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CRITICAL PERSPECTIVES

Vaccine Refusal and Trust: The Trouble With Coercion and Education and Suggestions for a Cure

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Abstract There can be little doubt about the ethical imperative to ensure adequate vaccination uptake against certain infectious diseases. In the face of vaccine refusal, health authorities and providers instinctively appeal to coercive approaches or increased education as methods to ensure adequate vaccine uptake. Recently, some have argued that public fear around Ebola should be used as an opportunity for such approaches, should an Ebola vaccine become available. In this article, the author describes the difficulties associated with coercion and education when addressing vaccine opposition. Both coercion and education can cause opposite effects than intended in certain circumstances. The correct area of focus is to address the breakdown in trust within clinical relationships. The author presents suggestions for an approach towards vaccine refusal that may be more promising.

Keywords Vaccination · Vaccine refusal · Public health

There can be little doubt about the ethical imperative to ensure adequate levels of vaccination against certain infectious diseases. Vaccinations against measles, for example, have been shown to be effective in protecting individuals and populations against the devastating consequences of measles infection, while presenting extremely low risk of serious adverse effects (Moss and Griffin 2012). It therefore follows that healthcare authorities and providers have a duty to strive for maximal uptake of measles vaccinations.

In the face of vaccine opposition, health providers and health authorities have responded with ideas such as compelled vaccinations and vaccination education programmes.

Coercive policies, by which I mean the use of state power to enforce vaccination, have a long history as a tool to ensure vaccine uptake. In the battle against smallpox, for example, Britain had a mandatory vaccination policy from 1871 that subjected refusers to fines, loss of property, or a sentence to the workhouse (Allen 2007). Eventually, in the face of organized resistance, Britain ended mandatory vaccination in 1948 (Allen 2007). The United States also implemented forced vaccination policies in the early 1900s in response to vaccine refusal (Allen 2007). In 1905, the U.S. Supreme Court in the *Jacobson v. Massachusetts* case set legal precedent and formed the basis for state-based compulsory vaccination laws throughout the United States (Omer et al. 2009). Currently in the United States, all states have laws mandating vaccination for school entry, with forty-eight states allowing some non-medical exemptions to vaccination requirements (Omer et al. 2009).

Educational interventions are frequently recommended as a response to vaccine refusal (Kata 2010).

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Some have suggested that parents can be "vaccinated" against misinformation and erroneous arguments through promoting correct vaccine information (Kata 2010).

In a recent article in the *Journal of Bioethical Inquiry*, Brown (2014) examines forced vaccination and educational interventions through imagining a hypothetical Ebola outbreak in the United States and the availability of a vaccine that is 80 per cent effective and recommended for children. Would we allow people to refuse vaccination in such a scenario? If we would not, we should perhaps reconsider exemptions to vaccine mandates for disease such as measles, where the disease is serious and the vaccine highly effective. The author furthermore argues that we should use the recent and very real Ebola outbreak (in West Africa and the handful of cases among citizens outside of this region) as a means to educate people regarding other contagious disease for which effective vaccinations do exist and suggests using avenues such as the media and pop culture to disseminate such educational messages (Brown 2014).

These responses—coercion and education—have a common-sense appearance about them. It is imperative to engage vaccine-refusers in order to ensure that they benefit from vaccination and that society benefits from high vaccination uptake. However, doing so, via either method, is not as straightforward as it seems. Coercion can present serious difficulties, and education has some limitations. These two approaches certainly have their place, but we need to go further in our response to vaccine refusal.

In what follows, I shall review the difficulties with coercion and education as responses to vaccine refusal. I shall argue that a key component of our approach should be the building of trust between healthcare providers and parents and that this should be supplemented by measured mandatory and educational approaches. I shall conclude by arguing that our focus should be building these trusting relationships and using this as the basis for a multifaceted approach towards vaccine refusal.

Difficulties With Coercion

There are different types of mandatory vaccination policies, aimed at increasing vaccination uptake through use of state power (Ross and Aspinwall 1997). These include:

(1) Forcing all parents to vaccinate their children or face legal consequences.
(2) Vaccinating children at school without the consent of parents or allowing vaccine refusal only for homeschooled children or those enrolled in private schools.
(3) Mandating the vaccination of children with the option for parents to opt-out (the current situation in some states in the United States).

Option 1 seems problematic, as it would introduce substantial costs to families and, consequently, society (Ross and Aspinwall 1997). Prosecution would fall on parents who fail to vaccinate their children, incurring harm to these parents, harm to the family, and eventually harm to the child. Thus, in an attempt to protect the best interests of the child, the child ends up being harmed. Since families are the building blocks of society, harming families in this way also would harm society.

Yet, this approach can be justified when the costs to individual children and to society are very high should vaccination be refused. If it were so that Ebola was endemic in the United States, and it were so that there was a safe and effective vaccine, it would follow that mandated vaccination would be reasonable despite the costs of state power. This was the background of *Jacobson v. Massachusetts*: the city of Cambridge (in Massachusetts) faced a smallpox epidemic and a vaccine was available. The U.S. Supreme Court decided that the state, as part of its "police power," has the authority to mandate vaccination in these circumstances to protect the public's health (Ross and Aspinwall 1997). Endemic Ebola would be a similar situation. The state should have the power to intervene through various coercive ways to protect the public against a public health disaster. Justifying the use of such power is less clear if the risk from the disease is very low (for example, an illness that is not really that serious or is not endemic in society) or if the protecting vaccine has substantial harms associated with it. Additionally, in a highly vaccinated society, when it comes to diseases such as measles and polio, the risk to society and to an individual child from sporadic vaccine refusal is low (Ross and Aspinwall 1997). For example, within a population where 99 per cent of children are vaccinated with the measles, mumps, and rubella (MMR) vaccine,

the risk that an unvaccinated child would acquire measles is extremely low. Therefore, punishing parents who fail to vaccinate in such a situation seems to incur unduly high levels of harm for minimal benefit (Ross and Aspinwall 1997).

The history of mandatory policies shows us that coercion can sometimes have the unintended effect of galvanizing resistance to vaccination. As noted above, Britain introduced a mandatory vaccination policy in 1871, with rather harsh penalties for refusal (Allen 2007). It eventually abandoned this policy in 1948 in the face of organized resistance (Allen 2007). In the United States, the introduction of compulsory vaccination laws also changed the anti-vaccine movement from one of passive resistance to more organized, active resistance (Allen 2007). An aspect that is present in some sectors of the contemporary anti-vaccine movement is the idea that parents should take responsibility for their own child, resisting those who would coerce them to act against the best interests of their child (Kata 2010). Some types of coercion may therefore paradoxically strengthen resistance to vaccination; using too strong a hand may hinder the goal of ensuring vaccination uptake.

Option 2 may have some merit, in that it respects liberty while using state power to ensure vaccination, but it does present some difficulties. One such difficulty is that it denies children the good of a publicly funded education (Ross and Aspinwall 1997). If one were to imagine that the refusal is based on the religious beliefs of a minority religion, option 2 could introduce social isolation of members of this religion and introduce systematic discrimination against this minority religion. The other problem is that this option may lead to the geographic congregation of susceptible individuals, through attending the same private schools (Ross and Aspinwall 1997). In fact, geographical clustering of non-medical exemptors is readily observed (Omer et al. 2009). and the use of option 2 may encourage such geographical clustering. These are ideal circumstances for outbreaks of vaccine-preventable diseases. Homeschooling is not exempt from these concerns; homeschooled children are at risk of being the index case (the first case of an outbreak) and put others at risk as well (Ross and Aspinwall 1997). It is also not clear that homeschooling would prevent geographical clustering, as all the factors that lead to clustering are not well understood (Omer et al. 2009).

Option 3 allows respect for liberty while using state power to encourage vaccination uptake. This option includes legal mandates to have children vaccinated, but allows refusal through opting out. There is evidence that this type of approach increases vaccination uptake (Omer et al. 2009). In the United States, states that allow only religious exemptions have higher vaccine uptake than states that also allow philosophical exemptions (Omer et al. 2009). Also, states where the opt-out process is more difficult (such as having to come to school and sign a form) have higher vaccination rates than states where opting-out is easier (Omer et al. 2009). Thus, if option 3 is taken, one would want to have an opt-out policy that is fairly tightly worded, so as to encourage maximal vaccine uptake. This approach would optimally make use of state authority to ensure public health goals, while providing an avenue for respecting freedom of choice. However, since it allows opting-out, option 3 is unlikely to be sufficient on its own to ensure sustained high vaccination uptake, but it certainly seems the best option of the three for use of state power, all things considered.

From these considerations, we may conclude the following: Option 1 should be reserved for the prevention of public health emergencies, such as measles epidemics, where safe, effective interventions are available. Option 2 should be rejected. Option 3 seems the best of the three, balancing various ethical goals while not placing an undue burden on anyone. However, this is unlikely to be enough to ensure optimal vaccination uptake by itself.

The Limitations of Education

Parents who refuse vaccinations are more likely to have garnered anti-vaccination information from the Internet, specifically from certain anti-vaccination websites (Kata 2010). These parents therefore have been exposed to a variety of misinformation and tropes regarding vaccination, influencing their attitude towards vaccinations (Kata 2010). One could easily reason that this misinformation merely has to be corrected to regain parental trust in vaccinations.

However appealing such notions are, this is not always the case. A recent study has shown the limitations of educational interventions aimed at correcting misinformation (Nyhan et al. 2014). Parents were randomly assigned to one of four vaccine educational interventions: information focused on correcting misinformation, information on vaccine-preventable disease risks,

dramatic narrative of a child hospitalized due to measles, and a visual intervention using images of children suffering from vaccine-preventable diseases. The authors found that none of these interventions increased the intentions of parents to vaccinate their children. In fact, among parents who had a negative view of vaccination prior to these educational interventions, intent to vaccinate had decreased after the interventions. Also, the use of dramatic narratives or visuals of sick children increased fears and misconceptions regarding vaccine adverse effects. The authors argue that educational interventions can often have the opposite effect of what is intended and that pro-vaccine messages need to be carefully researched and tested before being made public. A similar argument appears in the paper by Brown et al. (2010). Vaccine-refusers may hold strong views on some vaccine issues and less strong views on others. Persistently confronting refusers on issues on which they have a strong opinion may lead to a more deeply held anti-vaccine position. The authors furthermore argue that educational interventions be tested before being used with the public to ensure the interventions have no detrimental effects on vaccine uptake.

The point is that educational interventions can often have the opposite effect than intended. It is crucial that educational interventions are researched and piloted to be sure of their effect on parental attitudes towards vaccination.

Rebuilding Trust: The Cure

An important factor in being able to resist anti-vaccination messages is a trusting relationship with a healthcare provider (Leask et al. 2006). Clear communication regarding risks and benefits of vaccines from a trusted healthcare provider plays a large role in promoting vaccination uptake, whereas poor communication or inadequate knowledge on the part of a provider impedes vaccination uptake (Simone, Carrillo-Santisteve, and Lopalco 2012). Receiving correct and understandable information from a healthcare worker whom parents trust is an important factor in ensuring acceptance of vaccination (Simone, Carrillo-Santisteve, and Lopalco 2012).

Vaccine-refusers are a diverse group with diverse views, but one factor that emerges from studies on vaccine refusal is a lack of trust in authority structures, such as the healthcare system, public health organizations, and the government (Brown et al. 2010; Kata 2010). Vaccine-refusers often mistrust authority and mistrust experts (Brown et al. 2010; Kata 2010). Some qualitative studies indicate that vaccine-refusers may feel that they are treated in a condescending manner by "the system" and that free discussion of their concerns regarding vaccines is not possible (Brown et al. 2010). Vaccine-refusers are more likely to report dissatisfaction with encounters with their healthcare workers and with the vaccination information provided to them (Brown et al. 2010).

There appears to be a breakdown of trust between the healthcare system and many vaccine-refusers. This compromises a factor that is important in encouraging vaccine uptake: a trusting relationship between parent and healthcare provider. The response of the healthcare system to vaccine refusal must address this trust issue and must seek to restore trust. This would mean a strong focus on the building of trusting relationships between providers and parents and maintaining a strong patient-centred healthcare model. Coercion and education are not enough; trusting healthcare relationships are an essential component in ensuring high levels of vaccine uptake and should be the focus of any response to vaccine refusal.

This conclusion is similar to the argument made by Brown et al. (2010). These authors similarly argue that the focus in our response to vaccine refusal should be on multifactorial interventions that aim to improve parents' satisfaction with vaccination consults and information, as well as encouraging trusting relationships between providers and parents (Brown et al. 2010).

Summary and Recommendations

Coercive vaccination policies without provisions for non-medical refusal can be justified at times of risk during public health emergencies if a safe, effective vaccination is available. Apart from those circumstances, caution should be applied. The biggest issue in vaccine refusal is a breakdown of trust between vaccine-refusers and the healthcare system. Coercion is likely to further erode this trust, so that we must be sure that coercion really is necessary before resorting to state power. It is best to have a policy that uses state power only when necessary, while still taking liberty seriously. Educational interventions can sometimes unexpectedly backfire and increase anti-vaccination sentiment. This indeed is concerning and means a rethinking of how we engage with vaccine-refusers. The existence of trusting relationships between parents and healthcare

providers has been shown to be an important factor in increasing vaccine uptake.

Thus, I would recommend an approach as follows:

- A strong focus on the building of trusting relationships between providers and parents. This should be the primary building block of healthcare delivery to children and also the pillar in our strategy to ensure adequate vaccine uptake and education. This would mean moving from a systemic approach to a relationship-based and patient-centred approach.
- The appropriate addition of educational interventions that are well researched, known to improve attitudes towards vaccination, and complement the building of trust through relationship-based care.
- Mandatory school vaccination policies with provisions for opting out, with a carefully worded opt-out policy that maximizes vaccine uptake.
- Forgoing opt-out avenues only to prevent or respond to public health emergencies.

It is surely an ethical imperative for those in healthcare to ensure maximal uptake of vaccinations, such as those for measles. How we go about it is important; it would seem that our focus should be on building trusting therapeutic relationships between providers and parents and that educational interventions should be well researched and tailored to complement such trusting relationships.

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