



Epidemiologic Notes & Reports

March 2000



PERTUSSIS

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Pertussis is an acute bacterial disease that effects the respiratory cilia. It produces toxins that paralyze the cilia and causes inflammation of the respiratory tract, thus interfering with the clearing of pulmonary secretions and potentially causing pneumonia. The incubation period of pertussis is usually 5 – 10 days (with upper limit of 21 days). The initial catarrh, inflammation of mucous membranes, has an insidious onset with an irritating cough that gradually intensifies within 1-2 weeks and lasts for 1-2 months with the development of a characteristic crowing or high-pitched inspiratory whoop. These whoop episodes frequently end with the expulsion of clear, tenacious mucus, often followed by vomiting. Infants less than 6 months of age, adolescents, and adults often do not have the typical whoop or coughing crisis.

Pertussis became a nationally reportable disease in 1922. This disease was a major cause of morbidity and mortality in the United States prior to the mid 1940's among infants and children. Approximately 9,000 pertussis related deaths occurred in 1923 (the highest number ever reported), in 1934 260,000 pertussis cases were reported. A vaccine for the prevention of pertussis was developed and the first results of vaccine usage were published in 1926. Then with the licensure of a whole-cell pertussis vaccine combined with diphtheria and tetanus toxoids (DTP) in 1949 and its widespread use among infants and children, the incidence of reported pertussis declined to a historical low of 1010 cases in 1976.

Concerns with the safety of whole-cell pertussis vaccines prompted the development of acellular vaccines that were less likely to provoke adverse events because they contain purified antigenic components of *Bordetella pertussis*. In 1991 licensure of two forms of acellular pertussis vaccine for use in the United States occurred. Both vaccines were only licensed for use as the fourth and fifth doses of the diphtheria, tetanus, and pertussis (DTaP) vaccination series among children aged 15 months through 6 years of age who had received the first three primary doses of whole-cell DTP. After several years of research and randomized clinical trails, the FDA in December 1996 licensed a form of acellular pertussis vaccine to be used for all five doses of the recommended diphtheria, tetanus, and pertussis vaccination series among children aged 6 weeks through 6 years of age.

Pertussis morbidity has decreased significantly during the 20th century with vaccination recommendations for universal use in children in the United States. However, pertussis still shows the least decrease among other vaccine preventable diseases. Even with the improvement of pertussis vaccines since the early 1980's reported pertussis cases have increased cyclically with peaks occurring in 1983, 1986, 1990, and 1993. In 1993 alone, 6,586 cases were reported, more than any year since 1976. The number of reported cases has increased in all age groups, but the increase is greatest among persons aged 5 years and older. Because vaccine induced immunity wanes approximately 5-10 years after pertussis vaccination is completed in early childhood.

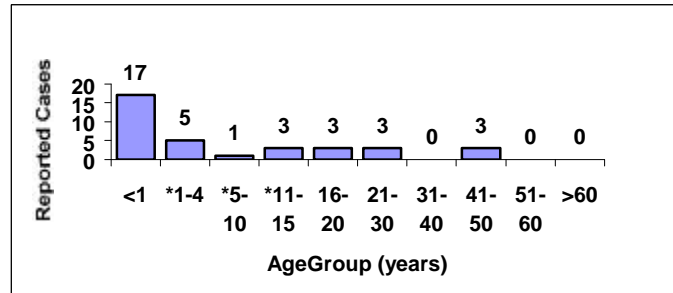
In the United States health care providers are seeing an increasing frequency in adolescents and young adults whose symptoms vary from mild, atypical respiratory illness to the full-blown syndrome. Many of these cases are occurring in previously immunized individuals. Even though there may be a waning of immunity, the severity of pertussis in older age groups is

(Continued on page 2)

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less than in individuals who have not received the vaccine. Infants and young children continue to have the highest risk for pertussis and its complications. As shown in Table 1 infants under one year of age represent the largest group of reported pertussis cases in Kentucky in 1999.

Table 1: Pertussis, Reported Cases by Age Distribution, Kentucky, 1999*



* Statistical Data contributed by Surveil-

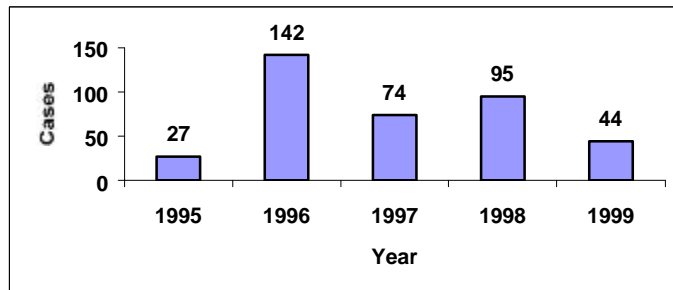
lance and Health Data Branch

Division of Epidemiology and Health Planning
 Department For Public Health, Cabinet for Health Services, Commonwealth of Kentucky

Complications from pertussis are more severe in infants less than 6 months of age. The most common complication and leading cause of pertussis related death is secondary bacterial pneumonia. Other complications resulting from hypoxia include seizures and encephalopathy. Neurological complications are more common among infants. Some of the more frequent complications of pertussis include otitis media, anorexia, and dehydration. Fatalities in the United States from pertussis are low in infants under 6 months of age with a case-fatality rate less than 1 percent. In the United States approximately 80% of deaths are infants under 1 year of age, and 70% of these deaths are less than 6 months of age.

A comparison of confirmed cases of pertussis from 1995 through 1999 in Kentucky is shown below in Table 2. The number reflected in 1995 is low due to a reporting problem during that year. In years 1996, 1997, 1998, and 1999 the number of confirmed cases increase cyclically with the highest number being reported in 1996. In 1996, two rural adjacent counties in Kentucky experienced a localized outbreak that accounted for 121 of the 142 pertussis cases reported in Kentucky. This outbreak occurred among members of a religious community which does not approve of immunizations. The majority of cases were among school age children. However, due to the lack of immunization among adults and children in the community, 13 of the cases were in adults over 20 years of age. Starting in 1997 one urban area of Kentucky has experience a localized outbreak for the past 3 consecutive years. In 1997, of the 74 pertussis cases reported, 45 occurred in this urban area, 85 of the 95 cases reported in 1998, and 31 of the 44 cases reported in 1999 again occurred in this same urban area.

Table 2: Pertussis, Confirmed Cases, Kentucky, 1995 – 1999*



*Statistical Data contributed by Surveillance and Health Data Branch
 Division of Epidemiology and Health Planning
 Department for Public Health, Cabinet for Health Services, Commonwealth of Kentucky

Included with this article is a chart on the Recommended Childhood Immunization Schedule, United States, January through December 2000 (Insert).
 References furnished upon request.

insert

Recommended Childhood Immunization Schedule United States, January - December 2000

Vaccines¹ are listed under routinely recommended ages. Bars indicate range of recommended ages for immunization. Any dose not given at the recommended age should be given as a "catch-up" immunization at any subsequent visit when indicated and feasible. Ovals indicate vaccines to be given if previously recommended doses were missed or given earlier than the recommended minimum age.

Age ▶ Vaccine ▼	Birth	1 mo	2 mos	4 mos	6 mos	12 mos	15 mos	18 mos	24 mos	4-6 yrs	11-12 yrs	14-16 yrs
Hepatitis B ²	Hep B	Hep B		Hep B			Hep B				Hep B	
Diphtheria, Tetanus, Pertussis ³			DTaP	DTaP	DTaP		DTaP ³			DTaP	Td	
H. influenzae type b ⁴			Hib	Hib	Hib	Hib						
Polio ⁵			IPV	IPV	IPV ⁵					IPV ⁵		
Measles, Mumps, Rubella ⁶						MMR				MMR ⁶	MMR ⁶	
Varicella ⁷						Var					Var	
Hepatitis A ⁸									Hep A ⁸ -In selected areas			

Approved by the Advisory Committee on Immunization Practices (ACIP), the American Academy of Pediatrics (AAP), and the American Academy of Family Physicians (AAFP).

On October 22, 1999, the Advisory Committee on Immunization Practices (ACIP) recommended that Rotashield® (RRV-TV), the only U.S.-licensed rotavirus vaccine, no longer be used in the United States (MMWR, Volume 48, Number 43, Nov. 5, 1999). Parents should be reassured that their children who received rotavirus vaccine before July are not at increased risk for intussusception now.

- 1 This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines as of 11/1/99. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and its other components are not contraindicated. Providers should consult the manufacturers' package inserts for detailed recommendations.
- 2 Infants born to HBsAg-negative mothers should receive the 1st dose of hepatitis B (Hep B) vaccine by age 2 months. The 2nd dose should be at least one month after the 1st dose. The 3rd dose should be administered at least 4 months after the 1st dose and at least 2 months after the 2nd dose, but not before 6 months of age for infants. Infants born to HBsAg-positive mothers should receive hepatitis B vaccine and 0.5 mL hepatitis B immune globulin (HBIG) within 12 hours of birth at separate sites. The 2nd dose is recommended at 1 month of age and the 3rd dose at 6 months of age. Infants born to mothers whose HBsAg status is unknown should receive hepatitis B vaccine within 12 hours of birth. Maternal blood should be drawn at the time of delivery to determine the mother's HBsAg status; if the HBsAg test is positive, the infant should receive HBIG as soon as possible (no later than 1 week of age). All children and adolescents (through 18 years of age) who have not been immunized against hepatitis B may begin the series during any visit. Special efforts should be made to immunize children who were born in or whose parents were born in areas of the world with moderate or high endemicity of hepatitis B virus infection.
- 3 The 4th dose of DTaP (diphtheria and tetanus toxoids and acellular pertussis vaccine) may be administered as early as 12 months of age, provided 6 months have elapsed since the 3rd dose and the child is unlikely to return at age 15-18 months. Td (tetanus and diphtheria toxoids) is recommended at 11-12 years of age if at least 5 years have elapsed since the last dose of DTP, DTaP or DT. Subsequent routine Td boosters are recommended every 10 years.
- 4 Three *Haemophilus influenzae* type b (Hib) conjugate vaccines are licensed for infant use. If PRP-OMP (PedvaxHIB® or ComVax® [Merck]) is administered at 2 and 4 months of age, a dose at 6 months is not required. Because clinical studies in infants have demonstrated that using some combination products may induce a lower immune response to the Hib vaccine component, DTaP/Hib combination products should not be used for primary immunization in infants at 2, 4 or 6 months of age, unless FDA-approved for these ages.
- 5 To eliminate the risk of vaccine-associated paralytic polio (VAPP), an all-IPV schedule is now recommended for routine childhood polio vaccination in the United States. All children should receive four doses of IPV at 2 months, 4 months, 6-18 months, and 4-6 years. OPV (if available) may be used only for the following special circumstances:
 1. Mass vaccination campaigns to control outbreaks of paralytic polio.
 2. Unvaccinated children who will be traveling in <4 weeks to areas where polio is endemic or epidemic.
 3. Children of parents who do not accept the recommended number of vaccine injections. These children may receive OPV only for the third or fourth dose or both; in this situation, health-care providers should administer OPV only after discussing the risk for VAPP with parents or caregivers.
 4. During the transition to an all-IPV schedule, recommendations for the use of remaining OPV supplies in physicians' offices and clinics have been issued by the American Academy of Pediatrics (see *Pediatrics*, December 1999).
- 6 The 2nd dose of measles, mumps, and rubella (MMR) vaccine is recommended routinely at 4-6 years of age but may be administered during any visit, provided at least 4 weeks have elapsed since receipt of the 1st dose and that both doses are administered beginning at or after 12 months of age. Those who have not previously received the second dose should complete the schedule by the 11-12 year old visit.
- 7 Varicella (Var) vaccine is recommended at any visit on or after the first birthday for susceptible children, i.e. those who lack a reliable history of chickenpox (as judged by a health care provider) and who have not been immunized. Susceptible persons 13 years of age or older should receive 2 doses, given at least 4 weeks apart.
- 8 Hepatitis A (Hep A) is shaded to indicate its recommended use in selected states and/or regions; consult your local public health authority. (Also see MMWR Oct. 01, 1999/48(RR12); 1-37).

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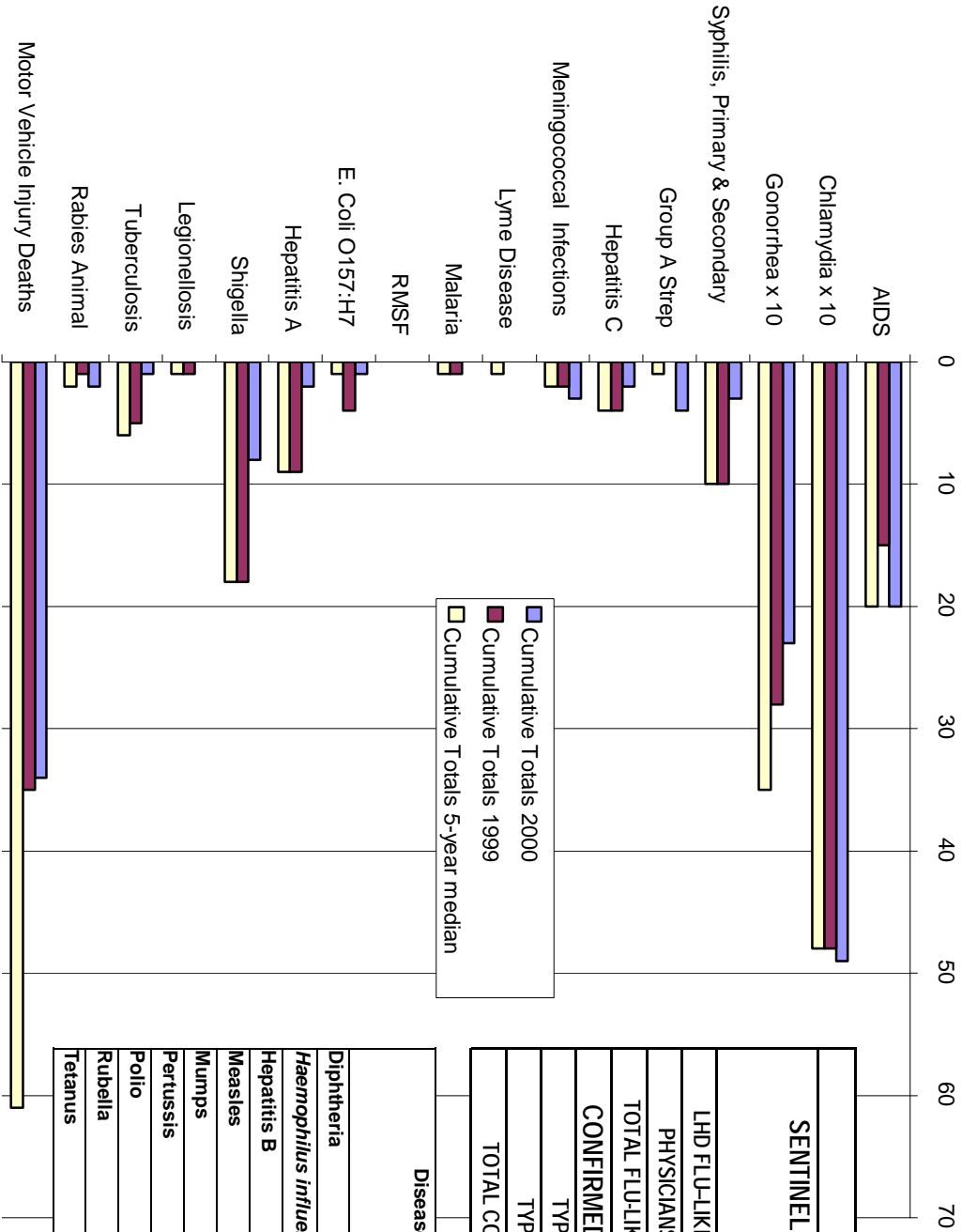
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**CASES OF SELECTED REPORTABLE DISEASES IN KENTUCKY, YEAR TO DATE (YTD)
THROUGH JANUARY 2000**



INFLUENZA	
SENTINEL REPORTS	OCTOBER 1999 THRU FEBRUARY 11, 2000
LHD FLU-LIKE SYMPTOMS	2,718
PHYSICIANS FLU-LIKE	332
TOTAL FLU-LIKE SYMPTOMS	3,050
CONFIRMED ISOLATES	
TYPE A	89
TYPE B	2
TOTAL CONFIRMED	95

Diseases	2000 YTD	1999 Annual Totals
Diphtheria	0	0
<i>Haemophilus influenza b</i>	1	9
Hepatitis B	1	48
Measles	0	2
Mumps	0	0
Pertussis	7	44
Polio	0	0
Rubella	0	0
Tetanus	0	0

Disease numbers reflect only those cases which meet the CDC surveillance definition.
Contributed by: Patricia Beeler, Surveillance and Health Data Branch.

KENTUCKY EPIDEMIOLOGIC NOTES & REPORTS

Printed With State Funds

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COMMONWEALTH OF KENTUCKY
CABINET FOR HEALTH SERVICES
DEPARTMENT FOR PUBLIC HEALTH
275 EAST MAIN STREET, MAILSTOP HS 2C-B
FRANKFORT, KENTUCKY 40621



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Linda Fritz Vanorio, RN, BSN, Editor

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RETURN SERVICE REQUESTED

Dr. Louis Moore Named Medical Director, Department for Medicaid Services

The Cabinet for Health Services is pleased to announce that Dr. Louis Moore as Medical Director for Medicaid Services, effective February 16, 2000. Dr. Moore comes to Kentucky's Medicaid Services after having served in Tennessee's Medicaid Department for the past twelve years, including his most recent position of Associate Medical Director. Dr. Moore has completed residencies in Preventive Medicine and Pathology, is Board Certified, has training and experience as a Pharmacist, and holds a Master's Degree in Public Health. He brings with him a broad range of experience and knowledge in Medicaid policy, pharmacy, public health issues and HCFA regulations to the Kentucky Medicaid Department. Congratulations Dr. Moore.



**Mark
Your
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Now!!**

“EPI” RAPID RESPONSE TEAM CONFERENCE

May 3, 1999

Lake Cumberland State Park Resort

STD UPDATE

May 2, 1999

2 - 4 PM

For more information or to register contact:

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