

## A Publication of the Genesee County Health Department

### Pertussis Incidence in Genesee County

**P**ertussis, or whooping cough, is an acute infectious disease involving the respiratory tract that is caused by the bacterium *Bordetella pertussis*. Pertussis begins with mild upper respiratory tract symptoms (catarrhal stage) and can progress to severe paroxysms of cough (paroxysmal stage), often with a characteristic respiratory whoop. Paroxysms frequently end with the expulsion of clear mucus, often followed by vomiting. Fever is absent or minimal. Symptoms wane gradually (convalescent stage). Infants less than 6 months of age, adolescents and adults often do not have the typical whoop or cough paroxysm.

**S**ince 1991, pertussis has emerged as the most frequently reported vaccine-preventable disease among children < 5 years of age. Approximately 60% of reported pertussis cases are < 5 years of age. In recent years, an increasing proportion of cases has been reported among adults, and the number of outbreaks reported among school-age children and adolescents has been increasing. The reason for the resurgence of pertussis is unclear. This increase may be the result of waning immunity among adolescents and young adults. In recent studies, the efficacy of 3 or more doses of pertussis vaccine has been estimated to be 70-90%. The protection acquired from pertussis vaccine is thought to decrease over time, but the rate of decrease has not been well established. While previous receipt of a primary series of pertussis vaccine may not offer complete immunity, breakthrough disease is usually milder than disease that occurs in unvaccinated or incompletely vaccinated individuals.

**T**he Genesee County Health Department receives pertussis case data through various reporting sources, such as hospitals, physician's offices and clinical laboratories. Pertussis incidence has increased significantly in Genesee County since 1998. The number of reported cases

increased from 1 case in 1998, to 5 in 1999 to 11 in 2000. Epidemiological investigation in 2000 revealed that 7 out of 11 (64%) cases were less than 3 months of age, and had not received the initial dose of the DTaP vaccine; 2 cases (18%) were infants who had received 3 doses of the DTaP vaccine; and 2 cases were adolescents who had received the 5 recommended doses of the vaccine. Sixty-four percent of the cases were residents of the city of Flint and 54% of the cases were white. No further spread of the disease was documented from any of the cases. The possible exposure setting for all the cases may have been their homes where they were exposed to other family members who were ill with upper respiratory illnesses.

**A**fter consultation with the Michigan Department of Community Health (MDCH), it was evident that this trend of increased pertussis incidence is seen throughout the state of Michigan. There were 121 cases of pertussis in Michigan last year, through the week ending December 2, 2000. Many additional cases are likely to be unreported due to the health care

*Welcome to the first issue of Epi News. The purpose of this quarterly newsletter is to inform the community and health care providers in Genesee County about disease trends in the county. We welcome any comments or questions. Contact: Priya Nair, MPH, MSc, Epidemiologist, at (810) 768-7971, or email [Pnair@co.genesee.mi.us](mailto:Pnair@co.genesee.mi.us). Visit our website at <http://health.co.genesee.mi.us>*

providers' failure to report to public health authorities or the patient's failure to seek medical care. For comparable periods of 1998 and 1999, there were 69 and 65 cases respectively, that were reported to MDCH. This represents an 86% increase in pertussis incidence in Michigan last year, compared to 1999. Nationally, 7 of 9 regions reported more pertussis in 2000 compared to 1999. The increase in the number of cases was highest during the last quarter of the year.

The best strategy for preventing pertussis is ensuring that children are immunized completely according to the recommended childhood immunization schedule. Full protection is achieved after completion of the primary series of 4 doses of the DTaP vaccine. A 5<sup>th</sup> booster dose is recommended before the child enters kindergarten or elementary school. The potential for control and prevention of pertussis is somewhat limited compared to other vaccine preventable diseases, due to the decrease in vaccine-induced immunity over time. It has been estimated that the duration of vaccine-induced immunity is approximately 10-12 years. Pertussis is a common cause of persistent cough in adults and is often overlooked by clinicians. Clinical trials are underway to evaluate the use of pertussis vaccine in

older children and adults. Currently, pertussis vaccine is not licensed for use in persons over the age of 7 years.

Antibiotic therapy for pertussis (14-day course of erythromycin, 40-50 mg/kg per day orally in four divided doses) may shorten the course of illness in the catarrhal stage. After this stage, erythromycin is recommended to limit the spread of the organisms to others. When treated with erythromycin, the period of infectiousness usually is 5 days or less after onset of therapy. Infected individuals should also be excluded from group settings until no longer contagious. A 14-day course of erythromycin for household and other close contacts is recommended, regardless of immunization status.

Reporting of pertussis to local health authorities is obligatory in all states in the U. S. All new cases of pertussis in Genesee County must be reported to the Communicable Diseases Section of the Genesee County Health Department. Surveillance of this disease is crucial to efforts to reduce the incidence of pertussis in Genesee County.

## Selected Reportable Communicable Diseases in Genesee County

Disease	Week ending 12/22/00	Reported cases to date FY* 2000-01	Same week reported cases to date FY 1999-00	Total reported cases FY 1999-00
Chicken Pox	8	71	159	443
Pertussis	0	5	1	7
Flu-like illness	1337	12,488	13,833	42,750
TB-Active	10	11	15	22
Chlamydia	35	411	446	1822
Gonorrhea	38	352	404	1748
Hepatitis B	1	13	4	65
Campylobacter	0	5	3	21
Giardiasis	0	7	13	38
Hepatitis A	1	7	3	17
Salmonellosis	0	5	6	28
Shigellosis	0	12	3	32
Meningitis-Viral	0	19	6	44
Meningitis-Bacterial	0	3	3	17

\*FY – Fiscal Year, October 1-September 30

**Genesee County Health Department**

**Robert M. Pestronk, MPH, Health Officer • Gary K. Johnson, MD, MPH, Medical Director**