



VIRGINIA EPIDEMIOLOGY BULLETIN

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Influenza Outbreak Management in Institutions

The highly communicable nature of influenza means that it can severely impact institutions and facilities: attack rates may reach 50% or more, with case fatality rates as high as 30% in some populations.^{1, 2, 3, 4} Infection among healthcare workers during outbreaks is also common, with attack rates of 20%-50%. Large numbers of sick residents who require additional services (e.g., medical care, in-room food service, laundry) combined with significant staff shortages due to illness could stress an institution beyond its capacity to provide a safe environment for its residents.⁵ Therefore, influenza should be a major concern not only for facilities housing residents with a high risk of complications from influenza (e.g., hospitals, long term care facilities), but also for other closed or semiclosed environments (e.g., prisons and jails, dormitories, cruise ships, military bases, etc).

In anticipation of this year's "Flu season," the August and September *Virginia Epidemiology Bulletin* (VEB) provided a summary of the 2004 Advisory Committee on Immunization Practices (ACIP) report on the prevention and treatment of influenza. However, many other interventions are available to reduce the transmission of influenza (as well as other respiratory illnesses). This article summarizes a multi-faceted approach to influenza out-

break management in institutions to enable a timely and effective response.

Overall, the management of influenza outbreaks needs to contain five inter-connected efforts:

- Preparation—to prevent outbreaks and enable a rapid response;
- Surveillance—to detect an outbreak early;
- Infection Control—to limit transmission of influenza;
- Immunization—to minimize the susceptible population; and,
- Antiviral medication—to protect the unvaccinated and treat the ill.

Preparation

Preparation minimizes the risk of outbreaks. Pre-planning also helps to establish the facility's expectations of staff before an event occurs. This decreases staff anxiety levels and ensures the most effective response possible. In addition, good preparation minimizes the risk for errors (for example, in antiviral dosages), avoids staff overtime and shortages, and ensures that adequate supplies are rapidly available.

Update

Aggressive influenza management will be especially important this year as a result of the **loss of 46 million doses** of Fluvirin®, the inactivated influenza vaccine manufactured by Chiron Corporation. To maximize the available inactivated vaccine supply, use should be prioritized to those people most at risk for serious complications from influenza:

- o Children aged 6–23 months;
- o Adults aged 65 years and older;
- o Persons aged 2–64 years with underlying chronic medical conditions;
- o Women who will be pregnant during the influenza season;
- o Residents of nursing homes and long-term care facilities;
- o Children aged 6 months–18 years on chronic aspirin therapy;
- o Healthcare workers involved in direct patient care; and
- o Out-of-home caregivers and household contacts of children under 6 months of age.

FluMist®, the intranasal flu vaccine, is a viable option for healthy 5-49 year old individuals (except in pregnancy), people who are contacts of infants under 6 months of age, or healthcare workers who provide direct patient care. FluMist® is **not** recommended for healthcare workers taking care of severely immunocompromised people requiring a protective environment (e.g., hematopoietic stem cell transplant recipients).

Issues to consider, ideally well BEFORE an outbreak occurs, include:

1) Administration

Establishing good communication among staff is important to insure a coordinated and effective response. In addition, responsibilities and decision making for outbreak management should be established prior to an event. Staff policies and procedures should also be in place that address:

- Work furloughs and work restrictions for ill staff;
- Bed management (isolation, cohorting, closing units, etc.);

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- Trash management; and,
- Availability of an adequate supply of support equipment, including:
 - Rapid influenza testing kits;
 - Viral culture transport media;
 - Masks;
 - Tissues;
 - Soap and alcohol-based hand rubs;
 - Towels;
 - Immunization supplies;
 - Staff and patient information; and,
 - Antiviral medications

Contingency plans (e.g., a list of alternative distributors) should be developed to address supply shortages. Healthcare staff should participate in creating these policies and should be informed of changes in writing and at staff meetings.

2) Immunization (as available)

Pneumococcal vaccine and annual fall influenza immunization are important prevention measures, and should be made available to residents and staff of institutions (including volunteers, administration, etc.) as indicated by ACIP guidelines. Methods for insuring the highest possible vaccination levels for influenza should be explored. These include:

- Using consistent, positive vaccination messages;
- Developing standing orders for resident vaccination;
- Providing incentives to staff;
- Providing reports of vaccination levels and recognizing units with high coverage—this can foster a spirit of competition between units;
- Removing barriers for staff (e.g., providing vaccinations in work areas, at conferences, in lunchrooms, or in other meeting areas); and,
- Considering mandatory staff vaccination.

During October and November each year, vaccination should be routinely provided to all residents of long term care facilities with the concurrence of the attending physicians. Consent for vaccinations should be obtained from the resident or a family member at the time of admission to the facility or any-time afterwards. All residents should be vaccinated for influenza at one time, preceding the influenza season. Persons admitted after completion of the

facility's annual influenza vaccination program should be vaccinated at the time of admission. In addition to documenting the vaccination in the resident's chart, a list of residents and staff and their vaccination status should be maintained so that in the event of an outbreak, influenza vaccinations and chemoprophylaxis can rapidly be targeted to appropriate staff and patients (See the *Virginia Epidemiology Bulletin*, August and September 2004 for details).

Finally, although the optimal influenza vaccination program begins in October/November (for residents of long term care facilities), planning for the next flu season should begin as early as February to enable ordering vaccine from the manufacturer ("pre-booking"). Therefore, influenza outbreak preparation needs to be a year-round concern.

3) Interventions

Some of the interventions for influenza outbreaks require the coordination of resources and personnel and may take time to implement. Since influenza can spread so rapidly, it is important that these interventions are available as soon as they are needed. Methods that can be developed prior to an event include:

- Developing surveillance protocols and tools;
- Developing influenza antiviral plans, including both treatment and prophylaxis. The selection of one (or more) antivirals to use needs to take into account:
 - Range of effectiveness (influenza A only, or A and B);
 - Usefulness in treatment AND prophylaxis;
 - Risk of adverse reactions;
 - Dosing complexity;
 - Contraindications to specific medications, including age;
 - Risk of viral resistance;

- Availability; and,
- Cost.

- Measuring annual serum creatinine levels (for determining calculated creatinine clearance for amantadine dosages) for all residents. Pre-printing order sheets that display the formula for calculating estimated creatinine clearance and amantadine dosing can also help to speed the response (Table 1);
- Placing warnings in the charts of those patients for whom antiviral medications are contraindicated (e.g., those already taking amantadine for treatment of Parkinson's disease);
- Pre-printing patient education materials, including respiratory etiquette and hand hygiene posters, signs asking visitors with influenza-like illness (ILI) to refrain from visiting, or signs warning of influenza activity in the facility; and,
- Providing staff training, including sessions on recognizing influenza, indications for influenza treatment and prophylaxis, and hand hygiene and respiratory etiquette.

Surveillance

Despite its clear benefits, vaccination does not offer complete protection against influenza viruses, and outbreaks can still occur.⁶ Antigenic drifts and shifts, and imperfect matching between the vaccine and circulating strains may limit vaccine effectiveness. The waning immunity and decreased efficiency in mounting antigenic responses that comes with advanced age or underlying medical illnesses may further decrease overall vaccine effectiveness for some populations.

Therefore, the next important step in managing an outbreak is early detection.

Reliable, timely detection depends upon prompt recognition of clinical signs and symptoms, supported by laboratory documentation of infection. This is challenging to accomplish in some situations (e.g., nursing homes) where influenza may present atypically. As influenza season begins, staff should have a low threshold for suspecting Influenza-Like Illness (ILI) (an **acute** onset of cough and one or more of

A clinical outbreak is defined as:

Three (or more) residents in an individual nursing unit with an influenza-like illness and an oral temperature $\geq 37.7^{\circ}\text{C}$ (100°F)/rectal temperature $\geq 38.3^{\circ}\text{C}$ (101°F) within a three-day period.

Note: In the elderly, especially those who have received influenza vaccine, influenza signs and symptoms may be altered or absent.

| Table 1. Recommended amantadine hydrochloride prophylactic dosage by age and renal status | | |
|--|---|--|
| No Renal Impairment | | |
| AGE | DOSAGE | |
| 1-9 years ¹ | 5mg/kg once daily, or divided, twice daily, total daily dose not to exceed 150 mg | |
| 10-64 years | 200 mg once daily, or divided twice daily ^{2,3} | |
| ≥65 years | 100 mg once daily ⁴ | |
| Renal Impairment | | |
| Creatinine Clearance (mL/min/1.73m ²) | Dosage for those 10-64 years | Dosage for those ≥65 |
| ≥ 80 mL/min | 100 mg twice daily | 100 mg once daily |
| 60-79 mL/min | Alternating daily doses of 200 mg and 100 mg | Alternating daily doses of 100 mg and 50 mg |
| 40-59 mL/min | 100 mg once daily | 100 mg every two days |
| 30-39 mL/min | 200 mg twice weekly | 100 mg twice weekly |
| 20-29 mL/min | 100 mg three times/week | 50 mg three times/week |
| 10-19 mL/min | Alternating weekly doses of 200 mg and 100 mg | Alternating weekly doses of 100 mg and 50 mg |
| <p>1. Use in children <1 year of age has not been evaluated adequately.</p> <p>2. Reduction of dosage to 100 mg/day is recommended for people with a seizure disorder, because they may be at risk for more frequent seizures when the dosage is 200 mg/day.</p> <p>3. For children who are >10 years of age but who weigh <40 kg, a dosage of 5mg/kg/day is advised regardless of age.</p> <p>4. The reduced dosage is recommended to minimize the risk of toxic effects, because renal function generally declines with age and because side effects have been reported more frequently in the elderly.</p> <p>Calculation of estimated creatinine clearance: Male: $CrCl \text{ mL/min} = (140 - \text{age}) \times \text{weight (kg)} / \text{serum creatinine } (\mu\text{mol/L}) \times 0.81$ Female: $CrCl \text{ mL/min} = 0.85 \times CrCl \text{ (male)}$</p> | | |

ity, to reduce transmission among patients/residents and staff.

Residents with ILI

- Place ill residents in private rooms or a room with other patient(s) with influenza (cohorting);
- Isolate infected patients for 3-4 days. However, prolonged shedding for 3-4 weeks can occur in the young (especially neonates) and the severely immunocompromised (e.g., HIV patients, transplant and leukemia patients). Therefore, an alternative timeframe for isolation may be until a nasopharyngeal swab is negative for influenza;
- Minimize resident transfers to other units, unless they can be isolated, until the outbreak is resolved;
- If applicable, implement the Centers for Disease Control and Prevention

fever, chills, sore throat, arthralgia, myalgia, or prostration in patients) and clusters of respiratory illness in staff. Situations that might trigger enhanced surveillance include:

- An institution-acquired case of influenza (i.e., onset >72 hours after admission);
- Three patients within 72 hours with new onset of institution-acquired respiratory illness;
- Three staff who work together who report acute respiratory illness; or,
- A sudden increase in staff absenteeism.

If one of these situations occurs, be prepared to look for additional cases and perform rapid influenza testing of residents or staff with recent onset of symptoms. If two positive tests occur, influenza transmission is occurring, and measures need to be taken to prevent or minimize an outbreak.

If an outbreak of disease, including influenza, is suspected, the local health de-

partment must be notified within 24 hours. Health department staff can assist in refining interventions, notifying other facilities, and facilitating specimen collection for viral culture.

Infection Control Measures

Control measures should be tailored to the situation. The basic recommended infection control measures for influenza are:

- Standard precautions—appropriate glove and gown use, and handwashing; and,
- Droplet Precautions—Influenza is usually caused by large particle droplets that are not transmitted beyond 3 feet from the source and rarely by true airborne spread. The use of special air handling and negative pressure ventilation are not necessary except in aerosol generating procedures.

In addition, the following should be used, **to the extent practicable for the facil-**

(CDC) recommendations for preventing influenza transmission between infected mothers and their infants (available at: <http://www.cdc.gov/flu/professionals/infectioncontrol/peri-post-settings.htm>); and,

- Consider influenza antiviral medications (see Antiviral Drugs).

Residents without ILI

- Use droplet precautions during the



incubation period (1-7 days, commonly 2-3 days) for residents who are close contacts of influenza cases; and,

- Use influenza antiviral medications (see Antiviral Drugs).



Staff

The following staff-related actions may assist in the management of an influenza outbreak. These can be divided into a) patient care, and b) staff management:

a) Patient Care

- Provide education on the prevention and control of influenza, including the potential for staff to transmit influenza via hands or fomites (e.g., towels, charts, etc). Training should be specific to staff duties and responsibilities;
- Promote the use of barrier apparel (disposable gloves, gowns) when touching mucous membranes, secretions, excretions, and contaminated items. Gloves should be removed after use and before touching any non-contaminated items or touching another patient. Hands should be washed immediately with soap and water or an alcohol based hand-rub;
- Promote the use of a surgical mask, goggles or face shield when working within 3 feet of the patient; this applies to visitors as well. Remove and dispose of the mask in a waste container when leaving the room;
- Inform transport personnel and staff of the appropriate precautions, and have the resident wear a surgical mask if possible, during transport for tests;
- Deliver oxygen by nasal cannula instead of face mask when possible. The use of nebulizers should be avoided; and
- Maintain a line listing of known or suspected cases of influenza that includes the name, location (wing/floor, room number), admission

date, age, sex, date of symptom onset, symptoms, temperature, major underlying medical conditions, influenza and pneumococcal vaccination status, need for hospitalization, chest x-ray results, laboratory results (including influenza testing results), date of personal physician notification, and interventions and treatments implemented.

b) Staff Management

- Restrict staff movement between wards or buildings and restrict contact between ill staff or visitors and patients;
- Advise staff members who develop an ILI to seek medical advice and use droplet precautions to prevent disease transmission;
- Consider excluding healthcare personnel with symptoms of respiratory infection from direct patient care for at least 48 hours; and,
- Avoid floating of staff where possible (i.e., have employees work consistently in only one area). Staff should work only with ill or well patients, and should not circulate among both groups.

Visitors

- Exclude visitors with respiratory illness. If their presence is essential, require the use of a surgical mask; and,
- Consider restricting ALL visitors.

Other Interventions

Facilities should also consider:

- Isolating affected units or wards—enhanced surveillance should occur on other wards to detect any new cases;
- Canceling or minimizing shared activities, including communal dining;

- Informing facilities, including hospitals, receiving residents of the presence of the outbreak to enable the facilities to implement infection control measures;
- Properly disinfecting the environment and equipment contaminated with secretions and excretions;
- Reinforcing the facility's Respiratory Hygiene/Cough Etiquette program, including:
 - Posting visual alerts that instruct patients and persons who accompany them to inform healthcare personnel if they have symptoms of a respiratory infection;
 - Providing tissues to patients and visitors to cover their mouth and nose when coughing and sneezing;
 - Providing alcohol-based hand rubs;
 - Ensuring that supplies for handwashing are available where sinks are located;
 - Offering masks to persons who are coughing; and,
 - Encouraging coughing persons to sit at least 3 feet away from others.
- Providing information (in appropriate language and translations) in the form of pamphlets or facts sheets (available from CDC and the Virginia Department of Health) to keep patients, staff and visitors informed.
- Considering closing units to new admissions. If a unit is closed, the staff should not be sent to other parts of the institution (where they may spread influenza). When admissions resume, new residents should start antiviral chemoprophylaxis prior to transfer, and should continue to

Did You Know?

Different syringes have different amounts of 'dead space'—the fluid retained when the plunger is depressed. Multi-dose vials contain additional vaccine to allow for the dead space in certain syringes. However, some providers have found that low dead space syringes can get more than 10 doses out of a 10 dose vial.

So, to make the most out of the flu vaccine supply this year, choose your syringes wisely....

receive prophylaxis until one week after the outbreak has ended.

During an outbreak of influenza, a person may still be considered for transfer into the facility if the person has been vaccinated against influenza and starts antiviral prophylaxis prior to the transfer, or if the outbreak appears to be under control with no new recent cases in the receiving care center.

Immunization

During an outbreak, provide influenza vaccine to all residents and staff who have not yet received influenza vaccine (if available) according to ACIP guidelines. For these people, chemoprophylaxis should be provided for two weeks following vaccination to protect the person while immunoglobins to influenza develop (see Antiviral Drugs).

Antiviral Drugs

The use of antiviral medications for the treatment and prophylaxis of influenza is a key component of influenza outbreak control in institutions. For example, amantadine has been shown to be 70-90% effective in preventing illness caused by influenza A.⁷ When amantadine is given simultaneously to all residents, regardless of vaccination status, and to unvaccinated staff, outbreak activity stops abruptly within a few days. When the outbreak does not stop quickly, other causes or resistance should be considered. The cost-effectiveness of this approach was demonstrated as long ago as 1986—vaccination and prophylaxis of residents during outbreaks in long term care facilities are associated with reduced illness, hospitalization, and death at only marginally increased cost over vaccination alone.¹

Currently, there are four antiviral drugs that are effective in the management of influenza: amantadine and rimantadine (the M2 inhibitors) and zanamivir and oseltamivir (the neuraminidase inhibitors). Details about these medications (especially adverse reactions and contraindications) are available in the September 2004 issue

of the VEB and package inserts. In addition, the CDC has provided interim recommendations for the use of influenza antiviral medications for the 2004-2005 season (see accompanying article).

Treatment

When a confirmed or suspected outbreak of influenza occurs in an institution that houses persons at high risk, chemoprophylaxis and treatment should be started as soon as possible (i.e., within hours) to reduce the spread of the virus. In these situations, having pre-approved orders and plans to obtain orders for antiviral medications on short notice can substantially expedite administration of antiviral medications. If amantadine or rimantadine are used, and the residents' creatinine are not known, a single 100 mg dose may be given while a stat serum creatinine is determined.⁸

Table 1 provides dosing guidelines for amantadine during a facility influenza A outbreak, but clinical discretion is still required in prescribing. In addition,

- For rimantadine, a reduction in dosage to 100 mg/day is recommended for persons with creatinine clearance <10 mL/min. Because of the potential for accumulation of rimantadine and its metabolites, patients with any degree of renal insufficiency, including older persons, should be monitored for adverse effects, and either the dosage should be reduced or the drug should be discontinued, if necessary. Hemodialysis contributes minimally to drug clearance.
- Oseltamivir and zanamivir do not require dosage adjustment for age alone. Limited data are available regarding zanamivir in patients with impaired renal function, however no dose adjustment is recommended for a 5-day course of treatment for patients with either mild to moderate or severe impairment in renal function. Serum concentrations of the active metabolite of oseltamivir

increase with declining renal function. Therefore, for patients with creatinine clearances of 10-30 mL/min, a reduction of the treatment dosage of oseltamivir to 75 mg once daily and in the prophylaxis dosage to 75 mg every other day is recommended. No treatment or prophylaxis dosing recommendations are available for patients undergoing routine renal dialysis treatment.

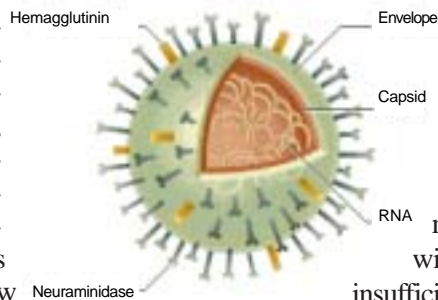
To limit the potential transmission of drug-resistant virus during outbreaks in institutions, measures should be taken to reduce contact between persons taking antiviral drugs for treatment and other persons, especially those taking chemoprophylaxis. For treatment, because resistance can emerge rapidly, amantadine and rimantadine should be limited to 3-5 days (or up to 2 days after symptom resolution).^{9,10}

Prophylaxis

In institutions, during an outbreak chemoprophylaxis should be administered to all residents, regardless of their influenza vaccination status, and should continue for a minimum of 2 weeks. If surveillance indicates that new cases continue to occur, chemoprophylaxis should be continued until approximately 1 week after the end of the outbreak (i.e., 1 week after the last case is detected). The dosage for each resident should be determined individually.

Persons at high risk for complications from influenza infection should still be vaccinated after an outbreak of influenza has begun. However, in adults the development of antibodies takes approximately 2 weeks after vaccination. Therefore, when influenza vaccine is administered while influenza viruses are circulating, chemoprophylaxis should be considered during this period. Children aged <9 years who receive influenza vaccine for the first time can require up to 6 weeks of prophylaxis (i.e., prophylaxis for 4 weeks after the first dose of vaccine and an additional 2 weeks of prophylaxis after the second dose).

Chemoprophylaxis can also be offered to unvaccinated staff for whom the antiviral agent is not contraindicated and who work in the affected unit or who are taking care of high-risk residents. Healthcare workers with an unprotected exposure to



a resident with an ILI and who can start therapy within 48 hours of contact may also benefit from influenza post-exposure prophylaxis (PEP). Finally, prophylaxis should be considered for all employees, regardless of their vaccination status, if the outbreak is likely to be caused by a variant strain of influenza that is not well-matched by the vaccine. If the outbreak is confined in location (e.g., same room, floor) and there is minimal mixing of activities between residents in the affected location and other locations, then chemoprophylaxis can be restricted to residents and staff in the affected location.

Conclusions

Outbreaks of influenza can significantly disrupt facility operations and overwhelm staff. Therefore, adequate prepara-

tion before an outbreak (e.g., including a comprehensive vaccination program), early detection of outbreaks for rapid intervention, and the use of appropriate infection control methods, vaccination, and antivirals are critical for minimizing the impact of outbreaks. Given the limited supply of the influenza vaccine this year, the principles outlined in this article may be particularly important as strategies to reduce morbidity and mortality from influenza in 2004-2005.

Note, however, that this article addresses typical influenza outbreaks—in the event of pandemic influenza, or an avian influenza outbreak, other strategies may be necessary and would be developed by national, state and local health authorities.

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Virginia Medical Reserve Corps Launches Recruitment Campaign

The Virginia Medical Reserve Corps (MRC), a component of the national Citizen Corps program, has begun to enroll volunteers as part of an effort to support public health response activities during times of emergency in Virginia. Volunteers might respond to any local health emergencies, including communicable disease outbreaks, natural disasters, or possible terrorism incidents.

There are currently 13 local MRCs with more than 3,000 Virginians serving as volunteers. Volunteers have already responded to public health events such as assisting in the aftermath of recent hurricanes and helping to staff a tuberculosis prevention clinic in the Chesapeake area.

“The local Medical Reserve Corps want to recruit medically trained volunteers such as nurses, doctors and veterinarians,” said Lisa Kaplowitz, M.D., M.S.H.A., Deputy Commissioner for Emergency Preparedness and Response Programs at the Virginia Department of Health. “In addition, non-medically trained volunteers are needed in many areas. Anyone with useful skills such as dispatching, data management, volunteer management, or foreign language and communication skills should consider volunteering.”

Local volunteers will participate in training programs tailored to their local needs including training in biological agents, CPR, First Aid, and emergency preparedness. In addition, many will receive first-aid kits and useful emergency information, which can be beneficial to their families in an emergency. Volunteers will also be kept up-to-date on community preparedness events and activities.

For more information, or to register with an MRC in your area, go to www.vamrc.org.

The following is a listing of the Medical Reserve Corps programs in Virginia:

- ♦ Western Tidewater Health District - Suffolk, VA
- ♦ Southwest Virginia (Cumberland Plateau, Lenowisco & Mount Rogers Health Districts)—Abingdon, VA
- ♦ Roanoke and Alleghany Health Districts - Roanoke, VA
- ♦ University of Virginia – Charlottesville, VA
- ♦ Southside Health District - Boydton, VA
- ♦ Rappahannock-Rapidan Health District - Culpeper, VA
- ♦ Rappahannock Area Health District - Fredericksburg, VA
- ♦ Loudoun Health District - Leesburg, VA
- ♦ Fairfax County Health Department - Fairfax, VA
- ♦ City of Virginia Beach - Virginia Beach, VA
- ♦ City of Chesapeake - Chesapeake, VA
- ♦ Arlington County Government - Arlington, VA
- ♦ Eastern Shore Health District – Accomack, VA

Influenza Antiviral Medications: 2004-05 Interim Chemoprophylaxis and Treatment Guidelines

As a result of the influenza vaccination shortage, the Centers for Disease Control and Prevention (CDC) has developed a strategy for the use of influenza antiviral medications in the control of influenza for the 2004-2005 flu season. Although local availability of these medications will impact actual practice, the CDC encourages:



- 1) Using **amantadine or rimantadine for chemoprophylaxis** and **oseltamivir or zanamivir for treatment**, as supplies allow. This may help to minimize the development of adamantane resistance among circulating influenza viruses.
- 2) Giving **priority for use of influenza antiviral medications to people who are at high risk of serious complications** from influenza. In general, as availability permits:

Treat with antiviral medication:

- Any person experiencing a potentially life-threatening influenza-related illness.
- Any person at high risk for serious complications of influenza and who is within the first 2 days of illness onset (pregnant women should consult their primary provider).

Note: rimantadine is not approved for treatment of children aged < 13 years. For treatment, these persons should receive amantadine (children aged 1-12), oseltamivir (children aged 1-12), or zanamivir (children aged 7-12).

Provide chemoprophylaxis for:

- All persons who live or work in **institutions** caring for people at high risk of serious complications of influenza infection in the event of an institutional outbreak. This includes nursing homes, hospitals, and other facilities caring for persons with immunosuppressive conditions, such as HIV/AIDS.
- All persons at high risk of serious influenza complications if they are likely to be exposed to others infected with influenza (e.g., a high-risk person in a household where someone else has been diagnosed with influenza).

- 3) Considering antiviral medications in other situations. Healthcare providers may want to:

Provide chemoprophylaxis for select persons in communities where influenza viruses are circulating, especially:

- Persons at high risk of serious complications who are not able to get vaccinated.
- Persons at high risk of serious complications who have been recently vaccinated (adults: duration = 2 weeks; Children aged <9 years: duration = until 2 weeks after 2nd dose)
- Persons with immunosuppressive conditions who may not mount an adequate antibody response to influenza vaccine.
- Healthcare workers with direct patient care responsibilities who are not able to obtain vaccine.

Treat with antiviral medication:

- Infected adults and children aged >1 year who do not have conditions placing them at high risk for serious complications secondary to influenza infection.

Note that, where the supplies of both influenza vaccine and influenza antiviral medications may not be sufficient to meet demand, the CDC does not recommend the use of influenza antiviral medications for chemoprophylaxis of non-high risk persons in the community.

For more information, visit the CDC website at: <http://www.cdc.gov/flu/professionals/treatment/>.



Cases of Selected Notifiable Diseases Reported in Virginia*

Total Cases Reported, September 2004

Total Cases Reported Statewide,
January through September

| Disease | State | Regions | | | | | Total Cases Reported Statewide, January through September | | |
|-------------------------------|-------|---------|----|-----|-----|-----|--|-----------|----------|
| | | NW | N | SW | C | E | This Year | Last Year | 5 Yr Avg |
| AIDS | 44 | 3 | 15 | 3 | 7 | 16 | 518 | 610 | 616 |
| Campylobacteriosis | 77 | 27 | 16 | 13 | 1 | 20 | 510 | 645 | 494 |
| <i>E. coli</i> O157:H7 | 3 | 2 | 0 | 1 | 0 | 0 | 28 | 32 | 48 |
| Giardiasis | 61 | 20 | 20 | 9 | 8 | 4 | 373 | 246 | 278 |
| Gonorrhea | 844 | 57 | 58 | 110 | 256 | 363 | 6,702 | 6,687 | 7,445 |
| Hepatitis, Viral | | | | | | | | | |
| A, acute | 19 | 0 | 7 | 1 | 2 | 9 | 95 | 70 | 102 |
| B, acute | 33 | 3 | 3 | 9 | 7 | 11 | 191 | 135 | 121 |
| C, acute | 1 | 0 | 0 | 1 | 0 | 0 | 16 | 7 | 6 |
| HIV Infection | 73 | 4 | 19 | 8 | 11 | 31 | 649 | 602 | 638 |
| Lead in Children [†] | 124 | 11 | 23 | 25 | 42 | 23 | 620 | 564 | 509 |
| Legionellosis | 7 | 1 | 1 | 3 | 0 | 2 | 38 | 73 | 32 |
| Lyme Disease | 22 | 5 | 10 | 0 | 3 | 4 | 117 | 71 | 103 |
| Measles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Meningococcal Infection | 2 | 0 | 0 | 0 | 0 | 2 | 14 | 20 | 33 |
| Mumps | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 5 |
| Pertussis | 28 | 3 | 7 | 7 | 5 | 6 | 135 | 84 | 65 |
| Rabies in Animals | 45 | 7 | 7 | 10 | 7 | 14 | 371 | 426 | 418 |
| Rocky Mountain Spotted Fever | 6 | 0 | 0 | 1 | 2 | 3 | 23 | 25 | 17 |
| Rubella | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Salmonellosis | 125 | 16 | 23 | 11 | 25 | 50 | 891 | 763 | 886 |
| Shigellosis | 15 | 2 | 5 | 1 | 5 | 2 | 119 | 312 | 341 |
| Syphilis, Early [§] | 19 | 1 | 6 | 0 | 0 | 12 | 153 | 128 | 191 |
| Tuberculosis | 37 | 2 | 24 | 3 | 3 | 5 | 185 | 187 | 201 |

Localities Reporting Animal Rabies This Month: Accomack 4 raccoons, 1 skunk; Alexandria 1 raccoon; Alleghany 1 skunk; Augusta 2 raccoons; Buckingham 1 fox; Campbell 1 skunk; Chesapeake 1 raccoon; Chesterfield 1 bat, 1 cat, 1 raccoon; Dinwiddie 1 fox; Fairfax 4 raccoons, 1 skunk; Fredericksburg 1 deer; Grayson 1 skunk; Hanover 1 cat, 1 raccoon; James City 1 fox; King William 1 skunk; Loudoun 1 skunk; Lynchburg 1 raccoon; Mathews 1 fox, 1 raccoon; Northampton 1 raccoon; Northumberland 1 raccoon; Page 1 raccoon; Patrick 2 skunks; Pittsylvania 1 raccoon; Rockingham 1 raccoon; Shenandoah 1 cat; Smyth 1 raccoon; Stafford 1 raccoon; Suffolk 1 cat; Tazewell 1 raccoon; Williamsburg 1 raccoon; Wythe 1 raccoon.

Toxic Substance-related Illnesses: Asbestosis 1; Adult Lead Exposure 14; Mercury Exposure 1; Pneumoconiosis 10.

*Data for 2004 are provisional. [†]Elevated blood lead levels $\geq 10\mu\text{g/dL}$. [§]Includes primary, secondary, and early latent.

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