

Conditional admission, religious exemption type, and nonmedical vaccine exemptions in California before and after a state policy change



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ABSTRACT

Recent measles and pertussis outbreaks in the US have focused national attention on state laws governing exemptions from mandatory vaccines for school entry. After several years of increases in nonmedical exemptions in California, the state assembly passed Assembly Bill 2109 in 2012, making nonmedical exemptions more difficult to obtain by requiring parents to obtain a signature from a health care provider. We used data from the California Department of Public Health to describe changes in the overall prevalence of personal belief exemptions and compositional changes in immunization status for the school years 2012–2013 through 2015–2016. Following the implementation of Assembly Bill 2109, the statewide exemption rate declined from 3.1% in 2013 to 2.5% in 2014 and then to 2.3% in 2015, representing a 25% reduction from the 2013 peak. Continued surveillance of exemption rates and vaccine refusal are needed to monitor and protect herd immunity against vaccine-preventable diseases.

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1. Introduction

The routine childhood immunization schedule protects against 17 diseases, and prevents millions of cases of diseases and thousands of deaths in every US birth cohort [1,2]. To maintain high rates of immunization coverage, each US state has laws mandating required immunizations for school entry [3]. State law in all 50 states provides for medical exemptions to immunization mandates, and most states also provide for nonmedical exemptions. Allowed nonmedical exemptions can be further categorized as personal belief, philosophical, and/or religious.

Recent measles and pertussis outbreaks [4,5] have focused national attention on these state laws governing exemptions from school-entry immunization mandates. In California, the focus of the present study, nonmedical exemptions are referred to as personal belief exemptions (PBEs). PBEs were very easy for California

parents to obtain prior to 2012, requiring only a parent signature on a preprinted affidavit on the back of the child's school immunization record. Religious and other types of nonmedical exemptions were not separately delineated or recorded. After several years of steady increases in PBEs in the state (see Fig. 1), the California State Assembly passed Assembly Bill 2109 (AB2109) in 2012. AB2109, which went into effect in January 2014, made PBEs more difficult to obtain. The new law required parents to obtain a signature from an authorized health care provider (HCP) stating that the parent had received information about the risks and benefits of immunization. In addition, a new, separate religious exemption option was added to the state's immunization policy in the Governor's signing statement [6].

Less than one year after AB2109 went into effect, and only three months into the first school year under AB2109, the "Disneyland" measles outbreak of early 2015 raised additional concerns about intentional undervaccination in the state [7]. California state legislators moved quickly to enact Senate Bill 277 (SB277) in July 2015, which completely eliminated personal belief exemptions as of July 2016 [8]. California is now only the third state (along with Mississippi and West Virginia) with no allowance for nonmedical exemptions, and the first to eliminate previously allowed nonmedical exemptions in more than thirty years.

Abbreviations: PBE, Person belief exemption; SB277, Senate Bill 277; AB2109, Assembly Bill 2109; MMR, Measles Mumps Rubella; CDPH, California Department of Public Health.

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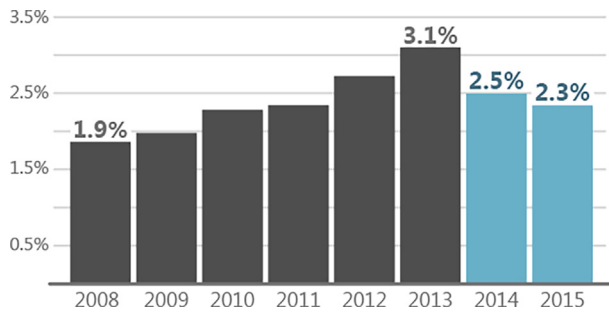


Fig. 1. Personal belief exemption rate from mandated school-entry immunizations, California kindergarteners, 2008–2015.

The behavioral response to this rapid succession of new exemption laws is a relevant policy issue to the many other states considering or implementing similar exemption laws [9]. Previous research on exemption laws has found a consistent relationship between easier exemption requirements and higher exemption rates; and between exemption rates and both individual and population disease risk [10]. However, much of this prior literature looks at cases of exemption laws becoming less stringent, usually through the addition of philosophical or personal belief exemptions to existing religious exemptions. For example, Arkansas saw a steep increase in the number of nonmedical exemptions granted after philosophical exemptions were introduced in 2003 [11,12].

Less is known about the response to *more* stringent exemption regimes, as legislated by AB2109 and SB277 in California. While the response to the dramatic changes mandated by SB277 is still unfolding, the two-year experience under AB2109 can provide insight as to statewide response to a bill requiring slightly more effort (in the form of a healthcare provider signature) in order to obtain a personal belief exemption. The goal of this study was to describe changes in the overall prevalence of personal belief exemptions and compositional changes in immunization status for four successive kindergarten cohorts in California (school years 2012–2013 through 2015–2016), which span the implementation of AB2109 in January 2014.

2. Material and methods

Each fall, the California Department of Public Health (CDPH) collects kindergarten enrollment, immunization status, and exemption data from all public and private schools offering kindergarten. Data for all schools with at least 10 kindergarten students are publicly available [13], and include the number of kindergarteners who are up-to-date on immunizations, have a permanent medical exemption, have a PBE, or are granted conditional admission. Conditional admission is meant to refer only to students who are not up-to-date on mandated immunizations, but who are also not currently eligible to receive a vaccine dose [14]. For example, a child may just have received the first dose of the Measles-Mumps-Rubella (MMR) vaccine, but is not eligible to receive the second dose until four weeks later [15]. The conditional admissions status typically applies to students who begin the child immunization series late (e.g., right before kindergarten registration); however, CDPH has reported that many schools apply the conditional admission status more broadly to students with incomplete or missing immunization records for any reason [16]. It is important to note that a PBE can be granted for one or more mandated immunizations, so a kindergartener with a PBE may be exempted, for example, only from the MMR vaccine, or from all mandated immunizations.

Beginning with the 2014–15 school year, the CDPH surveillance data disaggregates the number of students with PBEs into three categories: PBEs obtained by getting a health care provider signature, PBEs obtained by claiming a religious exemption (which does not require a provider signature), and PBEs already in place prior to implementation of the new law (referred to as “Pre-January 2014 PBEs”). Pre-January 2014 PBEs were primarily obtained by transitional kindergarten (TK) students for the 2013–14 school year, and were honored for the 2014–15 school year. TK students enroll in a two-year kindergarten program, and are counted in the kindergarten assessment data in both of their TK school years. Beginning in 2015–16, each school also reports the number of kindergarteners who are overdue for mandated vaccine doses (but who are not otherwise exempted or conditionally admitted); these students can be legally excluded from school due to incomplete immunizations and noncompliance with exemption law.

Data for the 2001–02 through 2015–16 school years were compiled and analyzed. An interrupted time-series analysis was conducted on the annual statewide PBE rate to evaluate the overall trends in PBEs before and after AB2109 was implemented. Kindergarten immunization status and exemption type rates were also calculated by year, school type (public vs. private), and by terciles of 2011–13 average school-level kindergarten PBE rate. Terciles were created by dividing schools into three equally-sized groups by average school-level kindergarten PBE rate for the three-year period 2011–2013. Terciles were labeled “low”, “medium”, and “high”, reflecting the schools’ pre-2014 PBE rate. School-level exemption rates were weighted by the school’s total kindergarten enrollment. Rates are presented without confidence intervals or significance testing as these data comprise the full population of schools with at least 10 kindergarteners. All analyses were conducted in 2018. The research was approved by the Institutional Review Board of the University of Pennsylvania.

3. Results

Decline in PBE rate. Following the implementation of Assembly Bill 2109, the statewide PBE rate declined sharply, from 3.1% in Fall 2013 to 2.5% in Fall 2014 and then to 2.3% in Fall 2015, or a 25% reduction from the 2013 peak (Fig. 1). This represents a decline from 16,416 (Fall 2013) to 12,763 (Fall 2015) PBEs, in a statewide annual kindergarten cohort of more than 500,000 (Table 1). An interrupted time series analysis showed a baseline (2001) estimated PBE rate of 0.78%; PBE rates then increased significantly up to 2013 by 0.16 percentage points per year ($P < .0005$, CI [0.11, 0.22]). In 2014 (when AB2109 was implemented), a significant decrease of 0.42 percentage points ($P = .031$, CI [−0.80, −0.05]) was observed, as well as a significant decrease in the annual PBE rate trend of 0.32 percentage points ($P < .0005$, CI [−0.38, −0.27]).

Changes in other immunization statuses. Another notable change was the steep 23% decline in the conditional admission rate from 2014 (6.9%, 36,417 kindergarteners) to 2015 (4.4%, 24,201 kindergarteners) (Table 1, Fig. 2). Permanent medical exemption (PME) rates remained stable at 0.17–0.19% (around 900–1000 kindergarteners) over the four-year period, suggesting that parents did not substitute PMEs for PBEs following the implementation of AB2109. Beginning in 2015, the overdue rate was reported at 0.17% (947 kindergarteners).

Changes in PBE rates by school type and prior PBE rate. The largest declines in PBE rates occurred in schools in the highest tercile of pre-2014 PBE rates (3.2 percentage point decline at private schools, 2.7 percentage point decline at public schools, Table 1 and Fig. 3). Schools with moderate PBE rates changed very little from Fall 2013 to Fall 2015, and schools with low PBE rates increased slightly (1.0

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