

Vaccine Refusal and the Risks of Vaccine-Preventable Diseases

TO THE EDITOR: Omer et al. (May 7 issue)¹ skirt the crucial question: Does a developed, educated democracy such as that in the United States still need compulsory vaccination laws to achieve target compliance rates of 90 to 95%? It was the legislation for compulsory smallpox vaccination that led to the conscientious objector laws in the United States and the United Kingdom. Jacobson may have lost the 1905 Supreme Court case² against the Commonwealth of Massachusetts, but the court concluded that the state government could not pass laws in order to protect an individual person but could do so to protect the public. The U.K. compulsory smallpox vaccination laws of 1853³ led to riots, demonstrations, the circulation of tracts, and vaccine refusal, leading the Royal Commission to amend the laws with a conscientious objector clause in 1898 and culminating in the end of compulsory vaccination in 1946. Most member states of the European Union, especially the Scandinavian countries, achieve high levels of compliance with the use of information, education, persuasion, and subtle coercion — but not compulsion. The European Academy of Paediatrics is campaigning to make access to immunization a stated right of children. Surely compulsory immunization is anticonstitutional with respect to parental autonomy?

Denis G. Gill, M.B.

Royal College of Surgeons in Ireland
Dublin, Ireland
gilldenis@gmail.com

1. Omer SB, Salmon DA, Orenstein WA, deHart MP, Halsey N. Vaccine refusal, mandatory immunization, and the risks of vaccine-preventable diseases. *N Engl J Med* 2009;360:1981-8.
2. *Jacobson v. Massachusetts*, 197 U.S. 11 (1905).
3. Wolfe RM, Sharp LK. Anti-vaccinationists past and present. *BMJ* 2002;325:430-2.

TO THE EDITOR: Omer et al. review vaccine refusal, vaccine mandates, and disease clustering, but only in the context of the United States. In Australia, low levels of vaccine coverage (53% complete at 2 years of age in 1995) led to a national plan that instituted delivery of all recommended vaccines free of charge and financial incentives for parents whose children were fully immunized by 2 years of age. Parents who did not want their children to be vaccinated were also eligible for the payment (approximately 200 Australian dollars, or about 156 U.S. dollars) if they submitted a

signed conscientious objection form that documented discussion with an immunization provider.¹

In 2009, coverage by 2 years of age is stable at approximately 94%, but for vaccines due at 4 years of age it falls to 88%. In contrast, in the United States, immunization coverage at school entry is approximately 95%, but among preschoolers it is about 86%.

Julie Leask, Ph.D., M.P.H.

Peter B. McIntyre, M.B., Ph.D.

National Centre for Immunisation Research and Surveillance
Sydney, NSW, Australia
peterm@chw.edu.au

1. Lawrence GL, MacIntyre CR, Hull BP, McIntyre PB. Effectiveness of the linkage of childcare and maternity payments to childhood immunisation. *Vaccine* 2004;22:2345-50.

THE AUTHORS REPLY: In the United States, the constitutionality of immunization requirements is well established. The perception articulated by Gill that U.S. immunization laws are “anticonstitutional” perhaps results from a misreading of the current laws. The laws are less draconian than might be perceived, as states allow exemptions to the requirements (all states allow medical exemptions and 48 have nonmedical exemptions). In our report, we are not advocating elimination of exemptions. As indicated in the U.S. data we described, many of the exemptions are exemptions of convenience, and more stringent procedures are associated with lower rates of exemption.¹ The laws play a role in tilting the balance of convenience in favor of vaccination while providing avenues for opting out. Given the availability of exemptions, forced vaccination is unlikely.^{1,2} But we do believe that the procedures called for in seeking exemptions should not be any less rigorous than those involved in obtaining vaccination.

There are no data to support the notion that U.S. immunization laws delay vaccination. In fact, states that were early implementers of school laws for varicella vaccine had higher rates of coverage for preschool children than states without varicella requirements. Moreover, vaccine coverage for preschool children is generally 90% or higher.

Although not labeled “mandatory immunization,” approaches to ensure immunization coverage in Australia share some similarities with their

U.S. counterparts. For example, in a majority of Australian states and territories, legislation requires provider-authenticated documentation of immunization before school entry.^{3,4} Children with incomplete immunization records are allowed to enroll but may not be allowed to attend school during an outbreak.⁴ Moreover, in Australia, the Family Assistance Act provides a means-tested maternity allowance and universal child-care benefits, contingent on proof of vaccination (while permitting conscientious exemptions).³

Mandatory immunization is not the only tool available to immunization programs, and it may not be appropriate for all countries. It may be that school entry requirements are most useful in countries, such as the United States, that have fragmented health care systems. When health care is delivered and controlled by multiple entities, school entry provides a uniform time point relevant to almost all children. In other situations, such as in the United Kingdom and Australia, where health care delivery is more centralized, other approaches to maintain high coverage, such as physician incentives, may be more appropriate.

Saad B. Omer, M.B., B.S., Ph.D.

Emory University
Atlanta, GA
somer@emory.edu

Daniel A. Sanders, Ph.D., M.P.H.

U.S. Department of Health and Human Services
Washington, DC

for the Reducing Vaccine Hesitancy Team

The views expressed in this letter are those of the authors and do not necessarily represent the positions of the Department of Health and Human Services.

Since publication of the article, Dr. Omer reports receiving the Early-Stage Career Investigator Award from the National Foundation for Infectious Diseases, which is funded through an unrestricted educational grant from Merck. No further potential conflict of interest relevant to this letter was reported.

1. Omer SB, Pan WK, Halsey NA, et al. Nonmedical exemptions to school immunization requirements: secular trends and association of state policies with pertussis incidence. *JAMA* 2006; 296:1757-63.
2. Orenstein WA. The role of measles elimination in development of a national immunization program. *Pediatr Infect Dis J* 2006;25:1093-101.
3. Salmon DA, Teret SP, MacIntyre CR, Salisbury D, Burgess MA, Halsey NA. Compulsory vaccination and conscientious or philosophical exemptions: past, present, and future. *Lancet* 2006; 367:436-42.
4. Smith C. Vaccination in Australia. *Lancet* 2006;367:1575.

Case 15-2009: A Man with Coma after Cardiac Arrest

TO THE EDITOR: Kotton et al. (May 14 issue)¹ present the case of a 25-year-old man with cardiac arrest. The initial rhythm was ventricular fibrillation. Despite successful resuscitation, brain death was declared and the heart was procured for transplantation. Although no structural abnormalities were identified on echocardiography or cardiac catheterization, primary ventricular fibrillation has many causes that are not readily diagnosed,² and when idiopathic it has a high rate of recurrence.³ Therefore, the suitability of the donor's heart for transplantation needs to be determined by means of a thorough anatomical and electrophysiological assessment, which may be difficult to perform under the time constraints of donor evaluation. An implantable cardioverter-defibrillator should be considered for the recipient.

Paul J. Hauptman, M.D.

Saint Louis University School of Medicine
St. Louis, MO
hauptmpj@slu.edu

1. Case Records of the Massachusetts General Hospital (Case 15-2009). *N Engl J Med* 2009;360:2118-25.
2. Wever EF, Robles de Medina EO. Sudden death in patients without structural heart disease. *J Am Coll Cardiol* 2004;43: 1137-44.
3. Champagne J, Geelen P, Philippon F, Brugada P. Recurrent cardiac events in patients with idiopathic ventricular fibrillation, excluding patients with the Brugada syndrome. *BMC Med* 2005; 3:1.

TO THE EDITOR: In Case 15-2009, the discussion focused mainly on the patient's colonic schistosomiasis and its implications for the recipients of his transplanted organs. Little was said about why this otherwise healthy 25-year-old man was seen to have had seizurelike movements and to have collapsed, without pulse or respirations. Examination by emergency medical personnel approximately 7 minutes after his collapse disclosed ventricular fibrillation. Later, urinalysis revealed the presence of cannabinoids and cocaine metabolites. An echocardiogram revealed no abnormalities and a normal ejection fraction, and a cardiac catheterization revealed no coronary artery dis-