

Childhood Vaccine Exemption Policy: The Case for a Less Restrictive Alternative

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Efforts to restrict parents' ability to exempt children from receiving vaccinations required for school entry have recently reached a pinnacle. The American Medical Association voiced support for eliminating nonmedical exemptions (NMEs) from school vaccine requirements,¹ and California enacted legislation doing so.² Although laudable in their objective, policies eliminating NMEs from all vaccines are scientifically and ethically problematic. In the present article, we argue for an exemption policy that eliminates NMEs just for the measles vaccine (MV) and is pursued only after other less restrictive approaches have been implemented and deemed unsuccessful.

CAUSE FOR DISTINCTION

A policy to eliminate NMEs just from MV is based on the premise that the nature and scope of the immediate threat to public health posed by measles and the ability to avert that threat with MV is distinct among vaccine-preventable diseases (VPDs). There are 3 features that, when considered in combination, support this premise. First, measles virus is extraordinarily contagious. Its basic reproduction number is 12 to 18.³ Only 1 other vaccine-preventable infectious agent is as contagious (*Bordetella pertussis*); all others have a basic reproduction number that ranges from 4 to 7. Due to this contagiousness, a very high rate of community immunity

(~92%–94%) must be achieved and sustained to prevent spread of the disease.⁴

Second, measles remains an important public health burden.⁵ Although other VPDs may be more common (eg, pertussis⁶) or have more severe typical cases (eg, invasive *Haemophilus influenzae* type b disease⁷), measles disease is severe enough,^{8,9} outbreaks common enough,^{10,11} and containment costly enough to be a significant threat to public health.¹² Furthermore, because measles virus is endemic in many countries, periodic introductions in the United States are inevitable.^{13,14}

Third, MV is safe and effective at preventing an outbreak. Adverse outcomes from MV are extremely rare,¹⁵ and when administered in 2 appropriately spaced doses, MV induces durable immunity.^{16,17} It is estimated that MV has reduced measles cases by >99.9% in the United States.¹⁸ Although other childhood vaccines are similarly safe and effective, a notable exception is the efficacy of diphtheria, tetanus, and acellular pertussis vaccine. Protection against pertussis wanes considerably after the fifth diphtheria, tetanus, and acellular pertussis vaccine dose¹⁹ and the 10-year booster,^{20,21} limiting its utility in controlling outbreaks.²²

CHALLENGING CONVENTION

The combination of these 3 features makes measles exceptional among



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Dr Opel conceptualized and designed the study and drafted the initial manuscript; and Drs Kronman, Diekema, Marcuse, Duchin, and Kodish reviewed and revised the manuscript. All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

Opinions expressed in these commentaries are those of the author and not necessarily those of the American Academy of Pediatrics or its Committees.

DOI: 10.1542/peds.2015-4230

Accepted for publication Jan 25, 2016

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PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

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FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: Dr Opel is supported by the Greenwall Faculty Scholars Program in Bioethics and the Eunice Kennedy Shriver National Institute of Child Health and Human Development of the National

To cite: Opel DJ, Kronman MP, Diekema DS, et al. Childhood Vaccine Exemption Policy: The Case for a Less Restrictive Alternative. *Pediatrics*. 2016;137(4):e20154230

VPDs. As such, measles challenges the one-size-fits-all approach to vaccine exemptions that characterizes current policy; neither the risks to public health of each VPD nor the benefits of the vaccines that protect against these VPDs are the same, and thus there is no scientific or epidemiologic reason that NMEs should be applied uniformly to all vaccines. Rather, because the risk to public health and the benefit of immunization are greatest for measles, the scientific justification for eliminating NMEs from MV is strongest. Vaccine policy should reflect this approach by focusing on eliminating NMEs just for MV.

A focused NME policy has several advantages over a one-size-fits-all approach. First, it is more likely to be politically achievable. Despite California's success (Vermont also eliminated personal belief exemptions from all vaccines while maintaining religious exemptions), several other states recently failed to pass similar sweeping laws (including Maryland, New Mexico, Oklahoma, Rhode Island, and Washington). An NME policy focused on measles is potentially more achievable because it intrudes less upon liberty by retaining some NMEs while still protecting public health by promoting uptake of a vaccine that can effectively prevent a VPD that poses an immediate threat.

Second, a focused policy will likely be more sustainable. The presence of NMEs reduces the coerciveness of school vaccination requirements, which in turn enhances the acceptability of these requirements. Eliminating NMEs altogether undermines this effect, and it risks inciting a backlash that could culminate in a weakening of school vaccine requirements. History is riddled with precedent,²³ and the tension in the wake of the new California law is already palpable.^{24,25}

Third, a focused policy may be easier to enforce. The tasks delegated to

local schools and health departments in assessing valid vaccine doses are complex and vary according to vaccine. Whereas schools and health departments may be overwhelmed with enforcing medical-only exemptions for all required vaccines, doing so only for MV seems less onerous. What counts as a valid MV dose for routine vaccination, for instance, is straightforward: 2 doses separated by at least 28 days beginning at 1 year of age. It may also be easier to enforce a policy that addresses current public concerns about those who opt-out of MV for nonmedical reasons.²⁶

RISKS AND REMEDIES

An exemption policy that singles out MV, however, is not without risk. It may contribute to the misperception that other recommended vaccines are less important to protect child health, which could erode parental acceptance of these vaccines and result in loss of herd immunity and recrudescence of disease. In an already time-limited vaccine encounter, this policy may further exacerbate pediatric providers' difficult task of making a compelling case to parents to vaccinate their child.

However, discrepancies already exist between vaccines required for school-entry and recommended by the Advisory Committee on Immunization Practices without evidence of a negative effect. For instance, only 12 states require hepatitis A vaccination for school enrollees²⁷ despite a 2-dose hepatitis A series beginning at 12 months of age recommended by the Advisory Committee on Immunization Practices since 2006²⁸; nonetheless, national coverage rates for hepatitis A have been increasing since 2010.²⁹ In addition, the medical and public health communities have thoughtfully approached similar vaccine policy challenges in the

past, such as with thimerosal and alternative vaccine schedules.³⁰ ³¹ Deliberation about a focused exemption policy could be equally as productive.

Other potential problems include feasibility. Without a monovalent MV available in the United States, an unintended consequence of a focused policy may be increased demand for such a vaccine. In addition, resources would be needed for a state to periodically reexamine the vaccine/VPD features integral to this exemption policy because disease epidemiology and vaccine efficacy change. Clear criteria will be needed to determine when NMEs are no longer justifiable for each vaccine/VPD pair. However, this reexamination could use existing resources (eg, Centers for Disease Control and Prevention and state vaccine/VPD data) and could also facilitate an assessment of the policy's effectiveness.

THE LEAST RESTRICTIVE ALTERNATIVE

Perhaps the most persuasive argument against invoking a sweeping policy that eliminates NMEs from all vaccines is that it violates the ethical principle of least restriction. This principle offers guidance for balancing the competing values of individual liberty and the common good inherent to vaccination policy: "if two options exist to address a public health problem, we are required, ethically, to choose the approach that poses fewer risks to other moral claims, such as liberty, privacy, opportunity, and justice, assuming benefits are not significantly reduced."³² A focused policy that eliminates NMEs just from MV is simply 1 alternative to eliminating NMEs from all vaccines; other effective options include increasing the effort required to claim an NME³³ and enforcing current vaccine requirements.^{34,35}

In fact, because these latter options retain the ability to opt-out of all vaccines (hence, are even less restrictive than a focused NME policy) and have yet to be optimized in the United States, they should take priority. Indeed, not only have many states made obtaining NMEs relatively easy,³⁶ but school vaccine requirements often go unenforced. In several states, the proportion of children in 2014 to 2015 who were out of compliance with school vaccine requirements exceeded the proportion exempt.^{37–39}

CONCLUSIONS

Our goal is simple: to see as many children immunized as possible. We believe a policy to eliminate NMEs from MV alone is more justifiable, sustainable, and enforceable than eliminating NMEs from all vaccines and therefore more likely to achieve this goal. We contend, however, that this focused NME policy should only be pursued as a primary strategy for achieving target MV coverage levels after other less restrictive approaches have been optimized.

ACKNOWLEDGMENTS

The authors thank Michelle Mello, JD, PhD, Alta Charo, JD, James Curran, MD, MPH, and James Colgrove, PhD, for their comments on earlier versions of the manuscript.

ABBREVIATIONS

MV: measles vaccine
NME: nonmedical exemption
VPD: vaccine-preventable disease

Institutes of Health (K23HD06947-05). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. Funded by the National Institutes of Health (NIH).

POTENTIAL CONFLICT OF INTEREST: Dr Kodish has consulted for Biogen Idec; the other authors have indicated they have no potential conflicts of interest to disclose.

COMPANION PAPER: A companion to this article can be found online at www.pediatrics.org/cgi/doi/10.1542/peds.2015-4230.

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