and submitting it directly to the state health department for review. In West Virginia, the signing physician must have treated or examined the child, while in Mississippi the signing physician must be the child's pediatrician, family physician, or internist.[25,26] Furthermore, in West Virginia, the state immunization officer has the authority to review the medical exemption form not only for completeness but also for content to make sure that reason for the medical exemption is a valid contraindication to immunization.[25] In California, SB277 gave full discretion and authority to physicians to write medical exemptions and allowed some physicians to take advantage of the less-detailed regulatory language. The increase in medical exemption rates since the passage of SB277 suggests that some vaccine-hesitant parents are finding physicians who are willing to provide their children medical exemptions.

A centralized review of all medical exemptions would allow a system in which medical exemption requests are reviewed for completeness and content by a properly trained public health professional who is familiar with immunizations. There is currently a shortage of school nurses across the United States[27] and, as a result, in California, many front desk staff and health aides review immunization records. A standardized, centralized review of medical exemptions would take the burden off the school to be the governing authority to not only review medical exemptions but also deny access to schools when the medical exemption is not completed correctly. A standard state-level or county-level or local health jurisdiction review of medical exemptions by health officers or immunization staff would likely reduce the variation in how this law is implemented and could potentially reduce the number of exemptions that are being approved that are not consistent with the intent of SB277.

Limitations

There are several limitations of our study. The results of this qualitative study are based upon responses from 35 health jurisdictions, and those who participated may have had stronger opinions about vaccine exemption policies, which may have biased the results. The interview data are also subject to recall bias as data were collected approximately a year after SB277 implementation. California is a large state and the experience in this state might differ from that of other states if they were to implement a similar change. However, the experiences described in our study can inform future updates to immunization requirements in California including clearer regulatory language related to medical exemptions and students who are exempt from vaccine requirements as well as guide further studies on the impact of SB277.

Conclusions

Following the first year of SB277 implementation, immunization rates increased across the state. However, there were many provisions within SB277 that required more clarity. The lack of clarity led to variation in how SB277 was interpreted and implemented within and across LHD jurisdictions as well as across school districts. AJPH

CONTRIBUTORS

S. Mohanty, A. M. Buttenheim, A. C. Howa, D. Salmon, and S. B. Omer contributed to the conceptualization and design of the study. S. Mohanty completed data acquisition and drafted the article. S. Mohanty, A. M. Buttenheim, and C. M. Joyce analyzed and interpreted the data. All authors critically reviewed and revised the article and approved the final article.

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CONFLICTS OF INTEREST

S. Mohanty, A. M. Buttenheim, C. M. Joyce, A. C. Howa, and S. B. Omer have no financial relationships relevant to this article to disclose. In the past, D. Salmon has received consulting and research support from Merck, Pfizer, and Walgreens. All authors have indicated that they have no potential conflict of interest to disclose.

HUMAN PARTICIPANT PROTECTION

The institutional review board at Emory University approved this study.

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