



Facts on Kids in South Dakota

Volume 14, 3rd Quarter-2014



UNIVERSITY OF
SOUTH DAKOTA

Childhood Immunizations

This Facts on KIDS was written by Brennan Thompson, during his internship at SD Voices for Children. Thompson received his Bachelor of Social Work degree from the University of Sioux Falls in May 2014. He is currently enrolled in a Master's of Social Work program in Chicago. Immunization data were compiled by Maggie Lubeck, SD KIDS COUNT Staff Associate.

Introduction

Immunizations continue to be a rite of passage for pre-kindergarten children in the United States with every state having its own requirements. In South Dakota all kindergartners must provide evidence that they have been immunized for eight highly contagious diseases. Four other immunizations are recommended, but not required. A controversy surrounding immunizations centers on philosophical and religious exemptions because of parents' religious or philosophical beliefs. Like 47 other states, South Dakota allows exemption based on religious belief, but it is one of 31 states that do not allow philosophical exemptions. (Note: Vaccines and immunizations are used interchangeably in this issue of Facts on Kids.)

Vaccines Save Lives

The human body has the natural ability to fight against germs or microbes that cause disease. The immune system enables the body to fight diseases it has encountered before by developing antibodies to fight unfamiliar germs and microbes within a week their entering the body. However, vaccines make the difference when germs or microbes are strong enough overpower the immune system.

There have been numerous outbreaks of life-threatening diseases around the world and in the United States. Some examples are diphtheria, whooping cough (pertussis), polio, smallpox, measles, and yellow fever. These outbreaks continued until development of a vaccine. An example of this is paralytic polio, the worst type of polio, which is caused by the poliovirus and can result in loss of muscle reflexes, severe muscle pain and spasms, loose or floppy limbs, paralysis, and death. An average of over 35,000 cases of paralytic polio were reported in the late 1940s to early 1950s before a poliovirus vaccine was introduced in 1955 (Centers for Disease Control, 2014). The poliovirus vaccine saves thousands of lives every year. In 1988 there were more than 350,000 cases of polio reported globally. In 2012, thanks to global eradication efforts, there were only 223 reported cases.

Immunizations in South Dakota*

South Dakota Codified Law 13-28-7-1 requires students entering school or an early childhood program to present certification that they have been adequately immunized. Minimum requirements are defined below. *NOTE: Haemophilus Influenzae B, Hepatitis A, Hepatitis B, and Pneumococcal vaccines are recommended but not required.*

1. Four or more doses of diphtheria, pertussis and tetanus containing vaccine, with at least one dose administered on or after age 4. Three doses are required for children aged 7 years and older needing the primary series.
2. Four or more doses of poliovirus vaccine, at least one dose on or after age 4.
3. Two doses of a measles, mumps, and rubella vaccine (MMR) or serological evidence of immunity. Minimum age for the first dose is 12 months. Administer the second dose routinely at age 4 through 6 years. The second dose may be administered prior to age 4, provided at least 28 days have elapsed since the first dose.
4. One dose of varicella (chicken pox) vaccine. The minimum age for the first dose is 12 months. History of disease is acceptable with parent or guardian signature.
5. The additional immunization requirement for kindergarten entry only is two doses of varicella vaccine with the first dose at age 4 through 6 years. The minimum interval between the two doses is three months. History of disease is acceptable with parent or guardian signature.

**See the SD Department of Health website: (<http://doh.sd.gov/family/childhood/immunization/immunizations-required-for-sd-school-entry.aspx>)*

Facts on Kids in South Dakota

The Centers for Disease Control and Prevention-recommended immunization schedule (below) is designed to protect infants and children early in life, when they are most vulnerable, and before they are exposed to potentially life-threatening diseases.

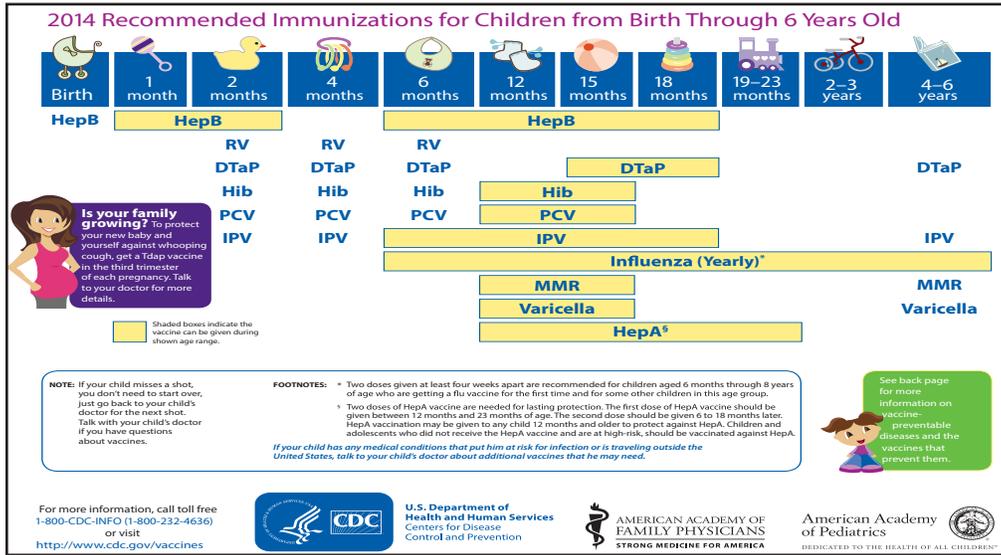


Chart 1 shows the 2012 National Immunization Survey estimated vaccination coverage among children 19-35 months of age and compares the percentage of South Dakota's vaccinated children to the United States national percentage. South Dakota leads the national average in every required immunization except for the four doses of DTaP.

South Dakota and the nation had a 93 percent rate of polio immunization in 2012.

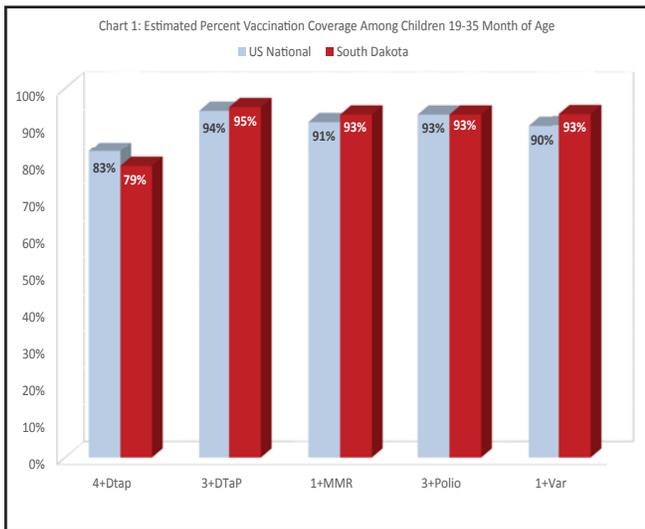
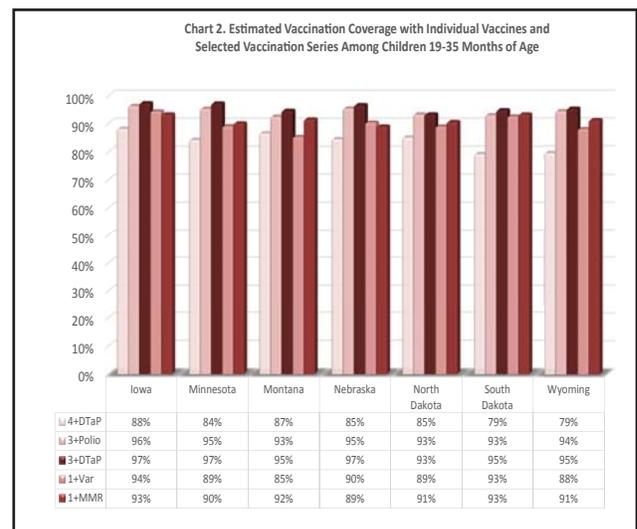


Chart 2 shows the 2012 National Immunization Survey estimated vaccination coverage among children 19-35 months of age for South Dakota and bordering states. All of the vaccinations represented are required to enter kindergarten.

South Dakota trails the surrounding states in any vaccination and Iowa in every vaccination.

South Dakota and Wyoming are tied for the lowest percentage of children receiving four doses of DTaP.



Common vaccine myths

Myth 1 - Diseases disappeared because of reasons other than vaccinations.

Better hygiene, clean drinking water, and sanitation helped but the introduction of vaccines resulted in a permanent drop in people catching the diseases. For instance, before the measles vaccination was introduced in 1963, there were more than 300,000 cases of measles a year. After the introduction of the vaccine, there have been fewer than 100,000 and since 1980 cases have not risen above 1,000 in any year.

Myth 2 - Vaccinated people account for the majority of those who get the disease.

No vaccine is 100% effective. Most are effective for 85 to 95% of those vaccinated during routine childhood vaccinations. Because approximately 91% of the population is vaccinated, a greater number of vaccinated people get a disease, but at a much lower percentage. For instance, of 1000 people there are approximately 910 who are vaccinated. When all are exposed to measles, 9% of those vaccinated will get the disease (82 people), and 50% who are not vaccinated get the disease (45 people). Even though more diseased individuals (82 of 127) have been vaccinated, only 9% of the total vaccinated population caught measles compared with the 50% of the total population of non-vaccinated individuals.

The table below illustrates this hypothetical scenario. Even though a lower percentage of vaccinated people catch measles (5% compared to 50%) it is a still a greater number of people (48 vaccinated compared to 25 non-vaccinated).

Myth 3 - vaccinations are for diseases that no longer

Total Population	1,000
Total Vaccinated	910
Total non-vaccinated	90
Percent of population unaffected by vaccine	9%
Total number of vaccinated who catch measles (9% of 910)	82
Percent of non-vaccinated that catch disease	50%
Total number of non-vaccinated who catch measles (50% of 90)	45

exist. Therefore, my child does not need vaccinations.

Diseases that have been eradicated in the United States still exist in other regions of the world. While the United States is not experiencing any current epidemics inhabitants of other countries are ill with diseases such as measles, mumps, and rubella. If afflicted individuals come to the United States, they can infect anyone who is not immunized. That person can infect anyone with whom they come in contact with and start a new epidemic in the United States. These outbreaks are showing up more and more in parts of this country where vaccinations are refused by a small number of people on the basis of religion or philosophy. Those who refuse vaccinations are putting themselves and everyone else at risk.

If a single region of the United States stops vaccinating, it could have a disastrous effect: “According to the World Health Organization (WHO), nearly 900,000 measles-related deaths occurred among persons in developing countries in 1999. In populations that are not immune to measles, measles spreads rapidly. If vaccinations were stopped, each year about 2.7 million measles deaths worldwide could be expected” (Centers for Disease Control, 2014).

Conclusion

Vaccines have saved millions of lives since their introduction and their requirement has helped eradicate diseases. Stopping vaccinations will end the eradication because of international travel and the presence of these diseases in other countries around the world. Paralytic polio, measles, mumps, rubella, diphtheria, and pertussis still exist and are highly contagious when presented to a non-immunized population. Vaccinations do not guarantee immunity from disease, but refusing vaccinations will put children and the overall population at a greater risk of contracting these diseases and the start of another outbreak.





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Facts on KIDS in South Dakota is published by South Dakota KIDS COUNT, Beacom School of Business, The University of South Dakota. The South Dakota KIDS COUNT Project (www.sdkidscount.org) is a national and state-by-state effort, sponsored by the Annie E. Casey Foundation, to track the status of children in the United States. By providing policymakers and citizens with benchmarks of child well-being, KIDS COUNT seeks to enrich local, state, and national discussions concerning ways to secure better futures for children and families. Additional funding for the state project comes from the South Dakota Departments of: Education & Human Services.

Thank you to:

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