



# VIRGINIA EPIDEMIOLOGY BULLETIN

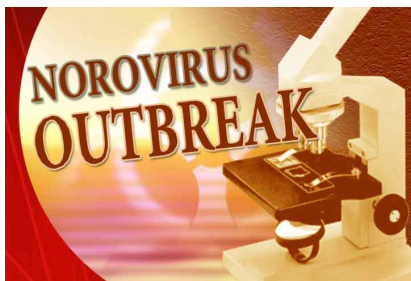
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## ***Norovirus: It's Here!***



Although norovirus circulates year-round in Virginia, the increase in illness typically seen during the winter months has earned it the title of "Winter Vomiting Disease." Healthcare professionals should be aware that a significant increase in the number of outbreaks of

norovirus has been detected recently in Virginia. The following report illustrates the problems that norovirus can cause for long-term care facilities, as well the assistance that local health departments can provide in resolving outbreaks.

### ***Norovirus Outbreak at a Long-Term Care Facility***

On October 9, 2006, the Lord Fairfax Health District was informed that 12 residents of a long-term care facility had acutely developed nausea, vomiting, and diarrhea. A response team from the Shenandoah County Health Department responded to assist the facility in the investigation.

The team found that 12 of 24 residents in the skilled nursing unit at the facility exhibited symptoms meeting the case definition of nausea, vomiting, and/or diarrhea. There were no ill residents in any of the other long-term care units, each

caring for approximately 30 residents. Since the facility has a central kitchen, but all cases were limited to the skilled nursing wing, the team concluded that this was probably not a foodborne outbreak but a bacterial or viral gastrointestinal illness that was spread from person to person.

As a result, disease control measures were developed and put into place including: a hand washing in-service for all staff, reinforcement of the value of hand washing to prevent the spread of the agent, cohorting of staff to care for ill or non-ill residents, exclusion of any ill staff from work until two days after the resolution of diarrhea, and isolation of ill residents.

On October 10, 2006, two new cases were identified in the skilled nursing unit and six cases in the long-term care section of the facility. In addition, seven staff members had become ill and were excluded from work.



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On October 11, 2006, the number of ill staff had increased to 12, but by October 12, 2006, no new resident or employee cases were reported. One index case was hospitalized for dehydration; other cases generally resolved within 24 hours with oral rehydration.

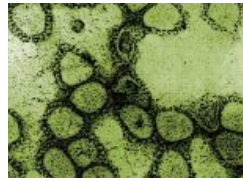
Stool samples from six residents and one staff member were sent to the Division of Consolidated Laboratory Services (state laboratory) on October 10, 2006—three tested positive for norovirus.

## Conclusions

Although norovirus infection does not usually cause serious illness, it can cause dehydration in children and the elderly that may require hospitalization. In addition, norovirus can significantly

disrupt individuals (e.g., missed work) and facilities such as prisons/jails, schools, and nursing homes, as well as restaurants, cruise ships, etc. Individuals can reduce the risk of transmission by:

- Frequently washing hands with warm water and soap, or using ethanol-based hand sanitizer when soap/water is not available;
- Disinfecting contaminated surfaces with bleach-based household cleaners;
- Washing soiled clothing and linens with hot water and detergent;
- Staying at home when sick to avoid spreading the illness to others.



Because norovirus is so infectious, and can survive on surfaces for prolonged periods, control measures need to be well coordinated. While individual cases of norovirus are not reportable, healthcare professionals and directors of healthcare facilities must notify their local health department of any suspected outbreaks of norovirus so that the source can be identified and interventions can be implemented to reduce further transmission of illness. The results of this case study suggest that intensive interventions made by the facility may have very effectively interrupted the progression of this outbreak (i.e., within 72 hours after implementation of control measures, no further cases developed).

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## Warning: Risk of Inadvertent Misadministration of Meningococcal Conjugate Vaccine

In 1978, the meningococcal polysaccharide vaccine (MPSV4, Menomune; Sanofi Pasteur, Inc.) was licensed in the United States for administration by the subcutaneous (SC) route. The newer meningococcal conjugate vaccine (MCV4, Menactra; Sanofi Pasteur, Inc.) is a tetravalent meningococcal conjugate vaccine licensed in January 2005 for administration by the intramuscular (IM) route. Both vaccines protect against *Neisseria meningitidis* serogroups A, C, Y, and W-135. However, the immunogenicity and safety of MCV4 have been assessed for IM administration only—the immunogenicity and safety of MCV4 after SC administration have not been evaluated.

During June-August 2005, the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA) were notified of seven clusters of inadvertent subcutaneous misadministration of MCV4. Overall, a total of 101 persons

in seven states were reported to have received MCV4 by the SC route.

Of these 101 individuals, 100 were contacted by their healthcare providers and advised of the administration error. Twelve non-serious adverse events were reported among 54 persons from whom providers solicited such information. Eleven events were local reactions, including injection-site rash, tenderness, swelling, induration, or pain, and one was a fever of one day's duration. The frequency and nature of adverse events among these persons are similar to those reported after IM vaccination in MCV4 licensure trials.

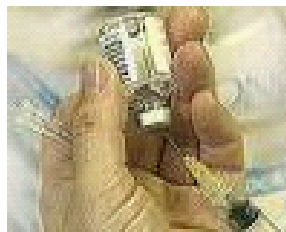
The CDC conducted an investigation to determine whether SC administration of MCV4 resulted in a protective immunologic response. On the basis of comparable protective antibody titer results measured for nearly all of the SC vaccinees participating in this investigation with those from the

manufacturer's pre-licensure MCV4 clinical trial database, it was found that persons vaccinated by the SC route were sufficiently protected and that revaccination was not necessary.

The most likely reason for the inadvertent misadministration of MCV4 for these cases was that the older meningococcal vaccine (MPSV4) is licensed for SC administration, whereas MCV4 is licensed only for IM administration. This reason was cited by healthcare providers participating in the investigation.

Therefore, the CDC cautions healthcare providers to be aware that the licensed route of vaccine administration can vary among similar vaccines and recommends that providers carefully review and follow the route of administration indicated on the vaccine label and package insert before administering vaccines. This is especially important following the introduction of a new vaccine product.

Reference  
MMWR. 2006;  
55(37):1016-1017.



# Flu Corner

## Surveillance

In the U.S., for the week ending January 6, 2007, five states reported widespread influenza activity, 11 states reported regional activity, 15 states (including Virginia) reported local influenza activity, 19 states reported sporadic activity, and one state reported no activity. The

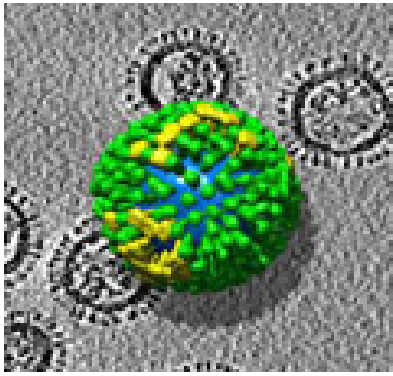


Photo: National Institutes of Health

nationwide proportion of patient visits to sentinel providers for influenza-like illness (ILI) was 2.3%—this percentage is above the baseline of 2.1%. However, the proportion of deaths attributed to pneumonia and influenza in 122 cities monitored by the U.S. Centers for Disease Control and Prevention (CDC) remained below the epidemic threshold. Nationally, two influenza-associated pediatric deaths have been reported thus far to the CDC for the 2006-07 influenza season.

For the week ending January 6, 2007, the Division of Consolidated Laboratory Services (DCLS) reported one positive influenza case (type A/H1). Since October 7, 2006, DCLS has reported a total of four confirmed influenza cases (three of type A/H1; one of type A/H3) in Virginia. No laboratory confirmed outbreaks of influenza have been reported thus far. Please see the Virginia Department of Health website at [www.vdh.state.va.us/epi/flu.asp](http://www.vdh.state.va.us/epi/flu.asp) for up-to-



date Virginia surveillance information.

During the week ending January 6, 2007, 222 (7.6%) of 2,939 specimens tested for influenza viruses by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System

(NREVSS) collaborating laboratories were positive for influenza: 62 influenza A (H1) viruses, one influenza A (H3) virus, 120 influenza A viruses that were not subtyped, and 39 influenza B viruses.

Since October 1, 2006, 2,787 (5.5%) of 50,666 specimens tested for influenza virus by the WHO and NREVSS laboratories were positive. Among the 2,787 influenza viruses, 2,256 (80.9%) were influenza A viruses and 531 (19.1%) were influenza B viruses. Six hundred ninety-five (30.8%) of the 2,256 influenza A viruses have been subtyped: 669 (96.3%) were influenza A (H1) viruses and 26 (3.7%) were influenza A (H3) viruses.

The CDC has antigenically characterized 98 influenza viruses collected by U.S. laboratories since October 1, 2006:

### • Influenza A (H1) [59 viruses]

- Fifty-three (90%) of the 59 viruses characterized were similar to A/New Caledonia/20/99-like [the influenza A (H1) component of the 2006-07 influenza vaccine], while six (10%) showed somewhat reduced similarity to A/New Caledonia/20/99.

### • Influenza A (H3) [2 viruses]

- Both viruses were characterized as A/Wisconsin/67/2005-like, the influenza A (H3) component of the 2006-07 influenza vaccine.

### • Influenza B [37 viruses]

- Twenty-two (59%) of the 37 influenza B viruses characterized belong to the B/Victoria lineage of viruses. Nine (41%) of these 22 viruses were similar to B/Ohio/01/2005, the B component of the 2006-07 influenza vaccine, while thirteen (59%) showed somewhat reduced similarity to B/Ohio/01/2005.

Fifteen (41%) of the 37 influenza B viruses characterized belong to the antigenically distinct B/Yamagata lineage of viruses.

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



## Avian Influenza A (H5N1)

No human infections with avian influenza A (H5N1) have been identified in the U.S. However, outbreaks of avian influenza A (H5N1) among poultry and isolated human cases continue to be reported from countries in Africa, Europe, and Asia—as of January 15, 2007, 267 laboratory confirmed human cases (with 161 deaths – a case fatality proportion of 60.3%) have been reported to the World Health Organization since the start of the epizootic in 2003. As a result, the CDC continues to recommend surveillance for human infection with avian influenza among travelers returning to the United States from H5N1-affected countries.

**Cases of Selected Notifiable Diseases Reported in Virginia\***

**Total Cases Reported, November 2006**

Disease	State	Regions					Total Cases Reported Statewide, January - November		
		NW	N	SW	C	E	This Year	Last Year	5 Yr Avg
<b>AIDS</b>	52	1	15	5	6	25	514	570	646
<b>Campylobacteriosis</b>	43	10	8	10	5	10	594	529	586
<b>Chickenpox</b>	144	45	31	32	13	23	1,537	631	529
<b><i>E. coli</i>, Shiga toxin-producing</b>	15	4	2	5	2	2	156	89	55
<b>Giardiasis</b>	42	12	13	7	7	3	454	501	391
<b>Gonorrhea</b>	412	22	14	50	143	183	6,057	7,580	8,614
<b>Group A Strep, Invasive</b>	5	2	0	1	1	1	119	83	78
<b>Hepatitis, Viral</b>									
<b>A</b>	4	1	3	0	0	0	58	80	110
<b>B, acute</b>	11	0	0	2	3	6	65	123	178
<b>C, acute</b>	1	0	0	0	1	0	9	11	9
<b>HIV Infection</b>	67	2	17	6	21	21	787	737	787
<b>Lead in Children†</b>	55	8	10	10	18	9	619	579	679
<b>Legionellosis</b>	8	1	0	3	2	2	64	44	47
<b>Lyme Disease</b>	31	10	18	0	0	3	268	235	161
<b>Measles</b>	0	0	0	0	0	0	0	0	<1
<b>Meningococcal Infection</b>	2	2	0	0	0	0	18	33	31
<b>Pertussis</b>	14	0	11	0	0	3	188	316	155
<b>Rabies in Animals</b>	50	17	13	9	6	5	573	468	477
<b>Rocky Mountain Spotted Fever</b>	10	2	0	3	3	2	104	111	48
<b>Rubella</b>	0	0	0	0	0	0	0	0	0
<b>Salmonellosis</b>	80	15	28	12	11	14	925	1,040	1,092
<b>Shigellosis</b>	17	1	6	10	0	0	103	117	396
<b>Syphilis, Early§</b>	28	1	10	4	4	9	331	266	196
<b>Tuberculosis</b>	15	2	8	1	3	1	243	264	250

*Localities Reporting Animal Rabies This Month:* Accomack 1 raccoon; Bath 1 cow, 1 raccoon, 1 skunk; Bedford 1 cat; Bland 1 raccoon; Campbell 1 fox, 1 raccoon, 1 skunk; Caroline 1 skunk; Chesterfield 1 cat; Culpeper 1 cow; Fairfax 1 cat, 1 fox, 3 raccoons; Fauquier 1 cow, 2 raccoons; Floyd 1 skunk; Hanover 1 skunk; Isle of Wight 1 raccoon; James City 1 fox, 1 skunk; Loudoun 3 raccoons, 2 skunks; Lynchburg 1 raccoon, 1 skunk; Nelson 1 raccoon; New Kent 1 skunk; Nottoway 1 skunk; Orange 1 raccoon; Page 1 raccoon; Powhatan 1 skunk; Prince William 2 foxes, 1 raccoon; Rockbridge 3 skunks; Shenandoah 1 skunk; Spotsylvania 2 skunks; Sussex 1 skunk; Virginia Beach 1 raccoon; Wythe 1 skunk.

*Toxic Substance-related Illnesses:* Adult Lead Exposure 11; Asbestosis 1; Pneumoconiosis 4.

\*Data for 2006 are provisional. †Elevated blood lead levels  $\geq 10\mu\text{g/dL}$ . §Includes primary, secondary, and early latent.

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The introductory self-study course *Principles of Epidemiology in Public Health Practice, Third Edition*, is now available online at [www.cdc.gov/training/products/ss1000/ss1000-ol.pdf](http://www.cdc.gov/training/products/ss1000/ss1000-ol.pdf). The course is free of charge, and is designed for health professionals who may be interested in outbreak investigations or public health surveillance.

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