

Nursing Home Acquired Pneumonia

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Do Bugs Need Drugs? is a community education program about the wise use of antibiotics. This article, the second in a series, focuses on the assessment and treatment of pneumonia in continuing care centres. Pneumonia is a serious health problem among the elderly. Of all the deaths due to pneumonia in North America, more than 90% occur in people over 65 years of age. Residents in continuing care centres are particularly vulnerable as many have underlying medical conditions that make diagnosis and management of pneumonia more complex and challenging.

Early detection and treatment of pneumonia can significantly improve outcomes for elderly patients. In continuing care centres, nurses are usually the first to note changes in the status of residents and to initiate treatment if pneumonia is suspected. Because prompt action is needed, the importance of being familiar with care guide practices cannot be overemphasized.

The following information is taken from Do Bugs Need Drugs? (www.dobugsneed-drugs.org), the Bugs & Drugs antimicrobial handbook (www.bugsanddrugs.ca), the Clinical Practice Guidelines of the Alberta Medical Association (www.topalbertadoc-tors.org), and the Alberta Health Services Continuing Care Desktop. We hope you find this summary to be useful in assessing and managing pneumonia in adults in continuing care.

■ Definition

Pneumonia that occurs in residents of continuing care facilities is known as Nursing Home Acquired Pneumonia or NHAP. These facilities may also be known as long term care centres, supportive living sites, auxiliary hospitals, or chronic care centres, but all of these settings are communal, residential, and provide care for older or disabled adults with high personal and professional care needs.



■ Assessment

The resident with NHAP frequently presents with new or increased cough, elevated temperature, and greater than usual lethargy. Examination of the resident when NHAP is suspected should include these six items: temperature, blood pressure, respiratory rate, pulse, chest auscultation and examination, and assessment of the level of consciousness. Respiratory rate should be measured for a full 60 seconds.

PRACTICE POINT #1

Physical examination includes:

- Temperature
- Blood pressure
- Respiratory rate (full 60 seconds)
- Pulse
- Chest auscultation and examination
- Assessment of the level of consciousness

PRACTICE POINT #2

Resident assessment includes:

- New or increased cough
- New or increased sputum production
- Pleuritic chest pain
- Baseline temperature
- Antipyretics given? Time given?
- Chills
- History of pulmonary disease
- O₂ saturation levels and O₂ administration
- Difficulty swallowing

Before calling the physician or nurse practitioner, nurses should also assess the resident for new or increased cough, new or increased sputum production, and/or pleuritic chest pain. Determine the presence of fever by comparing the resident's temperature with the baseline temperature. The time of administration of antipyretics (if given) is also important when assessing fever. Does the resident have chills? Note the resident's history of underlying pulmonary disease, O₂ saturation levels, and details of O₂ administration. Does the resident have any problems swallowing? The latter is relevant in ruling out aspiration pneumonia and deciding whether oral therapy is appropriate. These factors will be important when discussing the resident's condition with the physician or nurse practitioner.

■ Diagnosis

Although a chest X-ray is the gold standard for diagnosis of pneumonia, X-rays are not always available in continuing care centres. Consequently, diagnosis must often be based on clinical observations. NHAP is indicated if the resident has tachypnea (respiratory rate >25 bpm) and one or more of the following: new or increased cough, new or increased sputum production, temperature >38°C or increase of 1.5°C over baseline, pleuritic chest pain, new or increased crackles, wheezes or bronchial breath sounds, new delirium, or decreased level of consciousness. In the absence of a chest x-ray, tachypnea is the most important clinical feature of pneumonia and is the best predictor of pneumonia in the elderly.

SYMPTOMS AND SIGNS CLUSTER

NHAP is probable if the resident has:

- Tachypnea (respiratory rate >25bpm)

Plus one or more of the following:

- New or increased cough
- New or increased sputum production
- Temperature >38°C or 1.5°C over baseline
- Pleuritic chest pain
- New or increased abnormal chest sounds
- New delirium or decreased level of consciousness

■ Treatment

If NHAP is indicated, antibiotic therapy should be started as soon as possible, preferably within 4 to 8 hours. If the resident is unable to swallow, the antibiotic may need to be given IM. Amoxicillin is the antibiotic of choice for NHAP. Note that Ciprofloxacin is ineffective against *Streptococcus pneumoniae* (a common cause of NHAP) and should not be used. Consult the Bugs & Drugs book or website for alternative therapies or for more information. An X-ray is not needed before starting antibiotic therapy and if transfer to acute care is indicated, therapy should be started prior to transfer. Patient outcomes are significantly improved when therapy is initiated promptly.

■ Criteria for transfer to acute care

Personal directives need to be considered before deciding whether a resident should be transferred to acute care. If consistent with personal directives, the resident should be transferred to acute care if respiratory failure is impending. The following criteria indicate transfer to acute care: hydration <1L/day, O₂ saturation <92% with supplemental oxygen (<90% if resident has COPD), respiratory rate >40 bpm, pulse >125 bpm, systolic blood pressure <90 mmHg or 20 mmHg below baseline, hemodynamically unstable, or deteriorating rapidly.

NHAP can most often be managed successfully in the continuing care centre. If

the resident does not improve within 24 - 48 hours of initiation of antibiotic therapy, the diagnosis and/or treatment should be reassessed.

The complete pathway for assessment and treatment of NHAP is available on the Alberta Health Services Continuing Care Desktop. Enter NHAP in the search box.

■ Prevention

Pneumococcal vaccine. Over 100 microorganisms can cause pneumonia including viruses, bacteria, fungi, and parasites. The pneumococcal vaccine protects against infections caused by the bacterium *Streptococcus pneumoniae*, a significant cause of pneumonia in the elderly. Usually only one dose is required, but immunocompromised individuals may need a repeat vaccination in 5 - 10 years. Pneumococcal vaccine is strongly recommended for residents in continuing care.

Influenza vaccine. Bacterial pneumonia after influenza is a serious health risk. In fact, there were more deaths due to secondary pneumonia than to influenza in the Spanish influenza pandemic of 1918. Nowadays up to 50% of cases of pneumonia in continuing care centres are preceded by a viral infection. Annual influenza vaccination not only reduces the risk of influenza, but also of secondary bacterial pneumonia.

Handwashing. Handwashing is the best way to stop the spread of infections, especially in communal settings. Use plain soap. Plain soap is just as effective as antibacterial soap and does not have the negative side effect of promoting resistance in normal skin flora to antibiotics. If soap and water are not available, hand sanitizer with at least 60% alcohol content is recommended. Hand sanitizers are not effective if the hands are greasy or visibly dirty, so wash your hands as soon as soap and water are available.

Respiratory etiquette. Cough or sneeze into your sleeve rather than into the air or on your hands. Keep your hands away from your face to prevent transfer of germs to the mucous membranes. The mucous membranes around your eyes, nose, and mouth are areas where germs can enter the body to cause illness.

Smoking cessation. Encourage residents to stop smoking or to reduce consumption. Advise residents to avoid exposure to environmental tobacco smoke.

Stay home if you are sick. Take care of yourself. Don't spread germs to residents or to other staff members.

Educate family and visitors. Encourage family and visitors to wash their hands or use a hand sanitizer when entering the continuing care centre. Visitors should also wash their hands before eating or assisting the resident at mealtime, after using the washroom, or after blowing their nose or helping the resident with a runny nose. Remind visitors about the importance of good respiratory etiquette. Ask visitors to postpone their visit if they are sick.

PREVENTION

- Pneumococcal vaccination
- Influenza vaccination
- Handwashing
- Respiratory etiquette
- Smoking cessation
- Stay home if sick
- Educate family and visitors

■ Remember

NHAP is a serious illness that can come on suddenly and requires prompt treatment. Proper assessment is essential for timely diagnosis and treatment. Because patient outcomes are significantly better if treatment is initiated within 4 - 8 hours, it is important to gather all relevant information and call the physician or nurse practitioner as soon as NHAP is suspected.

For more information about Do Bugs Need Drugs? visit the website, www.dobugsneeddrugs.org. To learn more about the print resources that are available (at no charge in Alberta), please contact info@dobugsneeddrugs.org or 1-800-931-9111.

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