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Listeriosis in Virginia

Fast Fact: The genus *Listeria* is named after the English surgeon and supporter of antisepsis, Joseph Lister (1827-1912).

Introduction

Listeriosis is a potentially fatal foodborne illness caused by the bacterium *Listeria monocytogenes*.[1] Although an uncommon pathogen in the general population, the ability of the organism to survive in adverse environments and the severity of the illness it can cause make *L. monocytogenes* dangerous, especially to vulnerable individuals.[2,3] To highlight methods to reduce the risk of infection, this article provides clinical and epidemiologic information on listeriosis for healthcare professionals in Virginia.

In This Issue:

Clinical Features and Microbiology

Pathogenesis

L. monocytogenes is a motile, rod-shaped gram-positive organism (Figure 1).[4] Thirteen serotypes of *L. monocytogenes* have been identified, but human infection is generally caused by serotypes 1/2a, 1/2b, or 4b.[3] Most, if not all, cases of listeriosis in adult humans result from foodborne transmission.[5,6] In the fetus or neonate, *L. monocytogenes* may be acquired *in utero* via transplacental transmission (causing sepsis and premature birth) or perinatally during passage through an infected birth canal.[2,6] The infectious dose required to cause human illness is unknown.[7]

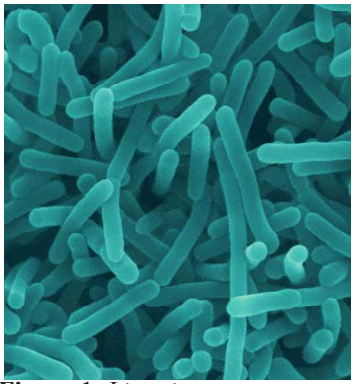


Figure 1. *Listeria monocytogenes* ©Dennis Kunkel Microscopy, Inc

In hosts with normal immune function, infection is rapidly suppressed.[5] However, in the immunocompromised person (especially those with suppressed T-cell-mediated immunity), a sustained low-level bacteremia can lead to infection of highly vascular structures (e.g., brain, gravid uterus).[3,5]

Diagnosis and Treatment

A spectrum of outcomes can occur following exposure to *L. monocytogenes*. In general, immunocompetent persons experience no illness, although asymptomatic carriage can occur. The most common clinical manifestation is diarrhea, and a mild presentation may appear as an acute febrile gastroenteritis (e.g., fever, myalgia, nausea, diarrhea).[2] Symptoms usually appear within 2-30 days, but may occur up to 90 days after consuming contaminated food.[8] Invasive disease, including sepsis and meningitis, may occur. This can present as fever, stiff neck, confusion, loss of balance, and/or seizures.[9] Pregnant women may experience a mild, influenza-like illness (severe headache, nausea, fever) followed by fetal loss or placentitis, bacteremia, and meningitis in their newborns.[7]

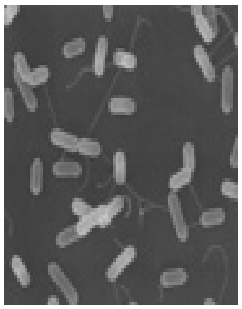
Since *L. monocytogenes* infection is frequently asymptomatic, or is only a mild enteric illness that resolves with supportive care,[2] it is often not suspected. In addition, stool cultures are neither sensitive nor specific, and serologic testing is not reliable. As a result, listeriosis is most commonly detected during an invasive illness (e.g., bacteremia, meningitis). Patients with central nervous system (CNS) infections have positive blood cultures in 60-75% of cases, and positive cerebrospinal fluid (CSF) cultures in nearly 100% of cases.[2]

While standard and contact precautions are recommended during treatment of cases, quarantine of individuals exposed to cases is not required.[1] Antimicrobial therapy (e.g., ampicillin plus gentamicin) is the treatment of choice for invasive disease. However, even with prompt treatment, mortality rates for hospitalized cases may be as high as 20-30%.[5]

People at risk for listeriosis should not consume soft cheeses (e.g., feta, Brie, Camembert, blue-veined, or Mexican-style cheese) or unpasteurized dairy products. Use only pasteurized hard cheeses, processed cheeses, cream cheese, cottage cheese, and yogurt.

Epidemiology

L. monocytogenes is ubiquitous in the human environment. The most common environmental reservoirs include soil, silage, forage, water, and mud. The gastrointestinal tracts of several species of animals, including humans and birds, can serve as reservoirs as well.[1,5] Meats and dairy products, as well as a variety of raw foods such as vegetables, can be contaminated with the organism. *L. monocytogenes* can also be spread by contact with an infected product or surface, such as hands or counter tops during food preparation.[8]



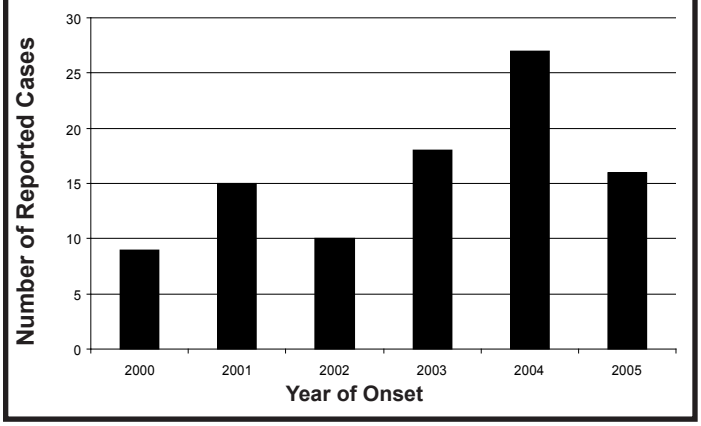
While *L. monocytogenes* is killed by pasteurization and cooking, it has been found in processed foods that become contaminated after production, such as soft cheeses and 'cold cuts'.[9] In addition, the organism will grow in foods stored in a refrigerator, and the bacterium is resistant to various other environmental conditions such as high salt or acidity.[3,8] As a result, it can survive for long periods in the environment, on foods, in processing plants, and in the household refrigerator.[3]

The incidence of reported listeriosis in the U.S. was 2.7 per 1,000,000 population in 2004. This is relatively low compared to other pathogens such as *Salmonella* (147/1,000,000) or *Campylobacter* (129/1,000,000).[10] However, of all foodborne infections, the rate of hospitalization is highest for persons infected with *L. monocytogenes* (88 percent). Similarly, of all the foodborne pathogens tracked by the Centers for Disease Control and Prevention (CDC), *L. monocytogenes* has the highest case-fatality rate (20% of persons hospitalized with listeriosis die). Thus, although listeriosis is a relatively rare diagnosed cause of foodborne illness, invasive infection can result in serious illness.[3]

Most cases of listeriosis occur sporadically, and there is usually no discernible seasonal pattern.[1] Listeriosis tends to strike persons with underlying health conditions. Pregnant women are approximately 20 times more likely than other healthy adults to develop listeriosis, and they account for 27% of all cases.[2] In addition, seventy percent of all nonperinatal infections occur in immunocompromised patients. Corticosteroid therapy is the most important predisposing association in patients who are not pregnant, but other high-risk groups include the elderly and persons with cancer, diabetes, alcoholism, kidney disease, or AIDS.[2,3,9]

Outbreaks of listeriosis occur and occasionally lead to widespread disease. The most serious recently recognized foodborne outbreak in the U.S., involving 54 cases in nine states (including 8 adult and 3 fetal deaths), was reported in 2002. A case-control study implicated deli turkey meat as the probable source, and a voluntary recall of over 30 million pounds of product followed.[14]

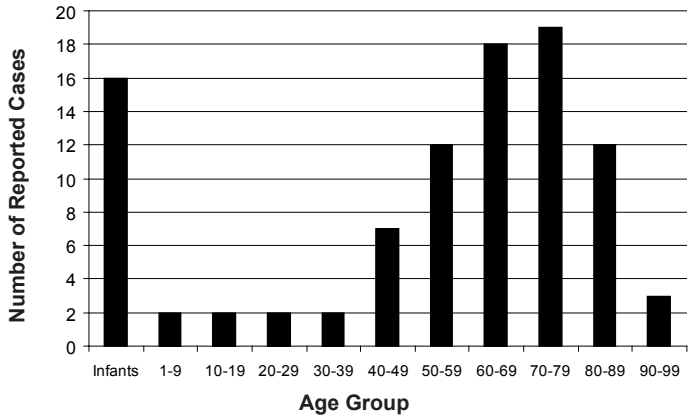
Figure 1. Reported Cases of Invasive Listeriosis in Virginia by Year (2000 - 2005)



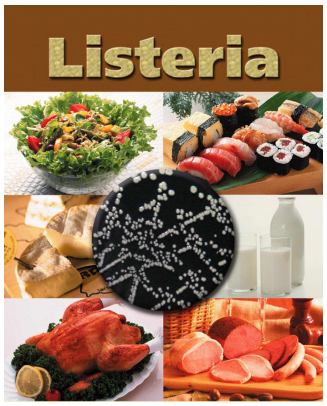
Listeriosis in Virginia

Listeriosis is a reportable disease in Virginia (State Board of Health's *Regulations for Disease Reporting and Control*: 12 VAC 5-90-80). For this article, a review of *L. monocytogenes* infections reported to local health departments by healthcare professionals and directors of healthcare facilities and laboratories in Virginia from 2000 through 2005 was conducted. Population estimates for each year in Virginia were obtained from the U.S. Census Bureau (note: since population data are not yet available for 2005, 2004 population data were used as a proxy).

Figure 2. Total Number of Cases of Invasive Listeriosis Reported by Age Group in Virginia (2000 - 2005)



From 2000-2005, a total of 95 cases of listeriosis was reported in Virginia; all 95 cases were invasive (i.e., isolated from blood, CSF, or another sterile site). Overall, the annual number of cases of listeriosis in Virginia has fluctuated (range: 9-27; mean: 16) with no specific trend apparent (Figure 1). The overall crude incidence rate of *L. monocytogenes* infections for this period was 2.2/1,000,000 persons; for comparison, the estimated national incidence in 2004 was 2.7/1,000,000 persons.[10]



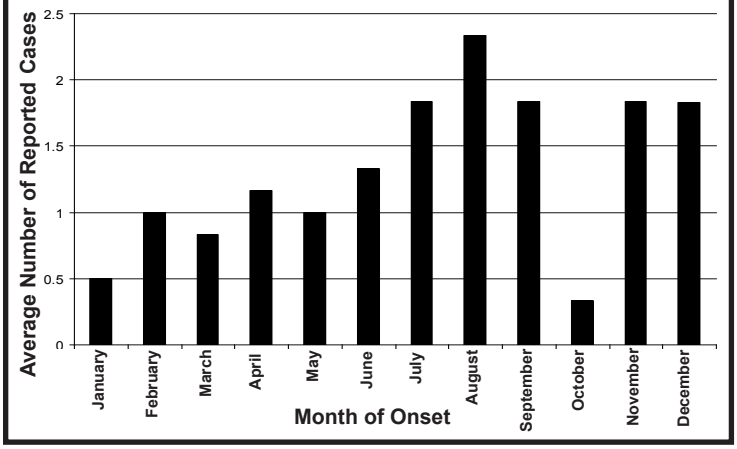
Approximately half (52.1%) of the cases of listeriosis reported from 2000-2005 occurred in females. The risk of invasive listeriosis by age is bimodal; infants and persons fifty years of age and older have the highest risks (27.2/1,000,000 persons and 5.4/1,000,000 persons, respectively)(Figure 2). The reported occurrence of *L. monocytogenes* infection showed a seasonal trend: the peak numbers of cases reported occurred from July through December (Figure 3).

Although outbreaks of listeriosis in Virginia have been rare, the potential for them exists. For example, on September 28, 2005, an Edinburg, Virginia, meatpacker voluntarily recalled 165 pounds of cooked country hams contaminated with *L. monocytogenes* that had been distributed to retail establishments in Rockingham County, Virginia.[11]

Public Health Efforts

Public health efforts are aimed at minimizing the exposure of individuals to *L. monocytogenes*. Local, state, and national agencies aim to prevent illness through the promotion of healthy food handling practices (see Box 1 and Box 2) and regulation of food processing, and by detecting potential emerging threats through disease investigation.

Figure 3. Average Number of Reported Cases of Invasive Listeriosis by Month of Onset in Virginia (2000 - 2005)



Food Regulation

Prevention of listeriosis, as with all foodborne illnesses, centers on the assurance that meatpacking practices comply with applicable laws and regulations, especially with regard to cleanliness and temperature control. To this end, the U.S. Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA) regularly monitor food for pathogens. Based upon the known characteristics of this microorganism and the disease, FDA maintains a policy of "zero tolerance" for *L. monocytogenes* in ready-to-eat foods.[3] When a processed food is found to be contaminated, food monitoring and plant inspection are intensified, and the implicated food is recalled.[9] In 2005, the USDA announced 30 separate recalls of meat or poultry products that were contaminated with *L. monocytogenes*.[12,13] Program measures may substantially reduce morbidity due to foodborne listeriosis in the United States. For example the estimated incidence of listeriosis nationally has decreased by 40% since 1996.[10]

Cluster Surveillance

Public health surveillance of cases reported in Virginia can identify potential clusters, and investigation can highlight high-risk food items and target regulatory, industry, and public health action. A major tool for surveillance is pulsed-field gel electrophoresis (PFGE analysis). PFGE provides a means of subtyping isolated strains of *L. monocytogenes* to determine possible genetic relatedness. This can be used to identify outbreaks and to examine possible connections between a *L. monocytogenes* strain found in a product sample and a human isolate.[14] In Virginia, all clinical isolates of *L. monocytogenes* are

forwarded to the state public health laboratory for subtyping. Results are entered into the National Molecular Subtyping Network for Foodborne Disease Surveillance (PulseNet), improving the ability to detect outbreaks at the state and national levels.

Conclusions

The significance of *Listeria monocytogenes* as a cause of foodborne enteric disease in Virginia is difficult to determine since the diagnosis of non-invasive listeriosis is problematic. However, the epidemiologic data suggest that invasive *L. monocytogenes* infection remains a significant concern. As a result, high-risk individuals should receive counseling on proper food handling techniques and be advised to consider excluding the highest risk foods from their diets. These clinical and public health efforts can help to reduce the impact of this dangerous pathogen on vulnerable populations.

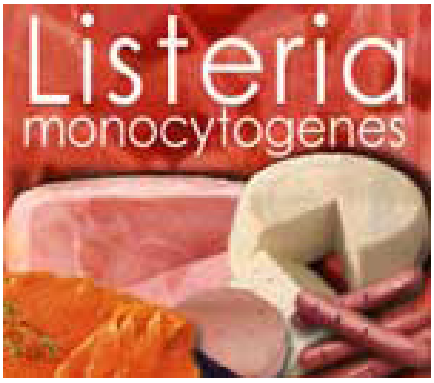
Submitted by: Richard L. Siemens, JD, MD, MPH
Preventive Medicine, VCU

Box 1. General recommendations for avoiding foodborne infections:[9]

- Thoroughly cook raw food from animal sources, such as beef, pork, or poultry.
- Wash raw vegetables thoroughly before eating.
- Keep uncooked meats separate from vegetables and from cooked foods and ready-to-eat foods.
- Avoid unpasteurized (raw) milk or foods made from unpasteurized milk.
- Wash hands, knives, and cutting boards after handling uncooked foods.
- Consume perishable and ready-to-eat foods as soon as possible.

Box 2. Recommendations for high-risk individuals for avoiding listeriosis:[9]

- Do not eat hot dogs, luncheon meats, or deli meats, unless they are reheated until steaming hot.
- Wash hands after handling high-risk foods (e.g., hot dogs, luncheon meats, or deli meats).
- Avoid getting fluid from hot dog packages on other foods, utensils, and food preparation surfaces.
- Do not eat soft cheeses (e.g., feta, Brie, Mexican-style) unless they have labels that clearly state they are made from pasteurized milk, or they are in a fully cooked dish. Other dairy products such as hard cheese, processed cheese, cream cheese, cottage cheese, or yogurt can be freely consumed during pregnancy.
- Do not eat **refrigerated** pâtés, meat spreads, or smoked seafood, unless it is an ingredient in a fully cooked dish. **Canned or shelf-stable** pâtés, meat spreads, or seafood may be eaten.



References

1. Heymann DL, ed. Control of Communicable Diseases Manual. 17th ed. Washington, DC: American Public Health Association, 2004.
2. Weinstein K. *Listeria monocytogenes*. 2005. (Accessed 1/4/2006, at www.emedicine.com/MED/topic1312.htm).
3. USDA. Structure and Initial Data Survey for the Risk Assessment of the Public Health Impact of Foodborne *Listeria monocytogenes*. 1999. (Accessed 12/28/2005, at www.cfsan.fda.gov/~dms/listrisk.html).
4. Brockstedt DG et al. 2004. *Proc Natl Acad Sci.* 101(38): 13832-13837.
5. Vazquez-Boland JA et al. 2001.*Clin Microbiol Rev.* 14(3): 584-640.
6. Siegman-Igra Y et al. 2002. *Emerg Infect Dis*. 8(3):305-10.
7. CDC. Listeriosis: Technical Information. 2005. (Accessed 12/28/2005, at www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis_t.htm).
8. Canadian Food Inspection Agency. Factsheet: Food Safety Facts On *Listeria*. 2001. (Accessed 12/28/2005, at www.inspection.gc.ca/english/corpaffr/foodfacts/listeriae.shtml).
9. CDC. Listeriosis: General Information. 2005. (Accessed 12/28/2005, at www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis_g.htm).
10. CDC. *Morb Mortal Wkly Rep*. 2005. 54(14): 352-256.
11. USDA. Recall Notification Report 041-2005. (Accessed 12/28/2005, at www.fsis.usda.gov/Fsis_Recalls/RNR_041_2005/index.asp).
12. USDA. FSIS Food Recall Archive: 2005. (Accessed 12/28/2005, at www.fsis.usda.gov/Fsis_Recalls/Recall_Case_Archive/index.asp).
13. USDA. FSIS Food Recall: Open Federal Cases. (Accessed 1/4/2006, at www.fsis.usda.gov/Fsis_Recalls/Open_Federal_Cases/index.asp).
14. Gottlieb S et al. 2006. *Clin Infect Dis*. 42:29-36.

Listeriosis: Reportable in VA

Virginia's *Regulations for Disease Reporting and Control* require that clinicians, healthcare facility administrators, and laboratory directors report all known or suspected cases of listeriosis to their local health department. The local health department can then investigate to determine if the illness may be part of a wider outbreak, and possibly intervene to reduce the risk to others.

Flu Corner

Influenza Activity in Virginia and the U.S.

In December, 2005, influenza activity increased significantly in the U.S. and in Virginia. From the beginning of the season to January 14, 2006, DCLS reported eleven confirmed cases of influenza A, and a commercial laboratory reported one confirmed case of influenza A. These include cases from the three laboratory-confirmed influenza outbreaks reported in separate facilities in Virginia. Overall, as of January 14, 2006, in the U.S., eight states reported widespread influenza activity; 14 states reported regional influenza activity (including Virginia); 11 states reported local influenza activity; 16 states reported sporadic influenza activity; and one state reported no influenza activity. The proportion of deaths attributable to pneumonia and influenza in 122 cities monitored by the Centers for Disease Control and Prevention (CDC) was 7.8%—a level below the epidemic threshold.

The CDC reports that during the week ending January 14, 2006, 238 (11.8%) of 2,016 specimens tested by the World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) laboratories were positive for influenza. Since October 2, WHO and NREVSS laboratories have tested a total of 43,434 specimens for influenza viruses; 2,092 (4.8%) were positive. Of these, 2,026 (96.8%) were influenza A viruses and 66 (3.2%) were influenza B viruses. One thousand eighty-two (53.4%) of the 2,026 influenza A viruses have been subtyped: 1,075 (99.4%) were influenza A (H3N2) viruses and 7 (0.6%) were influenza A (H1N1) viruses.

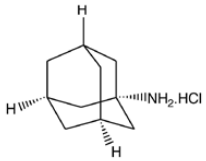
Please see the CDC website at www.cdc.gov/flu/weekly/fluactivity.htm for up-to-date details on influenza surveillance in the U.S.

VDH Launches New Pandemic Influenza Web Site

To enhance pandemic influenza communications, VDH has created a new Web site: www.vdh.virginia.gov/pandemicflu. This site, modeled after the federal pandemic influenza site, provides a single resource for timely and comprehensive information about avian influenza and preparing for the possibility of a pandemic, including fact sheets, checklists, frequently asked questions, and preparedness resources for individuals, businesses, and government entities. The website was developed with input from the Virginia Pandemic Influenza Advisory Committee, which has representatives from government, healthcare, schools, private industry, law enforcement, and emergency response groups.

Warning: Influenza A H3N2 Adamantane Antiviral (Amantadine, Rimantadine) Resistance Widespread

Of 120 influenza A (H3N2) viruses recently isolated from patients in 23 states and tested at CDC as of January 12, 2006, 109 (91%) contain an amino acid change at position 31 of the M2 protein. This confers resistance to amantadine and rimantadine. Three influenza A (H1N1) viruses have been tested and have demonstrated susceptibility to these drugs. All influenza viruses from the United States that have been screened for antiviral resistance at CDC have demonstrated susceptibility to the neuraminidase inhibitors (e.g., oseltamivir, zanamivir).



Amantadine

On the basis of available antiviral testing results, CDC is providing an interim recommendation that neither amantadine nor rimandatine be used for the treatment or prophylaxis of influenza A in the United States for the remainder of the 2005-06 influenza season. Oseltamivir or zanamivir should continue to be used for the management of influenza. Testing of influenza isolates for resistance to antivirals will continue throughout the 2005-06 influenza season and recommendations will be updated as needed. Annual influenza vaccination remains the primary means of preventing morbidity and mortality associated with influenza.

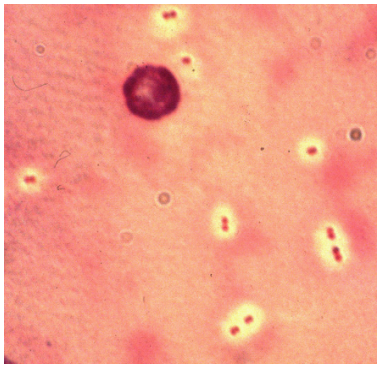
For more details, please see the CDC's Health Alert at www.cdc.gov/flu/han011406.htm.

Virginia to Receive $2.29 Million for Pandemic Flu Preparedness

The U.S. Department of Health and Human Services has announced that states will be receiving a portion of the funds recently allocated by Congress to enhance national preparedness for a possible pandemic of influenza. Of the initial allocation of $100 million to the states, Virginia will be receiving $2.29 million.

The Virginia Department of Health (VDH) already is involved in numerous efforts to enhance preparedness for a possible pandemic of influenza, including the development of a Pandemic Influenza Advisory Committee that has met quarterly since April, 2005, the production of an educational video, a pandemic influenza Web site, the revision of the state pandemic influenza response plan, and the development of a pandemic influenza communications plan for the Commonwealth.

Effects of Routine PCV-7 Vaccination of Children on Invasive Pneumococcal Disease (1998-2003)



Adapted from the September 16, 2005, Morbidity and Mortality Weekly Report [54(36);893-897]

Streptococcus pneumoniae (pneumococcus) is a leading cause of pneumonia and meningitis in the United States and disproportionately affects young children and the elderly. Invasive pneumococcal disease (IPD) refers to the isolation of pneumococcus from a normally sterile body site (e.g., blood or cerebrospinal fluid). In 2000, a 7-valent pneumococcal conjugate vaccine (PCV7) was licensed in the United States for routine use in children aged <5 years. Surveillance data from the Active Bacterial Core surveillance (ABCs) of the Emerging Infections Program Network indicate that:

1) Routine vaccination of young children with PCV7 has resulted in statistically significant declines in the incidence of IPD through 2003 in the age group targeted for vaccination and among older children and adults (e.g., total incidence of IPD declined by 75% in children aged <5 years, from 96.7 cases/100,000 population in 1998-1999 to 23.9 cases/100,000 population in 2003);
2) PCV7 prevented more than twice as many vaccine-type IPD cases in 2003 through indirect effects on pneumococcal transmission (i.e., herd immunity) than through its direct effect of protecting vaccinated children (Figure 2); and,
3) Increases in disease caused by pneumococcal serotypes not included in the vaccine (i.e., replacement disease) occurred in certain populations but were small compared with overall declines in vaccine-serotype disease.

Overall, an estimated 24,878 net cases of IPD were prevented in 2003; net prevented cases were evenly distributed between the age group targeted for vaccination with PCV7 (12,786 prevented cases [51%]) and older children and adults outside the target population (12,092 prevented cases [49%]).

Observed declines in adult IPD were not likely attributable to the 23-valent pneumococcal polysaccharide vaccine

Who Should Receive PCV-7 – and When

Children Under 2 Years of Age

The routine schedule for pneumococcal conjugate vaccine is 4 doses, one dose at each of these ages: **2 months, 4 months, 6 months, and 12-15 months**.

Children who weren't vaccinated at these ages can still get the vaccine. The number of doses needed depends on the child's age.

Children Between 2 and 5 Years of Age

Pneumococcal conjugate vaccine is also recommended for children between 2 and 5 years old who have not already gotten the vaccine and are at high risk of serious pneumococcal disease. This includes children who:

- have sickle cell disease,
- have a damaged spleen or no spleen,
- have HIV/AIDS,
- have other diseases that affect the immune system, such as diabetes, cancer, or liver disease,
- take medications that affect the immune system, such as chemotherapy or steroids,
- have chronic heart or lung disease, or
- have cochlear implants.

The vaccine should be considered for all other children under 5 years, especially those at higher risk of serious pneumococcal disease. This includes children who:

- are under 3 years of age,
- are of Alaska Native, American Indian or African American descent, or
- attend group day care.

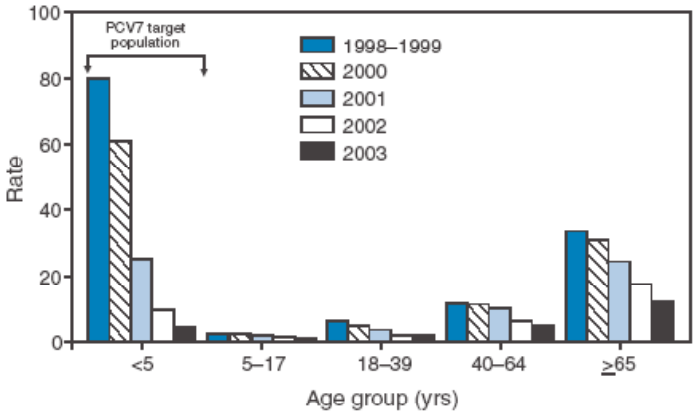
The number of doses needed depends on the child's age.

Source: Centers for Disease Control and Prevention, Vaccine Information Statement, Pneumococcal Conjugate Vaccine (9/30/02) (Accessed January 10, 2006 at www.cdc.gov/nip/publications/VIS/vis-PneumoConjugate.pdf) and Centers for Disease Control and Prevention, Use of Vaccines for the Prevention of Meningitis in Persons with Cochlear Implants (7/31/03) (Accessed January 10, 2006 at www.cdc.gov/nip/issues/cochlear/cochlear-hcp.htm)

(PPV23), given that no decline occurred in the incidence of IPD caused by serotypes included in PPV23 but not in PCV7, and given that the slight increase in vaccine coverage of PPV23 since 1998 would not be expected to cause a measurable change in IPD rate. Ongoing surveillance will be required to monitor the balance of disease reduction versus replacement in the conjugate vaccine era, particularly in vulnerable populations (e.g., the elderly and immunocompromised persons) who might be more susceptible to less virulent nonvaccine type strains of pneumococci. Such information will be critical for determining whether the composition of conjugate vaccines should be revised or expanded over time.

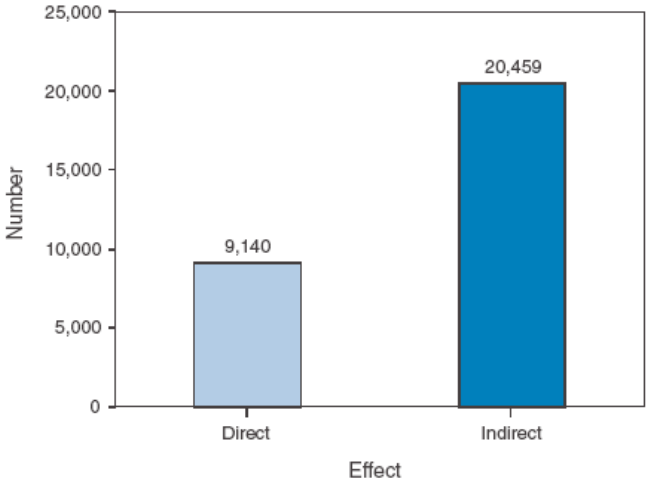
For additional details, see the complete article at www.cdc.gov/mmwr/preview/mmwrhtml/mm5436a1.htm.

FIGURE 1. Rate* of vaccine-type (VT) invasive pneumococcal disease (IPD) before and after introduction of pneumococcal conjugate vaccine (PCV7), by age group and year — Active Bacterial Core surveillance, United States, 1998–2003



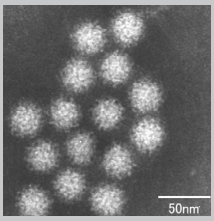
* Per 100,000 population.
† For each age group, the decrease in VT IPD rate for 2003 compared with the 1998–1999 baseline is statistically significant (p<0.05).

FIGURE 2. Estimated number of cases of vaccine-type (VT) invasive pneumococcal disease (IPD) prevented by direct* and indirect† effects of pneumococcal conjugate vaccine (PCV7) — Active Bacterial Core surveillance, United States, 2003



* Direct VT IPD cases prevented in 2003 = 1998–1999 average number of VT IPD cases in children aged <5 years x 2003 PCV7 coverage with 3 doses (68.1%) x PCV7 effectiveness for VT IPD (93.9%).
† Indirect VT IPD cases prevented in 2003 = (1998–1999 average number of VT IPD cases across all age groups – 2003 number of VT IPD cases across all age groups) – 2003 direct VT IPD cases prevented. Calculation of indirect cases prevented does not account for replacement disease.

Norovirus Alert



Eleven confirmed outbreaks of norovirus ("winter vomiting disease") have been reported in Virginia as of January 23, 2006. These outbreaks have occurred in healthcare facilities and other community settings throughout the state.

Norovirus is a common virus that causes symptoms of nausea, vomiting, and watery non-bloody diarrhea. Symptoms usually appear 12 to 48 hours after exposure to the virus and last for one to two days. The virus is easily spread from person to person. Outbreaks in daycare centers and nursing homes may be severe, and hospitalizations and deaths from dehydration have occurred, especially among the elderly and the very young.

There is no specific treatment for the illness. Persons who do become sick should drink plenty of fluids to prevent dehydration. In addition, persons who are infected with norovirus should not prepare food while they have symptoms and for three days after they recover from their illness. Measures to prevent the spread of the disease include hand washing, careful food preparation, and proper cleaning and disinfection of contaminated surfaces.

The Division of Consolidated Laboratory Services (DCLS) can perform testing for norovirus outbreaks. Contact your local health department to discuss suspicious clusters of cases of gastroenteritis—they can help investigate and arrange for testing.

Remember:

- Individual cases of norovirus are NOT notifiable diseases.
- Known or suspected OUTBREAKS of norovirus ARE notifiable, and should be reported to your local health department as soon as possible.

Cases of Selected Notifiable Diseases Reported in Virginia*

Disease	Total Cases Reported, November 2005						Total Cases Reported Statewide, January - November		
		Regions							
	State	NW	N	SW	C	E	This Year	Last Year	5 Yr Avg
AIDS	52	10	17	6	4	15	569	609	686
Campylobacteriosis	25	6	4	5	3	7	516	574	586
***E. coli* O157:H7**	2	1	0	1	0	0	42	33	51
Giardiasis	34	7	8	10	3	6	493	471	369
Gonorrhea	568	34	34	72	130	298	7,581	7,902	9,010
Hepatitis, Viral									
A	10	1	8	0	1	0	81	113	123
B, acute	5	0	1	1	0	3	130	236	183
C, acute	2	0	0	1	1	0	13	13	8
HIV Infection	88	6	33	13	17	19	744	771	775
Lead in Children†	69	10	10	14	18	17	601	756	710
Legionellosis	7	1	2	2	1	1	43	48	44
Lyme Disease	28	2	15	1	1	9	230	165	142
Measles	0	0	0	0	0	0	0	0	<1
Meningococcal Infection	7	1	1	0	1	4	33	20	32
Mumps	0	0	0	0	0	0	0	10	7
Pertussis	14	3	9	0	0	2	316	196	113
Rabies in Animals	40	9	6	11	3	11	450	452	504
Rocky Mountain Spotted Fever	16	1	5	2	3	5	110	30	27
Rubella	0	0	0	0	0	0	0	0	0
Salmonellosis	76	13	22	18	13	10	1,030	1,060	1,068
Shigellosis	7	3	3	0	1	0	116	145	458
Syphilis, Early§	30	5	9	0	1	15	267	186	194
Tuberculosis	19	0	8	2	0	9	264	248	246

Localities Reporting Animal Rabies This Month: Accomack 1 cat, 1 raccoon; Augusta 1 raccoon, 1 skunk; Bedford 1 fox; Botetourt 1 fox; Caroline 1 fox; Carroll 3 skunks; Chesapeake 1 raccoon; Chesterfield 1 bat; Clarke 1 skunk; Fairfax 1 bat, 1 cat, 1 raccoon, 1 skunk; Fauquier 1 skunk; Floyd 1 skunk; Giles 1 skunk; Hampton 1 raccoon; Hanover 1 raccoon, 1 skunk; Loudoun 1 raccoon; Mathews 1 raccoon, 1 skunk; Middlesex 1 skunk; Northampton 1 skunk; Patrick 1 skunk; Prince William 1 raccoon; Roanoke 1 raccoon; Russell 1 skunk; Shenandoah 1 raccoon, 3 skunks; Suffolk 1 fox; Tazewell 1 cat; Virginia Beach 1 raccoon.
Toxic Substance-related Illnesses: Adult Lead Exposure 19; Asbestosis 2; Mercury Exposure 1; Pneumoconiosis 7.
*Data for 2005 are provisional. †Elevated blood lead levels ≥10µg/dL. §Includes primary, secondary, and early latent.

Public Health Note: The Strategic National Stockpile (SNS)

The U.S. Department of Homeland Security (DHS) and the U.S. Department of Health and Human Services (DHHS) collaborate on important initiatives to assure national medical preparedness and response capacity. One component, available for emergency deployment throughout the nation and its territories, is the Strategic National Stockpile (SNS). This resource contains antibiotics, vaccines, chemical antidotes, antitoxins, life-support medications, IV administration and airway maintenance supplies, and medical/surgical items. Over time, the stockpile has been augmented in several ways. For example, a limited supply of influenza antiviral medications is now included in the SNS for emergency situations.

The SNS is organized to allow a "scalable" response. Push Packs, deliverable to any place in the country within 12 hours of the federal decision to deploy, comprise the first line of support. If the incident requires additional pharmaceuticals and/or medical supplies, follow-on Managed Inventory (MI) supplies will be shipped to arrive within 24 to 36 hours. The Virginia Department of Health (VDH) is responsible for planning for the reception and distribution of SNS supplies to communities as quickly as possible.