Lack of Measles Vaccination of a Few Portends Future Epidemics and Vaccination of Many

In 2000, the US Centers for Disease Control and Prevention proclaimed the eradication of measles in the United States. Unfortunately, as of April 11, 2019, already there have been 465 cases reported, 90 during the previous week, with notable epidemics within ultra-Orthodox Jewish populations in New York City, especially in Brooklyn and Rockland County.1 In fact, the New York City Department of Health and Mental Hygiene has declared the measles outbreak affecting the Orthodox Jewish community in Williamsburg to be a public health emergency. The public health proclamation includes the requirement that people who are unvaccinated and living in select zip codes must receive the measles, mumps, and rubella (MMR) immunizations.2 Under the mandatory vaccination order, public health officials will check the vaccination records of any individual who may have been in contact with people who are infected with measles. Those who have not received the MMR vaccine or do not have evidence of immunity may be given a violation and could be fined $1000.2 The public health officials note that the goal is to abort the epidemic to protect the community because the vaccine works faster than the incubation of the disease. Perhaps not surprisingly to most, none of those infected had received the MMR vaccine.

The situation has raised the specter of ethical concerns about the freedom of parents to choose not to vaccinate their children and the need to protect the health of the general public. In that regard, the residents of Rockland County have raised a legal challenge temporarily blocking the state’s announcement includes the requirement that people who are unvaccinated and living in select zip codes must receive the measles, mumps, and rubella (MMR) immunizations.2

The concept of herd immunity refers to the resistance to the spread of a contagious disease within a population that results if a sufficiently high proportion of individuals are immune to the disease, especially through vaccination. The level of vaccination needed to achieve herd immunity for measles is at least 90%-95%.4 Further, there are parents who actually abuse herd immunity by claiming exemptions simply because they believe they are protecting their children from the possibility of adverse vaccine reactions while benefiting from the immunity of vaccinated children around them.5 As has been the case with the resurgence of measles epidemics throughout the United States in 2019, this strategy eliminates the benefits of herd immunity by increasing the pool of those susceptible to an outbreak.

In New York City and Rockland County, the outbreaks, to date, seem confined to ultra-Orthodox Jewish residents whose children are not vaccinated. In addition, some cases have been linked to travel to Israel, where the Israel Health Ministry has reported an increase in the prevalence of measles from 30 cases in 2017 to more than 4000 in 2018, mostly in ultra-Orthodox communities. Thus, at present, increasing the understanding of barriers to childhood vaccination among the ultra-Orthodox will have important and timely implications for the health of the general public.

After securing written informed consent, semi-structured interviews were conducted by RS with 5 mothers who self-identified within ultra-Orthodox Jewish communities in Brooklyn and Rockland County. This research was approved by the Institutional Review Board of the College of Public Health and Health Professions, University of Florida, Gainesville. This small case series, we sought to identify perceptions of vaccines and perceived barriers to childhood vaccinations. We found that none of the mothers were willing to have her children immunized according to the

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guidelines. Some mothers regarded the practice with suspicion and animosity, thus creating barriers to achieving herd immunity. In some circumstances, cultural rather than religious factors influenced decisions not to vaccinate. Some families chose not to vaccinate 1 or more children at all, and others favored a delayed vaccination schedule with longer breaks between vaccines. Furthermore, in some ultra-Orthodox neighborhoods, religious fatalism has led to non-vaccination when illness is mainly viewed in the control of God.6

Poverty, limited secular education, large family size, and domestic overcrowding increase the vulnerability of ultra-Orthodox Jewish children to communicable disease outbreaks.5−8 In Orthodox Jewish households, constituting 16% of the total New York City Jewish population, more than 45% of families live below 150% of the federal poverty line.8 Moreover, in 62% of such households neither parent has more than a high school diploma.8 Because ultra-Orthodox families have an average of 8.33 children, the risk of disease transmission between children is enhanced through coexistence in extremely close quarters.7 Our data suggest that trust in outside establishments, influence of social network, influence of media, and cultural or religious factors among Orthodox Jewish mothers may have a favorable and important impact on the childhood vaccination rates in communities in New York and possibly elsewhere with large Jewish populations.9 These potential vehicles could be used to positively influence the perception and acceptance of childhood vaccinations to prevent further outbreaks within these communities and to prevent outbreaks outside of these communities where such diseases have been nearly eradicated.

The strong influence of social networks among ultra-Orthodox Jewish families may be employed to combat the circulation of misinformation regarding vaccines. The increase in dissemination of anti-vaccination literature within Orthodox Jewish communities along with lack of trust in perceived agents of outside establishment presents a considerable barrier to the success of externally motivated health interventions and highlights the importance of outreach activities that seek to dispel suspicion and fear.10 Community members of influence, including rabbis, health care practitioners, and mothers of high social standing, should be identified and recruited to serve as advocates for childhood immunization. The success of these partnerships would be dependent on the strength and durability of relationships forged between health officials and the community.

With respect to clinical challenges to the general population of the United States, individuals born between 1957 and 1989 who were vaccinated only received 1 dose of the MMR vaccine. Since 1989, a double dose has been recommended because it confers 97% immunity from measles.11 Revaccination is indicated in patients who were vaccinated before their first birthday, received the killed measles vaccine (K MV), or were vaccinated between 1963 and 1967 with an unknown type of vaccine.11,12 Thus, health care providers and their patients may wish to review these issues because vaccination of a few may help avert future epidemics and the need for vaccination of many to reduce preventable morbidity and mortality from measles.

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