### Influenza Outbreak Control in a Long-Term Care Facility

Influenza vaccination remains the primary method of preventing illness and death associated with influenza. Among elderly persons residing in nursing homes, influenza vaccine can be 50-60% effective in preventing hospitalization or pneumonia and 80% effective in preventing death. However, the vaccine may be less effective in preventing milder illness. If an outbreak of influenza-like illness (defined as fever  $\geq 100^{\circ}$ F oral

 $(\geq 101^{\circ}\text{F} \text{ rectal})$  AND cough and/or sore throat) occurs in a long-term care facility, please immediately contact the local county health department or the Georgia Division of Public Health Epidemiology Branch at 404-657-2588 for assistance in outbreak investigation and control. Public health can help you confirm the diagnosis and prevent spread.

#### A. Confirmation of Influenza and Determination of the Outbreak Strain

- Early in the outbreak, obtain viral throat swab specimens from up to 10 patients with symptoms suggestive of influenza for viral culture and antigen detection. Viral specimen kits can be obtained through the health department, which can also arrange testing at the Georgia Public Health Laboratory.
- Because viral culture results may not be available for up to 10 days, facilities may also consider using rapid flu tests. While a negative rapid test result does not rule out influenza, a single positive result strongly indicates that influenza is causing the outbreak. Please see **RESOURCES FOR INFLUENZA PREVENTION AND CONTROL** for more information about rapid flu tests. Rapid flu tests are not available through public health.

#### **B.** Vaccination of Patients and Personnel

- Even during an outbreak, administer current influenza vaccine to unvaccinated patients and staff, especially if the outbreak occurs early in the influenza season.
- The local county health department may have vaccine available during flu season. See **RESOURCES FOR INFLUENZA PREVENTION AND CONTROL** for information on how to order influenza vaccine prior to flu season.

#### C. Treatment and Prophylaxis

- Certain rapid tests are able to differentiate between influenza A and B which can help guide which antiviral medication can be used. Even in the absence of viral strain confirmation, the Georgia Division of Public Health advises long-term care facilities to begin treatment and prophylaxis of residents and staff with antiviral medications. *If influenza is suspected, treatment and prophylaxis should not be delayed until viral culture results are available.*
- Four antiviral drugs have been approved for influenza treatment: amantadine, rimantadine, oseltamivir, and zanamivir. The first three drugs listed have also been approved for prophylaxis against influenza. Amantadine and rimantadine are the cheapest alternatives but are only effective against influenza A viruses. Oseltamivir and zanamivir may be used for influenza A or B.

• Please see **RESOURCES FOR INFLUENZA PREVENTION AND CONTROL** for information regarding medication dosage and therapy duration.

#### D. Interruption of Person-to-Person Transmission

- Keep residents known or suspected to have influenza in a private room or in a room with other residents with documented influenza unless there are medical contraindications.
- If feasible, place persons with influenza-like illness together in an area with an independent air supply and exhaust system.
- Implement respiratory droplet precautions, including requiring all staff who have contact with ill residents to wear masks and gloves, and to wash hands frequently and thoroughly. Consider using hand sanitizers in areas where hand washing is difficult.
- Restrict visitors who have a febrile respiratory illness.
- Do not allow staff to work while ill.
- Consider temporarily closing the facility to new admissions while the outbreak continues.

#### Preventing Influenza Outbreaks in Long-Term Care Facilities

Morbidity and mortality from influenza can be greatly reduced if long-term care facilities follow these guidelines for influenza prevention:

- Develop an influenza control plan incorporating vaccination, surveillance, diagnosis, treatment, and prophylaxis activities. Ensure all staff are familiar with the plan's components.
- Plan an annual vaccination campaign targeting all residents, staff, volunteers, and visitors for flu vaccination. Ideally, vaccination should occur in October or early November, but the facility should also have methods in place to ensure that all staff and residents who enter the facility after the mass vaccination campaign are also vaccinated. Standing orders by the facility medical director may make this process more convenient.
- Review residents' immunization histories and administer pneumococcal vaccine to those who are eligible. This should be done on a regular basis, and especially during the annual flu vaccine campaign. If a pneumococcal vaccination history is unknown, it is safe and preferable to give another dose.
- During flu season, post signs asking visitors with flu-like symptoms, such as fever, cough, sore throat, or muscle aches, to refrain from visiting.
- Train staff at the beginning of each flu season on the proper respiratory secretion precautions, handwashing procedures, and surveillance activities. Have a mechanism to ensure all new employees who are hired during flu season receive the training as well.
- Establish and post a definition of flu-like illness. The Centers for Disease Control and Prevention (CDC) defines flu-like illness as fever ≥100°F oral or ≥101°F rectal and at least one of the following: cough, runny nose, nasal congestion, or sore throat. Be aware that influenza symptoms are sometimes different in elderly persons or persons with chronic

medical conditions. Staff should be alert for residents who have fever with lethargy or delirium, or changes in their functional status.

- Monitor influenza activity in the community. The Georgia Division of Public Health posts influenza information at <a href="http://health.state.ga.us/epi/flu">http://health.state.ga.us/epi/flu</a>. You may also receive periodic influenza activities during flu season by subscribing to the public health flu email list (sign up by sending an email to <a href="flu@dhr.state.ga.us">flu@dhr.state.ga.us</a> with the word "subscribe" in the subject line). Knowledge of influenza activity in the community can assist in making a clinical diagnosis.
- Consider stocking rapid flu tests and antiviral medications for immediate detection and response to outbreaks. If you do not stock rapid tests, have a plan in place for quickly obtaining laboratory confirmation of influenza. There should also be a method to quickly obtain physician orders for antiviral medication.
- Post the county, district, or state health department phone number for reporting a cluster of influenza-like illness. A cluster is defined as 3 or more cases of illness among residents and/or staff within a 72-hour period. *By law, any cluster of illness must be reported to Georgia public health authorities immediately.*

#### **RESOURCES FOR INFLUENZA PREVENTION AND CONTROL**

#### PREVENTING INFLUENZA

Vaccination is the primary method of preventing influenza infection or lessening the severity of influenza illness. Because circulating influenza strains change from year to year, a new vaccine is manufactured each year. To optimize protection, individuals must receive a new influenza vaccine annually. October to November is the ideal time for influenza vaccination, especially for persons at higher risk of developing complications from influenza, such as residents of long-term care facilities (LTCF). The Advisory Committee on Immunization Practices (ACIP) recommends that vaccination be routinely provided to residents with the concurrence of attending physicians. Consent should be obtained from the resident or family member at the time of admission or anytime afterwards. In addition, all residents should be vaccinated at one time before the start of flu season and those admitted through March after the completion of the facility's vaccination program should be vaccinated at the time of admission. A rule from the Centers for Medicare and Medicaid Services (CMS) recently removed the physician signature requirement for the administration of influenza and pneumococcal vaccines to Medicare and Medicaid patients in hospitals, long-term care facilities, and home health agencies.<sup>1</sup> Employees of LTCF are also strongly urged to be vaccinated to reduce the chance of their spreading influenza to residents. LTCF visitors should be encouraged to receive influenza vaccine. In fact, given that influenza vaccine is more effective at preventing disease among young, healthy adults than among the elderly, vaccination of workers and visitors may be more effective in preventing disease among LTCF residents than vaccination of the residents themselves.

#### **DIAGNOSING INFLUENZA**

Numerous infectious agents cause influenza-like symptoms, making influenza diagnosis difficult on clinical grounds. The gold standard for laboratory confirmation of influenza is viral culture, which may take up to ten days. Several rapid tests for influenza have been developed with variable sensitivities and specificities. Rapid tests may be useful in a LTCF setting to attempt to quickly document the cause of an outbreak of influenza-like illness. While negative rapid test results do not rule out influenza virus as the causative agent, a single positive test result during late fall or early winter in a LTCF setting strongly indicates an outbreak is due to influenza. If rapid kits are being used, viral cultures should still be done for confirmation and to identify the strain and antigenic characteristics of the virus. Public health officials can provide viral culture kits to a LTCF during an outbreak and arrange for viral testing at the Georgia Public Health Laboratory. Call your local health department **immediately** if an influenza outbreak is suspected in a LTCF. Public health does not supply rapid kits for influenza testing.

Table 1 describes the various laboratory tests available for documenting influenza infection<sup>2</sup>. Long-term care facilities might consider stocking some of the rapid kits available for point-of-care use.

Procedure	Influenza	Acceptable specimens	Time for	Point-of-care
	types		results	market
Minal Caltana	detected	No contractor a col Correcto	5 10 1	N.
viral Culture	A and B	INasopharyngeal Swab     Throat Swab	5-10 days	INO
		• Illioat Swab		
		• Indsal Wash		
		• Bronchial wash		
		• Nasai Aspirate		
Immuno	A and P	Sputum     Neconhammacal Sweh	2.4 hours	No
fluorosconco	A allu D	<ul> <li>Nasol Wash</li> </ul>	2-4 nours	INU
nuorescence		Bronchial Wash		
		Nasal Aspirate		
		Sputum		
RT-PCR	A and B	Nasopharyngeal Swah	1-2 days	No
		Throat Swab	1 2 duys	110
		Nasal Wash		
		Bronchial Wash		
		Nasal Aspirate		
		• Sputum		
Serology	A and B	Paired Acute and	>2 weeks	No
		Convalescent Serum		
		Samples		
Influenza	A and B	Nasopharyngeal Swab	2 hours	No
Enzyme		Throat Swab		
Immuno-Assay		Nasal Wash		
(EIA)		Bronchial Wash		
Rapid Diagnostic	Tests		-1	1
Directigen A	А	Nasopharyngeal Swab	<30	Yes
(Becton-		Throat Swab	minutes	
Dickinson)		Nasal Wash		
		Nasal Aspirate	20	
Directigen Flu A	A and B	Nasopharyngeal Swab	<30	Yes
and B (Becton-		Throat Swab	minutes	
Dickinson)		Nasal Wash		
		Nasal Aspirate		
FLUOIA	Aand D	DIOIICIIIai WaSii     Nasopharunggal Swich	<20	Vac
(Therme Piester)	A allu D	Throat Swab	<50	1 68
(Thermo Biostar)		Nasal Aspirate	minutes	
		Sputum		
NOW Flu A Test	Α	Nasal Wash	<30	Ves
		Nasonharyngeal Swah	minutes	105
NOW Flu B Test	В	Nasal Wash	<30	Yes
(Binax)	_	Nasopharyngeal Swab	minutes	
Quick Vue	A and B	Nasopharyngeal Swab	<30	Yes
Influenza		Nasal Wash	minutes	
Test(Quidel)		Nasal Aspirate		
Zstat Flu	A and B	Throat Swab	<30	Yes
(ZymeTx)			minutes	

 Table 1. Laboratory Diagnostic Procedures for Influenza

Influenza Outbreak Control in a Long-Term Care Facility

#### **TREATING INFLUENZA**

Four antiviral medications have been approved for treating influenza infection: amantadine, rimantadine, zanamivir, and oseltamivir. Amantadine is the cheapest alternative, although its use has been associated with adverse side effects relating to the central nervous system in nursing home residents (such as confusion, anxiety, insomnia, hallucinations, and falls). Rimantadine is chemically similar to amantadine but causes fewer side effects. Both amantadine and rimantadine are only approved for treatment of influenza A infections. Zanamivir and oseltamivir may be used to treat influenza A or B, but both medications are more expensive than amantadine and rimantadine. In addition, zanamivir, an inhaled drug, is not recommended for treatment of patients with underlying airway disease. Table 2 describes medication dosage and duration for treatment of influenza among persons age 65 years and older<sup>3,4</sup>. Each medication should be administered within 48 hours of symptom onset.

Agent	Influenza type	Dosage in	<b>Duration of therapy</b>	Cost <sup>1</sup>
		nursing home		
		residents		
Amantadine <sup>2</sup>	А	<100 mg once	5 days <b>OR</b> 24 to 48 hours after	\$2.00
("Symmetrel" – Endo)		per day	resolution of symptoms	
Rimantadine <sup>3</sup>	А	100 mg once	5 days <b>OR</b> 24 to 48 hours after	\$10.00
("Flumadine" – Forest)		per day <sup>4</sup>	resolution of symptoms	
Zanamivir <sup>5</sup> ("Relenza"	A and B	10 mg inhaled	5 days	\$48.00
– GlaxoSmithKline)		twice per day		
Oseltamivir <sup>6</sup> ("Tamiflu"	A and B	75 mg twice	5 days	\$60.00
– Roche)		per day		

#### **Table 2. Antiviral Medications for Treatment of Influenza**

<sup>1</sup>Cost based on a five-day course of therapy at regular dosage level, rounded to the nearest dollar. Estimated cost to the pharmacist based on average wholesale prices in Red book. Montvale, N.J.: Medical Economics Data, 2001. Cost to the patient will be higher, depending on prescription filling fee. <sup>2</sup> The drug package insert should be consulted for dosage recommendations for administering amantadine to persons with creatinine clearance

 $\leq$  50 mL/min/1.73m<sup>2</sup>. <sup>3</sup> A reduction in dosage to 100 mg/day of rimantadine is recommended for persons who have severe hepatic dysfunction or those with creatinine clearance  $\leq 10$  mL/min. Other persons with less severe hepatic or renal dysfunction taking 100 mg/day of rimantadine should be observed closely, and the dosage should be reduced or the drug discontinued, if necessary.

<sup>4</sup>Older nursing home residents should be administered only 100 mg/day of rimantadine. A reduction in dosage to 100 mg/day should be considered for all persons aged  $\geq$ 65 years, if they experience possible side effects when taking 200 mg/day.

<sup>5</sup>Zanamivir is administered through inhalation by using a plastic device included in the medication package. Patients will benefit from instruction and demonstration of correct use of the device.

<sup>6</sup>A reduction in the dose of oseltamivir is recommended for persons with creatinine clearance <30 mL/min.

#### INFLUENZA PROPHYLAXIS

Amantadine, rimantadine, and oseltamivir have been approved for influenza prophylaxis. Once a cluster of influenza-like illness has been identified in a long-term care facility,

chemoprophylaxis of all residents should begin immediately, regardless of whether they received vaccine. Chemoprophylaxis of staff should also be considered. Table 3 describes dosage and duration for influenza prophylaxis among persons 65 years and older<sup>4</sup>.

Agent	Influenza type	Dosage for nursing home residents	Duration of therapy
Amantadine <sup>1</sup>	А	<100 mg once per day	$\geq 2$ weeks or until 1 week
("Symmetrel" – Endo)			after end of outbreak
Rimantadine <sup>2</sup>	А	100 mg once per day <sup>3</sup>	$\geq 2$ weeks or until 1 week
("Flumadine" – Forest)			after end of outbreak
Oseltamivir <sup>4</sup>	A and B	75 mg per day	$\geq 2$ weeks or until 1 week
("Tamiflu" – Roche)			after end of outbreak

Table 3. Antiviral Medications for Influenza Prophylaxis

<sup>1</sup>The drug package insert should be consulted for dosage recommendations for administering amantadine to persons with creatinine clearance  $\leq$ 50 mL/min/1.73m<sup>2</sup>. <sup>2</sup>A reduction in dosage to 100 mg/day of rimantadine is recommended for persons who have severe hepatic dysfunction or those with creatinine

<sup>2</sup> A reduction in dosage to 100 mg/day of rimantadine is recommended for persons who have severe hepatic dysfunction or those with creatinine clearance  $\leq 10$  mL/min. Other persons with less severe hepatic or renal dysfunction taking 100 mg/day of rimantadine should be observed closely, and the dosage should be reduced or the drug discontinued, if necessary.

<sup>3</sup> Older nursing home residents should be administered only 100 mg/day of rimantadine. A reduction in dosage to 100 mg/day should be considered for all persons aged  $\geq$ 65 years, if they experience possible side effects when taking 200 mg/day.

<sup>4</sup> A reduction in the dose of oseltamivir is recommended for persons with creatinine clearance <30 mL/min.

#### **REIMBURSEMENT FOR INFLUENZA AND PNEUMOCOCCAL** VACCINATION

Influenza and pneumococcal vaccines are a Medicare benefit, so long-term care facilities can bill Medicare for these immunizations. *Frequently, nursing homes in Georgia are not billing Medicare and are losing this revenue.* 

- One of the most effective strategies for increasing influenza and pneumococcal immunizations involves the health care provider. Medicare beneficiaries are more likely to get immunized when their physician specifically recommends vaccination.
- Medicare Part B began paying for influenza vaccine on May 1, 1993.
- Medicare Part B began paying for pneumococcal polysaccharide vaccine (PPV) on July 1, 1981.
- Coverage of the vaccines and their administration is available under Medicare Part B regardless of the setting in which they are administered.
- If a beneficiary at high risk of pneumococcal disease (i.e., aged 65 or older) is unsure about his or her PPV vaccination status, Medicare will cover re-vaccination.

Billing Code	Description
90658	Influenza split-virus vaccine (Only split virus vaccines are available in
	the U.S.)
90732	Pneumococcal polysaccharide vaccine
G0008	Administration of influenza vaccine
G0009	Administration of pneumococcal vaccine
V04.8	Diagnosis code for influenza vaccine
V03.82	Diagnosis code for pneumococcal polysaccharide vaccine

Roster bills can be submitted so that only one bill is needed per facility (although influenza and pneumococcal vaccines must be on separate roster claim forms).

#### **References:**

- 1. Centers for Medicare and Medicaid Services. Medicare and Medicaid programs; conditions of participation: immunization standards for hospitals, long-term care facilities, and home health agencies. Federal Register 2002;67:61808--14.
- 2. Centers for Disease Control and Prevention. Detection and Control of Influenza Outbreaks in Acute Care Facilities. Available at http://www.cdc.gov/ncidod/hip/INFECT/ FluBook2001.pdf; September 2001.
- 3. Kingston BJ and Wright CV. Influenza in the Nursing Home. Am Fam Physician 2002;65:75-78.
- Centers for Disease Control and Prevention. Prevention and Control of Influenza. Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2003;52[No. RR-8]:1-35.

#### **Other Resources:**

 Georgia Division of Public Health Influenza Web Site – <u>http://health.state.ga.us/epi/flu</u>

- Centers for Disease Control and Prevention, National Center for Infectious Diseases
   Influenza Web Site <u>http://www.cdc.gov/ncidod/diseases/flu/fluvirus.htm</u>
- Centers for Disease Control and Prevention, National Immunization Program Influenza Web Site - <u>http://www.cdc.gov/nip/Flu/default.htm</u>
- Georgia Adult Immunization Coalition <u>http://www.immunizeadultga.org/</u>
- Medicare Preventive Services, Influenza/Pneumococcal Campaign http://cms.hhs.gov/preventiveservices/2.asp

#### INFLUENZA PREVENTION AND CONTROL FACT SHEET

#### Background

- Pneumonia and influenza together are one of the five principal causes of death for persons aged ≥65 years.
- > Older adults account for >90% of deaths attributed to pneumonia and influenza.
- Vaccination of health-care workers has been associated with reduced employee absenteeism and fewer deaths among nursing home residents. Despite this, less than 40% of health-care workers are vaccinated annually.

#### **Preventing Influenza**

- Influenza vaccination is the primary method for preventing influenza and its severe complications.
- Primary target groups for annual influenza vaccination include:
- ▶ Persons aged  $\geq$ 65 years
- Residents of nursing homes or other chronic care facilities
- Employees of nursing homes or other chronic care facilities.
- Influenza vaccine should be given to nursing home residents and staff annually, ideally in October or November.
- The Healthy People 2010 goal is to achieve influenza and pneumococcal vaccination of 90% among persons ages ≥ 65 years.

#### **Controlling Influenza**

- Four antiviral medications are approved for treatment of influenza: amantadine, rimantadine, oseltamivir, and zanamivir. All but zanamivir are also approved for prevention of influenza during outbreaks.
- Use of rapid influenza kits in a nursing home setting while awaiting viral culture results is extremely valuable in documenting influenza as the cause of the outbreak and guiding treatment and prophylaxis decisions.
- The following activities are essential supplements to treatment and prophylaxis for preventing spread of influenza in an outbreak:
- ➢ Keep ill residents separate from well residents.
- Cancel or postpone group and social activities.
- Implement respiratory droplet precautions, including use of masks, gloves, and gowns (if clothing likely to be soiled by body fluids).
- Restrict visitors who have a febrile respiratory illness.
- Do not allow staff to work while ill.
- Consider temporarily closing the facility to new admissions while the outbreak continues.
- By law, any cluster of illness must be reported to public health officials. A cluster is defined as 3 or more cases of illness among residents and/or staff within a 72-hour period.

# GET SHOT THIS SEASON!

Flu season is rapidly approaching. If you plan to visit your loved one during flu season
(October through May) it is possible that you could bring influenza into this facility.
Influenza can be a very serious illness for our residents. To help protect our residents and yourself from the flu, *PLEASE get your flu*



*shot this fall*. To find a flu vaccine provider near you, log on to <u>http://www.immunizeadultga.org</u> or call your personal physician or county health department.

## THANK YOU FOR HELPING TO KEEP OUR RESIDENTS HEALTHY DURING FLU SEASON!



The Georgia Division of Public Health reports that influenza season has arrived in Georgia. Influenza, or the flu, can be a very serious illness for our residents. If you have not received your flu shot this year, please do so soon. Also, if you are experiencing any flu-like symptoms, such as sore throat, cough, fever, or muscle aches, please DO NOT enter this facility until you are feeling better. Remember that children can also spread influenza, so please do not bring children with you if they have any symptoms of the flu.

### WE NEED YOUR HELP TO KEEP OUR RESIDENTS HEALTHY THIS FLU SEASON!

#### **Additional Resources for Influenza Prevention and Control**

#### **CONTACT NUMBERS AND INTERNET ADDRESSES**

Georgia	Division of Public Health Epidemiology Branch
Georgia	Division of Public Health Immunization Program
Georgia	Office of Regulatory Services Long-Term Care Section
Georgia	Council on Aging
Georgia	Medical Care Foundation
Georgia	Adult Immunization Coalition
Georgia	Medical Directors' Association
Georgia	Nurses Association
Georgia	Pharmacy Association
National	Coalition for Adult Immunization

#### **PUBLICATIONS**

"Prevention and Control of Vaccine-Preventable Diseases in Long-Term Care Facilities." Available at <u>http://www.cdc.gov/nip/publications/long-term-care.pdf</u>. This document is useful for long-term care facilities developing immunization and surveillance programs.

"Facilitating Influenza and Pneumococcal Vaccination Through Standing Orders Programs." Available at <u>http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5204a4.htm</u>.

"Prevention and Control of Influenza. Recommendations of the Advisory Committee on Immunization Practices (ACIP)." Available at <u>http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5208a1.htm</u>. This is an annual publication that details guidelines for influenza vaccination.

Influenza Vaccine Statement. Available at http://www.cdc.gov/nip/publications/VIS/#flu

Pneumococcal Polysaccharide Vaccine Statement. Available at <u>http://www.cdc.gov/nip/publications/VIS/vis-ppv.pdf</u>.

Appendix I

#### Influenza Timeline Sep Feb **Oct** Nov Dec Jan Apr Mav Jun Jul Aug Mar • 65 years or older • People with a chronic health condition **BEST TIME** OFFER **VACCINATION NOT ROUTINELY** NOT TOO LATE TO VACCINATE • Healthcare workers VAC-TO CINE\* RECOMMENDED • Household contacts of VACCINATE those above • People 50-64 years • Anyone who wants to prevent the flu **BEST TIME** VACCINATION NOT ROUTINELY NOT TOO LATE TO VACCINATE TO RECOMMENDED VACCINATE **BEST TIME TO ORDER** • Order influenza VACCINE MAY ONLY 2003-2004 INFLUENZA SEASON: NO **VACCINE FROM BE AVAILABLE FROM** vaccine for upcoming **DELAYS EXPECTED FOR VACCINE** MANUFACTURER DISTRIBUTOR **PRODUCTION AND DISTRIBUTION** season ("PRE-BOOK") Monitor for influenza-"TYPICAL" FLU SEASON - CONDUCT THOROUGH INFLUENZA **CONTINUE INFLUENZA** like illness in long-SURVEILLANCE **SURVEILLANCE** term care facilities\*\*

\* If available, vaccine may be offered to those at high risk during routine healthcare visits or during hospitalizations to avoid missed opportunities.

\*\* Influenza-like illness is defined as fever  $\ge 100^{\circ}$ F (oral) or  $\ge 101^{\circ}$ F (rectal) AND cough and/or sore throat. By law in Georgia, any cluster of illness (3 or more cases occurring in less than 72 hours) must be reported immediately to public health officials. To report a cluster of illness to the Georgia Division of Public Health call 404-657-2588 (after hours call 770-578-4104).