

# A Call to Action: Strengthening Vaccine Confidence in the United States

Sarah Mbaeyi, MD, Amanda Cohn, MD, Nancy Messonnier, MD

In the United States and around the world, measles (a serious, potentially fatal, and extremely contagious infection) was considered a disease of the past until recently. However, what was once old news is now making headlines again with a remarkably predictable storyline: when immunity to measles falls in a population, outbreaks soon follow. This scenario has unfolded in places such as Ukraine, the Philippines, Israel, and Samoa with devastating consequences.<sup>1</sup> In 2019 alone, the United Kingdom and 3 other European countries lost measles elimination status in part because of vaccine hesitancy, or the delay in acceptance or the refusal of vaccination despite availability of vaccination services, which was named one of the top global public health threats by the World Health Organization. Amid this global measles resurgence, the United States experienced a chain reaction of measles cases imported into close-knit, undervaccinated communities (primarily by unvaccinated US residents carrying measles home from outbreaks abroad), leading to outbreaks across the country in 2018 and 2019. These outbreaks were fueled by targeted vaccine misinformation and resulted in the highest number of measles cases in almost 30 years, nearly costing the United States its measles elimination status.<sup>2</sup> To protect our nation, we need to change this narrative. We must empower families, in all communities and across generations, to feel confident in the decision to vaccinate.

Fortunately, most parents in the United States recognize the life-saving benefits of vaccines and choose to vaccinate their children. Overall vaccination rates are high: nearly 99% of US children have received any vaccines by the age of 2 years, and >94% of kindergartners have received 2 doses of the measles-mumps-rubella vaccine and the state-required number of doses of diphtheria-tetanus-acellular pertussis and varicella vaccines.<sup>3,4</sup> However, disparities in coverage create vulnerabilities for diseases, such as measles, to exploit. Twenty US states have <90% coverage of 1 measles-mumps-rubella vaccine dose by 2 years of age, below the herd immunity threshold of 92% to 94%. Lower vaccination rates in children who reside in rural areas, live below the poverty line, or lack private insurance (eg, are insured by Medicaid or are uninsured) suggest that access to vaccines remains an issue, despite the Vaccines for

*National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia*

The opinions expressed in this comment are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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Address correspondence to Sarah Mbaeyi, MD, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, 1600 Clifton Rd NE, Mail Stop H24-8, Atlanta, GA 30329. E-mail: [smbaeyi@cdc.gov](mailto:smbaeyi@cdc.gov)

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Children program, which provides vaccines at no cost to children who might not otherwise receive them because of the inability to pay.<sup>3</sup> However, vaccine hesitancy (whether due to preferences for natural products and immunity, distrust in government and the vaccine industry, or concerns about encroachments on individual liberties and vaccine requirements) is also playing a role in undervaccination. Furthermore, historically low rates of vaccine-preventable diseases in the 21st century may result in complacency to vaccinate or a skewed perception of the actual risks and benefits of vaccination. The recent measles outbreaks, which occurred primarily among unvaccinated children in close-knit communities, suggest another insidious threat: pockets of undervaccination in communities where the spread of misinformation has eroded vaccine confidence.

Although myths and misinformation have always been part of the vaccine landscape, the rapid dissemination and sophistication of misinformation in the modern era presents new challenges. Parents with questions about vaccines often turn to online sources of information, in which fact or fiction may be difficult to discern. Compelling misinformation related to vaccine safety, often veiled as scientific evidence or presented as powerful personal stories, is particularly prevalent and problematic.<sup>5</sup> Social media have become a venue for deliberate amplification of such misinformation.<sup>6</sup> The online spread of misinformation is not the only threat: in-person forums and culturally tailored communication products have been intentionally used to spread misinformation on vaccine safety in specific communities that have experienced measles outbreaks, such as ultra-Orthodox Jewish and Somali-American populations in New York and Minnesota, respectively. Vaccine misinformation is dangerous;

even brief exposure to negative vaccine messages alters the intent to vaccinate.<sup>7</sup>

The recent measles outbreaks underscore the need for a national strategy to address the dynamics of vaccine-preventable disease outbreaks, including pockets of low vaccination in close-knit communities and the spread of compelling vaccine misinformation targeted at these communities, as well as the perennial issue of ensuring vaccines are accessible and easy to obtain. The Centers for Disease Control and Prevention (CDC) and its partners are in the process of rolling out Vaccinate with Confidence,<sup>8</sup> a strategic framework for strengthening vaccine confidence and preventing outbreaks of vaccine-preventable diseases in the United States. This framework builds on and reorients the CDC's existing work to advance 3 key priorities: protect communities, empower families, and stop myths (Table 1).

- **Protect communities:** To protect communities from vaccine-preventable disease outbreaks, we have to find the communities most at risk. This requires leveraging routine disease surveillance and vaccine coverage monitoring systems to develop more precise public health tools that can identify at-risk communities and inform community members of potential threats. Public health officials and partners should work together to identify undervaccinated communities using diverse data sources, characterize populations at risk for undervaccination, and develop targeted evidence-based strategies to respond to undervaccination in these communities. We must also continue to remove barriers so that everyone can easily access vaccines.
- **Empower families:** To ensure that parents are confident in the decision to vaccinate, we need to

**TABLE 1** Examples of Ongoing Vaccinate With Confidence Activities by the CDC or Partners

Priority Area	Activity
Protect communities	Support the 64 awardees of the CDC's Immunization and Vaccines for Children cooperative agreement (includes state, city, and territorial health departments) to identify and respond to pockets of low vaccination coverage in their jurisdictions
	Improve capacity of immunization programs to use immunization information system data and small-area analyses to pinpoint areas of low vaccination coverage and identify barriers to vaccination
	Develop a community assessment tool kit to help local public health officials and other stakeholders identify factors related to undervaccination in communities
	Help organizations with targeted and culturally sensitive approaches to increase coverage in undervaccinated communities
	Build frontline immunization program capacity to respond to vaccine hesitancy through technical assistance, capacity-building activities, and dissemination of tools and materials
Empower families	Characterize populations at risk for undervaccination to implement tailored approaches to increasing coverage
	Disseminate materials and tools to health care providers to support earlier vaccine conversations with parents of young infants and with pregnant women
	Reduce hesitancy and improve vaccine access at the nation's community health centers through development of culturally competent patient engagement strategies
Stop myths	Conduct formative research to develop effective communication messages and materials for parents and health care providers
	Work with social media companies to promote trustworthy vaccine information
	Educate state policy-makers on vaccine safety and effectiveness
	Engage state and local health officials to advance effective local responses and community-based initiatives to misinformation and hesitancy

equip health care professionals with resources to have sometimes challenging vaccine conversations. This involves starting vaccine conversations earlier with parents of young children and with pregnant women, improving dissemination of materials to help address parents' vaccine questions, and fostering a culture of immunization in the health care practice.

- Stop myths: To stop vaccine myths, we must ensure that reliable information is not drowned out by misinformation, educate key stakeholders about vaccines, and engage trusted local messengers to provide accurate information about vaccines. Because of the ubiquity of vaccine misinformation, diverse partnerships are needed: from enhancing social media promotion of accurate information on the safety of vaccines and the risks of vaccine-preventable diseases to advancing state and local health initiatives to counter misinformation along with ensuring that policy-makers have access to accurate information on vaccine safety and effectiveness.

The story of the 2018 and 2019 measles outbreaks in the United States (the worldwide resurgence of measles driving importation of cases into undervaccinated communities exposed to widespread vaccine

misinformation) highlights how global and local influences intertwine to affect the health of a nation. A top-down approach will not be sufficient to address these challenges. Effective solutions and partnerships are needed at all levels, with a cohesive approach between public health officials, health care providers, community- and faith-based organizations, businesses, other partners, and the public. Together, we can empower families to vaccinate with confidence and protect our communities so that measles and other vaccine-preventable diseases remain vestiges of the past in the United States and globally.

#### ABBREVIATION

CDC: Centers for Disease Control and Prevention

#### REFERENCES

1. World Health Organization. Measles – global situation. 2019. Available at: [https://www.who.int/csr/don/26-november-2019-measles-global\\_situation/en/](https://www.who.int/csr/don/26-november-2019-measles-global_situation/en/). Accessed December 10, 2019
2. Patel M, Lee AD, Clemmons NS, et al. National update on measles cases and outbreaks - United States, January 1-October 1, 2019. *MMWR Morb Mortal Wkly Rep.* 2019;68(40):893–896

3. Hill HA, Singleton JA, Yankey D, Elam-Evans LD, Pingali SC, Kang Y. Vaccination coverage by age 24 Months among children born in 2015 and 2016 - National Immunization Survey-Child, United States, 2016-2018. *MMWR Morb Mortal Wkly Rep.* 2019;68(41):913–918
4. Seither R, Loretan C, Driver K, Mellerson JL, Knighton CL, Black CL. Vaccination coverage with selected vaccines and exemption rates among children in kindergarten - United States, 2018-19 school year. *MMWR Morb Mortal Wkly Rep.* 2019;68(41):905–912
5. Moran MB, Lucas M, Everhart K, Morgan A, Prickett E. What makes anti-vaccine websites persuasive? A content analysis of techniques used by anti-vaccine websites to engender anti-vaccine sentiment. *J Commun Healthc.* 2016;9(3):151–163
6. Broniatowski DA, Jamison AM, Qi S, et al. Weaponized health communication: Twitter bots and Russian trolls amplify the vaccine debate. *Am J Public Health.* 2018; 108(10):1378–1384
7. Betsch C, Renkewitz F, Betsch T, Ulshöfer C. The influence of vaccine-critical websites on perceiving vaccination risks. *J Health Psychol.* 2010;15(3):446–455
8. Centers for Disease Control and Prevention. Vaccinate with Confidence. Available at: <https://www.cdc.gov/vaccines/partners/vaccinate-with-confidence.html>. Accessed April 20, 2020

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