TRACKING VACCINE-PREVENTABLE DISEASES

WHAT IS THE PUBLIC HEALTH ISSUE?

Dramatic declines in the incidence of vaccine-preventable diseases have created a need for surveillance systems that are sensitive enough to detect rare cases and isolated outbreaks of vaccine-preventable diseases. As new vaccines are licensed and recommended, new strategies for monitoring the incidence of additional diseases are also needed. Some of the diseases that have been newly identified as vaccine-preventable are not easily monitored through existing public health surveillance systems. These diseases require development of new and more complex strategies for surveillance.

WHAT HAS CDC ACCOMPLISHED?

CDC provides leadership and guidance for vaccine-preventable disease surveillance, investigation, and outbreak control throughout the United States. Recent accomplishments include documenting the elimination of naturally-acquired polio and indigenous measles in the United States. Scientific assistance provided to state and local health departments enables disease trends to be monitored and has demonstrated the effectiveness and impact of vaccines in controlling rubella, mumps, tetanus, diphtheria, *Haemophilus influenzae* type b, and chickenpox.

Example of Program in Action

Illness from nine infectious diseases (i.e., smallpox, diphtheria, pertussis, tetanus, paralytic polio, measles, mumps, rubella, and *H. influenzae* type b) has decreased by 95% to 100% since the beginning of the 20th century. Surveillance challenges presented by newly licensed vaccines against diseases such as chickenpox, which is not nationally notifiable, have led CDC to develop enhanced surveillance methods that include documentation of vaccine usage and the impact of vaccine recommendations. Results from three sites indicate a decrease in cases of chickenpox in all age groups, with the greatest decline occurring among children 1 to 4 years of age, the primary target group for vaccination. Results also show that the varicella vaccine is more than 90% effective in preventing moderate to severe cases of chickenpox when given routinely. Accomplishments have also been made through the New Vaccine Surveillance Network. This network has documented the burden of disease due to influenza among children 6 to 23 months of age.

WHAT ARE THE NEXT STEPS?

The need for enhanced surveillance to define disease burden and monitor vaccine impact continues. New approaches to surveillance include increased use of data from managed-care organizations, proprietary hospital discharge databases, state-based immunization registries, and laboratories.