

What Works in Vaccination Policy?

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Introduction

Edward Jenner demonstrated inoculation in 1796.¹ Vaccination has been a controversial topic ever since because it potentially pits the rights of the individual against the rights of the public.² In Europe and North America, the problem is cyclical. When outbreaks are prevalent, vaccination becomes popular. Governments pursue vaccination campaigns,³ social commentary sings the praises of inoculation,⁴ and parents faced with a high risk of infection tend to vaccinate their children.

However, once a population is sufficiently inoculated such that outbreaks become rare, the emphasis fades, and parents lose their motivation to vaccinate. Without social pressure and apparent risk, parents become more likely to seek religious or philosophical exemptions from vaccination requirements or, in the absence of such requirements, to neglect vaccination all together. Vaccination rates fall, outbreaks increase, and the cycle begins again.⁵

The Western world is facing yet another outbreak of vaccine-preventable diseases, thus reviving the old question of how to increase childhood vaccination rates.⁶

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- 1 The Jenner Museum: Vaccination, see <http://www.jennermuseum.com/vaccination.html>.
 - 2 Malone and Hinman, 'Vaccination Mandates: The Public Health Imperative and Individual Rights', *Law in Public Health Practice* (2007), Goodman *et al*, eds, 262, at p 263.
 - 3 *Ministère des Affaires sociales, de la Santé et des Droits des femmes: Le Programme national d'amélioration de la politique vaccinale*, see <http://www.sante.gouv.fr/le-programme-national-d-amelioration-de-la-politique-vaccinale.html> (describing the French Health Ministry's attempts to reevaluate and bolster its vaccination program in the face of increasingly frequent outbreaks).
 - 4 Filipovic, 'How Vaccine Denialism in the West is Causing Measles Outbreaks in Brazil', *The Guardian* (28 April 2014). ('Opting out of vaccines or insisting on a schedule for administering them . . . that puts others at risk (because your own child could be protected by herd immunity) is unconscionably selfish. That the good that comes from vaccinating children against deadly diseases can be characterized as a "gray zone" — let alone subject to national debate — is the height of First World Problems.')
 - 5 Malone and Mandates, 'The Public Health Imperative and Individual Rights', *Law in Public Health Practice* (2007), Goodman *et al*, eds, 262, at p 263.
 - 6 Center for Disease Control and Prevention, *Measles (Rubeola)* (27 March 2015) see <http://www.cdc.gov/measles/cases-outbreaks.html>; 'MMR advice after threefold increase in mumps cases', BBC (22 January 2015), see <http://www.bbc.com/news/uk-scotland-glasgow-west-30930445>; Anona, *et al.*, 'Measles Elimination Efforts and 2008–2011 Outbreak, France', *Emerg. Infect Dis.* (March 2013), 19(3):357-64, see http://wwwnc.cdc.gov/eid/article/19/3/12-1360_article.

Interestingly, however, not all countries struggle with immunization. Brazil, for instance, enjoys consistently high compliance with mandated vaccinations, and Japan reports high vaccination rates for popular vaccines without any government mandates.⁷ Significantly, as a result of prior high compliance rates, these countries have been relatively untouched by the recent outbreaks in vaccine-preventable diseases, such as measles.⁸

In today's interconnected world, it is increasingly important to maintain vaccination rates across borders and around the globe. This article reviews the approaches taken by various countries in North America, South America, Europe, and East Asia to examine whether mandatory vaccination laws are successful and how concepts of individual liberties impact their effectiveness.

Section II, below, provides a survey of vaccination regimes by comparing a few countries from each of the above-mentioned regions. Section II also gives a brief overview of how each country applies civil liberty laws to issues of public health.

Section III compares and analyzes the differences between these countries to identify trends and prevalent factors that appear to either support or detract from the success of vaccination regimes.

Finally, Section IV considers whether and how the countries currently facing preventable outbreaks can improve vaccination outcomes by adopting the strategies used in countries with successful vaccine programs.

Country Survey

United States and Canada

In General

The United States and Canada⁹ have been home to increasingly severe outbreaks of preventable diseases in current years¹⁰ and, consequently, the stage for increasingly heated debates over vaccine policy.¹¹

7 World Bank: Immunization, Measles (per cent of Children Ages 12–23 Months), see <http://data.worldbank.org/indicator/SH.IMM.MEAS/countries>; Feijo, *et al.*, 'Vaccination Schedule for Childhood and Adolescence: Comparing Recommendations', *J Pediatr (Rio J)*, (July 2006) 82 (3 Suppl):S4-14., see http://www.scielo.br/scielo.php?pid=S0021-75572006000400002&script=sci_arttext&tlng=en.; Nakayama, 'Vaccination Chronicle in Japan', 19 *J. Infect. Chemother* (2013) 787, at p 789.

8 CFR, Vaccine Preventable Outbreaks: Map, see http://www.cfr.org/interactives/GH_Vaccine_Map/#map.

9 Because Mexico's policies are more closely aligned with those of Brazil and Argentina, Mexico is considered in the Latin American section, below.

10 CFR, Vaccine Preventable Outbreaks: Map, see http://www.cfr.org/interactives/GH_Vaccine_Map/#map.

11 Berg, 'Measles outbreak prompts political debate over vaccinations', *Washington Examiner* (3 February 2015); Kaufman, 'Alberta not immune to raging debate over vaccinations for infectious diseases', *Calgary Sun* (7 February 2015).

In both countries, the philosophical battle between individual rights and communal interest is exaggerated by a legal framework that allows individuals to wield their civil rights as a weapon against state-mandated inoculation.

Civil Liberties and Legal Framework

Both the United States and Canada are organized as federal structures with power shared between an overarching national government and the governments of each individual state or province. While the states and provinces hold power over certain fields of law, including local vaccination requirements, the federal government has enshrined individual liberties that cannot be impeded by state or provincial action, including the freedom of religion and the right to due process of the law.¹² Religious and due process rights have been used to challenge vaccination mandates in both countries.

Throughout the history of mandated vaccination in the United States, the courts have consistently held that the public interest in preventing disease trumps any individual's interest in avoiding inoculation. The first Supreme Court decision regarding vaccination was *Jacobsen v Massachusetts*,¹³ in which the Court upheld mandatory vaccinations and rejected the need for exemptions.

Indeed, the *Jacobsen* Court explicitly held that '[i]f such be the privilege of a minority, a like privilege would belong to each individual of the community, and the spectacle would be presented of the welfare and safety of an entire population being subordinated to the notions of a single individual who chooses to remain a part of that population'.¹⁴ The High Court subsequently held that a state's refusal to allow unvaccinated children to attend school was not a violation of Due Process because such refusal is not arbitrary, but 'required for the protection of the public health'.¹⁵

In the face of more recent challenges to mandated vaccines, federal courts nevertheless maintain their position that such mandates do not violate due process or religious rights. In 2011, a federal appellate court upheld a state's mandatory vaccination requirements, despite the absence of religious or philosophical exemptions.¹⁶

12 United States Constitution, Amendments III, VII, and XIV; Canadian Charter of Rights and Freedoms, Part I of the Constitution Act, 1982, being Schedule B to the Canada Act, 1982, c. 11 (U.K.) at sections 7 and 14. Most American states have state constitutions that ensure similar rights. As such, challenges to vaccination policies are often brought under both the federal and state constitutions. In contrast, Canadian provinces do not have constitutions, but instead 'have chosen to adhere to the British practice of an "unwritten constitution".' Morton, *Conference on 'Federalism and Sub-national Constitutions: Design and Reform'*, Center for Study of State Constitutions (4 April 2004), see <http://camlaw.rutgers.edu/statecon/subpapers/morton.pdf>.

13 *Jacobsen v Massachusetts*, 197 US 11 (1905).

14 *Jacobsen v Massachusetts*, 197 US 11, 37 (1905).

15 *Zucht v King*, 260 U.S. 174, at p 177 (1922).

16 *Workman v Mingo City Bd. of Edu.*, 419 Fed. App'x 348 (4th Cir., 2011) (upholding a West Virginia state mandate requiring vaccination and offering no religious or philosophical exemptions), *cert. denied*, 132 S. Ct. 590 (2011).

In a recent decision, a federal appellate court rejected due process challenges when unvaccinated children were turned away from class during an outbreak and when parents were denied religious exemptions.¹⁷

In addition to the holdings of the federal courts, the federal government strongly supports vaccination through legislation, research, and funding. Through the Centers for Disease Control, a federal agency that seeks to improve public health through medical research, the federal government conducts and encourages research and development of vaccines, as well as their distribution and administration.¹⁸

Additionally, in order to encourage the development of vaccinations by lessening the burden of liability on researchers and manufacturers, Congress passed the National Childhood Vaccine Injury Act (NCVIA) to provide compensation for injuries associated with routine vaccination.¹⁹ In the United States, a legislative compensation system like the NCVIA is exceedingly rare and creates an invaluable barrier between vaccine producers and the expense of litigation.

Without the NCVIA, vaccine producers would be forced to defend numerous complicated and expensive personal injury actions brought by any individual who suffered an adverse reaction to a vaccine. There is a great risk involved in such suits because they are heard and decided by juries composed of ordinary citizens, rather than medical experts or judicial magistrates, and substantial verdicts are not uncommon.

The Canadian government has supported vaccination through policy recommendation and research initiatives, but it has gone no further. In support of vaccinations, the Canadian government adopted the National Immunization Strategy, which allows federal, provincial, and territorial governments to coordinate on the purchase of vaccines, the administration of vaccines, and surveillance of vaccination programs.²⁰ Canada has not, however, created a program for compensating vaccine injuries, like the NCVIA.²¹ Furthermore, when interpreting the Canadian Charter of Rights and Freedoms, Canadian

17 *Phillips v City of New York*, Number 14-2156-cv (2d Cir., 7 January 2015) (slip op) (upholding the New York vaccination laws where (1) religiously exempted unvaccinated students were prohibited from attending school during an outbreak and (2) where a parent was denied religious exemption because the City found that her claim was not based on genuinely held religious beliefs).

18 Malone and Hinman, 'Vaccination Mandates: The Public Health Imperative and Individual Rights', *Law in Public Health Practice* (2007), Goodman *et al*, eds, 262, at pp 265–267.

19 42 United States Code, sections 300aa-1 to 300aa-34; *Bruesewitz v Wyeth*, 131 S. Ct. 1068, 1082 (2011) (upholding the NCVIA and holding that it preempts any design defect claims based on vaccines).

20 Public Health Agency of Canada: National Immunization Strategy, see <http://www.phac-aspc.gc.ca/im/nis-sni/>.

21 Keelan and Wilson, 'Designing a No-Fault Vaccine-Injury Compensation Programme for Canada: Lessons Learned from an International Analysis of Programmes', *Munk School Briefings* (February 2011) see http://munkschool.utoronto.ca/wp-content/uploads/2012/07/Keelan-Wilson_NoFaultVaccine_CPHS_2011.pdf (noting that vaccine injury cases are often tried but are unsuccessful due to the idiosyncratic nature of vaccine injuries and the associated difficulties in proving causation).

courts defer to the parent's interests and do not intervene to mandate vaccination of a child. As the court explained in *C.R.B. & S.G.B. v Dir. of Child Welfare*:

No authority has been offered to suggest that refusal of immunization constitutes grounds for interference in the upbringing of children by the state . . . The courts have only intervened where failure to do so might be life threatening. Short of this, courts have generally preserved the parental right to raise children in the manner that they deem appropriate and consistent with their religious belief.²²

The Supreme Court of Canada gives great deference to parental decisions on child rearing, holding that 'parental decision-making must receive the protection of the Charter in order for state interference to be properly monitored by the courts'.²³ Under this rationale, courts will not intervene with a parent's medical decisions on behalf of a child unless the treatment at issue is 'essential', ie, 'absolutely necessary[,] indispensable, . . . [and] curative rather than preventative medical treatment'.²⁴

Vaccination Policies

The United States and Canada may influence vaccination policy and scientific development, the power to mandate vaccinations and enforce vaccination regimes rests solely with the individual states and provinces. The philosophy behind this division of powers is based on the traditional belief that a more local government is better able to respond to the unique public health requirements of its local population.

As vaccination laws have developed, the local regulations have diverged, creating a mosaic of different vaccine requirements and exemptions throughout the different states and provinces. In the United States, all 50 states have laws requiring certain vaccinations for school aged children and all states grant exemptions for medical reasons.²⁵ However, the generalizations end there.

Forty-eight states allow parents to refuse vaccinations for their children on religious grounds. Nineteen states offer similar exemptions based on the parents' philosophical, moral, or other beliefs. Only two states in the United States offer no exemptions: West Virginia and Mississippi. Notably, West Virginia and Mississippi are the poorest states in the Union,²⁶

22 *C.R.B. & S.G.B. v Dir. of Child Welfare* (1995) 137 Nfld. & P.E.I.R. 1 (Can. Nfld. Sup. Ct.).

23 *Re Sheena B.* (1995), 1 S.C.R. 315 (Can. S.C.C.).

24 *Re J.P.* (2010), 2010 A.B.P.C. 379 (Can. Alta. Ct.).

25 NCSL: States With Religious and Philosophical Exemptions from School Immunization Programs (3 March 2015), see <http://www.ncsl.org/research/health/school-immunization-exemption-state-laws.aspx>; Goodwin, 'Calling the Shots', *State Legislatures Magazine* (1 February 2015), see <http://www.ncsl.org/research/health/school-immunization-exemption-state-laws.aspx>.

26 Dill, 'The Richest and Poorest States in 2014', *Forbes* (13 October 2014) see <http://www.forbes.com/sites/kathryndill/2014/10/13/the-richest-and-poorest-states-in-2014/>. Whether their financial status influences legislation or motivates vaccination is unclear.

and thus greatly concerned about public health expenses. States with the most severe and/or reoccurring outbreaks, ie, California, Washington, Texas, and Minnesota,²⁷ also are states that offer religious and philosophical exemptions.²⁸

While vaccination rates vary widely between regions, the myriad vaccination policies combine to give the United States a 93 per cent compliance rate with UNICEF's standard childhood vaccination recommendations.²⁹

In Canada, 11 of 13 provinces and territories have no mandatory vaccination policies.³⁰ Only two provinces require basic vaccinations for school-aged children: Ontario and New Brunswick. However, even in Ontario and New Brunswick, religious and philosophical exemptions are readily available and are generally not challenged by the state.³¹ Many provinces maintain the right to exclude unimmunized children from school during an outbreak.³²

Under this vaccination policy, Canada's outbreaks of infectious diseases are even higher than those seen in the United States.³³ Even with repeated outbreaks, Canadian federal

27 FCFR, Vaccine Preventable Outbreaks: Map, see http://www.cfr.org/interactives/GH_Vaccine_Map/#map.

28 NCSL: States With Religious and Philosophical Exemptions from School Immunization Programs (3 March 2015), see <http://www.ncsl.org/research/health/school-immunization-exemption-state-laws.aspx>.

29 Immunization Summary: A Statistical Reference Containing Data Through 2013, UNICEF (10 Nov. 2014) see <http://data.unicef.org/child-health/immunization>.

30 Walkinshaw, 'Mandatory Vaccinations: The Canadian Picture', 183 *Canadian Med. Assc'n J.* 16 (November 2011). While Manitoba previously required a measles vaccination for school-aged children, the government currently states that all immunizations are voluntary. Manitoba Health: Communicable Disease Control, see <http://www.gov.mb.ca/health/publichealth/cdc/div/about.html#k>.

31 Province of Ontario Immunization of Pupils Act, R.S.O. 1990, c. I.1 (Can.) (Ontario law mandating vaccination); O. Reg. 260/13, section 1 (Can.) (Ontario regulation providing for religious and conscious exemption from vaccination requirement); Province of New Brunswick Public Health Act, SNB 1998, c P-22.4 (Can.) (New Brunswick law authorizing vaccination requirements); N.B. Reg. 2009-136 (Can.) (New Brunswick regulation requiring vaccination); Policy 2.9 — Required Immunization of School Children (March 2015), see http://www2.gnb.ca/content/dam/gnb/Departments/h-s/pdf/en/CDC/HealthProfessionals/NBIPG-policy_2-9-e.pdf (New Brunswick policy allowing medical and philosophical exemption); 'Measles Outbreak: The loopholes in Canada's vaccination laws', *CBC* (4 February 2015), see <http://www.cbc.ca/news/health/measles-outbreak-the-loopholes-in-canada-s-vaccination-laws-1.2943583>.

32 Walkinshaw, 'Mandatory Vaccinations: The Canadian Picture', 183 *Canadian Med. Assc'n J.* 16 (November 2011); 'Quebec Measles Outbreak Grows to 119 Confirmed Cases including Student', *CBC* (11 March 2015), see <http://www.cbc.ca/news/canada/montreal/quebec-measles-outbreak-grows-to-119-confirmed-cases-including-student-1.2990192> (noting that Quebec school is refusing to admit unvaccinated students amidst outbreak); 'Unvaccinated Boy Not Allowed At School Over Measles Scare', (20 April 2014) see <http://www.cbc.ca/news/canada/manitoba/unvaccinated-boy-not-allowed-at-school-over-measles-scare-1.2606017> (reporting that Manitoba banned unvaccinated child from school during measles outbreak).

33 The Canadian Press, 'Measles Outbreaks in Canada Outsize US', *CBC* (10 April 2014).

and provincial governments are torn over whether mandatory vaccination — without easy exemptions — should be implemented and whether it would make a difference.³⁴

Europe

In General

Between 2007 and 2013, the World Health Organization (WHO) recorded a 348 per cent increase in measles cases in Europe.³⁵ In order to deal with this incredible increase in infection, European countries, as well as regional organizations, have enhanced their efforts to promote immunization policies.

While regional organizations, such as the European Union (EU) and the Council of Europe (the ‘Council’) are consistent in their support of vaccination, countries differ in their approaches to vaccination law and policy. The far-Western European countries, such as the United Kingdom and Scandinavian nations,³⁶ tend towards optional and recommended vaccinations, while Central and Eastern European countries tend towards mandated vaccination.

These trends are apparent when comparing the policies of Croatia, France, and the United Kingdom. Each vaccination program put forth by individual European countries is underpinned by strong protections of individual rights at both the state and regional level.

Civil Liberties and Legal Framework

Beginning with a review of the regional policy on vaccination and individual rights, the EU and the Council of Europe strongly support cooperation and coordination between the member states to improve vaccination policies.

The EU’s support for vaccination programs originates in its core documents and is expressed through both public policy pronouncements and EU agency activity. The Treaty on the Functioning of the EU provides that one fundamental purpose of the EU is to ‘fight against the major health scourges, by promoting research into their causes, their transmission and their prevention, as well as health information and education, and

34 Leslie, ‘BC Health Minister says no plans to make vaccination mandatory in schools’, *CKNW AM*, Vancouver (10 February 2015); Grant, ‘Proof of Vaccination Should be Mandatory in All Schools, Ambrose Says’, *Globe & Mail* (13 March 2015) (noting the opinions of Canada’s federal Health Minister), see <http://www.theglobeandmail.com/news/national/proof-of-vaccination-should-be-mandatory-at-all-schools-ambrose-says/article23447141/>.

35 World Health Organization, ‘EIW 2015: Renewed commitments to immunization — How can Europe free itself from vaccine-preventable diseases?’ (15 January 2015), see <http://eiv.euro.who.int/profiles/blogs/eiw-2015-innovation-in-immunization-how-can-europe-free-itself-fr>.

36 Haverkate, *et al*, ‘Mandatory and recommended vaccination in the EU, Iceland and Norway: results of the Venice 2010 survey on the ways of implementing national vaccination programmes’, 17 *Eurosurveillance* 22 (31 May 2012).

monitoring, early warning of and combating serious crossborder threats to health'.³⁷ The EU Council has made strong recommendations to member states regarding vaccination, inviting members states 'to continue to improve national vaccination programs and to strengthen national capacity for carrying out evidence-based, cost-effective vaccination, including the introduction of new vaccines where considered appropriate'.³⁸

In a decision from 2013, the European Parliament and the Council clearly stated that one of the EU's goals regarding vaccination is 'to support cooperation and coordination between the member states in order to improve the prevention and control of the spread of severe human diseases across the borders of the member states, and to combat other serious cross-border threats to health in order to contribute to a high level of public health protection in the Union'.³⁹ Furthermore, one of the stated objectives of the EU's current public health program is 'to protect Union citizens from serious cross-border health threats: identify and develop coherent approaches and promote their implementation for better preparedness and coordination in health emergencies'.⁴⁰

Through the European institutions and bodies, the EU has issued recommendations to the EU member states aimed directly at improving immunity through public vaccination programs and educational campaigns.⁴¹ The EU also provides public health tools to its member states through the research efforts of the European Centre for Disease Control,⁴² similar to the support provided to United States states by the Centers for Disease Control. The ECDC is an EU agency in charge of the European cooperation regarding infectious diseases.

The European Centre for Disease Control publishes scientific and technical reports related to prevention and control of infectious diseases and it provides health communication and prevention tools to member states. For example, the European Centre for Disease Control formulated and published the key steps for a successful health communication program and made these recommendations available to member states.⁴³ The ECDC also

37 Consolidated Version on the Treaty on the Functioning of the European Union, arts 168 and 169, 2012 O.J. C 326/47 [hereinafter, Consolidated TFEU].

38 Council Conclusion 15090/14, SAN 418, PHARM 84, para 28 (12 November 2014) (EPSCO).

39 Decision Number 1082/2013/EU of 22 October 2013 on serious crossborder threats to health, art 1.2.

40 Third Programme for the Union's action in the field of health (2014-2020), as established by the Regulation (EU) Number 282/2014 of the European Parliament and of the Council of 11 March 2014, art 3.2.

41 Council Recommendation Number 2009/1019, Number 1 (EU) (22 December 2009) (encouraging the member states to adopt and implement national, regional or local action plans to improve seasonal influenza vaccination coverage, with the aim of achieving 75 per cent coverage in the risk groups by 2015).

42 European Centre for Disease Control and Prevention: About Us, see <http://ecdc.europa.eu/en/aboutus/Pages/aboutus>. The European Centre for Disease Prevention and Control was created by Regulation (EC) 851/2004 of the European Parliament and of the Council of 21 April 2004.

43 European Centre for Disease Control, 'Conducting health communication activities on MMR vaccination' (September 2010), see http://ecdc.europa.eu/en/publications/Publications/1008_TED_conducting_health_communication_activities_on_MMR_vaccination.pdf.

publishes a European open-access peer-reviewed medical journal, *Eurosurveillance*.⁴⁴ *Eurosurveillance* covers epidemiology, health surveillance, and prevention and control of infectious diseases, and it focuses on vaccination issues, in particular. It publishes results from the European Centre for Disease Control and the EU-funded surveillance networks, thereby providing timely access to important scientific literature.

The Council of Europe also supports vaccination policies at a regional level by providing legal guidance through the European Court of Human Rights.⁴⁵ The Council is an international organization promoting cooperation among its 47 member states, among which 28 are members of the EU.⁴⁶

All Council of Europe member states have signed the European Convention on Human Rights, which protects individual liberties including the freedom of religion and the right to due process.⁴⁷ The European Court of Human Rights monitors the implementation of the Convention in the member states⁴⁸ and serves as a court of last resort for claims based on violations of individual liberties.⁴⁹

In 2012, the European Court of Human Rights upheld the validity of mandatory vaccinations.⁵⁰ In so finding, the Court recognized that compulsory vaccination, as an involuntary medical treatment, amounts to an interference with the right to respect for one's private life, which includes a person's physical and psychological integrity, as guaranteed by article 8, section 1, of the Convention.⁵¹ Nevertheless, the Court held that

44 *Eurosurveillance*: About Us, see <http://www.eurosurveillance.org/public/AboutUs/AboutUs.aspx>.

45 In addition to the rulings of the European Court of Human Rights, the Council promotes vaccination through policy recommendations. Council Recommendation 1317, CM/Del/Dec/Act(97)588.3.3, 594/6.1; 602/6.1a, CM(97)52, 126 (25 November 1997) (recommending formulation of a pan-European vaccination program); Council of Europe, Children's Rights Under the European Social Charter, see [http://www.coe.int/T/DGHL/Monitoring/SocialCharter/Theme per cent20 factsheets/FactsheetChildren_en.pdf](http://www.coe.int/T/DGHL/Monitoring/SocialCharter/Theme%20factsheets/FactsheetChildren_en.pdf) (stating that, under the European Social Charter, '[v]accination programmes must be widely accessible and there must be high vaccination coverage rates.').

46 The Council of Europe In Brief, see <http://www.coe.int/en/web/about-us/who-we-are>.

47 Council of Europe: A Convention to Protect Your Rights and Liberties, see <http://www.coe.int/web/human-rights-convention>; Council of Europe, European Convention for the Protection of Human Rights and Fundamental Freedoms, as amended by Protocols Numbers 11 and 14, ETS 5, arts 6 and 9 (4 November 1950).

48 Council of Europe: Landmark Judgments, see <http://www.coe.int/en/web/human-rights-convention/landmark-judgments>.

49 European Court of Human Rights: The Court in Brief, see http://www.echr.coe.int/Documents/Court_in_brief_ENG.pdf.

50 European Court of Human Rights, *Solomarkhin v Ukraine*, Number 24429/03 (15 March 2012).

51 European Court of Human Rights, *Solomarkhin v Ukraine*, Number 24429/03, para 33 (15 March 2012); European Court of Human Rights, *Pretty v United Kingdom*, Number 2346/02 (29 April 2002) ('The Court would observe that the ability to conduct one's life in a manner of one's own choosing also may include the opportunity to pursue activities perceived to be of a physically or morally harmful or dangerous nature for the individual concerned. The extent to which a State can use compulsory powers or the criminal law to protect people from the consequences of their chosen lifestyle has long been a topic of moral and jurisprudential discussion, the fact that the interference is often viewed as trespassing on the private and personal sphere adding to the vigor of the debate. However, even where the conduct poses a

compulsory vaccination can be justified by public health considerations and the need to control the spreading of infectious diseases in the region.

Croatia, the United Kingdom, and France have constitutionally enshrined freedoms of religion and rights to due process of law.⁵² Furthermore, each country allows for citizens to bring individual actions based on alleged state violations of individual liberties.⁵³

Vaccination Policy

While European institutions support vaccination and seek to uphold individual liberties, it is up to the individual European states to set vaccination policies and to protect individual rights. As a general matter, vaccination compliance in the European countries is generally high.⁵⁴

As a result of vaccination policies, preventable childhood diseases, such as polio, have been eradicated in most European countries. However, other preventable diseases, such as measles, have taken a foothold in the region, resulting in repeated and widespread outbreaks.⁵⁵

In keeping with a strong trend of mandatory vaccination in Eastern Europe,⁵⁶ Croatia mandates all basic childhood vaccinations, and all mandated vaccinations are provided by the government, free of charge.⁵⁷ Despite rising anti-vaccination sentiments in the

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danger to health or, arguably, where it is of a life-threatening nature, the case-law of the Convention institutions has regarded the State's imposition of compulsory or criminal measures as impinging on the private life of the applicant within the meaning of Article 8 § 1 and requiring justification in terms of the second paragraph.'). European Court of Human Rights, *Salvetti v Italy*, Number 42197/98 (9 July 2002) ('The Court considers that compulsory inoculations as non-voluntary medical treatments amount to an interference with the right to respect for private life as guaranteed by article 8, section 1.') (internal citations omitted).

52 Constitution of the Republic of Croatia, arts 22, 31, 40, 41, and 46; Human Rights Act, 1998, c. 48 (U.K.); 1958 Constitution, Preamble (France) (adopting the *Déclaration des droits de l'homme et du citoyen* (1798)).

53 The Constitutional Court of the Republic of Croatia: About the Court, see http://www.usud.hr/default.aspx?Show=c_o_sudu&m1=29&m2=0&Lang=en#CONSTITUTIONAL2; Human Rights Act, 1998, c. 48, article 34 (U.K.); *Conseil Constitutionnel*: Who May Apply to the Constitutional Court?, see <http://www.conseil-constitutionnel.fr/conseil-constitutionnel/english/presentation/who-may-apply-to-the-constitutional-council/who-may-apply-to-the-constitutional-council.137219.html>.

54 World Bank: Immunization, Measles (per cent of Children Ages 12–23 Months), see <http://data.worldbank.org/indicator/SH.IMM.MEAS/countries>.

55 CFR, Vaccine Preventable Outbreaks: Map, see http://www.cfr.org/interactives/GH_Vaccine_Map/#map.

56 Vaccine European New Integrated Collaboration Front (Venice III): Bulgaria, see http://venice.cineca.org/documents/bulgaria_ip.pdf (Bulgaria mandates basic childhood vaccination and provides mandatory vaccines free of charge); Vaccine European New Integrated Collaboration Front (Venice III): Slovenia, see http://venice.cineca.org/documents/slovenia_ip.pdf (same policy as Bulgaria).

57 Kai, *et al*, 'Vaccine Regulations in Croatia', *Coll. Antropol.* 31 (2007) Suppl. 2: 11-120.

region,⁵⁸ in 2014, the Croatian Constitutional Court upheld compulsory vaccination laws over the objections of parents.

Instead of balancing the parents' decisions against public policy concerns, the Court focused instead on the child's rights, holding that 'the child's right to health is more than the rights of parents to make the (wrong) choice'.⁵⁹

France has a mandatory vaccination schedule as well as recommended vaccinations, set out in the French Public Health Code.⁶⁰ French mandatory vaccination laws provide for civil fines and criminal penalties against parents and guardians who fail to vaccinate their children, including prison sentences of up to two years.⁶¹

The French Constitutional Court has consistently upheld mandatory vaccination laws. In a decision of March 2015, the Court held that criminally enforced vaccination is consistent with the French Constitution.⁶² France reports relatively high vaccination rates for criminally enforced vaccinations, including polio, diphtheria, and tetanus. However, France reports relatively low rates of measles vaccinations⁶³ and has recently suffered multiple measles outbreaks.⁶⁴

The recent measles outbreaks have sparked heated debate on how best to manage vaccination policy. On one hand, the French Health Ministry is working to increase efficiency and bolster vaccination rates.⁶⁵ On the other hand, the French Public Health Council (*Haut Conseil de la Santé Publique*, HCSP) has suggested that France adopt vaccination recommendations rather than mandatory vaccination laws.⁶⁶

One European country with vaccination recommendations rather than mandates is the United Kingdom. In the United Kingdom, all vaccinations are optional and are provided

58 UNICEF Social and Civic Media Section, 'Tracking Anti-Vaccination Sentiment in Eastern European Social Media Networks' (April 2012), see http://www.unicef.org/ceecis/Tracking_anti-vaccine_sentiment_in_Eastern_European_social_media_networks.pdf.

59 Lesicki, 'The Constitutional Court Decided: Children Need to Be Vaccinated', *Vecernjilist* (26 March 2014), see <http://www.vecernji.hr/moje-zdravlje/roditelji-nemaju-pravo-odbijati-cijepiti-svoje-dijete-929063>.

60 Public Health Code (*Code de la santé publique*), arts L. 3111-1 *et seq.*

61 Pursuant to article L.3116-4 CSP, parents or guardians who refuse to vaccinate their children are punishable with a six-month imprisonment sentence and a fine of up to 3,750. Under article 227-17 of the Criminal Code, they are punishable with a two-year imprisonment sentence and fine of up to 30,000.

62 Constitutional Council, Decision Number 2015-458 QPC (20 March 2015).

63 Guthman, Fonteneau, and Lévy-Bruhl, 'Assessment of vaccination coverage in France: current sources and data', French Institute for Public Health Surveillance (March 2013).

64 'Measles elimination efforts and 2008–2011 outbreak, France', 19 *Centers for Disease Control and Prevention* 3 (March 2013).

65 *Ministère des Affaires sociales, de la Santé et des Droits des femmes: Le Programme national d'amélioration de la politique vaccinale*, see <http://www.sante.gouv.fr/le-programme-national-d-amelioration-de-la-politique-vaccinale.html> (describing program objectives as simplifying the immunization schedule, facilitating access to vaccination, and improving evaluation of vaccination policies).

66 *Haut Conseil de la Santé Publique, Politique vaccinale et obligation vaccinale en population générale* (3 June 2014), see <http://www.hcsp.fr/explore.cgi/avisrapportsdomaine?clefr=455>.

free of charge.⁶⁷ Currently, compliance rates for childhood vaccinations are high, including compliance with the recommended measles vaccine.⁶⁸

However, this was not always the case. In 1998, a study was released that suggested a link between the measles, mumps and rubella vaccine and the development of autism.⁶⁹ Following the release of the study and the subsequent media frenzy, measles vaccination rates in the United Kingdom plummeted.⁷⁰

Today, the 1998 study has been thoroughly debunked⁷¹ and vaccination rates are rebounding due to sustained government health education campaigns.⁷² Nevertheless, given the lapse in coverage, the United Kingdom is facing ongoing measles outbreaks.⁷³

South America

In General

South America offers examples of strict vaccination mandates, more analogous to those of Eastern Europe than the exemption-riddled mandates of the United States and Canada. Three examples will suffice: the vaccination policies and legal frameworks of Mexico, Brazil, and Argentina.⁷⁴

Civil Liberties and Legal Framework

Mexico, Argentina, and Brazil have individual liberties enshrined in their respective constitutional documents, and each nation uses those same constitutions to enforce mandatory vaccination policies.

In Brazil, the Constitution recognizes the right to due process and freedom of religion, while also espousing the rights to health and, more specifically, the child's rights to health.⁷⁵

67 National Health Services: The NHS Vaccination Schedule, see <http://www.nhs.uk/conditions/vaccinations/pages/vaccination-schedule-age-checklist.aspx>.

68 World Bank: Immunization, Measles (per cent of Children Ages 12–23 Months), see <http://data.worldbank.org/indicator/SH.IMM.MEAS/countries>.

69 Wakefield, Murch, and Anthony, *et al.*, 'Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children: an early report', *Lancet* 1998; 351: 637-41(1998).

70 McIntyre and Leask, 'Improving Uptake of MMR Vaccine', *BMJ* (5 April 2008), 336(7647): 729–730; Library of the House of Commons, *Measles and MMR Statistics*, SN/SG/2581 (noting a continuous fall in MMR vaccination rates during the mid-1990s to mid-2000s).

71 'Retracted Autism Study an "Elaborate Fraud"', *British Journal Finds*, *CNN* (5 January 2011), see <http://www.cnn.com/2011/HEALTH/01/05/autism.vaccines/>.

72 World Bank: Immunization, Measles (per cent of Children Ages 12–23 Months), see <http://data.worldbank.org/indicator/SH.IMM.MEAS/countries>.

73 Shute, 'Fifteen Years After A Vaccine Scare, A Measles Epidemic', *NPR* (22 May 2013).

74 Due to relative peace and industrialization in recent decades, Mexico, Brazil, and Argentina are more economically analogous to the countries considered here than are other South American nations.

75 *Constituição Federal*; chp II, art 6 (official English translation, see http://www.stf.jus.br/repositorio/cms/portaltstfinternacional/portaltstfsobrecorte_en_us/anexo/constituicao_ingles_3ed2010.pdf).

In contrast, the United States does not explicitly separate the rights of the child from the rights of the parent and the parent's ability to control the child.⁷⁶

In Argentina, the Constitution recognizes freedom of religion and due process, but it also notes that 'private actions of men which in no way offend public order or morality, nor injure a third party, . . . are exempted from the authority of judges'.⁷⁷ The Argentinean Supreme Court held in 2012 that, under the Constitution, the state's mandatory vaccination plan must be administered by force if necessary, 'for the greater good of the child and of public health'.⁷⁸ In so finding, the Supreme Court held that parenting decisions that impact the public health are not 'private' under article 19 of the Constitution.⁷⁹

The Constitution of Mexico guarantees religious freedom and the right to due process.⁸⁰ Like Brazil, Mexico expressly recognizes that children have rights separate from those of their parents. Specifically, the Constitution requires that '[c]hildren's needs to nourishment, health, education, recreation and integral development shall be fulfilled. . . . The State shall provide whatever deemed as [sic] necessary to uphold both children's dignity and the enforcement of children's rights'.⁸¹

Vaccination Policy

Brazil has a mandatory vaccination schedule with no religious or philosophical exceptions.⁸² The mandated vaccinations, composed primarily of standard childhood vaccinations such as measles, are provided free of charge at public health centers.⁸³

Brazil has been aggressive in its vaccination campaigns, not only by enforcing a vaccination program, but also by launching campaigns in inoculate adolescents who missed

76 United States Constitution, Amendments III, VII, and XIV.

77 *Constitución Nacional*, art 19 (official English translation, see <http://www.biblioteca.jus.gov.ar/argentina-constitution.pdf>).

78 Valente, 'Doctors in Argentina Sound the Alert on Vaccine Sceptics', *International Press Services News Agency* (12 May 2013), see <http://www.ipsnews.net/2013/05/doctors-in-argentina-sound-the-alert-on-vaccine-sceptics/>; 'La Corta Suprema Obliga a los Padres a vacunar a un Hijo', *La Nacion* (12 June 2012), see <http://www.lanacion.com.ar/1481446-la-corte-suprema-obliga-a-los-padres-a-vacunar-a-un-hijo>.

79 'La Corta Suprema Obliga a los Padres a vacunar a un Hijo', *La Nacion* (12 June 2012), see <http://www.lanacion.com.ar/1481446-la-corte-suprema-obliga-a-los-padres-a-vacunar-a-un-hijo>.

80 *Constitución Política de los Estados Unidos Mexicanos*, arts 14 and 24.

81 *Constitución Política de los Estados Unidos Mexicanos*, art 4.

82 Feijo, *et al*, 'Vaccination Schedule for Childhood and Adolescence: Comparing Recommendations', *J. Pediatr (Rio J)* (July 2006, 82 (3 Suppl.): S4-14, see http://www.scielo.br/scielo.php?pid=S0021-75572006000400002&script=sci_arttext&tlng=en. Fagundez, *et al*, 'A Study on the Universal Access to Vaccines in Brazil', *Pesqui. Oper. (Rio de Janeiro)* (September–December. 2009, 29(3 Suppl.) see <http://dx.doi.org/10.1590/S0101-74382009000300008>.

83 Lagulla, *et al*, 'Factors affecting compliance with the measles vaccination schedule in a Brazilian city', *Sao Paulo Med J.* (2008); 126(3):166-71.

childhood vaccinations.⁸⁴ Furthermore, the Brazilian campaign provides additional vaccinations for indigenous populations that are more at risk.⁸⁵

In Argentina, the vaccination program is mandatory for enrolment in school and generally accepted by the population.⁸⁶ Vaccines are provided for free at public health centers.⁸⁷ Immunization rates have decreased in recent years, plunging from 98 per cent measles vaccination in 2010 to 91 per cent today.⁸⁸ The reason behind the decline is unclear.

In Mexico, vaccination is mandatory and is provided by the government for free both in public health centers and at public schools.⁸⁹ In some municipalities, a public health nurse will visit the home of an uninoculated child and administer the vaccine, with or without parental consent or involvement.⁹⁰ The strategy has proven effective, as demonstrated by Mexico's consistently high vaccination rates for measles,⁹¹ polio,⁹² diphtheria,⁹³ and other childhood vaccinations from 2000 to 2013.⁹⁴ While Mexican vaccination rates dipped to 89 per cent in 2013, much like the recent decline in Argentinean vaccination rates, an explanation for the decline is not apparent.⁹⁵

84 Pan American Health Organization: Brazil, see http://www2.paho.org/hq/dmdocuments/2010/IM_country_Profile_BRA_e.pdf.

85 Pan American Health Organization: Brazil, see http://www2.paho.org/hq/dmdocuments/2010/IM_country_Profile_BRA_e.pdf.

86 Valente, 'Doctors in Argentina Sound the Alert on Vaccine Sceptics', *International Press Services News Agency* (12 May 2013), see <http://www.ipsnews.net/2013/05/doctors-in-argentina-sound-the-alert-on-vaccine-sceptics/>.

87 *Presidencia de la Nación, Ministerio de Salud*, see <http://www.msal.gov.ar/index.php/component/content/article/48-temas-de-salud-de-la-a-a-la-z/252-vacunas>.

88 World Bank: Immunization, Measles (per cent of Children Ages 12-23 Months), see <http://data.worldbank.org/indicator/SH.IMM.MEAS/countries>.

89 *Secretaria de Salud, Vacunación Universal*: see http://www.censia.salud.gob.mx/contenidos/vacunas/vacunacion_universal.html; *Secretaria de Salud, Importancia De La Vacuna Contra HPV*, see <http://www.censia.salud.gob.mx/contenidos/vinculacion/campanas/sns/vph.html> (explaining that HPV vaccinations will be provided to all eligible children at school and free of charge).

90 Hegstrom, 'Mexico Bests U.S. in Vaccinations', *Houston Chronicle* (22 December 2002).

91 Pan American Health Organization, 'Yearly Immunization Coverage in Children 1-Year of Age by Country: Measles', see http://www2.paho.org/hq/dmdocuments/2009/Coverage_Measles.pdf.

92 Pan American Health Organization, 'Yearly Immunization Coverage in Children 1-Year of Age by Country: Diphtheria', see http://www2.paho.org/hq/dmdocuments/2009/Coverage_DPT3.pdf.

93 Pan American Health Organization, 'Yearly Immunization Coverage in Children 1-Year of Age by Country: Polio', see http://www2.paho.org/hq/dmdocuments/2009/Coverage_OPV3.pdf.

94 Hegstrom, 'Mexico Bests U.S. in Vaccinations', *Houston Chronicle* (22 December 2002) (reporting 96 per cent vaccination rate for children ages 1–4); Koplowitz, 'Measles Outbreak 2015: Illegal Immigrants Not Linked To Outbreak, but GOP Congressman Mo Brooks Thinks it's Possible', *International Business Times* (4 February 2015), see <http://www.ibtimes.com/measles-outbreak-2015-illegal-immigrants-not-linked-outbreak-gop-congressman-mo-1805172> (reporting 99 per cent measles vaccination rate in Mexico); 'While the U.S. faces the Largest Measles Outbreak in Recent History, Mexico Has Not Had a Single Case Since 1996', *Yucatan Times* (5 February 2015), see <http://www.theyucantimes.com/2015/02/while-the-u-s-faces-the-largest-measles-outbreak-in-recent-history-mexico-has-not-a-single-case-since-1996/>.

95 World Bank: Immunization, Measles (per cent of Children Ages 12–23 Months), see <http://data.worldbank.org/indicator/SH.IMM.MEAS/countries>.

East Asia

In General

The East Asian countries, like Europe, vary on whether vaccines are mandated or voluntary. Although research revealed little evidence of public or legal opposition to vaccination, low vaccination numbers in some countries are attributable largely to the cost and availability of vaccines.

Civil Liberties and Legal Framework

The Constitutions of Japan, South Korea, and India are all heavily influenced by the constitutions of western nations that previously colonized or occupied those countries.⁹⁶ Each recognizes the individual's freedom of religion and right to due process.⁹⁷

The Japanese Constitution differentiates itself by distinguishing between harmless and harmful individual rights, much like the Constitution of Argentina, discussed above.⁹⁸ While the Japanese, South Korean, and Indian Constitutions each guarantee legal recourse for violations of constitutionally protected individual rights,⁹⁹ research has not revealed accessible records of legal challenges to vaccination policies.

Vaccination Policies

Japan's vaccination policy divides vaccines into two categories: recommended and voluntary. While none of the vaccines are mandatory, the recommended vaccinations are paid for by the government, and patients bear the burden of paying for voluntary vaccinations.¹⁰⁰ The recommended (paid-for) vaccinations include common vaccines, such as measles, mumps, rubella, polio, and pertussis. Even without legal mandates, Japanese compliance rates for recommended vaccines are 90 to 95 per cent or higher.¹⁰¹

In South Korea, the basic childhood vaccinations are mandatory and are offered for free by the government at public health centers.¹⁰² Like Japan, additional vaccinations beyond

96 Potsdam Declaration, Proclamation Defining Terms for Japanese Surrender (26 July 1945), see <http://www.ndl.go.jp/constitution/e/etc/c06.html>; UPSC, 'Influences on the Indian Constitution', see <http://upscguide.com/content/influences-indian-constitution>.

97 *Nihonkoku Kenp* (Japanese Constitution, hereinafter *Kenp*), c. III, arts 16, 17, and 20; *Daehanminkuk Hunbeob* (Korean Constitution, hereinafter *Hunbeob*), c. II, arts 12 and 20; Indian Constitution, part 3, ss 25 and 32.

98 *Kenp*, c. III, art 13 ('[The] right to life, liberty, and the pursuit of happiness shall, to the extent that it does not interfere with the public welfare, be the supreme consideration in legislation and in other governmental affairs.').

99 *Kenp*, c. III, articles XX; *Hunbeob*, c. II, article XX; Indian Constitution, part 3, section XX.

100 Nakayama, 'Vaccination Chronicle in Japan', 19 *J. Infect. Chemother* (2013) 787, at p 789.

101 Nakayama, 'Vaccination Chronicle in Japan', 19 *J. Infect. Chemother* (2013) 787, at p. 789; Doshi and Akabayashi, 'Japanese Childhood Vaccination Policy', 19 *Cambridge Quarterly Healthcare Ethics* 283, J doi:10.1017/S0963180110000058 (2010), see <http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=7785541>.

102 'Living in Daejeon: Immunizations', see <http://www.livingindaejeon.or.kr/en/sub03/sub030702.php>.

the government-mandated schedule are available, but must be paid for by the patient.¹⁰³ South Korea reports sub-optimal vaccination rates for all mandated vaccinations at 83.6 per cent.¹⁰⁴

However, vaccination rates in Korea are high for vaccines required for children under 12 months of age, reaching rates above 95 per cent, but then decrease for vaccines recommended to older children.¹⁰⁵ This trend suggests that South Korean parents are far more likely to comply with childhood vaccination requirements when the children are already attending doctors' appointments for other purposes, such as infancy check-ups. Accordingly, Korea has maintained immunity for the more common childhood vaccines, including measles.¹⁰⁶

In India, the common childhood vaccinations are mandatory in name in name only, with dismal compliance rates of under 50 per cent, due in large part to poor administration in the most populous regions of the country.¹⁰⁷ Indeed, many Indian provinces report vaccination rates that hover around 20 per cent, even for the more common childhood vaccinations, such as measles.¹⁰⁸

Analysis

Given the recurring nature of the debate, if governments and communities do not seize the current political will to enact lasting and systemic changes to vaccination policy, the disease outbreaks are destined to continue. This need for change is particularly directed towards North American and Western European countries, where vaccination rates have been at their worst in recent years. With only a short window in which to capitalize on public attention and the immediate threat of outbreak, what vaccination strategies should be given priority?

103 Ministry of Health and Welfare, Press Release: 'Subsidizing vaccinations for babies and toddlers to be expanded beginning this March (support for HiB vaccines to be included)', (28 February 2013). see http://english.mw.go.kr/front_eng/scs/scs0401vw.jsp?

104 Ministry of Health and Welfare, Press Release: 'First disclosure of the index for the prevention of infection diseases among Korean children; complete vaccination rate 86.3 per cent (among those aged three)', (12 April 2012) see http://english.mw.go.kr/front_eng/cs/scs0401vw.jsp?

105 Ministry of Health and Welfare, Press Release: 'First disclosure of the index for the prevention of infection diseases among Korean children; complete vaccination rate 86.3 per cent (among those aged three)' (12 April 2012), see http://english.mw.go.kr/front_eng/cs/scs0401vw.jsp?

106 Cha, 'The history of vaccination and current vaccination policies in Korea', *Clin. Exp. Vaccine Res.*, (July 2012), 1(1): 3–8., see <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3623509/> (noting that South Korea achieved WHO standards for measles eradication in 2006).

107 Ministry of Health and Family Welfare, 'National Vaccine Policy' (April 2011), see http://nrhm.gov.in/images/pdf/programmes/immunization/Guidelines/National_Vaccine_Policy.pdf.

108 Ministry of Health and Family Welfare, 'Immunization: Annual Report, see http://nrhm.gov.in/images/pdf/programmes/immunization/annual-report/uip_coverage_2005-06_2012-13.zip.

Initially, history makes clear which strategies do not succeed: compulsory vaccination requirements. France and the United States, both of which have laws requiring measles vaccination, have nevertheless been stricken with numerous outbreaks in recent years. Notably, some countries with strict vaccination mandates share the same compliance rates as countries with no mandatory vaccinations.

For example, Japan, which recommends but does not mandate vaccination, has achieved the same compliance rates as Brazil, which mandates vaccines without granting religious or philosophical exceptions. On the other hand, Canada, with predominately voluntary vaccination policies, has a much lower vaccination rate than the United Kingdom, which also has a voluntary system.

These examples illustrate the lack of causal a relationship between mandates and compliance rates. Furthermore, where mandates are faced with a combination of strong individual rights and a robust litigation system, legal and political opposition to mandates is inevitable. While an individual's opposition to mandatory vaccination may not always succeed, it nevertheless slows the progress of population-based health and discourages action through the threat of litigation.

So what does work? Regardless of whether vaccinations are mandated, countries that offer free and easily-accessible vaccinations have increased vaccination rates. One potential factor in this success is the minimization of the parent's role in vaccination. After all, the parents — not the children — are the litigants challenging vaccines.

By making vaccinations free of charge, the parent's financial or insurance involvement is removed. By making vaccinations available at school, the parent's burden of getting a child to a physician's office also is removed. Additionally, by making vaccination a visible process — with the child's teachers and peers clearly able to see who does and does not accept the shot on vaccination day — a parent's anonymity in failing to vaccinate is removed. A parent may find it more convenient to consent to vaccination than to withstand social pressure or criticism of failing to do so. While convenience alone may not remove a parent's sincerely held beliefs against vaccination, many parents are more likely to consent to a convenient and affordable procedure.

Actual events strongly support this approach. The case of measles in Quebec demonstrates the success of school-based, free vaccines without the need for mandates. As is the case in most Canadian provinces, vaccinations are not mandated in Quebec.¹⁰⁹ In 2011, an unprecedented measles outbreak demonstrated the provinces' low vaccination rates and susceptibility to infection.¹¹⁰

In response, the Quebec government did not begin mandating vaccination, but instead launched an education campaign aimed at informing parents of the low risk and high utility of the measles vaccine. Most importantly, Quebec coupled this campaign with the

109 *Santé et Services Sociaux Québec*, 'Vaccinations: Frequently Asked Questions', see http://www.msss.gouv.qc.ca/sujets/santepub/vaccination/index.php?foire_aux_questions_en.

110 *Santé et Service sociaux Québec*, 'Final Report on the Provincial Outbreak of Measles in 2011', (31 August 2012), see http://www.msss.gouv.qc.ca/en/sujets/prob_sante/measles/portrait2011.php.

ready availability of free vaccines offered to children at schools. The campaign, framed by ongoing outbreaks across Canada and the United States, rapidly increased vaccination rates and, as a result, Quebec had no measles outbreaks in 2012, 2013, and 2014.¹¹¹

Given the inertia of governmental machinery and the fickleness of political will, an overhaul of vaccination policy is unlikely to happen overnight. Currently, governments and communities in the United States and Europe are taking incremental steps towards increasing vaccination compliance on an ongoing and consistent basis.

Policy makers in United States state governments are attempting to fill the gaps in compliance by making exemptions more difficult to come by, either by abolishing the exemptions altogether¹¹² or by making them inconvenient to receive and maintain.¹¹³

For instance, in June 2015, the California State Assembly approved legislation abolishing all religious and personal belief exemptions.¹¹⁴ California is notorious for its anti-vaccination activists and its low vaccination rates;¹¹⁵ thus, a successful tightening of its vaccination mandates could pave the way for more moderate states to follow suit.¹¹⁶ Some states are seeking to improve compliance by improving the accessibility of vaccination records.

111 *Santé et Service Sociaux Québec*, 'Vaccination against Measles', see <http://www.msss.gouv.qc.ca/sujets/santepub/vaccination/index.php?operation-rougeole-2011-en>; Coutts, 'Quebec Stands Alone in Aggressive Stance on Measles Vaccinations', *Daily Brew Canada News* (30 April 2014), see <https://ca.news.yahoo.com/blogs/dailybrew/alberta-declares-three-measles-outbreaks-while-quebec-stays-205953182.html>. In early 2015, a Quebecois region approximately 75 kilometers outside of Quebec experienced a measles outbreak related to the December 2014 outbreak at Disney Land in California. Each of the Quebecois infected in 2015 were unvaccinated, citing religious and philosophical reasons. The Quebec authorities are repeating the strategy used in 2011 by providing vaccinations at school. Additionally, unvaccinated students will be required to stay home during the outbreak. 'Measles Cases Jump to 119 in Quebec Area of Canada', *BBC* (11 March 2015), see <http://www.bbc.com/news/world-us-canada-31843928>; 'Quebec Measles Outbreak Surges to 119 Cases', *Globe & Mail* (11 March 2015), see <http://www.theglobeandmail.com/life/health-and-fitness/health/quebec-measles-outbreak-rises-to-119-cases/article23403213/>.

112 S.B. 277, 2015 Cal. Leg., 2015-2016 Reg. Sess. (Cal. 2015) (proposed legislation to eliminate the personal belief exemption); H. 212, Gen. Assemb., Reg. Sess. (Vt. 2015) (proposed legislation to abolish both the philosophical and religious exemptions).

113 H.B. 393, 89th Leg., Reg. Sess. (Minn. 2015) (proposed legislation to require parents seeking a personal belief exemption to submit a letter detailing the belief as applied to specific vaccinations, along with a certificate from a doctor stating that the parents have discussed the risk of failing to vaccinate and an acknowledgement that the child may be prohibited from school during an outbreak).

114 Medina, 'California Set to Mandate Childhood Vaccines Amid Intense Fight', *New York Times* (25 June 2015), see <http://www.nytimes.com/2015/06/26/us/california-vaccines-religious-and-personal-exemptions.html>.

115 '2014–2015 Child Care Immunization Assessment Results', California Department of Public Health (January 2015), see http://www.cdph.ca.gov/programs/immunize/Documents/2014_CA_Child_Care_Immunization_Assessment.pdf (revealing an overall vaccination rate of only 89.3 per cent).

116 Briggs, 'California Bill May Reshape Vaccination Laws across the Nation', *NBC* (23 April 2015), see <http://www.nbcnews.com/storyline/measles-outbreak/how-california-may-reshape-vaccinations-laws-across-nation-n346566>.

Legislators in South Dakota and Vermont have proposed laws that would grant schools access to a child's vaccination records directly from a physician's office, unless the parents specifically refuse access.¹¹⁷ American legislators also are proposing laws that would enforce vaccination requirements through a yet-untested method: public shaming. California, Arizona, Illinois, Missouri, and Texas legislators have proposed legislation that would require public disclosure of failures to immunize. The proposed method of public notification varies from public posting of general immunization rates in a given school to direct notification sent to parents when their child is in class with an unvaccinated student.¹¹⁸

While this progress is to be applauded, the comparison discussed here suggests that governmental efforts on increasing vaccinations could be better spent on free, school-based programs.

Conclusion

The inclusion of mandatory legislation in vaccination policy actually tends to create barriers to progress. This is particularly apparent where strong individual liberties are paired with a litigation system that allows individuals to oppose government mandated action.

Mandating vaccination proves effective only when consistently applied without exemptions and particularly where enforced through criminal sanctions. In order to efficiently and effectively improve vaccination, governments should focus their efforts on campaigns that offer free and convenient inoculation. This approach has proven successful in countries with and without mandatory vaccine schedules and in diverse economic and political environments.

117 H.B. 1059, 19th Leg. Assemb., Reg. Sess. (S.D. 2015); H.B. 98, Gen. Assemb., Reg. Sess. (Vt. 2015).

118 NCSL: States With Religious and Philosophical Exemptions from School Immunization Programs (3 March 2015), see <http://www.ncsl.org/research/health/school-immunization-exemption-state-laws.aspx>.