



Children's Hospital Colorado



COLORADO CHILDREN'S
IMMUNIZATION COALITION

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New Report Shows High Cost of Vaccine-Preventable Disease, Increased Risk for Colorado Children and Communities

Economic burden of vaccine-preventable disease in Colorado children totals \$35 million in 2015

AURORA, Colo.— In 2015, Colorado ranked 14th among U.S. states for childhood immunizations, with over 24 percent of children under-immunized at 36 months of age and 472 Colorado children hospitalized with vaccine-preventable diseases, resulting in \$35 million in hospital and emergency department charges. That's according to an independent report released today by the Colorado Children's Immunization Coalition (CCIC) and Children's Hospital Colorado (Children's Colorado). The report, *Vaccine-Preventable Diseases in Colorado's Children*, also finds that in 17 Colorado counties less than 50 percent of children are up to date on routine immunizations – well below the coverage level necessary to prevent the spread of vaccine-preventable diseases.

Prepared annually by pediatricians and researchers from the Department of Epidemiology at Children's Colorado, the report provides an analysis of the state of health of Colorado's children based on the most recent National Immunization Survey, Colorado Hospital Association inpatient and emergency department data and Colorado Department of Public Health and Environment data. The report examines vaccination rates, hospitalizations and costs associated with vaccine-preventable disease in children. For the first time, the report also includes emergency department visits for vaccine-preventable diseases, county-level rates and school exemption data. Findings show that, despite improvement, there are significant gaps in vaccinating Colorado's children.

Key findings include:

Hospitalizations and emergency department visits due to vaccine-preventable disease result in high costs to parents, businesses and taxpayers.

- Hospital and emergency department (ED) charges to treat vaccine-preventable disease in Colorado children totaled more than \$35 million in 2015. Actual costs, taking into account costs of office visits, medication, lost wages and decreased productivity, are much higher.

- Adams (\$6.1 million), Arapahoe (\$5.1 million), Denver (\$4.7 million) and El Paso (\$4.4 million) counties account for about 58 percent of the statewide hospital and ED charges for treating children with vaccine-preventable disease in 2015.
- Influenza (flu) alone accounted for 369 hospitalizations and 4,045 ED visits among Colorado children in 2015, resulting in more than \$25 million in charges.
- The second most common vaccine-preventable disease to lead to hospitalization or ED visits was pneumococcal disease, with a total of \$8 million in charges.

The highest burden of preventable illness occurs in infants and young children.

- Among children in Colorado who were hospitalized for vaccine-preventable disease, 66.5 percent were four years of age or younger.
- In contrast, ED visits for vaccine-preventable diseases were higher in children and teens 5-17 years of age.

Vaccination coverage has improved, but a significant percentage of Colorado children are inadequately protected against vaccine-preventable diseases.

- Colorado ranks 14th among U.S. states for childhood vaccination. While Colorado's overall vaccination ranking has fluctuated, it has the same vaccination coverage level as ten years ago (Figure 1).
- Statewide, vaccination rates hover under 80 percent. Some Colorado counties exceed that rate, but most – including both urban and rural counties – have estimated vaccination rates that are much lower.
- In 2015, 24.6 percent of children were missing one or more routine vaccines.
- As many as 49 counties (77 percent) in Colorado are below the national average for immunization coverage (Figure 4).
- In 17 of 64 Colorado counties, less than 50 percent of children were up-to-date on routine immunizations in 2015. Only five Colorado counties – Hinsdale, Kit Carson, Kiowa, Prowers and Baca – meet the *Healthy People 2020* vaccination goal of 90 percent coverage.
- MMR (Measles-Mumps-Rubella) vaccination coverage improved among Colorado two-year-olds, but still remains well below the 93-95 percent required to protect a population or community against outbreaks of measles. 55 counties have rates less than 90 percent and 16 counties have rates less than 80 percent.
- While vaccination coverage improved for some childhood immunizations from 2014 to 2015, more than 25 percent of all 7-month-old infants in Colorado are still behind in vaccinations to prevent tetanus, diphtheria, pertussis (DTaP) and pneumococcal disease (PCV). Pneumococcal disease and pertussis were the second and third most common reasons young children were hospitalized for vaccine-preventable disease in 2015.

Low levels of community protection due to unacceptable vaccination rates leave many vulnerable children at risk of serious infectious diseases.

- All Colorado counties have children who are vulnerable to vaccine-preventable disease due to medical conditions that suppress their immune systems, including children with cancer, heart

conditions and pulmonary disease, as well as children who've received an organ transplant and infants who are too young to be vaccinated (Figure 5). These children are at increased risk of vaccine-preventable diseases introduced by unvaccinated children and adults.

- Data provided by Chalkbeat Colorado shows that, in the 30 largest school districts, the mean rate of exemptions by school district from vaccines required for school or child care entry ranges from 1 to 17 percent.
- Colorado is in the midst of a measles investigation and a mumps outbreak that has infected 26 people this year. Even when a vaccine-preventable disease exposure does not result in transmission, the cost of investigation and prevention can amount to tens of thousands of dollars. A cost analysis conducted by Tri-County Health Department found that the cost to investigate a single measles case was just under \$50,000.

A vaccine against cancer could save millions of dollars and prevent suffering for Coloradans.

- The human papillomavirus (HPV) is the leading cause of cervical cancer and can cause oropharyngeal, vaginal, vulvar, penile and anal cancers.
- Only 65 percent of Colorado teens received the HPV vaccine in 2015, with many less receiving the required number of doses for full protection.
- In 2013, there were 155 new cases of cervical cancer diagnosed in Colorado and 700 new cases of oropharyngeal, vaginal, vulvar, penile and anal cancer.
- New cases of HPV-attributable cancer in one year led to over \$23 million in medical costs (not including costs associated with screening and follow up testing) for Colorado (Table 2).
- In the U.S., it is estimated that taxpayers spend \$8 billion annually treating and preventing HPV (direct medical costs only).

Recommendations to reduce the rate of vaccine-preventable diseases in young children are to:

- Continue support for and strengthening of vaccine delivery systems
- Improve access to primary pediatric care
- Increase efforts to provide accurate information regarding the safety and benefits of childhood vaccination to parents

Colorado's current rate of children immunized with all of the recommended vaccines is well below the majority of U.S. states and the national goal of 90 percent, with under-vaccination resulting in preventable childhood illness, hospitalization and death.

"Vaccines are a safe and effective tool for preventing dangerous diseases. Worldwide, vaccines save 2.5 million children's lives each year. Colorado has the power to prevent unnecessary illness and hospitalization, as well as tens of millions of dollars in economic costs related to vaccine-preventable disease each year," said Dr. Edwin Asturias, report author and director of Latin America Projects at the Center for Global Health at the Colorado School of Public Health.

"Vaccination is not just a personal choice. Pockets of underimmunized children can lead to outbreaks, which affect the whole community and place others at risk, including vulnerable children with asthma, cancer or other high-risk health conditions," added Dr. James Todd, report author and director of epidemiology at Children's Colorado.

“By investing in efforts to strengthen vaccine policy, maximize systems that enhance vaccine delivery, such as the Colorado Immunization Information System (CIIS), and expand access to vaccines across the state, we can ensure our children and communities are protected,” said Dr. Todd.

Access the full *Vaccine-Preventable Diseases in Colorado’s Children Report* at www.childrensimmunization.org.

About the Colorado Children’s Immunization Coalition:

The Colorado Children’s Immunization Coalition (CCIC) is a statewide, independent 501(c)(3) nonprofit. Its mission is to strategically mobilize diverse partners and families to advance children’s health through immunizations. CCIC does not accept funding from vaccine manufacturers or distributors. To learn more, visit www.childrensimmunization.org and connect with CCIC on [Facebook](#) and [Twitter](#).

About Children’s Hospital Colorado

Children’s Hospital Colorado (Children’s Colorado) has defined and delivered pediatric health care excellence for more than 100 years. Founded in 1908, Children’s Colorado is a leading pediatric network entirely devoted to the health and well-being of children. Continually acknowledged as one of the nation’s top ten Best Children’s Hospitals by U.S. News & World Report and Parents magazine, Children’s Colorado is known for both its nationally and internationally recognized medical, research, education and advocacy programs, as well as comprehensive everyday care for kids throughout Colorado and surrounding states. Children’s Colorado also is recognized for excellence in nursing from the American Nurses Credentialing Centers and has been designated a Magnet® hospital since 2005. The hospital’s family-centered, collaborative approach combines the nation’s top pediatric doctors, nurses and researchers to pioneer new approaches to pediatric medicine. With urgent, emergency and specialty care locations throughout Metro Denver and Southern Colorado, including its campus on the Anschutz Medical Campus, Children’s Colorado provides a full spectrum of pediatric specialties. For more information, visit www.childrenscolorado.org and connect with Children’s Colorado on [Facebook](#), [Twitter](#) and [Pinterest](#).

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