

## Immunize Your Child and Protect Your Community Too

Vaccination provides protection against serious infectious diseases. Some vaccine-preventable diseases, such as measles, chickenpox, pertussis, diphtheria, and hepatitis A and B, are transmitted from person to person. Other diseases are acquired individually, such as tetanus. For diseases that are transmitted from person to person, vaccination can help to protect both the individual and the community in general.

Those who are not immunized can be protected indirectly against some infectious diseases by being surrounded by people who are immunized. This is known as community immunity, or herd immunity. Community immunity can prevent large outbreaks of a disease, and it is essential in order to protect certain members of the community, including:

- Infants who are too young to be vaccinated.
- Individuals who cannot be vaccinated for medical reasons.
- Vaccinated individuals for whom the vaccine is ineffective (up to 5% of children may not be protected by one or more of the vaccines they receive, because vaccines are rarely 100% effective).
- The elderly, whose immunity may have worn off.

Community immunity exists only when the vast majority of the population is immune. For example, someone who has never had chickenpox disease or been vaccinated against chickenpox is vulnerable and can become infected and develop the disease and its complications. But if everyone around that vulnerable person was immune to chickenpox (either because they've had the disease or by vaccination), then they cannot transmit the infection, and the virus might be blocked from reaching the vulnerable person. Immunized people help protect the community against infectious diseases the same way a firebreak protects the forest from wildfires.

Boulder County immunization rates are not as good as they could be, so our community may be at risk of infectious diseases. Currently, only about 60% of two-year-old children in Boulder County are fully immunized. The level for community immunity needed to prevent against diseases like diphtheria and rubella is 85%. Measles and whooping cough (pertussis) have even higher thresholds at 94% or higher.

Unvaccinated children are not only at greater risk of catching diseases that can be prevented by vaccines, but they can also reduce community immunity, thus putting others at risk. Research has determined that individuals claiming religious or philosophical exceptions from immunization are at a greater risk of contracting vaccine-preventable infectious diseases, and thus may be putting the rest of the community at risk.

Some parents worry that their children will have negative side effects from vaccinations. In reality, the risks of not vaccinating are much more dangerous and costly, at both individual and community levels, than the possible side effects of vaccines. In the vast majority of cases, vaccines cause either no side effects or only mild reactions, such as fever or soreness at the site of injection. Severe reactions to vaccines occur so rarely that the risk is difficult to calculate.

Immunization programs and the effects of community immunity have been successful in reducing the spread of many infectious diseases in the United States, but vaccine-preventable diseases still exist here and around the world. Living in a "global village," where travel makes the spread of disease easier and more likely, greatly increases our need for local community immunity.

Prevent. Protect. Immunize.