

Compulsory vaccination and conscientious or philosophical exemptions: past, present, and future

Daniel A Salmon, Stephen P Teret, C Raina MacIntyre, David Salisbury, Margaret A Burgess, Neal A Halsey

Lancet 2006; 367: 436–42

Department of Epidemiology and Health Policy Research, College of Medicine, University of Florida, Gainesville, FL, USA (D A Salmon PhD); Institute for Vaccine Safety, Department of International Health (D A Salmon, N A Halsey MD) and Center for Law and the Public's Health, Department of Health Policy and Management (S P Teret JD), Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases, Children's Hospital at Westmead, Sydney, Australia, and University of Sydney, Sydney (C R MacIntyre MBBS, M A Burgess MD); and Communicable Disease and Immunisation Team, Department of Health, London, UK (D Salisbury FRCPCH)

Correspondence to: Dr Daniel A Salmon, Department of Epidemiology and Health Policy Research, College of Medicine, University of Florida, 1329 SW 16th Street, Room 5239, PO Box 100177, Gainesville, FL 32608, USA
das@ehpr.ufl.edu

Compulsory vaccination has contributed to the success of immunisation programmes in the USA and Australia, yet the benefits from compulsory vaccination are not universally recognised. Some people—experts and the public alike—believe that the benefits of compulsory vaccination are outweighed by the associated ethical problems. A review of vaccination legislation in the UK, Australia, and the USA raises four main points. First, compulsory vaccination may be effective in preventing disease outbreaks, reaching and sustaining high immunisation coverage rates, and expediting the introduction of new vaccines. Second, to be effective, compulsory programmes must have a reliable supply of safe and effective vaccines and most people must be willing to be vaccinated. Third, allowance of exemptions to compulsory vaccination may limit public backlash. Finally, compulsory vaccination may increase the burden on governments to ensure the safety of vaccines. Nevertheless, although compulsory immunisation can be very effective, it might not be acceptable in some countries where high coverage has been achieved through other approaches or efforts, such as in Sweden, Norway, Denmark, the Netherlands, and the UK. These factors should be considered when compulsory vaccinations are being introduced or immunisation laws refined. Lessons learned from compulsory vaccination could be useful to other public-health programmes.

Vaccination is one of the greatest achievements in medicine and public health:^{1,2} wild-type poliovirus will soon be eradicated³ and each year, about 5 million life-years are saved by control of poliomyelitis, measles, and tetanus.⁴ Vaccine-preventable diseases in many developed countries have been reduced by 98–99%.^{2,4}

Compulsory vaccination programmes have contributed to the achievement of high rates of immunisation.⁵ Such programmes are based on laws that require a population—or population segment—to be vaccinated in order to have the right to reside in a jurisdiction or to receive an entitlement. But not everyone agrees on the merits of compulsory vaccination; experts and the lay public alike have argued that the benefits are outweighed by ethical drawbacks. Most notably, some argue that compulsory vaccination diminishes autonomy for the vaccinee or for parents making decisions on behalf of their children. Others, however, contend that compulsory vaccination ensures greater equity in society, since all members share the risks and benefits of vaccination. Without compulsory vaccination, some people receive the indirect benefits of vaccination (ie, herd immunity) without the risks, however small, associated with vaccines.

The first regulations requiring smallpox vaccination were passed in 1806 in Piombino and Lucca, former Napoleonic Principalities now part of Italy.⁶ Many European countries considered, debated, and passed laws to require their citizens to have smallpox vaccination throughout the 19th century. In France, the laws were first applied to specific populations (eg, university students in 1810). In other countries, the original laws required vaccination of the general population: Sweden passed such a law in 1816 and France passed a law for the entire country in 1902.⁶ Enforcement was often lax and varied between localities. In Sweden, fines were increased until vaccination was

done, but conscientious exemptions was permitted.⁶ In Germany and France, conscientious exemptions were not allowed. Anti-vaccination movements, present in nearly all European countries, tended to be strongest in countries where some vaccinations were compulsory.

History of compulsory vaccination in the UK

The UK has a history of struggle with compulsory vaccination. After a report in 1850 by the Epidemiology Society, the Vaccination Act of 1853 required smallpox vaccination in England and Wales.⁷ This law galvanised the anti-vaccination movement, which was joined not only by those against vaccination, but also by opponents to intrusion by governments on personal autonomy.⁷ Political candidates were chosen solely on their position on vaccination.⁶ In 1865, 20 000 demonstrators took to the streets of Leicester for an anti-vaccine demonstration.⁶

Local authorities grappled with how best to apply penalties for non-compliance: should a single fine be levied or should fines accrue until vaccination? In some cases, personal property was auctioned to cover payment for accruing fines,⁷ and violators were seen as martyrs in the fight against forced vaccination. Local authorities were responsible for implementation of the vaccine law, and rates of enforcement varied between areas. Authorities tended to be influenced by their constituents, especially where opposition to vaccination was strong. In 1889, the Royal Commission on Vaccination was charged with inquiring into and reporting on: the usefulness of vaccination in control of smallpox; what means, other than vaccination, could be used for controlling smallpox; the safety of smallpox vaccination; what could be done to improve the safety of smallpox vaccination; and whether any changes should be made to compulsory vaccination laws.

In 7 years, the Commission met 136 times and questioned 187 witnesses, including vaccine supporters

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A dispensary in the East End of London: crowds of local children are being vaccinated
Wood engraving by E Buckman, 1871.

and opponents. A final report, issued in 1896, covered each point in detail.

The Commission recognised that the decrease in smallpox incidence was at least partly attributable to vaccination,⁸ but it was careful not to dismiss the contribution of improvements to sanitation. The Commission also acknowledged that, despite earlier reports to the contrary, the use of humanised lymph (serum) could spread diseases such as syphilis. Calf lymph, the Commission recommended, should be within reach of all, in view of the compulsory nature and public funding of vaccination.⁸

With regard to prosecution for non-compliance with the vaccination law, the Commission recommended that repeated penalties should no longer be imposed. The Commission went beyond limiting punishment for non-compliance to a single fine by creating a conscientious exemption to vaccination.

“The penalty was not designed to punish a parent who may be considered misguided in his views and unwise in his action, but to secure the vaccination of people. If a law less severe, or administered with less stringency, would better secure this end, that seems to us conclusive

in its favour . . . it would conduce to increase vaccination if a scheme could be devised which would preclude the attempt (so often a vain one) to compel those who are honestly opposed to the practice to submit their children to vaccination, and, at the same time, leave the law to operate, as at present, to prevent children remaining unvaccinated owing to the neglect or indifference of the parent. When we speak of an honest opposition to the practice, we intend to confine our remarks to cases in which the objection is to the operation itself, and to exclude cases in which the objection arises merely from an indisposition to incur the trouble involved.”⁸

The Commission recommended a conscientious exemption for people who were “honestly opposed” to vaccination, and distinguished them from those who were too lazy or indifferent to have their children vaccinated. Of 13 members, two opposed allowance of conscientious exemption; two described vaccination as “objectionable” and, along with two other members, rejected any form of compulsory vaccination.

The result of allowance of conscientious exemption was that the parents of about 200 000 children opted out of vaccination; however, the overall effect was an

increase in the number of vaccinated children.⁶ Many in the British medical community supported the allowance of conscientious exemption, a feeling embodied by a supportive editorial in the *British Medical Journal*.⁹

Implementation of the conscientious exemption clause varied by locality. Some jurisdictions made it easy for a parent to claim an exemption: they allowed mothers (not only fathers) to claim an exemption, and hearings were held at late hours to accommodate busy parents. “But where magistrates favored vaccination, parents were cross examined or bullied, their motives questioned and certificates refused when strict standards remained unsatisfied.”⁶

In 1907, 100 opponents of compulsory vaccination were elected to the 666-seat Parliament and an amendment to the 1896 Act removed the administrative hurdles to claiming an exemption.⁶ This amendment resulted in a substantial drop in the number of vaccinated children.⁶ The UK repealed vaccination requirements altogether in 1946 because nearly half of parents in many areas were claiming conscientious exemptions. Vaccination rates fell, although uptake tended to increase when outbreaks occurred. In 1961, legislation allowed for compulsory examination of individuals suspected to have smallpox¹⁰ and clinically confirmed patients could be “removed at once to a hospital designated by the Regional Hospital Board for the reception of smallpox”.¹¹ However, no legislation compelled vaccination even for the control of smallpox outbreaks.¹² Smallpox vaccination was abandoned in 1971 because the likelihood of smallpox introduction in the UK was low and, although vaccination was a safe and reliable method to protect against smallpox, the risks of vaccine complications outweighed the risks of disease.¹²

In 2004, the British Medical Association revisited the issue of compulsory vaccination, partly because of decreases in vaccine coverage for measles, mumps, and rubella (MMR) that resulted from the widespread concern about associations between MMR and autism.^{13–15} The British Medical Association concluded that compulsory vaccination was not appropriate for the UK¹⁶ and supported a 2003 Scottish Executive Report,¹⁷ which concluded that “such a policy [compulsory vaccination] is not consistent with key elements of the frameworks or principles for immunisation policy. On a practical level, it is not self evident that it would lead to higher levels of immunisation. More substantively, it runs counter to the... core principle that vaccines should be administered on a voluntary basis”.¹⁷

Vaccination legislation in Australia

Australia united as a federation of six British colonies in 1901. The Federal Government controls diseases that require quarantine, but jurisdictions legislate for other communicable diseases. Australia has never legislated requirements for smallpox vaccination.

Legislation that required children to be vaccinated for MMR, DTP (diphtheria, tetanus, pertussis) and polio before school entry started in 1991 during a period of low vaccination coverage (<85%) in the state of Victoria, and currently exists in six of the eight Australian states and territories. This legislation mandates provider-authenticated documentation of immunisation status before school entry. Conscientious exemptors who sign a form stating that they object to immunisation on personal, philosophical, or religious beliefs may enrol in school but the children are not allowed to attend during an outbreak of a relevant disease. Medical exemptions are also permitted for vaccine contraindications.

In 1997, a federal initiative to increase immunisation coverage in Australia¹⁸ included financial incentives for parents and family doctors, and recommendations to develop uniform vaccination requirements for school-entry. The payment of incentives to family doctors, the main providers of immunisation, started in 1998. The scheme has three components, including a payment for medical practices that achieve more than 90% coverage of children younger than 7 years. The legislation underpinning parental incentives, which were in effect by 1999, is the Family Assistance Act. This federal law provides means-tested maternity allowance and universal child-care benefits, contingent on proof of vaccination. This law specifies that a family is eligible for payment “if a recognised immunisation provider has certified in writing that he or she has discussed with the adult the benefits and risks of immunising the child and the adult has declared in writing that he or she has a conscientious exemption to the child being immunised.”¹⁹ An Australian study showed that parental financial incentives improved immunisation rates, and that 70% of parents could not afford child care without these payments.²⁰

Coverage for vaccines due by 12 months of age was 94% in 2001, compared with 75% in 1997,²¹ showing that incentives for parents and providers contribute to high immunisation rates, even in the jurisdictions that do not have legislation to link school entry with vaccination. Cultural factors might also contribute to acceptance of this type of legislation since Australia has always had a culture of acceptance of legislation for the public good.

Compulsory vaccination in the USA

In 1809, Massachusetts passed the first immunisation law in the USA requiring smallpox vaccination for the general population.²² The constitutionality of the Massachusetts law was questioned when Henning Jacobson of Cambridge, Massachusetts, refused to be vaccinated against smallpox and, in accordance with the law, was fined US\$5.²³ Jacobson believed that he was at increased risk of an adverse reaction. The law permitted children with medical justification to avoid vaccination but made no such exclusion for adults. Jacobson argued that:

“A compulsory vaccination law is unreasonable, arbitrary and oppressive, and therefore, hostile to the inherent right of every freeman to care for his own body and health in such way as to him seems best; and that the execution of such a law against one who objects to vaccination, for whatever reason, is nothing short of an assault upon his person.”²³

Jacobson’s case was decided in 1905 by the US Supreme Court, which rejected each of his constitutional arguments. The Court found that:

“The liberty secured by the constitution of the United States to every person within its jurisdiction does not import an absolute right in each person to be, at all times and in all circumstances, wholly freed from restraint. There are manifold restraints to which every person is necessarily subject for the common good.”²³

The Court affirmed the right of states to require vaccination as a legitimate use of their police powers and clearly stated that the protection of the health of the public supersedes certain individual interests, within reasonable boundaries. The Jacobson case laid the foundation for public health law in the USA. The Supreme Court also upheld the constitutionality of school vaccination laws in 1922.²⁴

At the time of the Jacobson case, 11 states had compulsory vaccination laws although three-quarters of them did not enforce the law with legal penalties for non-compliance. By 1963, 20 states required immunisation against certain diseases for school entrance; by 1970, this number had increased to 29 states.²² The main intent of modern immunisation requirements was to reduce or prevent school-based outbreaks of vaccine-preventable diseases. Outbreaks of measles were not uncommon during the 1970s; investigations of outbreaks indicated that schools were commonly a site of transmission.²⁵ States with immunisation laws had lower rates of measles than did states without laws, and the incidence was much lower in states that strictly enforced the laws than in other states (table).^{26–29} A push for compulsory laws came in 1966 during the national measles eradication campaign.

Secretary Joseph Califano, Department of Health and Human Services, wrote to the governor of every state in April, 1977, urging them to enact and enforce compulsory vaccination laws. The Centers for Disease Control and Prevention (CDC) advocated the establishment and universal enforcement for immunisation before school entry. As part of their annual programme plans to receive federal funds to purchase vaccines and support vaccine infrastructure, states were asked to review their immunisation laws and enforcement policies. By 1980, all 50 states had laws that linked vaccination with school entrance.

Laws originally written to require vaccination for school entrance were in many cases amended to include the entire school population, thereby identifying

students who entered school before laws were enacted or who eluded the entrance laws. The Task Force on Community Preventive Services, an independent group assessing the evidence base for public-health interventions, concluded that the evidence showed that immunisation requirements “are effective in reducing vaccine-preventable disease and/or improving vaccination coverage”.³⁰

State laws provide a safety net ensuring that nearly all children older than 5 years are fully vaccinated. State laws also demonstrate a public and public-health commitment to vaccination, supporting both the individual and community benefit of vaccination. Laws that require vaccination for school entrance allow immunisation programmes to benefit from additional school system resources as schools take on the burden of checking each child’s immunisation status and ensuring every child has met the state immunisation requirement. Walter Orenstein, former Director of the National Immunization Program, CDC, has noted “school laws establish a system for immunisation, a system that works year in and year out, regardless of political interest, media coverage, changing budget situations, and the absence of vaccine-preventable disease outbreaks to spur interest.”²²

All states allow medical exemptions to school immunisation requirements; to qualify, many states require parents or guardians to provide a letter or other documentation from a doctor. 48 states permit non-medical exemptions,³¹ called “religious” or “philosophical” (20 states). In 1999, the complexity of obtaining an exemption was inversely associated with the proportion of exemptions filed. The 19 states with the most formal requirements did not have a high proportion of exemptions, compared with states with less formal requirements.³² In many states, the process of claiming a non-medical exemption required less effort than fulfilling the immunisation requirements, and in some states there was no contact between parents and health professionals. Only 16 states reported that exemption requests were ever denied. The local administrative difficulty for claiming an exemption has been associated with the likelihood of children having exemptions.³³

	Cases of measles per 100 000 in people younger than 18 years	
	Yes	No
Mandatory school-entry requirement*	29.8†	54.7
Strictly enforced school immunisation laws†	21.7	62.8

*Data from 1973 and 1974; adapted from reference 27. †Data from 1977 and first 31 weeks 1978; adapted from reference 28.

Table: Reported measles incidence by state (including the District of Columbia) and existence or enforcement of school immunisation laws: USA 1977–78

Children with exemptions to school immunisation requirements have had higher rates of vaccine-preventable diseases and contributed to outbreaks of such diseases. The risks of measles and pertussis in school-aged children in the USA with non-medical exemptions have been reported to be 22–35 times and 5.9 times higher, respectively, than those in vaccinated children.^{34,35} The community risk associated with exemptions has been demonstrated through modelling³⁴ and epidemiological investigations.³⁵

Anti-vaccine groups have made concerted efforts to ease exemption requirements and to add philosophical exemptions in states where they do not exist. In 1999, legislation was introduced in at least eight states to eliminate state vaccination laws or add philosophical exemptions. Coordinated efforts by workers in the state health department, physicians' groups, and other public-health advocates have thwarted efforts to remove state mandates. The states of Arizona and Arkansas passed legislation to allow philosophical exemptions in 2003 and 2002, respectively.

Lessons learned

The Royal Commission on Vaccination, in 1896, recognised that vaccination should be compulsory only if there is a reliable supply of safe vaccines. In the USA, availability of vaccines was assured before school immunisation requirements were implemented or strictly enforced.^{30,36,37} In 2000–03, vaccine shortages in the USA resulted in temporary suspension of school immunisation requirements in several states.^{38,39}

For compulsory vaccination to work as planned, the great majority of the population must be willing to be vaccinated. To force vaccination on children of parents who have strong convictions against vaccination could create a public backlash and serve to galvanise anti-vaccine groups. During the public concerns about the safety of MMR in the UK during the early 2000s, introduction of compulsory vaccination would probably have been unacceptable.

There are remarkable similarities between the arguments of the 19th century European anti-vaccination movement and the present movement in the USA, including the belief that compulsory vaccination is a move toward totalitarianism.⁴⁰ The main purpose of compulsory vaccination (ie, to prevent transmission of disease or increase immunisation coverage) might also affect the acceptance of compulsory vaccination. Countries such as Sweden, Norway, Denmark, the Netherlands, and the UK, where there are high rates of vaccination without obligatory laws would probably not be good settings for compulsory vaccination; they would be viewed as unnecessary, given the success of their immunisation programmes.

The allowance of non-medical exemptions to compulsory vaccination is one approach that could limit

public backlash; however, this compromise might have been the beginning of the failure of compulsory vaccination in the UK. A stronger argument could be that the British problems were the result of easily obtainable exemptions, and compulsory laws would have remained effective had administrative requirements for claiming exemptions not been removed. Likewise, in the USA, high exemption rates are associated with jurisdictions where exemptions are easy to obtain. However, rates of immunisation in Australia remain high despite the option of conscientious objection, perhaps because of the link between vaccination and financial incentives for parents and providers. High rates of exemptions render compulsory vaccination ineffective. Additionally, exemptions raise problems with social equity: children who claim exemptions will benefit from herd immunity, but avoid the risks, however small, associated with vaccination.

The US approach to conscientious objectors to military conscription could be used as a model for implementation of non-medical exemptions to vaccinations.⁴¹ The military conscientious objectors model was based on the British model for immunisation exemptions and was recently used to revise exemption legislation in the state of Arkansas.⁴² Application of the military model to immunisation exemptions would ensure exemptions granted on the basis of strength of conviction rather than the nature of the belief (religious versus philosophical). Administrative requirements might also discourage applicants who consider exemption as a path of least resistance to school enrolment.

Compulsory vaccination increases the burden on governments to ensure vaccine safety. The Royal Commission acknowledged this responsibility when it stated that government should be required to make calf-lymph vaccine available to all. In the USA, the compulsory nature of vaccination has been included in the rationale for federal vaccine-safety efforts and the development of the National Vaccine Injury Compensation Program.⁴³ Australia, however, has no such compensation scheme.

Allowance of local implementation and enforcement of vaccine laws and requirements recognises that beliefs and cultures can vary between settings. Nevertheless, if these local variations are allowed and laws are not applied equally across populations, there could be clustering of unvaccinated people, which could increase the risk of disease in individuals and in the community, and may also raise social equity issues. In the USA, some variability is inevitable because the compulsory vaccination laws are made by states and not the federal government. In Australia, the school-entry laws are state-based, but the link between immunisation and parent financial assistance is made at a national level.

Health-services research is needed to assess the usefulness of compulsory laws, exemptions, and effects

of variations in laws on vaccine acceptance and disease incidence. Exploration of perceptions and beliefs about the ethical issues surrounding compulsory vaccination is also important.

Compulsory vaccination should add to, not replace, other strategies to reach and sustain high rates of immunisation. In the UK, substantial resources have been used to elucidate parents' perceptions about vaccination and to develop, implement, and evaluate strategies to communicate information about vaccine risks.^{44,45} In the UK, there is a public demand for vaccination and the system relies on the use of physicians' incentives for immunisation⁴⁶ rather than trying to compel parents to have their children immunised. However, compulsory vaccination in the USA and Australia has achieved high rates of immunisation without the resources the UK has devoted to public education. Neither the USA nor Australia has had any drops in coverage of pertussis immunisation, like those that occurred in the UK during campaigns against the use of whole-cell pertussis vaccine in the 1970s and 1980s. Likewise, in Australia and the USA, there has not been a lowered uptake of MMR vaccination since the concerns about safety were raised. The UK has had a series of unique events in health care such as the vCJD outbreak,⁴⁷ the Bristol experience,⁴⁸ and the whole-cell pertussis vaccination scare,⁴⁹ which may have eroded public confidence in the medical profession to a larger degree than has happened in Australia or the USA. The role of these events in shaping attitudes towards immunisation in the UK cannot be underestimated.

Individual freedoms must be weighed against public benefits when exploring the viability of compulsory vaccination. Values vary between cultures and countries and can affect the ability of countries to institute and maintain compulsory vaccination programmes. Cultures with a higher regard for individual freedoms and a lower regard for the protection of the common good may not be good candidates for compulsory vaccination. Nevertheless, compulsory vaccination has been successful in the USA, a country built on the principles of individual freedom and autonomy.

Conflict of interest statement

N A Halsey receives research grant support through his employer, Johns Hopkins University, for studies of vaccine safety and effectiveness from the Centers for Disease Control and Prevention and Sanofi Pasteur. Although D Salisbury is employed by the UK Department of Health, the views expressed in this paper are his and not necessarily those of the Department of Health. The other authors declare that they have no conflict of interest.

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