



Measles in the U.S.

Discussions with public health representatives

PHOTO COURTESY: CDC/AMANDA MILLS.

LEFT: This image depicts a young boy who was receiving an injection in his right lateral thigh muscle. This is known as an intramuscular injection, and in this case, was delivering the requisite vaccination appropriate for his age group.

The United States declared measles eliminated in 2000. But less than 15 years later, U.S. public health officials have seen cases of measles skyrocket, with a total of 23 measles outbreaks in 2014 resulting in 668 measles cases reported from 27 states. The Centers for Disease Control and Prevention (CDC) noted that this is the greatest number of measles cases since measles elimination was documented nearly 15 years ago. The 2014 case count is in stark contrast to the case count of 2013, when the U.S. reported only 58 measles cases.¹

Public health officials are still grappling with increasing cases of measles in 2015. From January 1 to May 29, 2015, 173 cases of measles have been reported from 21 states and the District of Columbia—72 percent of these cases were linked to a large multistate outbreak associated with an amusement park in California.¹ The measles case count continues to grow.

Prevention Strategist had the opportunity to interview public health officials and departments that have been contending with measles in their regions.

MEET THE PANEL



Demian Christiansen, DSc, MPH

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Department of Public Health

Dr. Christiansen is interim director of Communicable Disease Control for the Cook County Department of Public Health in Forest Park, Illinois.



Chicago Department of Public Health



Tammy Sylvester, RN, BSN
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Sylvester is communicable disease nursing supervisor in the Office of Epidemiology, Disease Control Division of the Maricopa County Department of Public Health in Phoenix, Arizona.

Q: Measles was declared eliminated in the U.S. in 2000. Was that a premature declaration?



Chicago Department of Public Health: Endemic transmission of measles in the U.S. ended in 2000.

However, since measles remains prevalent in other parts of the world where MMR [measles, mumps, rubella] vaccine isn't readily available, imported cases still continue. We live in a global community, and many places around the world lack access to the measles vaccine; therefore, there is a continued risk of imported cases of vaccine-preventable illness.



Demian Christiansen, DSc, MPH: With the recent outbreak associated with a California theme park that has resulted in at least 159 cases across 18 states, it certainly makes sense to ask this question. This declaration meant that sustained transmission ended in the United States, but we always expected to see imported cases, which seems likely to have sparked the recent multi-state outbreak. In fact, in the five years prior to our most recent daycare outbreak this past February, travel history for all measles cases had perfect positive predictive value. Unfortunately, this is no longer the case.



Tammy Sylvester, RN, BSN: Yes, the U.S. did achieve measles eliminations in 2000. McLean defined measles elimination "as interruption of year-round endemic measles transmission."² From 2002 through 2007, measles cases in the U.S. averaged 60 reported cases per year.¹ Not until 2014 did the U.S. reach an all-time high more than 600 reported cases.¹

Q: How has public health played a role in recent measles outbreaks?



Chicago Department of Public Health:

Public health plays a major role in disease surveillance and control. This includes provider education, contact tracing, and laboratory testing of specimens. It is important for public health departments to maintain a high level of communication with local healthcare providers to ensure they have the resources necessary to educate their patients on the importance of vaccines, recognize and diagnose illnesses, report infected individuals to public health, and follow the proper post-exposure infection control protocols.



Demian Christiansen, DSc, MPH:

Measles is one of the most highly contagious diseases known, and we are seeing what happens when just a small number of people are not vaccinated against this disease. To contain the spread, each of us has a role, whether it is identifying cases and investigating them as quickly as possible, identifying exposed individuals and notifying them, educating parents of well children to abide by recommended immunization schedules—all of these are required to control outbreaks and prevent further spread. It takes all of us, working in concert.



Tammy Sylvester, RN, BSN:

Measles is spread in communities that are missing herd immunity. Herd immunity is when groups of people are vaccinated to protect the herd from rapid disease spread. In the cases of reported measles, “the majority of people who got measles were unvaccinated.”¹¹ In fact “an unvaccinated child is 35 times more likely to contract measles as compared to a vaccinated child.”¹³ Public health has issued multiple campaigns about herd immunity, the impact of disease, and the need to vaccinate on the local, state, national, and international level. Much work was done in every city to notify the public and providers about the outbreak, as well as to provide algorithms and contact information for consultation on suspected cases. Public health provided fliers for healthcare facilities that warn of the outbreak and to tell individuals with rash not to enter a healthcare facility or waiting room. FAQs were issued to clinicians to give information about the outbreak.

Q: Should public health have taken a more active role in educating the public about the importance of vaccines 10–15 years ago when there was an increase in the anti-vaccine movement?



Chicago Department of Public Health:

Public health has always promoted vaccines as a means to prevent the transmission of vaccine preventable illness. Parents want to do what’s right for their children; however, there have been certain instances where misinformation influenced their decision not to vaccinate. One of the best ways for the public to increase its understanding of the benefits and safety of vaccines is to make sure healthcare providers have the information they need to educate their patients. Numerous studies have shown that a healthcare provider recommendation for a vaccine increases the likelihood of a patient accepting the vaccine. Public health has and continues to partner with healthcare provider organizations (e.g., American Academy of Pediatrics, American Academy of Family Physicians, American Nurses Association) to make educational opportunities and materials available to their members. We know that the MMR vaccine is safe and effective, so public health officials are committed to educating the public directly and through healthcare providers about the importance of vaccines and ensuring that residents have the opportunity to get the vaccines for themselves and their children.



Demian Christiansen, DSc, MPH:

Public health must lavish health education and health literacy with the same attention and resources it pays to disease surveillance and control. We can always do more to educate people about the importance of vaccinations. But we have an uphill climb. The stark reduction in measles cases beginning in the mid- to late-1960s was, in some ways, a victim of its own success. In our recent measles outbreak associated with a daycare, we had several children with fever and rash illness who were misdiagnosed. This is not to lay blame at the feet of those healthcare

providers but rather to point out that many had never seen a measles case—because of the past measles vaccination successes. Without their patients having had a clear link to the California theme park or travel to an area with ongoing measles transmission—coupled with a dearth of measles cases in recent years in suburban Cook County—it may indeed be difficult for many healthcare providers to “Think Measles.” We hope this is changing now. Our own daycare-associated outbreak of measles along with the larger multi-state outbreak should have been a wake-up call.

Beyond that, however, public health needs to change with changing times. The Internet, in general, and social media, in particular, have revolutionized the ways messages are created, how they are packaged and delivered, and how they are consumed and assimilated. Public health knows the message is “Get Vaccinated!” We just need to find the right way to deliver that message. We have much to learn from our marketing brethren! In some cases, outraged parents delivered the message their own way—taking to social media and blogs, angry that their children, some extremely ill, may have been exposed to measles because some chose not to vaccinate. Many such exposures could have been easily avoided.



Tammy Sylvester, RN, BSN:

Public health took an active role in educating the public about the importance of vaccines. People were very afraid of autism because of the false reports by Andrew Wakefield stating an association between autism and MMR [vaccines]. This was a very difficult barrier to overcome and not much more could have been done at the time. Public health, especially the CDC, worked very hard to study the claims and were able to show that no association between the two existed.

Q ■ What are the plans to eradicate measles?



Chicago Department of Public Health:

Measles remains prevalent in many parts of the world. In order to fully eradicate measles, the vaccine needs to be made available in places where healthcare systems are underdeveloped or do not have the means to obtain the vaccine. Current global efforts to eradicate polio are nearing success, and those same core public health approaches can be applied to eliminating other vaccine-preventable illnesses like measles.



Demian Christiansen, DSc, MPH: No doubt, local and state health departments along with

CDC will bring the multistate measles outbreak under control in short order, if they haven't already. But as everyone knows, we live in an interconnected world. Truly, nothing in recent memory has demonstrated this more clearly than the Ebola Virus Disease epidemic affecting West Africa. As we have seen, any disease can be on our doorstep in a matter of hours. It simply isn't possible to ignore what is going on elsewhere in the world. Several years ago, the theme for World TB Day was, "TB Anywhere is TB Everywhere." This certainly applies to measles and countless other infectious diseases. For measles to be eradicated, we need to ensure it is eliminated here in the U.S.—and everywhere else around the world. Measles eradication will take a worldwide effort and political and economic will not dissimilar from those required to eradicate smallpox.

Q ■ What did the U.S. do correctly to eliminate measles in the past and what can we use to do the same now?



Chicago Department of Public Health:

After the first measles vaccine was licensed in the 1960s, there was a dramatic decrease in the number of cases. Prior to that, there was a very high prevalence of measles cases in the U.S. Furthermore, once a second dose of vaccine was recommended in the 1980s, the number of cases continued to drop even further to the point that endemic transmission in the U.S. ended in 2000.



Demian Christiansen, DSc, MPH: Vaccinate, of course!

We have an excellent, safe, and effective vaccine to prevent measles. A single dose of measles vaccine, usually given as MMR vaccine provides 93 percent protection against measles. Getting the recommended two doses of MMR brings that level of protection up to 97 percent. Vaccination against measles results in lives saved and avoids permanent disability. In 2014, CDC estimated that among children born during the past 20 years, vaccinations, including MMR vaccine, prevented 21 million hospitalizations and prevented 732,000 deaths.⁴ That's the equivalent of preventing a child from being hospitalized every 30 seconds. That's an amazing success story.

Q ■ Should the MMR vaccine be mandated for children to start school?



Chicago Department of Public Health:

School vaccine requirements contributed to the high levels of vaccine coverage that have been achieved among school-aged children. They are regulated at the state level and as a result, vary from state to state. Some states allow individuals to opt out of the required vaccines if they have a personal belief or religious belief that prohibits receipt of the vaccine. In Illinois, the MMR vaccine is required for students who attend daycare centers, preschools, elementary, middle, and high schools, and religious and medical exemptions are allowed. The MMR vaccine is still required for most individuals who attend daycare or school and do not have underlying medical conditions that would prevent them from receiving the vaccine. Because there is a small percentage of individuals who cannot receive the vaccine, it is important for those who can receive it to do so. This concept of community immunity helps protect those who are more vulnerable to illness.



Demian Christiansen, DSc, MPH: MMR vaccine is mandated by all states for children to start school. However, we know that there are gaps when individuals, or groups of individuals, opt out for religious or philosophical reasons. There are several states looking to tighten requirements for parents who seek exemptions. The Illinois General Assembly voted on such a bill. Ultimately, though, everyone must understand that when it comes to vaccinations, what each individual does affects the group—for better or for worse.



Tammy Sylvester, RN, BSN: It is. The problem is the ease to which exemptions are facilitated. Some schools are passing rules to only allow physical exemptions documented by the primary care provider. Others are allowing religious exemptions if signed by a pastor and requiring parent to go to corporate district office to pick up exemption forms. The thought is that when it is more difficult to be exempt than to go get immunized, only the ones that really need to be exempted will go through the work.

Q ■ Most parents turn to the Internet for their information. What can be done to educate this population about the use of credible websites?



Chicago Department of Public Health:

Healthcare providers and public health professionals rely on evidence-based guidelines to educate patients and families about healthcare-related concerns. Although there are websites that do rely on science-based medicine, many others that are easily accessible do not use these same evidence-based guidelines. The best thing parents can do if they have questions about a certain healthcare issue is to contact their provider. Those who do not have a provider should reach out to their local public health department, many of which have vaccine programs for those who are uninsured or underinsured.



Demian Christiansen, DSc, MPH: This is crucial, and once again, this is an issue of health education and health literacy, important themes in communicable disease control.

Credibility is key, but for a website to be useful, it must be well-organized, quick, and it must make technical information accessible to parents. At the end of the day, we tend to listen to those we trust; healthcare providers, especially nurses, have a vital role in providing credible and trustworthy information to their patients. It starts with educating ourselves first so we can direct our patients and the public to the right resources.

Q ■ How can infection preventionists assist in the eradication of measles?



Chicago Department of Public Health:

Public health professionals work closely with infection control practitioners in healthcare settings to report communicable diseases, identify individuals who were exposed to infectious patients, and implement protocols that help prevent transmission when patients with communicable diseases seek and receive care. These efforts are ongoing to ensure that individuals who are ill receive the proper care, but also that others in healthcare settings are protected as well.



Demian Christiansen, DSc, MPH: Infection preventionists are the closest partners we have in communicable disease control. Their everyday work is geared toward preventing the spread of communicable diseases, which is obviously a goal we share. Together, we work every day to eradicate diseases. But we cannot do it alone. We need to continue emphasizing vaccinations and being creative in the messaging. Debunking myths about lack of vaccine safety and educating the public with culturally sensitive and linguistically appropriate language is key.



Tammy Sylvester, RN, BSN: Quick reporting of suspect cases (e.g., phone calls to local public health), protocols in place for rash illnesses, and continued close working relationships with local public health. It takes a team, and we all want the same thing: optimal community and patient outcomes!

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