

# VIRGINIA

# EPIDEMIOLOGY BULLETIN

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## ***Influenza in Virginia Adult Residential Facilities, 1997-1998***

During the 1997-98 influenza season, 43 adult residential facilities reported outbreaks of influenza-like illness to the Virginia Department of Health (VDH). Thirty-two of these facilities were licensed nursing homes; the remainder were adult homes, including retirement homes, assisted living centers and rest homes. By comparison, during the previous five influenza seasons, no adult residential facility had reported an outbreak of influenza-like illness to VDH. The affected facilities were distributed throughout the state as follows: Northwest health planning region - 5 facilities, Northern health planning region - 4 facilities, Southwest health planning region - 12 facilities, Central health planning region - 5 facilities, and Eastern health planning region - 17 facilities.

A total of 788 residents of the 43 adult residential facilities were reported with influenza-like illness. Sixty (8%) residents were hospitalized and 37 (5%) residents died as a result of their illness. The number of ill residents per facility ranged



from 2 to 70, with attack rates at the facilities ranging from 3% to 53% (mean=23%). Vaccination rates among residents were reported as 75% - 100% for those facilities that provided this information. Although nursing home staff were known to have had influenza during these outbreaks, detailed information about attack rates and vaccination coverage of staff was generally unavailable.

Influenza type A was confirmed in 13 adult residential facilities. Further subtyping of isolates from residents of several of these facilities identified A/Sydney/5/97-like virus, a related but antigenically distinguishable strain of the H3N2 component of the 1997-98 influenza vaccine. Nationwide, over 80% of the

H3N2 isolates antigenically characterized by the Centers for Disease Control and Prevention (CDC) were similar to A/Sydney/5/97.<sup>1</sup> Because vaccine effectiveness depends, in part, on the match between the vaccine and circulating strain, wide circulation of a variant strain resulted in suboptimal vaccine protection during the 1997-98 influenza season.

An epidemiologic investigation was conducted by the CDC during the first nursing home outbreak in Virginia. Seventy-nine percent of the residents and 50% of the staff had received influenza vaccine. By the end of the outbreak, which began on January 7 and lasted about three weeks, influenza-like illness had been identified in 57 (30%) residents and 34 (17%) staff. Influenza type A was confirmed in 11 residents: 5 by isolation of the organism from nasopharyngeal swab specimens; 3 by serologic testing ( $\geq$  four-fold rise in antibody titer between acute and convalescent specimens collected 2-3 weeks apart), and 3 by isolation and by serologic testing. Four isolates were further subtyped as A/Sydney/5/97-like. The study found a vaccine effectiveness rate of 25% among residents and 11% among staff in preventing illness. The study did not show that the vaccine protected against death due to influenza in residents of this nursing home.<sup>2</sup> According to CDC, influenza vaccine should prevent severe illness, secondary complications, and death even when the vaccine does not contain the predominant circulating strain.

#### References

1. CDC. Update:influenza activity, United States and worldwide, 1997-98 season, and composition of the 1998-99 influenza vaccine. MMWR 1998;47:280-4.
2. CDC. Update: influenza activity, United States, 1997-98 season. MMWR 1998;47:196-200.

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# Recommendations for the Prevention and Control of Influenza Outbreaks in Nursing Homes

While the 1997-98 influenza season was characterized by the circulation of a variant strain, even when the match between circulating strains and the vaccine strain is good, outbreaks of influenza can still occur among vaccinated persons. Therefore, settings such as nursing homes that house persons at high risk for influenza-related complications need contingency plans for rapid diagnostic testing for influenza, and when influenza type A is identified, for the usage of antiviral drugs for prophylaxis and treatment.

Physicians who attend patients in nursing homes should maintain a high degree of suspicion for influenza when respiratory illness occurs during the influenza season, even when illness occurs in vaccinated persons. Typically, influenza is characterized by the sudden onset of fever, frequently with chills or rigors, headache, diffuse myalgia, dry cough, and malaise; subsequently, the respiratory signs of sore throat, nasal congestion and cough become more prominent. In elderly persons, particularly those who have received influenza vaccine, these characteristic signs and symptoms may be altered or absent. In the 1998 Virginia nursing home outbreak studied by the Centers for Disease Control and Prevention, the predominant symptoms of ill residents were cough and congestion; fever was generally low-grade or absent. As a rule, during influenza season, any increase in respiratory disease in a nursing home should be considered influenza until that diagnosis is ruled out, especially if some residents have a fever and/or cough and illness is serious enough to cause an increased rate of hospitalization and/or death.

Nursing homes should take the following steps to protect their residents against influenza:

1. All\* residents should receive the current influenza vaccine each fall immediately prior to the influenza season. The optimal time for an organized vaccination program is usually from October to mid-November. Administering vaccine too far in advance of the influenza season should be avoided, because antibody levels might begin to decline within a few months of vaccination. Persons admitted to nursing homes during the winter months after completion of the vaccination program should be vaccinated when they are admitted.

Annual vaccination should be done each year with the concurrence of attending physicians rather than by obtaining individual vaccination orders for each patient. Initial consent for vaccination should be obtained from the resident or responsible family member at the time of admission to the facility.

2. All\* staff should receive the current influenza vaccine each fall. Staff must be educated that as caretakers of a high risk population, they need to be vaccinated to prevent the transmission of a potentially life-threatening illness to their patients. In addition, vaccination will protect them from acquiring influenza and also from transmitting it to their families.
3. Notify your local health department as soon as you suspect an influenza outbreak. Early detection is critical in the control of outbreaks. Nursing home staff should call the health department if an increase in cases of respiratory illness is observed, especially if it is associated with an increase in hospitalizations and/or deaths. Health department staff are available to provide consultation and assistance to any nursing home experiencing an unusual incidence of disease.
4. Laboratory confirmation of the etiology of the outbreak is critical. Information about obtaining laboratory specimens is provided on page 3. When influenza is suspected, contact your local health department to obtain a "flu kit" and further information. The state laboratory, the Division of Consolidated Laboratory Services, provides free laboratory testing for influenza during the influenza season, as part of Virginia's statewide surveillance system for the disease.
5. In the event of an influenza type A outbreak, to prevent further transmission, nursing homes should be prepared to rapidly administer rimantadine or amantadine to residents and staff, according to the guidelines on page 3. Preapproved medication orders in



residents' charts will facilitate this. Patients for whom these drugs are contraindicated should have this noted in their charts. There are very few absolute contraindications for the administration of rimantadine or amantadine; however, we did receive reports of patients inappropriately given rimantadine who were already taking amantadine for treatment of Parkinson's disease. Some of these residents developed severe central nervous system disturbances that persisted until the rimantadine was stopped.

6. In the event of an influenza outbreak, any unvaccinated residents and staff should be vaccinated.\* Anyone who is vaccinated during an influenza A outbreak should take rimantadine or amantadine for two weeks after vaccination.
7. During an outbreak, nursing homes must maintain heightened surveillance for febrile and respiratory illness among residents and staff. Ill residents should be cohorted together, away from the well, as much as possible. Staff should be assigned to work with either sick or well patients, but not circulated among both groups. Staff should not work while ill.
8. Staff should be reminded that they can spread the virus via their hands or fomites (e.g., towels, medication cart items, etc.). Staff who provide care to multiple residents should wear gloves and wash their hands and change into fresh gloves before working with the next resident.<sup>1</sup>
9. New admissions should be halted and visitation restricted until the outbreak is over (i.e., at least 3 consecutive days without any new cases). When admissions resume, any new admissions should receive rimantadine or amantadine prophylactically until one week after the outbreak is over. If possible, they may begin taking the rimantadine or amantadine for 2-3 days prior to admission to the nursing home.

\*See the August 1998 Virginia Epidemiology Bulletin for information about persons for whom vaccination is contraindicated.

#### Reference

1. Morens DM, Rash VM. Lessons from a nursing home outbreak of influenza A. *Infection Control and Hospital Epidemiology* 1995;16:275-80.

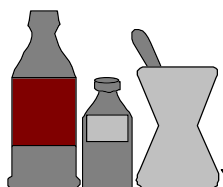
## Laboratory Confirmation of Influenza

1. **Culture** - The best specimens to collect for influenza virus isolation are nasopharyngeal washings or swabs. For nursing home residents, the preferred method is generally a nasopharyngeal swab. The specimen should be collected within the first two days after onset of illness and shipped immediately to the laboratory. Positive results may be available within a few days, but in some instances it may take several weeks for viral growth to be detected.

2. **Direct Fluorescent Antibody (DFA)** - This can be done rapidly on the same specimens that are collected for culture, with results generally available within 24 hours of receipt of the specimen. The specificity of this test is close to 100%, but the sensitivity is highly variable (43%-80%) and is better for detection of influenza A than influenza B.

3. **Serology** - Acute and convalescent sera collected 2-3 weeks apart may be used to confirm influenza. Results of serologic testing are generally available about 1 week after receipt of the convalescent specimen.

Complete directions for collecting nasopharyngeal and serum specimens and shipping them to the Division of Consolidated Laboratory Services are available in the "flu kit" which can be obtained from your local health department.



## Administration of Antiviral Agents (Rimantadine or Amantadine) during an Influenza Type A Outbreak in a Nursing Home\*

The two antiviral agents with specific activity against influenza A viruses are amantadine hydrochloride and rimantadine hydrochloride. These drugs interfere with the replication cycle of type A influenza viruses; there are no antiviral agents for prophylaxis or treatment of type B influenza viruses.

**Treatment:** Rimantadine or amantadine is not recommended for anyone who has already had flu-like symptoms and recovered. Furthermore, when used for treatment, it is not likely to help persons who have had flu-like symptoms for more than 48 hours. The patient's physician should decide whether rimantadine or amantadine should be administered to someone who has been sick more than 48 hours. The recommended dose of rimantadine for elderly nursing home residents is 100 mg/day. Amantadine can also be used but rimantadine has fewer central nervous system side effects (see the August 1998 *Virginia Epidemiology Bulletin* for the CDC guidelines for prescribing antiviral agents). Because of possible induction of amantadine or rimantadine resistance, treatment of persons who have influenza-like illness should be discontinued as soon as clinically warranted, generally after 3-5 days of treatment or within 24-48 hours after the disappearance of signs and symptoms.

**Prophylaxis:** When confirmed or suspected outbreaks of influenza occur in nursing homes and other institutions that house persons at high risk, chemoprophylaxis should be started as early as possible to reduce the spread of the virus. If it is later determined that the outbreak is due to influenza type B or to another respiratory pathogen, administration of rimantadine or amantadine should be stopped.

When rimantadine or amantadine is used for outbreak control, the drug should be administered to all residents who have not had flu-like symptoms, regardless of whether they received influenza vaccine the previous fall. The drug should be continued for at least 2 weeks or until 1 week after the end of the outbreak, whichever is longer. To reduce the spread of virus and to minimize disruption of patient care, rimantadine or amantadine should be offered to unvaccinated staff who provide patient care. Prophylaxis should be considered for all employees, regardless of their vaccination status, if the outbreak is caused by a variant strain of influenza A that is not controlled by the vaccine.

\*Adapted from *MMWR*; 1998;47(RR-6):1-26.

## Flu Update 1998\*

An outbreak of influenza type A has been reported among travelers to Alaska and the Yukon Territory this summer. Viral isolates have been further characterized as A/Sydney/5/97-like viruses, a strain included in the 1998-99 influenza vaccine.

From May 1 to August 22, 1998 (the last date for which information is available as this publication goes to press), 2,199 cases of acute respiratory illness were identified. Of these illnesses, 766 (35%) cases in tourists and tourism workers in the region met the criteria for influenza-like illness, and an additional 71 (3.2%) cases were radiographically confirmed as pneumonia. Fifty of the persons with pneumonia were hospitalized. The median age of all persons with acute respiratory illness was 60 years (range:1-91 years), and the median age of persons with pneumonia was 72 years (range:9-91 years). Since May 1, two deaths have occurred among travelers with acute respiratory illness to these areas. Further investigation is under way to determine whether these deaths were associated with influenza A infection.

Prospective surveillance continues to identify cases of febrile respiratory illness, particularly among smaller groups of tourists sharing transportation and accommodations on overland tours, and among passengers and crew members on cruise ships. As of August 22, active surveillance has identified no outbreaks of influenza among residents of Alaska or the Yukon Territory.

Health-care providers evaluating patients with febrile respiratory illnesses or pneumonia should obtain a travel history and consider influenza A in the differential diagnosis for persons who have traveled recently to Alaska or the Yukon Territory. Information about the outbreak is available on the CDC Web site (<http://www.cdc.gov/travel/travel.html>). Health-care providers may continue to report cases of illness to the Special Investigation Team, [telephone (907)729-3431, fax (907)729-3429, or email [SITEAM@cdc.gov](mailto:SITEAM@cdc.gov)] or to their local health department in Virginia.

\*Adapted from *MMWR*;1998;47(33):685-8.

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

Disease	Total Cases Reported, August 1998						Total Cases Reported Statewide, January through August		
	State	Regions					This Year	Last Year	5 Yr Avg
		NW	N	SW	C	E			
<b>AIDS</b>	133	7	25	8	41	52	627	716	872
<b>Campylobacteriosis</b>	104	34	22	21	12	15	452	407	457
<b>Giardiasis</b>	64	12	33	2	12	5	252	280	211
<b>Gonorrhea</b>	1548	123	140	146	378	761	5498	5216	6972
<b>Hepatitis A</b>	16	2	9	3	1	1	153	150	119
<b>Hepatitis B</b>	16	3	2	0	6	5	72	85	87
<b>Hepatitis NANB</b>	3	1	0	1	0	1	10	20	16
<b>HIV Infection</b>	89	8	20	3	36	22	584	618	630
<b>Influenza</b>	0	0	0	0	0	0	1067	441	628
<b>Legionellosis</b>	8	2	2	3	0	1	16	16	11
<b>Lyme Disease</b>	12	2	8	0	0	2	43	35	51
<b>Measles</b>	0	0	0	0	0	0	2	1	1
<b>Meningitis, Aseptic</b>	36	6	12	8	2	8	105	127	182
<b>Meningitis, Bacterial†</b>	2	0	1	0	0	1	33	56	64
<b>Meningococcal Infections</b>	2	0	1	1	0	0	26	40	42
<b>Mumps</b>	0	0	0	0	0	0	5	9	18
<b>Pertussis</b>	3	1	0	0	1	1	10	34	30
<b>Rabies in Animals</b>	39	12	9	6	5	7	396	414	317
<b>Rocky Mountain Spotted Fever</b>	2	1	0	0	0	1	8	10	15
<b>Rubella</b>	0	0	0	0	0	0	0	1	1
<b>Salmonellosis</b>	133	19	42	17	32	23	651	622	661
<b>Shigellosis</b>	45	5	34	3	2	1	128	340	382
<b>Syphilis, Early‡</b>	24	0	2	8	7	7	287	418	733
<b>Tuberculosis</b>	11	0	2	8	0	1	187	220	233

*Localities Reporting Animal Rabies This Month:* Alexandria 1 raccoon; Augusta 1 raccoon; Bedford 1 raccoon; Botetourt 1 skunk; Brunswick 1 raccoon; Chesapeake 2 foxes, 2 raccoons; Chesterfield 1 dog; Clarke 1 cat, 1 raccoon; Dinwiddie 1 raccoon; Fairfax 2 bats, 2 raccoons; Fauquier 1 raccoon; Franklin County 1 raccoon; Frederick 1 fox; Hanover 1 raccoon; King William 1 skunk; Loudoun 1 fox, 1 raccoon; Lynchburg 1 raccoon; Madison 1 raccoon; Newport News 1 raccoon; Page 1 fox, 1 raccoon; Pittsylvania 1 raccoon; Prince William 2 raccoons; Richmond City 1 raccoon; Rockingham 1 bat; Spotsylvania 1 raccoon; Stafford 2 skunks; Suffolk 1 raccoon; Washington 1 raccoon.

*Occupational Illnesses:* Asbestosis 47; Carpal Tunnel Syndrome 49; DeQuervains Syndrome 1; Hearing Loss 13; Lead Exposure 2; Pneumoconiosis 18.

\*Data for 1998 are provisional.

†Other than meningococcal.

‡Includes primary, secondary, and early latent.

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