

He thought that maybe cowpox protected them. He decided to try an experiment. With the permission of the boy's father, Jenner gave an eight-year-old boy the cowpox virus that the milkmaids got. The boy had a few aches but did not get very sick. Later, Jenner exposed the boy to smallpox. The boy did not get sick. It seemed that the cowpox virus could protect the boy from smallpox. Several months later, Jenner again exposed the boy to smallpox disease. Again the boy stayed healthy. Jenner had found a way to prevent smallpox. The cowpox virus was acting as a **vaccine**.

**vaccine:** a substance that protects a person from a disease; from the Latin *vacca* for cow.

Trust in vaccinations came very slowly. But, little by little, people came to believe that the cowpox vaccine could prevent smallpox. Up until the 1970s, everyone was vaccinated against smallpox. This vaccination practice stopped because smallpox has been eradicated from the general population.

Before vaccines, parents in the United States could expect a whole variety of diseases to affect their children:

- *Polio*, a virus, would paralyze 10,000 children.
- *Rubella* (German measles), a virus, would cause birth defects and mental retardation in as many as 20,000 newborns.
- *Measles*, a virus, would infect about 4 million children, killing 3,000.
- *Diphtheria*, a virus, would be one of the most common causes of death in school-aged children.
- *Haemophilus influenzae type b* (*Hib*), a bacterial infection, would cause meningitis in 15,000 children, leaving many with permanent brain damage.
- *Pertussis* (*whooping cough*), caused by a virus, would kill thousands of infants.

Just two generations ago, when your grandparents were children, they feared polio, rubella, and measles. Your parents also worried about measles, mumps, and rubella. Since Edward Jenner, vaccinations have been made for many different diseases. Vaccines have become commonplace in the last hundred years. In many cases, vaccines have eliminated diseases that killed or severely disabled people. Most children are given vaccinations as part of their health care in the first two years of their lives.