

Beneficence, Paternalism, and the Parental Prerogative – the Ethics of Mandatory Early Childhood Vaccinationⁱ

Frej Klem Thomsen, Draft version, Summer 2018

The fact that increasing vaccine hesitancy among parents in high income countries, and the resulting drop in early childhood immunisation, constitutes an important public health problem is now widely recognized (Calandrillo 2004, Larson et al. 2011, Yaqub et al. 2014, Dubé, Vivion, and MacDonald 2015).

This is an important problem first and foremost because many of the diseases that early childhood vaccinations protect against are harmful and dangerous. On a global scale, measles vaccination alone prevented an estimated 17.1 million deaths in the years 2000-2014, through the achievement of 85% global coverage with one dose by the child's first birthday (World Health Organization 2015a). Even in high-income countries the disease claims lives: the 2008-2011 outbreak in France that killed ten had a mortality rate of 1:2218 (Antona et al. 2013). Secondly, it is an important problem because low vaccination coverage imposes considerable costs on society. Cost-benefit analyses consistently show vaccination to have high net value, saving society substantial expenses in medical care and loss of economic activity (cf. e.g. Zhou et al. 2014),

High-income countries typically recommend and provide vaccinations to all children. Despite this, in recent decades large numbers of parents have failed to vaccinate their children, with two-dose MMR vaccination rates in 2014 of 64% in Austria, 74% in France, 84% in Denmark, 85% in Belgium, 87% in Switzerland and 89% in Germany (World Health Organization 2015b). Insufficient coverage creates health risks not only among the children directly deprived of the protection afforded by immunisation, but also among those who cannot be vaccinated (e.g. young infants and persons with weakened immune systems or allergies), and even those who have been vaccinated (since no vaccine provides complete protection). The herd immunity threshold for measles has been estimated to be as high as 96-99% vaccination coverage (Plans-Rubio 2012). Thus, increasing vaccine hesitancy threatens the public good of herd immunity, to the extent that diseases that

until recently faced the prospect of extinction in high income countries are making a comeback, including not only measles, but also mumps, rubella, and pertussis (Dubé, Vivion, and MacDonald 2015).

Notably, vaccine hesitancy and insufficient rates of immunisation continue to be a problem in spite of authoritative studies that definitively demonstrate vaccines to be both overall beneficial and unconnected to the most prominently raised concerns (e.g. the worry that MMR-vaccination increases the risk of developing autism). While these confirm that vaccination involves risks, notably febrile convulsions and purpura, these adverse effects are both minor and relatively rare, and more serious risks, such as encephalitis, are so rare that it is difficult to estimate whether they are genuinely risks, and dramatically more likely to occur as a result of disease than as a result of vaccination (Demicheli et al. 2012, Maglione et al. 2014, Stratton et al. 2012, Taylor, Swerdfeger, and Eslick 2014).

The failure to reach target vaccination rates raises the issue of what policies might be taken to promote higher rates of vaccination. Traditionally, public health interventions have focused on increasing awareness of and knowledge about the benefits of vaccination while eliminating unfounded or mistaken perceptions of risks. Slightly more intrusive policies fall under the heading of so-called “nudges”. In this context, a prominent suggestion is to make vaccination the default option, so that parents would have to opt-out (Opel and Omer 2015).

However, while information and nudges may be somewhat effective, it is not clear that such policies can reach target vaccine coverage (self-reference deleted). This can motivate the adoption of more coercive policies, which intrude directly on the decisions of parents, typically by imposing a cost on the choice of non-vaccination substantial enough to make this choice undesirable even for parents who are hesitant about vaccination (Buttenheim and Asch 2013). Perhaps the most obvious policy is to impose a monetary cost, either in the shape of requiring a direct payment to opt out of vaccinating, or in the shape of a benefit (e.g. a tax-credit) given to those who vaccinate, but not to those who do not. A related policy, prominently employed by the USA, is to make vaccination a condition of entry to day-care institutions and/or the school system. Systematic reviews suggest that imposing such conditions can be effective at raising vaccination rates, even when other policies are not, at least when exemptions are allowed only for medical reasons (Sadaf

et al. 2013, Constable, Blank, and Caplan 2014, Wang et al. 2014, Jarrett et al. 2015). Finally, one can of course mandate vaccination in the strong sense where failing to vaccinate incurs legal punishment. In the following I refer to all policies along the lines of those above as “mandatory early childhood vaccination”.

Policies of mandatory early childhood vaccination, it is frequently noted, raise ethical issues worthy of consideration. As Ross Silverman and Kristin Hendrix put it “[a] mandate impinges upon individual autonomy, privacy, and liberty rights and challenges parental rights” (Silverman and Hendrix 2015, 852). Nonetheless, surprisingly little careful reflection has been given to these issues. Articles that discuss mandatory vaccination and ethics often do little more than list a number of possibly relevant ethical considerations. (Hendrix et al. 2015, Isaacs et al. 2009, Isaacs, Kilham, and Marshall 2004, Mcdougall and Notini 2014) The ambition of this article is to approach these issues more systematically, by sketching the basic argument for mandatory vaccination and reviewing the most prominent objections to mandatory early childhood vaccination.

In section two immediately below I spell out in slightly more detail what I believe is the strongest argument in favour of mandatory vaccination. Doing so will help us evaluate the comparative strength of the objections against mandatory vaccination, and clear the ground for the individual analysis of the objections. Then, in section three, I consider the objection that mandatory vaccination is impermissibly paternalistic. I consider two versions of a paternalistic objection, but note that on a precise conception of paternalism the objections fail because they misrepresent the target of the policy and because they do not take into account the risks non-vaccination imposes on others. In section four, I next consider the objection that mandatory vaccination impermissibly infringes on the parental prerogative of the parents who refuse to vaccinate, that is, that it violates their claim on making decisions about what is to happen to their children. I review three versions of that objection and argue that they fail because they overestimate the strength of a plausible version of the prerogative and ignore the impermissible risks imposed upon others. Section five summarises and concludes.

The basic and qualified teleological arguments for mandatory early childhood vaccination

The most fundamental argument in favour of mandatory early childhood vaccination is based on the harms that result from insufficient vaccine coverage, and the ability of coercive vaccine policies to increase vaccine coverage. Jessica Flannigan puts the point succinctly when she argues that:

“[V]accine refusal harms and risks harming innocent bystanders. People are not entitled to harm innocents or to impose deadly risks on others, so in these cases there is little to be said for the right to refuse vaccination” (Flanigan 2014, 6).

The basic teleological argument for mandatory early childhood vaccination at stake in this type of reasoning can be schematized as follows:¹

- 1) Standard early childhood vaccine coverage correlates inversely with risk of harm to persons (by reducing or eliminating vaccine-preventable diseases),
- 2) There is a set of coercive policies P, each of which in realistic situations of imperfect vaccine coverage increases vaccine coverage,
- 3) In realistic situations of imperfect vaccine coverage each of the coercive policies P can reduce a risk of harm to persons (from 1 and 2),
- 4) We have reason to minimise the risk of harm to persons, the strength of this reason correlating directly with the degree to which an act or policy will reduce the risk of harm,

¹ Note that I shall speak throughout of teleology and outcomes, rather than utilitarianism and consequentialism, because these moral theories are at once more restrictive than such a label would suggest and because implying that these concerns are relevant only to utilitarians and consequentialists would be misleading – any plausible moral theory will assign some role to teleology, i.e. the outcome of a policy.

- C) In realistic situations of imperfect vaccine coverage, we have a reason to employ the coercive policies P, the strength of this reason correlating directly with the degree to which P will reduce the risk of harm (from 3 and 4).²

The apparent simplicity of the argument conceals a number of important complications and qualifications. Let me note seven such features.

First, as premise 4 makes explicit, the strength of the resulting reason varies with the degree to which an act or policy will reduce the risk of harm, and there at least three important parameters that determine this strength. One such parameter is the risks imposed by infection with the disease. Some vaccine-preventable diseases have higher morbidity, and/or a higher risk of causing serious disability than others, just as the length and severity of suffering the disease inflicts in an ordinary course of infection can vary greatly. A second parameter is policy efficiency. Certain policies are generally likely to be more effective than others, but the efficiency of a policy will vary with the context, and the amount of harm prevented depends directly on how effective the policy will be at increasing vaccine coverage in the specific context where it is employed. A third parameter is existing vaccine coverage. The claim that vaccine coverage correlates inversely with risk of harm is mainly true when vaccine coverage has not exceeded the threshold for herd immunity. That is, the function for harm reduction from vaccine coverage is concave and the marginal benefits of increased coverage asymptotically approach zero after the threshold. The location of the threshold in turn depends on how infectious the disease is, which again varies widely from one disease to another, but for the purposes of determining the amount of harm prevented it is the distance to the threshold that matters. In practice the above parameters jointly entail that the reason in favour of mandatory vaccination may have negligible strength for the least harmful diseases, the least effective policies, or in situations where the threshold for herd immunity has already been achieved. However, as we noted initially, many vaccine-preventable diseases cause serious harm, some policies are likely to be effective, and many countries struggle to achieve

² Some may prefer to speak of “moral reasons”, rather than reasons simpliciter. I believe there are strong arguments against there being such qualitatively different subsets of fundamental reasons (cf. Crisp 2006), but this is not the place to rehearse them, so I invite readers who disagree to insert “moral” whenever I speak of reasons in the following.

sufficient coverage to provide herd immunity. For these diseases and conditions, at least, the reason will carry non-negligible weight.

Second, I deliberately limit the claim about the effectiveness of coercive pro-vaccination policies to what I loosely label “realistic situations of imperfect vaccine coverage”, since the premise is not meant, of course, to express a universal truth. As I noted in the introduction, I think there is good evidence for it in current circumstances, but we can imagine situations of imperfect vaccine coverage in which no coercive policy is capable of increasing vaccine coverage. A different way of accommodating this limitation is to conditionalise the argument, i.e. to revise premise 2 to read “An effective coercive vaccine policy would increase vaccine coverage in situations of imperfect vaccine coverage”, premise 3 to read: “*If* there is an effective coercive vaccine policy *then* it would reduce risk of harm to persons”, and the conclusion to read “If there is an effective coercive vaccine policy, then we have reason to employ it”. It does not seem to me to make a difference to the overall argument whether we adopt the conditional or unconditional version of the teleological argument for mandatory vaccination, and I prefer the unconditional version for the trivial reason that it is slightly less complex, so I shall assume that it is the version at stake in what follows. Readers who disagree, however, are invited to assume that the conditional argument is at stake instead. Note also that I am not here concerned with realism in the sense of asking whether a policy is politically feasible. The argument concludes that we have reason to implement a policy, and is neither contingent upon nor supports the different conclusion that policymakers will do so.

Third, I speak in deliberately loose terms about the reason to reduce risk of harm, because I take it that there are both intrinsic and instrumental reasons to do so. That is, it is of inherent moral value to avoid harm to persons, but vaccination also commonly creates large economic benefits for society by avoiding these harms. The exact strength of the reason will vary depending on the more precise axiology one adopts, but I invite the reader to assume we are dealing with whatever reasonable view of well-being she prefers.

Fourth, as the initial citation from Flanigan suggested, some might hold that the argument can and should be strengthened by noting two properties of (most of) the persons harmed: that they are innocents, and that they are *other* persons than those imposing the risks, i.e. because most of them are either children whose

parents are the ones who make the choice not to vaccinate, or persons endangered through the loss of herd immunity because they have not yet been vaccinated (e.g. infants), cannot be vaccinated (e.g. allergics and persons with immune-system deficiencies), or have not been immunised (since vaccines are not 100% effective). That is, since the risks that non-vaccination impose accrue mainly to persons who have done no relevant wrong, and since they accrue mainly to other persons than those who make the decision that imposes the risk, the reason may be stronger than if the risk accrued only to persons who were in some relevant respect culpable or were themselves responsible for imposing the risk.³ I shall refer throughout when referencing the argument simply to persons, but the fact that those making the choice about whether to vaccinate and those who are affected by that choice are different persons is a point that will become pertinent at places in the discussion below. Readers who unlike myself believe that it makes a general difference to the argument should keep in mind that the group of affected persons has these features.

Fifth, the argument does not provide a reason to employ *every* policy P; rather, it is a reason to employ any individual member of P, the strength of which depends on the marginal benefit measured as risk-reduction of employing that particular policy. This is important, because we should expect diminishing returns from implementing multiple policies to the extent that some policies may produce no benefit if other policies have already been implemented.

Sixth, the argument constitutes only *one* argument in favour of mandatory vaccination based on the reason to reduce the risk of harm. Clearly, there can be others. A prominent example in the literature is the argument from fairness, which holds that it is wrong to free-ride on the protection provided by herd immunity (Navin 2013, Dawson 2007). As with the point above, that the group subject to risk of harm is mostly composed of innocent others, I do not include this point in my overall argument because I am skeptical about the normative importance of free-riding, because doing so would introduce a number of complications that would take us beyond the scope of this article, and because I do not believe it is necessary. We can construct a sufficient argument for the permissibility of at least some coercive pro-vaccination policies based solely on

³ Pierik, Flanigan and Navin all implicitly or explicitly make this distinction in the previously cited articles.

the (even) more defensible claim that we have reason to reduce the risk of harm. But, as also with the point above, those who disagree should bear in mind that the case for mandatory vaccination will then be even stronger than I suggest in the following.

Seventh, the argument provides only a *pro tanto* reason for vaccinating, and we cannot derive an all-things-considered conclusion about vaccination policy from it in isolation. Thus, vaccine-skeptics are right to point out that vaccination itself introduces risks, and that this must count, on pain of contradiction, against vaccinating. Where they are typically wrong is in their assessment of the risks introduced and reduced. As previously noted the risks of non-vaccination far outweigh the risks of vaccination, and hence the risk-based reason to vaccinate far outweighs the risk-based reason not to vaccinate. More importantly, consideration must be given to costs other than the risk of harm from vaccination. Such costs include the investment in resources necessary for implementing and maintaining the policy, but also the sanctions a policy imposes on refusers, e.g. the children of US vaccine refusers losing the important good of school attendance (Schröder-Bäck and Martakis 2015a, b). In short, and based on a similar but diametrically opposed argument to the basic argument above, there will be a reason to not employ any coercive policy P, the strength of this reason correlating directly with the costs of that policy.⁴

We can modify the basic argument to take account of these outcome-oriented reasons against vaccinating, giving us **the qualified teleological argument for mandatory early childhood vaccination**:

- 1) We have an overall teleological reason in favour of implementing a policy if the outcome-oriented reasons in favour outweigh the outcome-oriented reasons against, the strength of the overall reason correlating directly with the degree to which the former outweighs the latter.
- 2) In at least some realistic situations of imperfect vaccine coverage at least some subset of coercive policies P have cost-based reasons against that are outweighed by the risk-reduction-based reason in favour.

⁴ Cf. (Flanigan 2014, 19-23), for a good discussion of the way concerns about such costs might inform policy-making.

- C) In at least some realistic situations of imperfect vaccine coverage we have an overall teleological reason in favour of implementing at least some subset of coercive policies P (from 1 and 2).

The argument is valid and the first premise is an extremely plausible normative principle since it restricts its claim to teleological reasons, and is therefore compatible e.g. with there being deontological constraints. This leaves the second premise, where we will need to know which situations give rise to teleological reasons in support of which policies. However, I shall not attempt an analysis of when and for which policies such a reason exists for three reasons. First, because I think it is highly plausible that the benefits will outweigh the costs in many situations for a range of plausible policies.⁵ Second, because exploring that issue requires a relatively detailed empirical assessment of whatever individual policy is at stake in a concrete context. And third, because I want to focus here on a series of more general, non-outcome-oriented arguments, which many opponents of mandatory vaccination might raise more prominently. Generally, it is difficult to justify public policies that do more harm than good, however, opponents of mandatory vaccination are unlikely to hold that this condition captures their resistance to the permissibility of mandatory vaccination. The real question in the debate over mandatory vaccination, it seems to me, is not whether an overall teleological reason in favour of the policy is necessary for its permissibility – it plausibly is – but whether it is sufficient. Hence, it is to deontological arguments, and the analysis of whether they can successfully undermine or outweigh the teleological argument for mandatory vaccination, that we now turn.

The modest and strong anti-paternalist challenges to mandatory early childhood vaccination

In a recent defence of mandatory vaccination, Roland Pierik mentions as one reason that counts against such policies the idea that “[t]he point of departure in liberal-democratic societies is limited governmental

⁵ In his seminal article, Tim Dare argued that the difference in coverage between voluntary and mandatory policies might be too small to justify the cost. (Dare 1998) However, it is noteworthy that his exemplar, New Zealand, has had two-dose MMR-coverage in 2010-2014 of ca.86%, well below desirable coverage levels. (World Health Organization 2015b) For a more recent discussion about which diseases do and do not have risk-reduction-based reasons in favour strong enough to outweigh the cost-based reasons against mandatory vaccination, cf. [Self-reference deleted]; (Byington, Clayton, and Edwards 2016, Opel et al. 2016)

paternalism, endowing the parents with the initial responsibility for the upbringing of their children” (Pierik 2016, 5, cf. also Isaacs, Kilham, and Marshall 2004, Luyten et al. 2011). As we shall see, objections to mandatory early childhood vaccination based on an anti-paternalist principle run straightforward into rather obvious difficulties, but since paternalism is often considered pertinent, and because exploring them will illuminate certain points of more general relevance, I believe it is worth spelling these difficulties out in some detail.

Anti-paternalist principles concern reasons grounded in agents’ autonomy. A first question raised by anti-paternalist objections, too frequently glossed over, is what we are to understand by autonomy and how we ought to conceive of the moral claims it allegedly grounds. This is important because autonomy as a concept in moral and political philosophy is neither simple nor uncontroversial.⁶ Let us say simply to focus the discussion that roughly speaking an agent is autonomous *iff* she is capable of making rational, reflective choices on the basis of her personal values and beliefs. And let us say that a decision is autonomous just in case it is the result of such an agent’s choice. Since rationality, reflectiveness and being based on values and beliefs all come in degrees, a concept of autonomy must include thresholds for when a choice is sufficiently rational, reflective, and based on personal values and beliefs. Defining these thresholds is notoriously difficult but we need not attempt to do so here. Intuitively, children at the age of early childhood vaccinations, i.e. roughly years zero to four, fall below the threshold while the ordinary parent exceeds it.⁷

This leaves the second part of the question, of how to conceive of the moral claims autonomy might be taken to ground. One approach that can initially seem tempting is to say simply that the moral claims of autonomy protect autonomous decisions, but we must bear in mind an important qualifier. Any plausible version of such claims will recognize that they are constrained by how such decisions affect other agents; concern for

⁶ As so often, the Stanford Encyclopedia of Philosophy provides an excellent overview of the complexities and most important positions in the debate. (Christman 2015)

⁷ Note that, although there may be parents who fail to meet the threshold – arguably some parents with mental disabilities do not – we can set aside this complication. The objection is grounded on a person being autonomous, and therefore is simply unavailable to any parent who is not an autonomous agent.

autonomy should not, for example, ordinarily make it permissible for one person to harm another person, or to violate her autonomy in turn.

Bearing this constraint on the claims autonomy can ground in mind, in the context of state actions autonomy is often taken by its proponents to ground a modest principle of anti-paternalism, which we can sum up as:

The modest anti-paternalist principle: The fact that a state act (or practice, or policy, or...) ϕ would benefit A provides no reason in favour of ϕ if i) ϕ restricts A's liberty, and ii) ϕ is contrary to A's autonomous wish.⁸

Since there will be reasons that count against any realistic policy, if nothing else then those based on its costs, the anti-paternalist principle entails that a policy cannot be justified by reference solely to the benefits it provides for persons whose liberty it restricts in contravention of their autonomous wishes.

Does this mean that autonomy can ground an objection to mandatory early childhood vaccinations through the anti-paternalist principle? Perhaps it might seem so at first glance. Consider **the modest anti-paternalist challenge to mandatory early childhood vaccination:**

- 1) The fact that a state act (or practice, or policy, or...) ϕ would benefit A provides no reason in favour of ϕ if i) ϕ restricts A's liberty, and ii) ϕ is contrary to A's autonomous wish (the modest anti-paternalist principle).
- 2) Mandatory early childhood vaccination restricts the liberty of and is contrary to the autonomous wishes of vaccine-refusers.

⁸ The literature on paternalism is rich and complex. A conventional definition might hold, roughly, that an act ϕ is paternalistic towards A if 1) ϕ 'ing interferes with A's liberty, 2) ϕ 'ing is performed without A's consent, and 3) ϕ 'ing is motivated exclusively by ϕ 'ing benefitting A. Cf. (Dworkin 2014) The anti-paternalist principle I state above draws on the work of Peter de Marneffe, and is, at least in this context, slightly easier to work with (de Marneffe 2009). Note also that many anti-paternalists would want to add further qualifications, such that A be rational and well-informed about the consequences of ϕ 'ing and not- ϕ 'ing respectively, but I set aside such complications since they are not relevant in the present. Cf. in general (Wilson 2011) for a good discussion of some of the complexities of defining and applying the principle of paternalism to the field of public health.

- 3) The fact that mandatory early childhood vaccination benefits vaccine-refusers provides no reason in favour of mandatory early childhood vaccination (from 1 and 2).
 - 4) There is at least some reason against a policy of mandatory early childhood vaccination.
 - 5) Any policy is impermissible if there is some reason against it and no reason in favour of it.
- C) A policy of mandatory early childhood vaccination is impermissible (from 3, 4, and 5).

While perhaps superficially appealing, the argument has a fatal flaw: mandatory early childhood vaccination need not be justified by a benefit to the person vaccinated. Most vaccinations protect not merely the person vaccinated, they also protect others, and the anti-paternalist principle says nothing about restricting the autonomous choice of a person out of concern for the well-being of other persons. On the contrary, as we saw, the underlying consideration of autonomy is conventionally assumed to have that exact qualification: it cannot justify causing harm to or imposing risks on others. The upshot is that the conclusion does not follow because there are other reasons in favour of the policy than the one ruled out by premise 3.

Jeroen Luyten, Antoon Vandeveld, Pierre Van Damme, and Philippe Beutels recognise this problem for the paternalist objection, but argue that considerations of autonomy require not merely a risk of harm, but a *sufficiently grave* risk of harm:

“...it has to be shown that an unimmunized individual is a serious health threat to others that goes beyond the normal risks of participating in society [...] An analogy could be made with traffic. Driving a car implies many risks to others, however only excessive risks like drunk driving are considered unacceptable and therefore prohibited by law” (Luyten et al. 2011, 283-284).

The underlying idea appears to be that autonomy grounds a stronger anti-paternalist claim than the modest principle above, in that it not only cancels the reasons we otherwise would have had to benefit the person at stake, but also counts against reasons grounded in benefits to others. These must exceed a certain

threshold to outweigh or override the claims grounded in the subject's autonomy, and make permissible an action or policy that infringes her liberty. We can formulate this as:

The strong anti-paternalist principle: The fact that a state act (or practice, or policy, or...) ϕ would benefit A provides no reason in favour of ϕ if i) ϕ restricts A's liberty, and ii) ϕ is contrary to A's autonomous wish, while the facts that i) ϕ restricts A's liberty and ii) ϕ is contrary to A's autonomous wish, jointly provide *some* reason against ϕ .

This principle may well be more appealing for proponents of autonomy, and it supports the argument of Luyten et al since it entails that minor harms and risks to others may not be sufficient to make permissible an infringement of a person's liberty in contravention of her autonomous wish. Thus, while it is not sufficient to rule out the permissibility of mandatory early childhood vaccination, it does cast doubt on their permissibility. Consider **the strong anti-paternalist challenge to mandatory early childhood vaccination:**

- 1) The fact that a state act (or practice, or policy, or...) ϕ would benefit A provides no reason in favour of ϕ if i) ϕ restricts A's liberty, and ii) ϕ is contrary to A's autonomous wish, while the facts that i) ϕ restricts A's liberty and ii) ϕ is contrary to A's autonomous wish jointly provide *some* reason against ϕ (the strong anti-paternalist principle).
- 2) Mandatory early childhood vaccination restricts the liberty of and is contrary to the autonomous wishes of vaccine-refusers.
- 3) The fact that mandatory early childhood vaccination benefits vaccine-refusers provides no reason in favour of mandatory early childhood vaccination, while the facts that it restricts their liberty and is contrary to their autonomous wish jointly provide *some* reason against mandatory early childhood vaccination (from 1 and 2).

- 4) The anti-paternalist reason against mandatory early childhood vaccination ordinarily outweighs the reasons in favour of mandatory early childhood vaccination grounded in the benefits that increased vaccine coverage provides to others.⁹
 - 5) Any policy P is impermissible if the reasons against it defeat the reasons in favour of it.
- C) Policies of mandatory early childhood vaccination are ordinarily impermissible (from 3, 4, and 5).

This is a more powerful argument than the modest version, partly by virtue of employing two stronger premises (1 and 4) in support of a more modest conclusion, but there are several ways in which it might be challenged. We might question the move from the modest to the strong version of the anti-paternalist principle in premise 1, and demand some fuller explanation of why autonomy introduces a reason capable of making it permissible to impose risks on others. We could also raise doubts about premise 4, and sensibly require the anti-paternalist to support the claim that the weight of the competing reasons is balanced as she believes (an issue to which we shall return in the context of the parental prerogative). However, the anti-paternalist faces a more decisive problem: the argument conflates the identities of the persons whose liberty is constrained and those whose autonomous wish it contradicts, since strictly speaking the persons subject to mandatory early childhood vaccination are children four years old or younger, are not autonomous, and therefore cannot have an autonomous wish that they not be vaccinated. Rather, it is the autonomous wish of their parents that they not be vaccinated, but since paternalism pertains to whether the state can permissibly treat a person in contravention of her desires for how *she* be treated, and the autonomous wish of parents is a wish for how *another* person – the child – be treated, it cannot ground an objection to mandatory early childhood vaccination. Similarly, my autonomous wish that the state not ϕ with regards to

⁹ Note that the argument here implicitly assumes that there are no reasons in favour of policies of mandatory early childhood vaccination apart from those grounded in reduced risk of harm. This is a consequence, however, of my focusing on these rather than an inherent element of the argument, so we can and should imagine that the argument would be suitably amended to take account of e.g. free-riding, by those who believe that this gives rise to relevant reasons.

the reader of this article does not in and of itself give the state any anti-paternalist grounds against (or for) ϕ .

One reason why it may be tempting to make this mistake is that it is easy to confuse the anti-paternalist objection with a different objection that rests on parental prerogative. Whereas the former, as just noted, does not concern how the state treats other persons, the latter does: it is the idea that parents have particular moral claims on their children, which it can be impermissible for others to act against. Having dismissed both versions of the argument against mandatory early childhood vaccination based on paternalism, let us see if an argument based on the prerogative can do better.

The weight and justification of the parental prerogative challenge to mandatory early childhood vaccination

The paternalist challenge fails, but as we noted above, many may feel that there is a more important argument against mandatory vaccination based on the special moral relationship of parent and child. In the particular shape of a parental prerogative – a kind of autonomy by proxy, that allows parents more of a say about what happens to their child, simply by virtue of their being the child’s parents – this might be taken as the basis of an objection to mandatory vaccination. We can summarise the claim as follows:

Parental prerogative: there is a reason against agent A performing act (or policy, or practice, or...) ϕ in a way that affects child C in manner X, if it is contrary to the autonomous wishes of C’s parents that C be affected in manner X, just because C’s parents are her parents and it is contrary to their autonomous wishes that C be affected in manner X.

Note five features of this definition. First, the reason is grounded in, or generated by, the combination of the parent being in a particular situation, to wit, the special relationship with her child, and her having an autonomous wish about what is to happen to the child that is contrary to the act in question. This is the “autonomy by proxy”-element of the prerogative.

Second, through the “just because”-condition the definition is intentionally focused on arguments that take such reasons to be fundamental rather than derivative. Thus, the popular liberal argument that parents are frequently best situated to know what course of action will be best for their children *and* most motivated to benefit their children, cannot support the parental prerogative in the sense I here give it, nor can e.g. the frustration that parents will likely experience as a result of their autonomous wishes being frustrated.¹⁰

Third, although fundamental, the claim is not plausibly interpreted as holding anything stronger than that there is a (*pro tanto*) reason not to act. That is, it should not be understood to hold the much stronger view that there is a *decisive* reason not to act, and that any act contrary to an autonomous parental wish is therefore necessarily impermissible in virtue of the parental prerogative. We can easily conceive of an absolutist version of the prerogative, but presumably proponents of the prerogative will admit that there are situations in which the prerogative is outweighed by conflicting considerations (e.g. cases of child abuse).

Fourth, the wishes of the parent should be construed broadly, so that they can be but need not be based on competing beliefs about what will most benefit the child. In theory, it seems a parent might admit that ϕ will most benefit her child but insist that this is not what she wants for the child regardless, and call upon the prerogative to argue that the state should neither ϕ nor coerce her to ϕ herself.¹¹

Fifth, we must not confuse the parental prerogative with the different claim that parents can permissibly give priority to the interests of their own children, i.e. legitimate parental partiality (cf. Brighouse and Swift 2009).

The latter holds, roughly, that parents have a reason to promote the interests of their child above and beyond

¹⁰ The liberal argument, if true, can at most support a different argument where there is a defeasible assumption that what parents’ want for their child is what will most benefit their child, and a further argument that given limitations on the types of policy we can realistically implement, it will be best to adopt a general policy granting parents some prerogative. (cf. e.g. Brennan and Nogge 1997) While this is an interesting general argument, it is both a different argument from the one I here investigate, and one that is irrelevant in the specific case of parents who refuse vaccination, since these may want what they *believe* is best for their child, but demonstrably do not want what is *actually* best for their child, i.e. this is an occasion where the assumption is uncontroversially defeated and where policies that do not grant prerogative are realistically available. Similarly, the disvalue of parental frustrations are relevant to the permissibility of mandatory early childhood vaccination, indeed we have already included them as costs in the qualified teleological argument, it is just that they are not relevant to the parental prerogative.

¹¹ Perhaps we should recognize a variant of the parental prerogative that covers only the subset of situations where the parent has child-welfare based wishes contrary to ϕ ’ing. But we should be careful in any case not to conflate the argument at stake here with arguments based on disagreements about what will be best for the child. Such arguments could appeal to the prerogative, but they might also involve a range of other reasons for giving weight to the parent’s view of what will most benefit her children.

general reasons of beneficence. This is a different claim, and indeed, as we will see shortly, one which may count against the prerogative.

The parental prerogative is clearly suited to supporting an argument against mandatory vaccination, since it follows from it that there is a reason against vaccinating the children of parents who have an express wish that their child remain unvaccinated. However, this only shows that the prerogative *could* hypothetically support an argument. In order to know whether it actually does so, we need to answer two questions: How strong is the reason generated by the parental prerogative? And why should we believe that there is any such thing as a parental prerogative in the first place? Neither question, it is clear upon further reflection, is at all easy to answer in a way that will persuasively support an objection to mandatory vaccination.

The first question, of how strong a reason the parental prerogative should be taken to generate, is important because this reason must be weighed against the reasons in favour of mandatory vaccination. Roland Pierik's discussion neatly illustrates the range of possible answers. He begins by recognizing at least a minimal form of the parental prerogative:

“Parents have the freedom to raise their children in accordance with their idea of the good life. [...] The government should only intervene in cases of clear neglect, abuse, or parenting styles that prevent an ‘open future’ for their children” (Pierik 2016, 5).

Immediately afterwards, however, Pierik, cites Rawls in support of a very different standard:

“The freedom of parents in how to raise their children should not result in the avoidable risk of death or lifelong disability for their children, who themselves are as yet unable to make a well-considered choice to refuse vaccination. [...] Adults are free to follow their convictions while making choices for themselves, even when they refuse a (possibly lifesaving) medical intervention. However, the state should interfere when these beliefs manifest themselves in actual practices that might harm others, including their children” (Pierik 2016, 5).

This shifts the standard enough to flat out contradict the former suggestion; where the first required clear neglect or abuse, now *any* choice that “might harm” the child is a choice where the parental prerogative is outweighed or overruled. As the sudden shift in Pierik’s discussion shows, we may come up with very different evaluations of mandatory vaccination policies depending on how much intuitive weight we attribute to the prerogative, and intuitions are likely to differ.

Consider a similar problem in Angus Dawson’s argument that the state can permissibly intervene in vaccine-hesitant parents’ decisions because doing so protects the child from potential harm. Dawson’s original argument is this:

- “1. Medical decisions about incompetent patients should be made on the basis of what is in their best interests (where prior wishes are unknown or non-existent).
2. Pre-school infants are incompetent (and have no prior wishes).
3. Therefore, decisions about the medical care of infants should be made on the basis of what is in their best interests.
4. Best interests in relation to infants should be determined by seeking to balance the potential harms and benefits of possible actions and inactions.
5. Where the parents make a decision about an infant’s care which is likely to result in substantial risk of significant harm to that infant then third-parties (such as the state) have an obligation to intervene to protect the infant from the consequences of that decision.
6. Given 4, what is in the best interests of infants in relation to vaccinations is to be decided by seeking to balance the harms and benefits associated with vaccination versus nonvaccination.
7. Given 3, 5 and 6, where it is in an infant’s best interests to be vaccinated (or not vaccinated) and the parents decide the other way then the state (or other legitimate third-parties) have an obligation to ensure that the infant is protected from the consequences of such a decision.

Conclusion: Parental decision-making about childhood vaccinations can be overruled legitimately in at least some cases.” (Dawson 2005, 75).

I believe we can clarify the argument and reformulate it somewhat so as to bring it closer to the analysis I have carried out so far. Doing so will highlight the problem that I believe the argument encounters. First, given the article’s focus on the permissibility of state actions, the state must at least be included in the scope of agents at stake in Dawson’s premise 1. Second, I assume that Dawson means only that the state has a *pro tanto* reason to act in the child’s best interest, since presumably the interests of other parties must also be taken into account. Third, Dawson’s formulation in premise 4 that best interests “should be determined by seeking to balance the potential harms and benefits of possible actions and inactions” is unclear, but the most obvious interpretation is that an action ϕ is in a person A’s best interest *iff* there is no alternative action that provides A with a better balance of benefits over harms. We might also say simply that ϕ is in A’s best interest *iff* ϕ ’ing maximises A’s wellbeing. Fourth, I take it that Dawson means for premise 5 to define the threshold at which intervening becomes permissible, rather than present an instance of when it is (e.g. because *all* interventions are permissible, and therefore this one is too). Unlike the reason at stake in premise 1, therefore, this appears to be an overriding reason. That is, state intervention is permissible, according to premise 5, *only* if parents’ decision not to vaccinate imposes a substantial risk of serious harm on the child. This, I take it, is Dawson’s concession to proponents of the parental prerogative. Fifth, Dawson’s conclusion that “Parental decision-making about childhood vaccinations can be overruled legitimately in at least some cases” is ambiguous. One reading would have him mean only that it is permissible when non-vaccination imposes a substantial risk of significant harm. However, his premise 7 suggests that he has in mind the far less demanding threshold of intervention being in the child’s best interests. Furthermore, if the modest conclusion were all Dawson intended, the argument could have consisted of merely two premises: premise 4, and a premise claiming that “at least some times, parents’ decision to not vaccinate their child imposes a substantial risk of significant harm on that child”. Evidently, this brief argument is not what Dawson has in mind.

Thus, I believe the argument can be boiled down to the following:

- 1) In making medical decisions about intervening in parents' decision to vaccinate or not vaccinate non-autonomous children the state has a *pro tanto* reason to act so as to bring about the optimal balance of benefits over harms for the child.
 - 2) There is an overriding reason not to intervene in the decisions parents make on behalf of their children, unless i) parents make a decision about the care of a non-autonomous child that is likely to result in substantial risk of significant harm to that child, and ii) state intervention will protect the child from the consequences of that decision.
 - 3) A policy is permissible *iff* there is no undefeated reason against it.¹²
- C) It is permissible for the state to intervene in the decisions of parents to not vaccinate their non-autonomous child if vaccination achieves the optimal balance of benefits over harms of possible actions and inactions.

The problem is obvious. The argument is invalid because the conclusion does not follow from the premises. In fact, the reason at stake in premise 2 is overriding, and will therefore defeat the *pro tanto* reason at stake in premise 1, ensuring that there is an undefeated reason against intervening in parents' decisions about vaccinating (except when the conditions of premise 2 are met), which in turn means that interference is impermissible.

One reason why the original version of the argument may appear persuasive is that it allows the reader to confuse or conflate the different thresholds for "not being in A's best interests" and "imposing a substantial risk of significant harm on A". The two thresholds, obviously, can be very different: an action can be suboptimal but cause A only negligible (i.e. non-substantial) harm. To assume or assert that we can employ the best interest standard to determine when to permissibly intervene is to deny that parental autonomy gives us *any* reason for action. This may well be the case, as I personally happen to believe, but it is begging

¹² Note that this premise, which is implicit in Dawson's argument, is simply the concomitant of the premises we have previously employed in the antipaternalist challenges, that a policy is impermissible if there is some reason against it and no reason in favour, or the reasons against the policy defeat the reasons in favour.

the question against the proponents of autonomy to implicitly refuse to argue the point. If instead we took a “balance of potential harms and benefits” to mean the standard suggested by a substantial risk of significant harm, the problem would become that it is not clear that this is the case for ordinary cases of non-vaccination.

Similar problems afflict the direct appeals to intuition employed by critics of mandatory vaccination. Douglas Opel and Douglas Diekema argue that while the harm principle is central to the case for and against mandatory vaccination: “...the question [...] is whether a parental choice to claim a personal belief exemption for a specific vaccine *significantly* increases the likelihood of *serious* harm to the child and to others as compared with a choice to vaccinate” (Opel and Diekema 2012, 144, my emphasis, cf. also Diekema 2004). While they recognise that “significantly” and “serious” are subject to interpretation, they fail to explain why the increase in risk must be “significant” and the harm “serious” in the first place (as opposed to e.g. “moderate” or unqualified). They do however provide what they take to be intuitive support in real life cases of pertussis:

“Although it is clear that it is more likely than not that the exempted child who had pertussis would transmit it to other schoolchildren and that the risks of pertussis outweigh the risks of the vaccine, it is also clear that it is unlikely for the child to contract the disease given the baseline incidence rate of pertussis and very unlikely for other similarly aged children (i.e., those he or she is most likely to infect at school) to suffer serious complications from pertussis. In general, the potential risks of harm to the unimmunized child and other schoolchildren do not seem disproportionately great so as to justify disrespecting parental authority by forcing immunization” (Opel and Diekema 2012, 144).

Obviously, intuitions may vary, but I confess to having the opposite response to the scenario, and I suspect that Opel and Diekema would hesitate to transfer the underlying principle to relevantly similar contexts.

Consider a scenario with risk ratios comparable to those cited by Opel and Diekema, in which I insist on giving my child a box of McSick-snacks, and allow her to share them with a handful of her friends, even though I know that for this particular brand 8 out of every 100.000 boxes are poisonous and perfectly safe alternative brands are available. Admittedly, some of her friends might refuse, and the poison normally only causes

fever, coughing, pain, and discomfort for a few weeks, with only a very small percentage of those poisoned suffering long-term ill-effects or dying. Would you intuitively support me if I argued that my parental prerogative trumped the risks I thereby imposed on others? My suspicion is that most persons would find such a claim ludicrous, and blame me for having done wrong. It seems to me it would be perfectly sensible for the state to prevent me from sharing the snacks by prohibiting the sale of McSick-snacks – in fact the most unrealistic element of the scenario is the assumption that such a product would have been allowed by food safety authorities in the first place.

How should we proceed then? One suggestion might be to compare with other situations in which we would more readily agree that the parental prerogative precludes state interference, simply to locate a rough estimate of how strong the reason might be. Recall that Luyten et al adopted this approach by comparing non-vaccination to driving a car in their attempt at undermining the intuition that non-vaccination imposes impermissible risks on others.¹³ Pierik, however, nicely sums up the immediate problem for this line of argument:

“[D]enialists downplay the risks of diseases like the measles [...] by arguing that children run many kinds of risks every day: climbing trees, learning to bike on public roads, being transported by car to family visits, etc. But avoiding such risks would eliminate options for children to develop relevant capacities, necessary to live a fulfilling life in modern society. Vaccination, on the other hand, eliminates serious risks without eliminating valuable options for children; it merely limits the rights of parents to raise their children in accordance with certain risky ideas of the good life.”

¹³ On a defensible but less charitable reading of Luyten et al, their claim is not that the risks of harm are small enough to be permissible, but that they are small enough to not constitute risks or harms. However, on this reading Luyten et al. are engaged at in at least one and probably several of the second, third, fourth, and fifth mistakes of moral mathematics, that is, the idea that harms are morally irrelevant when they are caused by (sufficiently large or complex) sets of acts, when there is only a small chance of harm, or when the harm caused is small or imperceptible. (Parfit 1984, 70-82) As Jessica Flannigan puts it: “Individuals can be responsible for the harmful things they do together, even if any particular individual’s contribution is seemingly minor. This principle gains force as more people make a risky and harmful choice like remaining unvaccinated, especially because the risks can affect many people and the stakes are exceedingly high for the victims of the risky behavior.” (Flanigan 2014, 12)

In short: parents have reason to allow their child to be exposed to risks when doing so provides the child with a net benefit, which is why it is not wrong for them to allow children to climb trees and ride bicycles, and states have reason to permit citizens to expose each other to certain risks when doing so provides citizens with a net benefit, which is why a policy of (regulated) car driving is justified.¹⁴ To constitute proper examples for estimating the weight of the prerogative prospective policies would have at once to be cases where state interference is intuitively impermissible and where these two conditions are not met.

The proponent of the prerogative might respond that it is not enough for Pierik to be right that whether it is permissible for the state to interfere in an activity depends on whether or not a risky choice is instrumental to or constitutive of a good life. The denialists Pierik addresses (he does not reference them) might simply have chosen their examples poorly, and other examples might meet Pierik's challenge. Consider the fact that many parents choose moderately unhealthy diets for their children, choose for them to not exercise regularly, or choose for the family to live in an area with heavy smog when smog-free alternatives are available. Even though such choices do not benefit the child, and permitting them do not benefit society as a whole, state interference would be considered intuitively impermissible by many.

This response runs into difficulties. Such cases can fail to meet a further important condition, namely for the benefits of state interference to plausibly outweigh the costs. Many policies that attempted e.g. to impose and enforce dietary requirements would likely be so costly as to outweigh the minor benefits of improved diet, and in those cases where it is not – consider e.g. a policy of prohibiting the sale of high-sugar snacks on school premises – the policies are not uncontroversially intuitively impermissible. Ultimately, a persuasive comparison must be an intuitively impermissible case with a qualified teleological reason in favour. It is not obvious that there are such cases or what they might be.

¹⁴ This is plausibly true even for those who do not themselves drive a car, but are still exposed to risks while walking or driving a bicycle, since they benefit from the efficiency that a general permission to drive cars creates for the society that they inhabit. A more complicated issue is whether such benefits can be aggregated, or whether they need to constitute a pareto-improvement. Consequentialism entails the former, but many political theories would object to policies which provide an aggregate benefit e.g. by sacrificing a minority to improve the situation of the majority. We can set such complications aside, however, since added childhood vaccinations in realistic situations of insufficient coverage provide all parties with prospective benefits compared to non-vaccination.

Even supposing that proponents of the prerogative could somehow evade these difficulties and produce a plausible estimate of the strength of the reason this would still leave the second question, of why we should believe that there is any such thing as a parental prerogative in the first place. This theoretical support is not much easier to provide. Even in sympathetic theoretical discussions, the parental prerogative is often more gestured at than lucidly defended. Joseph Schoeman writes that:

“If the family is to be thought of as an intimate arrangement having its own goals and purposes, it is inappropriate to impose upon that arrangement the abstract liberal principles [that would preclude the parental prerogative]. This is not to say that [...] liberal principles do not have any moral weight in the context of the family, but that they are not exhaustive of the principles which may legitimately bind people together and structure their relationship” (Schoeman 1985, 50).

Unfortunately, Schoeman leaves these claims unclear and unsupported. We get no coherent argument for why or in what sense we should think of the family as an intimate arrangement having its own morally relevant goals and purposes, why the family being such an arrangement would count against imposing liberal principles upon the family, or how much weight the competing principles ought then to have.¹⁵

More careful reflection on the issue tends to end up going against the prerogative. Morris Lipson and Peter Vallentyne present what is arguably the best potential argument, the libertarian argument based on the autonomy of the parents, that:

“...if (as is surely plausible) the main effect of [the duty of non-interference] is to secure for adults the liberty (within limits) to live their private lives as they choose, then, on the natural assumption that the matter of how to raise one’s children falls within the domain of the private lives of adults, intervention by others, and in particular by the state, for the

¹⁵ It is, I think, trivially true that families are intimate arrangements with their own goals in a descriptive, non-morally relevant sense.

purpose of ensuring that children get raised in one way rather than another, would be impermissible” (Lipson and Vallentyne 1991, 1).

Set aside the obvious limitation that for the argument to be capable of supporting the parental prerogative one needs to accept libertarianism or a sufficiently similar account. There is a more serious problem, which Lipson and Vallentyne emphasise, namely that as an argument for traditional conceptions of parental autonomy it would claim too much to be plausible, and that a plausible version will not claim enough to support a parental prerogative that allows harm to children, which is what is necessary for it to ground an objection to mandatory early childhood vaccination. The problem arises because all plausible versions of libertarianism ascribe moral standing to children; no credible libertarian holds, in Lipson and Vallentyne’s example, that it is permissible to torture one’s child for fun. In order to explain this by way of autonomy libertarians can hold a minimalist account of autonomy that allows children to be autonomous, but that has the implausible implication that parents can no more permissibly violate children’s autonomy than they can the autonomy of another adult, e.g. by forcing a recalcitrant child to go to bed. A more promising solution is to say that children are not autonomous, or only partially autonomous, but that agents have a duty to protect potential autonomy. However, this means that parents’ choices are impermissible when they harm or risk harm to the child’s development of autonomy, and that the state can permissibly intervene if parents make such choices. Even if this leaves some room for parental prerogative, it appears to rule out making a choice as imprudent as refusing vaccination.

We can generalise this point, because the challenge libertarianism faces is a particular version of a general problem. To see this consider that any argument for the parental prerogative rests on some version of the idea that parents have a special moral relationship with their children. This claim, that parents have special moral ties to their children, is not uncontroversial. Broadly speaking it constitutes the strongest part of one of three standard points of contention between consequentialists and non-consequentialists, and the former, of course, deny that there are any such special moral ties (Arneson 2003). However, we need not attempt to resolve this disagreement – an undertaking which would be far too ambitious for this paper – since even if we assume *pace* consequentialism that there is a special moral relationship between parents

and children, there are powerful grounds for doubting that it could take the shape necessary to ground a harm-permitting prerogative.

Standard accounts of the special ties between parents and children focus on two types, special obligations and the parental prerogative, but between the two types the former is undoubtedly both more intuitively and theoretically plausible and morally weightier. The problem for the prerogative is that it is unlikely that there could be both a set of particular moral obligations of parents for the well-being of their children, and simultaneously a right to raise one's child in a manner that harmed her and to freedom from interference in so doing. To accept both would lead to contradicting rights and obligations. Furthermore, given the theoretical and moral priority of special obligations, it is clear how such a conflict would be resolved (Montague 2000, cf. also Archard 1990). Accepting a special moral relationship between parent and child will not serve to ground an objection to mandatory vaccination then. If anything it might serve to underscore the obligation of parents to vaccinate their child, and thereby to justify a scheme of mandatory vaccinations.

Finally, suppose that we could somehow both provide solid theoretical support for the parental prerogative and ascertain that it grounded a reason strong enough to make it permissible for a parent to impose risks on her child. Another hurdle remains, since the choice of non-vaccination imposes risks on many others than the individual child. Is it conceivable that the parental prerogative could extend to potentially making it permissible for parents to treat their own child in a way that risked harm to others? The problem here is not merely that the reasons counting against the prerogative gain strength as the burden of risk grows greater, but that the identity of the persons on whom the risks are imposed changes. Presumably, even proponents of the prerogative might hesitate to say that the reason applies when the parent's choice has risky or harmful consequences for persons other than her own child. What this intuition exposes is that the most plausible form of the prerogative may be a form of quasi-anti-paternalist principle that makes concerns for the well-being of the child conditional on the wishes of the parent, but not concerns for the well-being of other persons. We might sum it up as follows:

Anti-paternalist parental prerogative: the fact that an act ϕ would benefit child C by affecting her in manner X does not (ordinarily) give persons other than C's parents a

reason to ϕ if it is contrary to the autonomous wishes of C's parents that C be affected in manner X, simply because C's parents are her parents and it is contrary to their autonomous wishes that C be affected in manner X.

Note that we continue to include a threshold in order to make the principle minimally plausible, since presumably we still do not want the principle to allow cases of child abuse. This in turn means the anti-paternalist version faces both the difficulties of ascertaining the strength of the principle – that is, the threshold for when intervention becomes permissible – and of theoretical grounding, but it does at least avoid the counterintuitive implication noted above, that the wishes of the parents in and of themselves can count in favour of making harm to others permissible. However, on this version the prerogative could at most make certain forms of mandatory vaccination impermissible, such as vaccination against tetanus, which is not transmitted from an infected child to others. As the foundation for an objection against making mandatory the most important forms of childhood vaccination it would fail straightaway.

In short, it is not only difficult to see how we would determine the weight of the reason that the parental prerogative provides against vaccinating, but doubtful that the common assumption that there is a harm-permitting prerogative can be theoretically supported, and unclear that it could ground an objection against most forms of mandatory vaccination in the face of the fact that the choice of non-vaccination imposes risks on other persons than the unvaccinated child. Ultimately, it seems to me clear that objections based on the idea of parental prerogative are at worst simply mistaken and at best largely irrelevant to the justification of mandatory vaccination.

This is not to say that considerations of parents' wishes can play no part in deliberating the pros and cons of mandatory vaccination. As we have noted state interference in the parent-child relationship can carry real costs, particularly when the state's interference overrules the express wishes of parents for their children in violation of deeply held values and commitments. These costs can take the shape of emotional distress, mistrust, feelings of disempowerment, loss of cooperation, and legal or physical resistance to the policies, and such costs provide real reasons against violating perceived parental prerogative. But they are costs that must be weighed against the benefits of intervening, and which will often be found wanting.

Concluding remarks: the all-things-considered argument for mandatory early childhood vaccination

Over the course of this article I have presented the basic argument for mandatory early childhood vaccination and reviewed two objections based on paternalism and the parental prerogative respectively, arguing that neither objection is ultimately convincing.

As I emphasised when setting out the basic and qualified arguments for mandatory early childhood vaccination, their conclusion is only a reason in favour of vaccination. We require a more comprehensive argument for the permissibility of mandatory early childhood vaccination. Call this **the all-things-considered argument for mandatory early childhood vaccination**:

- 1) In at least some realistic situations of imperfect vaccine coverage we have an overall teleological reason in favour of implementing at least some subset of mandatory early childhood vaccination policies P (the qualified argument).
 - 2) There are no deontological reasons against mandatory early childhood vaccination that jointly outweigh or individually cancel or override the overall teleological reason in favour.
 - 3) A reason is undefeated if there are no reasons that outweigh, cancel or override it.
 - 4) In at least some realistic situations of imperfect vaccine coverage we have an undefeated reason in favour of at least some subset of coercive policies P (from 1, 2 and 3).
 - 5) If we have an undefeated reason in favour of a policy, then it is permissible that and we ought to implement the policy.
- C) In at least some realistic situations it is permissible that and we ought to implement at least some subset of mandatory early childhood vaccination policies P (from 4 and 5).

The premises of the argument are simple. The first is just the conclusion of the qualified argument for mandatory early childhood vaccination, the fourth is a valid deduction, and the third and fifth are extremely plausible normative principles about the function and balance of reasons. This leaves only the second premise. As I have shown, the arguably two most obvious arguments for such countervailing reasons fail. This

both puts the onus on the opponent to provide alternatives and suggests that the case for mandatory vaccination is stronger than common-sense assumes. In lieu of new, plausible objections appearing we will eventually need to make a carefully informed, coolly considered decision that now we know enough to justify making childhood vaccination mandatory. This point, it seems to me, has been reached.

References

- Antona, Denise, Daniel Lévy-Bruhl, Claire Baudon, François Freymuth, Mathieu Lamy, Catherine Maine, Daniel Floret, and Isabelle Parent du Chatelet. 2013. "Measles Elimination Efforts and 2008-2011 Outbreak, France." *Emerging Infectious Diseases* 19 (3):357-364.
- Archard, David. 1990. "Child Abuse: parental rights and the interests of the child." *Journal of Applied Philosophy* 7 (2):183-194.
- Arneson, Richard. 2003. "Consequentialism vs. Special-Ties Partiality." *The Monist* 86 (3):382-401.
- Brennan, Samantha, and Robert Noggle. 1997. "The moral status of children: Children's rights, parents' rights, and family justice." *Social Theory and Practice* 23 (1):1-26.
- Brighouse, Harry, and Adam Swift. 2009. "Legitimate parental partiality." *Philosophy and Public Affairs* 37 (1):43-80.
- Buttenheim, Alison M., and David A. Asch. 2013. "Making vaccine refusal less of a free ride." *Human Vaccines & Immunotherapeutics* 9 (12):2674-2675. doi: 10.4161/hv.26676.
- Byington, Carrie L., Ellen Wright Clayton, and Kathryn M. Edwards. 2016. "Childhood Vaccine Exemptions: A Broader Perspective Is Required." *Pediatrics*. doi: 10.1542/peds.2016-0189.
- Calandrillo, S. P. 2004. "Vanishing vaccinations: why are so many Americans opting out of vaccinating their children?" *University of Michigan Journal of Law Reform* 37 (2):353-440.
- Christman, John. 2015. Autonomy in Moral and Political Philosophy. In *Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta.
- Constable, C., N. R. Blank, and A. L. Caplan. 2014. "Rising rates of vaccine exemptions: problems with current policy and more promising remedies." *Vaccine* 32 (16):1793-7. doi: 10.1016/j.vaccine.2014.01.085.
- Crisp, Roger. 2006. *Reasons & the Good*. Oxford: Oxford University Press.
- Dare, Tim. 1998. "Mass Immunisation Programmes: Some Philosophical Issues." *Bioethics* 12 (2):125-149. doi: 10.1111/1467-8519.00100.
- Dawson, Angus. 2005. "The determination of the best interests in relation to childhood immunisation." *Bioethics* 19 (1):72-89.
- Dawson, Angus. 2007. "Herd Protection as a Public Good: Vaccination and Our Obligations to Others." In *Ethics, Prevention, and Public Health*, edited by Angus Dawson and Marcel Verweij, 160-178. Oxford: Oxford University Press.
- de Marneffe, Peter. 2009. *Liberalism and Prostitution*. Oxford: Oxford University Press.
- Demicheli, V., A. Rivetti, M. G. Debalini, and C. Di Pietrantonj. 2012. "Vaccines for measles, mumps and rubella in children." *Cochrane Database of Systematic Reviews* 2:CD004407. doi: 10.1002/14651858.CD004407.pub3.
- Diekema, D. S. 2004. "Parental refusals of medical treatment: the harm principle as threshold for state intervention." *Theor Med Bioeth* 25 (4):243-64.

- Dubé, E., M. Vivion, and N. E. MacDonald. 2015. "Vaccine hesitancy, vaccine refusal and the anti-vaccine movement: influence, impact and implications." *Expert Review of Vaccines* 14 (1):99-117. doi: 10.1586/14760584.2015.964212.
- Dworkin, Gerald. 2014. Paternalism. In *Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta.
- Flanigan, Jessica. 2014. "A defense of compulsory vaccination." *HEC Forum* 26 (1):5-25. doi: 10.1007/s10730-013-9221-5.
- Hendrix, Kristin S., Lynne A. Sturm, Gregory D. Zimet, and Eric M. Meslin. 2015. "Ethics and Childhood Vaccination Policy in the United States." *American Journal of Public Health*:e1-e6. doi: 10.2105/ajph.2015.302952.
- Isaacs, D., H. A. Kilham, and H. Marshall. 2004. "Should routine childhood immunizations be compulsory?" *J Paediatr Child Health* 40 (7):392-6. doi: 10.1111/j.1440-1754.2004.00399.x.
- Isaacs, D., H. Kilham, J. Leask, and B. Tobin. 2009. "Ethical issues in immunisation." *Vaccine* 27 (5):615-8. doi: 10.1016/j.vaccine.2008.11.002.
- Jarrett, C., R. Wilson, M. O'Leary, E. Eckersberger, and H. J. Larson. 2015. "Strategies for addressing vaccine hesitancy - A systematic review." *Vaccine* 33 (34):4180-90. doi: 10.1016/j.vaccine.2015.04.040.
- Larson, Heidi J., Louis Z. Cooper, Juhani Eskola, Samuel L. Katz, and Scott Ratzan. 2011. "Addressing the vaccine confidence gap." *The Lancet* 378 (9790):526-535. doi: 10.1016/s0140-6736(11)60678-8.
- Lipson, Morris, and Peter Vallentyne. 1991. "Libertarianism, Autonomy, And Children." *Public Affairs Quarterly* 5 (4):333-352.
- Luyten, J., A. Vandeveld, P. Van Damme, and P. Beutels. 2011. "Vaccination Policy and Ethical Challenges Posed by Herd Immunity, Suboptimal Uptake and Subgroup Targeting." *Public Health Ethics* 4 (3):280-291.
- Maglione, M. A., L. Das, L. Raaen, A. Smith, R. Chari, S. Newberry, R. Shanman, T. Perry, M. B. Goetz, and C. Gidengil. 2014. "Safety of vaccines used for routine immunization of U.S. children: a systematic review." *Pediatrics* 134 (2):325-37. doi: 10.1542/peds.2014-1079.
- Mcdougall, Rosalind, and Lauren Notini. 2014. "Overriding parents' medical decisions for their children: a systematic review of normative literature." *Journal of Medical Ethics* 40 (7):448-452.
- Montague, Phillip. 2000. "The Myth of Parental Rights." *Social Theory and Practice* 26 (1):47-68.
- Navin, Mark. 2013. "Resisting Moral Permissiveness about Vaccine Refusal." *Public Affairs Quarterly* 27 (1):69-85.
- Opel, D. J., and D. S. Diekema. 2012. "Finding the proper balance between freedom and justice: why we should not eliminate personal belief exemptions to vaccine mandates." *J Health Polit Policy Law* 37 (1):141-7. doi: 10.1215/03616878-1496047.
- Opel, D. J., and S. B. Omer. 2015. "Measles, mandates, and making vaccination the default option." *JAMA Pediatrics* 169 (4):303-304. doi: 10.1001/jamapediatrics.2015.0291.
- Opel, Douglas J., Matthew P. Kronman, Douglas S. Diekema, Edgar K. Marcuse, Jeffrey S. Duchin, and Eric Kodish. 2016. "Childhood Vaccine Exemption Policy: The Case for a Less Restrictive Alternative." *Pediatrics*. doi: 10.1542/peds.2015-4230.
- Parfit, Derek. 1984. *Reasons and Persons*. Oxford: Oxford University Press.
- Pierik, Roland. 2016. "Mandatory Vaccination: An Unqualified Defense." *Journal of Applied Philosophy*. doi: 10.1111/japp.12215.
- Plans-Rubio, P. 2012. "Evaluation of the establishment of herd immunity in the population by means of serological surveys and vaccination coverage." *Human Vaccines & Immunotherapeutics* 8 (2):184-8. doi: 10.4161/hv.18444.

- Sadaf, A., J. L. Richards, J. Glanz, D. A. Salmon, and S. B. Omer. 2013. "A systematic review of interventions for reducing parental vaccine refusal and vaccine hesitancy." *Vaccine* 31 (40):4293-304. doi: 10.1016/j.vaccine.2013.07.013.
- Schoeman, Ferdinand. 1985. "Parental discretion and children's rights: Background and implications for medical decision-making." *Journal of Medicine and Philosophy* 10 (1):45-62.
- Schröder-Bäck, Peter, and Kyriakos Martakis. 2015a. "Counterpoint: Should childhood vaccination against measles be a mandatory requirement for attending school? no." *Chest* 148 (4):854-856. doi: 10.1378/chest.15-1162.
- Schröder-Bäck, Peter, and Kyriakos Martakis. 2015b. "Rebuttal from drs schröder-bäck and martakis." *Chest* 148 (4):857-858. doi: 10.1378/chest.15-1161.
- Silverman, Ross D., and Kristin S. Hendrix. 2015. "Point: Should childhood vaccination against measles be a mandatory requirement for attending school? yes." *Chest* 148 (4):852-854. doi: 10.1378/chest.15-1163.
- Stratton, Kathleen, Andrew Ford, Erin Rusch, and Ellen Wright Clayton. 2012. *Adverse Effects of Vaccines: Evidence and Causality*. National Academies of Science, Engineering and Medicine.
- Taylor, L. E., A. L. Swerdfeger, and G. D. Eslick. 2014. "Vaccines are not associated with autism: an evidence-based meta-analysis of case-control and cohort studies." *Vaccine* 32 (29):3623-9. doi: 10.1016/j.vaccine.2014.04.085.
- Wang, E., J. Clymer, C. Davis-Hayes, and A. Buttenheim. 2014. "Nonmedical exemptions from school immunization requirements: a systematic review." *American Journal of Public Health* 104 (11):e62-84. doi: 10.2105/ajph.2014.302190.
- Wilson, James. 2011. "Why It's Time to Stop Worrying About Paternalism in Health Policy." *Public Health Ethics* 4 (3):269-279. doi: 10.1093/phe/phr028.
- World Health Organization. 2015a. "Measles Fact Sheet N°286." Last Modified November 2015, accessed January 29 2016. <http://www.who.int/mediacentre/factsheets/fs286/en/>.
- World Health Organization. 2015b. WHO UNICEF review of national immunization coverage, 1980-2014. World Health Organization.
- Yaqub, Ohid, Sophie Castle-Clarke, Nick Sevdalis, and Joanna Chataway. 2014. "Attitudes to vaccination: A critical review." *Social Science & Medicine* 112:1-11. doi: <http://dx.doi.org/10.1016/j.socscimed.2014.04.018>.
- Zhou, Fangjun, Abigail Shefer, Jay Wenger, Mark Messonnier, Li Yan Wang, Adriana Lopez, Matthew Moore, Trudy V. Murphy, Margaret Cortese, and Lance Rodewald. 2014. "Economic Evaluation of the Routine Childhood Immunization Program in the United States, 2009." *Pediatrics* 133 (4):577-585. doi: 10.1542/peds.2013-0698.

ⁱ Author acknowledgements omitted to preserve anonymity.