Vaccine 37 (2019) 3933–3935

Contents lists available at ScienceDirect

Vaccine

journal homepage: www.elsevier.com/locate/vaccine

Commentary

Rockland county's proposed ban against unvaccinated minors: Balancing disease control, trust, and liberty

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ARTICLE INFO

Article history:
Received 13 April 2019
Received in revised form 25 May 2019
Accepted 29 May 2019
Available online 10 June 2019

Keywords:
Vaccination
Public health ethics
Public policy
Vaccine hesitancy
Autonomy

In just the first four months of 2019, more than 700 confirmed cases of measles in 19 states were reported across the country; this is already the second highest annual number on record since endemic transmission of the virus was eliminated in the US more than 18 years ago [1]. On March 26th, officials in Rockland County, NY, took an unconventional stance against the ongoing measles outbreak by declaring a state of emergency and proposing a 30-day ban of unvaccinated minors in public places, shortly after the number of confirmed cases in Rockland County topped 160 [2].

The proposed measure would apply to children 12 months to 18 years who are not up to date with the measles, mumps and rubella (MMR) vaccine, restricting them from many indoor public areas, including houses of worship, schools, and shopping centers. Parents or guardians found to be in violation of the ban would face a misdemeanor charge, punishable with a $500 fine or up to six months in jail [3]. The state of New York is also scrambling to contain the outbreak outside of Rockland County: on April 8th, New York City mayor Bill de Blasio declared a public health emergency requiring unvaccinated individuals in certain parts of Brooklyn to receive the MMR vaccine, with possible fines of $1,000 for non-compliance [4].

In response to the Rockland County ban, a group of parents filed a lawsuit challenging its constitutionality, claiming the ban could unfairly impede their children's right to education. On April 4th, a state judge responded by temporarily blocking the county from enforcing the ban. The county has indicated its intent to appeal [5].

This was a bold step for public health officials facing a challenging and persistent outbreak. As infectious disease researchers and bioethicists, we acknowledge that this situation highlights the inherent tension between protecting the health of the public and simultaneously ensuring that individual rights are not unreasonably curtailed. It also illustrates the difficulties of operationalizing appropriate and effective responses to vaccine hesitancy in a time of heightened social and political sensitivity and polarization. As such, we have attempted to outline the critical public health and ethical issues that must be considered in regard to the proposed ban.

From the public health lens, we argue: (1) public health officials have the responsibility to protect the public from harm, especially in the context of an outbreak, (2) the pathogen's epidemiology, including the severity of the disease, and transmission dynamics should inform the methods of disease control, and (3) public health

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https://doi.org/10.1016/j.vaccine.2019.05.093
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officials have the authority to implement certain, scientifically-sound control measures during an outbreak.

First and foremost, public health agencies at the local, state and federal levels are tasked with protecting their communities from infectious disease, and have a responsibility to do so. The ongoing outbreak of measles in New York state presents a pressing challenge for public health agencies; stopping transmission is paramount but very difficult given that measles is highly infectious and has the potential to spread rapidly.

The basic reproduction number (R_0) (the average number of secondary cases resulting from each primary case in a susceptible population) is variable, but most often estimated as 12–18, and may be even higher in some settings [6]; for comparison, the R_0 for influenza is estimated to be 1–2. This directly influences the herd immunity threshold required to prevent sustained transmission. In order to impede the spread of measles, more than 95% of a population must be immune. Fortunately, the MMR vaccine is highly effective, and high vaccine coverage results in such community immunity, protecting those who are too young or unable to be vaccinated. However, when the proportion of immune individuals in a given community drops below this coverage threshold, it becomes difficult to control the spread of disease, underscoring the extreme importance of maintaining high levels of MMR vaccine coverage.

Given their responsibility to protect the public, public health officials possess the authority to broadly implement control measures during outbreaks, such as quarantine (restricting the movement of healthy persons who may have been exposed) and isolation (separating and restricting the movement of ill persons) [3]. While this ban is technically neither quarantine nor isolation, if the ban is able to reduce interaction between non-immune individuals and other community members in public spaces, it could be successful at stemming transmission, and therefore arguably a rational and reasonable disease control measure, from a biological standpoint, for a disease as contagious and potentially serious as measles. Ban measures have also been discussed outside of the US: in early May, the German health minister proposed kindergarten bans, along with hefty fines, to stem the spread of measles.

There is precedent for civil penalties for noncompliance with vaccine mandates–perhaps most notably the Supreme Court decision, Jacobson v. Massachusetts in 1905 which upheld a $5 fine for noncompliance (approximately $145 today). While it is beyond the scope of this paper to engage in a legal analysis of the present ban, we believe there are separate and important ethics and policy challenges with this approach that should also be considered, including: (1) the proposed ban may lead to decreased trust in or acceptance of public health agencies and their efforts, (2) it raises questions about the treatment of individuals who are especially affected by the policy—primarily Orthodox Jews—and (3) if the public spaces ban were enforced, it risks violating the 'least restrictive alternative requirement,' which holds that when equally effective alternatives are available, public health agencies ought to implement measures that constitute the least restrictive infringement on individual liberty [7].

The proposed ban would limit the ability of unvaccinated minors to gather in or access certain public places. However, rather than requiring proof of immunization to enter such public spaces, the enforcement of the proposed ban would be retrospective and reactive against parents: if epidemiological investigations find that unvaccinated children were in public spaces at the time of an outbreak, parents or guardians of those children would be subject to the consequences of the policy. Given the complexity and intrusiveness inherent in enforcing such a ban, it has become clear that the goal is a primarily communicative—the policy serves as a blunt tool to convey a message about the severity of the situation, providing a strong disincentive to parents [3]. Given this approach, as a whole, the policy will likely be perceived as impracticable at best and a bluff at worst, and therefore may have the unintended repercussion of damaging public confidence in public health authorities. The ban might yield short-term public health gains, but if interpreted by the public as intentionally misleading or intimidating, it could undermine the community's trust in public institutions [8].

Distinct ethical issues arise in the context of the Rockland County ban specifically because it pertains to neighborhoods in which Orthodox Jews, a religious minority, constitute the majority of the population where the ban would be in place. The outbreak in Brooklyn is also heavily affecting Orthodox Jews. Problematic contemporary and historic rhetoric against immigrants often suggest that they transmit disease; public health officials ought to avoid taking measures that are unnecessarily stigmatizing. While officials are not banning unvaccinated minors from entering public spaces specifically *because* this will primarily affect the Orthodox Jewish community, it just so happens that the people who are going unvaccinated in a county with an outbreak are Orthodox Jews. Yet, this policy could be construed as intentionally rather than incidentally applying to Orthodox Jews, both by members of the Orthodox Jewish community and by the general public. We have already seen an appropriation of imagery from the Holocaust to protest this policy [9]. In essence, restricting a religious group's access to public spaces, which include their house of worship, when the group has been subject to a history of such restrictions, could lead to increased stigmatization and will certainly lead to an increased perception of stigma. Moreover, this Jewish community is especially close-knit, and by restricting access to public spaces, the ban would impact ties that are of significant value to the group. In short, if actually enforced, the ban would be especially burdensome for the Orthodox Jewish community. It should also be noted that those that spread vaccine misinformation have intentionally targeted these communities – circulating inaccurate information about the safety of vaccines.

While it must be noted that more than 24,000 doses of the MMR vaccine have been administered to people who are under 19 years old in New York state since October, this outbreak and subsequent response present a host of challenges. We do not wish to understate the threat of measles, and we recognize that the mayor and public health officials face an especially difficult set of circumstances with social, political, and legal considerations largely beyond their control. We also acknowledge that outbreak situations warrant distinct responses. Moving forward, we encourage state governments to implement preventive strategies that can avert situations like the one Rockland County is currently facing, rather than relying on reactive policies with complex implications.

Vaccine policies that are less confrontational than restricting access to public spaces or threatening the public with fines have proven effective in other contexts. Increasing administrative difficulty in obtaining nonmedical exemptions to school vaccination requirements may enhance compliance. In some settings, requiring parents to attend vaccine education classes or file additional paperwork makes them less likely to seek non-medical exemptions from vaccine mandates [10]. Mobilizing community leaders who can appeal to shared values and respond to misinformation being spread among anti-vaccine communities is another potential approach. There have already been some collaborative efforts along these lines, and many rabbis have done an admirable job of urging vaccination and countering false information. For instance, the Orthodox Union and the Rabbinical Council have issued a public statement encouraging members of their faith to get vaccinated. As with quarantine and isolation, reactive and restrictive measures like the proposed ban should only be used in situations when there is both immediate and serious risk to the larger population, and when other non-restrictive options have been exhausted or have

failed [7]. While restrictive actions may be arguably appropriate from an epidemiologic and disease control perspective, the repercussions cannot be ignored nor taken lightly, as such actions may result in more harm than benefit to the population they seek to protect. Outbreaks of vaccine-preventable diseases will continue to challenge public health officials in the US and globally; efforts should focus upstream on increasing vaccine uptake by improving public confidence in vaccines, combating misinformation, and addressing parental concerns about the efficacy, safety and necessity of vaccines. Solutions should also be developed hand-in-hand with affected communities to ensure community ownership and buy-in. Regardless of what ultimately happens in Rockland County, it will set an important precedent; these actions have the potential to impact future responses to vaccine-preventable disease outbreaks that the US will certainly continue to face.

Declaration of Competing Interest

The authors declare no conflicts of interest.

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