



**Testimony before the
Committee on Health, Education, Labor and
Pensions
United States Senate**

**The Reemergence of Vaccine-Preventable Diseases:
Exploring the Public Health Successes and Challenges**

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INTRODUCTION

Good morning Chairman Alexander, Ranking Member Murray, and Members of the Committee. I am Dr. Anne Schuchat, Director of the National Center for Immunization and Respiratory Diseases at the Centers for Disease Control and Prevention (CDC). Thank you for the opportunity to speak with you today.

It has been said many times that vaccines are one of public health's greatest achievements. The immunization of children in the United States has saved millions of lives, contributed to longer life expectancy, reduced health disparities, improved quality of life, and saved trillions of dollars in societal costs. Immunizations have become a routine part of how we care for our children. Less than one percent of children in the United States receive no vaccines at all.

However, the success of vaccination means fewer and fewer doctors, other healthcare providers, and parents have witnessed the serious and sometimes life-threatening consequences of vaccine-preventable diseases (VPDs). Illness from vaccine-preventable disease is no longer common, and parents may wonder if vaccines are really necessary or believe that the risks of vaccinating infants or temporary discomfort a vaccine may cause outweigh the benefits of protecting them from infection with VPDs. Yet even small numbers of cases can lead to the re-emergence of VPDs if we have increasing numbers of unvaccinated people.

Measles

The recent measles outbreaks in the United States provide an excellent example of our continued vulnerability to VPDs. Measles is a highly-contagious respiratory disease caused by a virus. It spreads through the air through coughing and sneezing. After an infected person leaves a location, the virus remains viable for up to two hours on surfaces and in the air. It spreads so easily that if one person has

it, 90 percent of the people close to that person who are not vaccinated or otherwise immune will also become infected. The good news is that since the 1960s, there has been a highly-effective vaccine to prevent measles. One dose is about 93-percent effective at preventing measles; two doses are about 97-percent effective. Before the U.S. measles vaccination program started in 1963, about three to four million people in the United States got measles each year; 400–500 of them died, 48,000 were hospitalized, and 4,000 developed encephalitis because of measles. In the United States, widespread use of the vaccine has led to a 99-percent reduction in measles cases compared with the pre-vaccine era.

Because of a highly effective vaccination program and a strong public health system for detecting and responding to measles cases and outbreaks, measles was declared eliminated from the United States in 2000. However, the story does not end with elimination. While the western hemisphere has eliminated measles, the disease is still endemic in many parts of the world, with 20 million cases occurring worldwide annually. Outbreaks can occur in the United States when unvaccinated groups are exposed to imported measles virus. Between 2000 and 2013, a range of 37 to 220 measles cases per year were reported in the United States with most of these originating outside the country. Importations of measles remain a significant challenge. Unvaccinated U.S. residents traveling overseas are at risk for measles, and returning unvaccinated U.S. residents and foreign visitors to the United States may develop measles and expose unvaccinated people in the United States. When measles gets into communities of unvaccinated people in the United States, such as people who refuse vaccines for religious, philosophical or personal reasons, outbreaks are more likely to occur. New research recently published in the journal *Pediatrics* has found that people who seek personal belief exemptions for their children often live near one another. We think these micro-communities are making it difficult to control the spread of measles and are making us vulnerable to having the virus re-establish itself in our country again. In addition, they put others at risk who cannot get vaccinated because they are too young or they have specific health conditions. CDC works with its partners, such as the American

Academy of Pediatrics and the American Association of Family Physicians, to develop and disseminate evidence-based tools to help health care providers and parents understand the science recommending vaccination.

High measles vaccine coverage and rapid public health response are critical for preventing and controlling measles cases and outbreaks. While overall measles vaccination coverage rates are high at 92 percent, one in 12 children in the United States is not receiving his first dose of measles-mumps-rubella (MMR) vaccine on time, underscoring considerable measles susceptibility across the country. In addition, we see considerable variability in coverage across states. In 2013, there were 17 states where less than 90 percent of toddlers had received at least one dose of MMR. Within states, some counties or communities have much lower vaccination rates than the state average.

From January 1, 2015, until January 30, 2015, a total of 102 people in 14 states have been reported as having measles. Most of these cases are part of an ongoing, large multistate outbreak linked to the Disneyland theme parks in California. CDC is working with state and local health departments to control this outbreak which started in late December. Many of you know that in 2014, the United States experienced the highest number of measles cases we had reported in 20 years, over 600 driven in large part by one large outbreak of 383 cases, occurring primarily among unvaccinated Amish communities in Ohio. Although we aren't sure exactly how this year's outbreak began, we assume that someone got infected overseas, visited the parks and spread the disease to others. Infected people in this outbreak here in the United States this year have exposed others in a variety of settings including school, daycares, emergency departments, outpatient clinics and airplanes. Frontline public health workers and clinicians across the country are following up on suspected measles cases in light of the recent outbreak. They are part of an enormous public-private partnership that protects health and saves lives through the Nation's immunization system.

In response to the current outbreak, CDC issued a Health Advisory on January 23, 2015, to notify public health departments and healthcare facilities about the multi-state outbreak and to provide guidance for healthcare providers nationwide. On January 29, 2015, CDC held a press briefing to inform the public about the outbreak and the importance of appropriate prevention and treatment measures. CDC updates its webpage weekly to prominently include information about measles including direct links to fact sheets and continuing education webinars aimed at clinicians regarding measles. CDC also works with many partner organizations including clinician organizations, public health associations, and patient groups to share information, develop tools, and explore new partnership activities to reach the public and health care providers about immunization. In addition, CDC supports state and local health departments in their outbreak investigations by providing technical support for measles prevention and control; testing specimens from patients with suspected measles infection; and, providing rapid assistance on the ground through formal requests from state health departments.

Overview of U.S. Immunization Policies and Programs

CDC's national immunization recommendations currently provide guidance for the prevention of 17 VPDs across the lifespan. CDC's immunization program plays a fundamental role in achieving national immunization goals and sustaining high vaccination coverage rates to prevent death and disability from VPDs. CDC's Immunization program includes the Vaccines for Children (VFC) entitlement program, and CDC's 317 Immunization program.

VFC is one of the largest and most successful public-private partnerships. Created by the Omnibus Budget Reconciliation Act of 1993 and implemented in 1994 as a new entitlement program, the VFC program allows eligible children to receive recommended vaccinations free of charge as part of routine care, supporting the reintegration of vaccination and primary care. The VFC program serves children through 18 years of age without insurance, those eligible for Medicaid, American Indian/Alaska Native

children, and underinsured children who receive care through Federally Qualified Health Centers or Rural Health Clinics. CDC purchases vaccines to distribute to VFC-enrolled providers by funding 61 eligible grantees for VFC-related operations activities. Currently, there are more than 44,000 public and private providers in the VFC program, and VFC distributes over 50 percent of all routinely-recommended vaccines for those 18 years and younger. VFC has been instrumental to achieving high vaccination coverage rates and reducing disparities.

In addition, a discretionary immunization program was enacted in 1962 through the Vaccine Assistance Act, or section 317 of the Public Health Service Act. Over its 50-year history, the Program has played a role in helping to achieve national immunization goals by supporting the public health workforce and systems at the national, state, and local levels as well as supporting vaccine purchase. These include systems to ensure quality assurance, such as proper vaccine storage, manage vaccine shortages, and educate and promote immunization recommendations across the life span. To implement the discretionary program, CDC works collaboratively with the 64 grantees, including the 50 states, six large cities (including the District of Columbia), five territories, and three Pacific Freely Associated States.

In addition, the discretionary program is responsible for investments that strengthen the evidence base for our immunization policies and practices. It supports disease surveillance, laboratory capacity, and scientific studies to evaluate vaccine effectiveness, safety, and program. The program allows us to maintain public health preparedness for a response to a vaccine-preventable national emergency, such as a pandemic or biologic attack.

Scientifically-based vaccine policies are a foundation of the U.S. immunization system. In the United States, the Advisory Committee for Immunization Practices (ACIP) advises the CDC on national vaccine policy for preventing infectious diseases in the civilian population. The immunization systems and

expertise that are supported by the national immunization program make substantial contributions to the evidence base upon which the ACIP deliberates in making its recommendations by providing data about the burden of disease, safety and efficacy of the vaccine, economic analyses, including cost-effectiveness data, and information about other factors such as how the recommendation can be implemented by the health care system in conjunction with other recommended vaccines.

Once adopted by CDC, the Committee's recommendations establish the standard of practice for preventing VPDs. The Affordable Care Act requires that, as of September 2010, vaccines recommended by ACIP (along with other recommended preventive services) be covered by non-grandfathered private health plans without cost-sharing. In addition to post-market surveillance conducted by the CDC and the Food and Drug Administration (FDA) for FDA-approved vaccines, ACIP continues to review the safety and effectiveness of vaccines even after they are recommended, and updates recommendations as more data become available. New data are reviewed in the context of the risks of adverse effects and the benefits provided by the vaccine.

Coverage for many childhood vaccinations are at, near, or above 90 percent , and reported cases for most VPDs have decreased by 90 percent or more in the United States. Immunization continues to be one of the most cost-effective public health interventions. For each dollar invested in the U.S. childhood immunization program, there are \$10 of societal savings and \$3 in direct medical savings.¹ The past twenty years of childhood immunization has prevented 322 million illnesses, 732,000 deaths, and nearly \$1.4 trillion in societal costs.² Our investments have supported national, state and local programs that have dramatically improved access to vaccination for all children and put systems in place to detect and respond to outbreaks of VPDs and to monitor vaccine effectiveness and safety.

¹ Zhou F, Shefer A, Wenger J, et al. Economic evaluation of the routine childhood immunization program in the U.S., 2009. *Pediatrics* 2014;133:577–85

² CDC. Benefits from Immunization During the Vaccines for Children Program Era — United States, 1994–2013. *MMWR* 2014;63(16):352-355

Challenges

While overall vaccination rates remain high, we still face several challenges in preventing VPDs. The majority of parents have their children vaccinated, however, we know that some parents delay or refuse vaccinations. CDC has conducted research to better understand why some parents choose not to vaccinate their children. There are many reasons parents give for their vaccine hesitancy despite overwhelming and consistent scientific evidence that vaccines are safe and effective. For some, many VPDs don't have the visibility they once had, and many parents tell researchers that they question whether the vaccines are more dangerous for their child than the disease they prevent. Parents also have access to conflicting and often inaccurate information about vaccines via the internet, and others express concern that there are too many vaccines.

CDC knows that maintaining public confidence in immunizations is critical to preventing declines in vaccination coverage rates and outbreaks of VPDs. CDC supports science-based communication campaigns and other efforts to convey the benefits of vaccines to the public to aid individuals in making informed vaccine decisions to protect themselves and their loved ones. CDC also conducts outreach to educate healthcare providers about current immunization policy and clinical best practices to help them protect their patients and communities from VPDs. CDC developed and will maintain a dynamic provider toolkit for conversations with parents about vaccination that includes evidence-based strategies, print materials, and web-based tools.

Another challenge we currently face is a low adult vaccination coverage rate. Last week, CDC released the latest non-influenza vaccination coverage rates for adults, and the results were not encouraging. Findings show most coverage rates continue to be below Healthy People 2020 targets with persistent racial and ethnic gaps. We know that to reach adults we will need different strategies than we have used with the childhood program. Unlike children who have scheduled routine visits with

their pediatrician, adults may see multiple physicians for specialty care, many of whom do not offer vaccination services. CDC is working to increase awareness of the need for vaccines for adults among the general population and the provider community. We also are looking at increasing access through non-traditional venues, including pharmacies and retail clinics.

Outbreaks of VPDs continue to be an ongoing challenge for the public health system. Measles elimination was declared in the United States in 2000, but we still contend with importations of measles viruses. In addition, there have been recent outbreaks of meningitis and mumps in university settings and other tight knit communities. Measles, however, is a particularly sensitive indicator of the strength of our public health systems as it is very contagious and quickly uncovers pockets of under vaccination. In the 1980s and early 1990s, measles outbreaks uncovered a weakness in access to vaccines, resulting in the creation of the VFC program. Today, it is an indicator of how globally interconnected we are, with measles importations uncovering those communities opting out of immunization, and indicating those communities may be getting larger. Ongoing surveillance is critical to detecting and responding to outbreaks quickly to prevent further spread of the disease and to understanding vaccine effectiveness and safety over time. CDC is committed to a strong evidence base to assure that immunization programs are protecting Americans and based on the best available data, continuously reviewed and updated.

Looking Forward

The U.S. immunization system has been very successful in reaching high coverage levels and low incidence of most VPDs. As the current outbreak demonstrates, we cannot become complacent to the threat of VPDs as the current increase in measles cases has shown us. CDC's priorities for the coming year focus on keeping the American public prepared to respond to such threats. These include: educating and engaging health care providers and the American public on the science about vaccine

safety and effectiveness, preserving core public health immunization infrastructure at the local, state, and federal levels; maintaining an adequate amount of vaccine purchase to provide a vaccination safety net for uninsured adults and for response to VPD outbreaks and other vaccine urgent needs while recognizing the expanded access to vaccine coverage through the Affordable Care Act; and, making strategic investments to enhance the immunization infrastructure and evidence base and improve efficiency.

The increase in measles cases should be seen as a wake-up call. Our immunization system has risen to challenges in the past, and CDC is committed to keeping measles and other VPDs from regaining a foothold in the United States again. The very large outbreaks we have seen around the world often started with a small number of cases. Working together, we can keep these numbers down, keep measles from returning and threatening the health of our communities, and sustain the enormous health and societal benefits that our immunization partnership has achieved.