Nursing 409  Module 2
Content  Part One

- Atypical Presentation
- Geriatric Syndromes
- Comprehensive Geriatric Assessment
Objectives

- Define Atypical Presentation as it applies to the older adult.
- Discuss the significance of atypical presentation of illness in the older adult.
- Describe how atypical presentation is manifested in the cardiovascular, including anemia, and pulmonary system.
- Define the Geriatric Syndrome.
- Discuss how this approach to the care of older adults is different from traditional approaches.
- Discuss how this approach is beneficial to the older adult.
- Define the Comprehensive Geriatric Assessment (CGA).
- Discuss the significance of the CGA as a tool for helping older adults maintain health and wellness.
Atypical Presentation
Emphasis on Cardiovascular and Respiratory Systems
Rule of thumb:

In North America, when you hear hoof beats,
you should... think of horses

before you think of zebras.

Zebra Medicine  Dr. Theodore Woodward
EXCEPT...
As individuals age:

- The overall efficiency of body systems decreases.
- Many responses are blunted or slowed.
- Chronic illnesses may also influence response to illness.
As a result, acute, chronic and/or complex illnesses may present "atypically"
The Nursing Assessment is the key to determining if an older adult is displaying an atypical presentation.
Background: What Constitutes Atypical Presentation?

- Signs and Symptoms that occur outside the normal rubric of traditional signs and symptoms constituting a particular disease

- These are the heralding signs or symptoms for any disease among older adults

- Identification of this phenomena can and will reduce risk for fatality or prolonged hospitalization,
Atypical presentation of illness to include:

- vague presentation of illness
- altered presentation of illness
- non-presentation of illness
Advanced aged older adult: common systems for atypical presentation”

- Central nervous system
- Gastrointestinal
- Cardiovascular system
- Respiratory system
Recognizing atypical presentation can not be over stated. It’s an essential consideration.

Older adults over age 85, those with multiple comorbidities and medications, and those older adults with cognitive or functional impairment are at greatest risk for developing atypical presentation.
Early recognition of illnesses even though they present atypically results in:

- Positive health outcomes such as prompt diagnosis
- Reduce risk for fatality or prolonged hospitalization,
- Reduce rates of co-morbidity from treatable geriatric syndromes
Delirium is often a part of an atypical presentation of disease associated with adverse health outcomes.

An important question: “How do you know it is an atypical presentation?”

The following charts list some examples:

over 60 percent of frail hospitalized older adults with atypical presentation experienced delirium
### Altered Presentation of Illness in Elderly Persons

<table>
<thead>
<tr>
<th>Illness</th>
<th>Atypical Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infectious diseases</td>
<td>• Absence of fever</td>
</tr>
<tr>
<td></td>
<td>• Sepsis without usual leukocytosis and fever</td>
</tr>
<tr>
<td></td>
<td>• Falls, decreased appetite or fluid intake, confusion, change in functional status</td>
</tr>
<tr>
<td>&quot;Silent&quot; acute abdomen</td>
<td>• Absence of symptoms (silent presentation)</td>
</tr>
<tr>
<td></td>
<td>• Mild discomfort and constipation</td>
</tr>
<tr>
<td></td>
<td>• Some tachypnea and possibly vague respiratory symptoms</td>
</tr>
</tbody>
</table>
| Silent" malignancy | • Back pain secondary to metastases from slow growing breast masses  
| | • Silent masses of the bowel |
| "Silent" myocardial infarction | • Absence of chest pain  
| | • Vague symptoms of fatigue, nausea and a decrease in functional status.  
| | • c/o "indigestion"  
<p>| | • Classic presentation: shortness of breath more common complaint than chest pain |</p>
<table>
<thead>
<tr>
<th><strong>Non-dyspneic pulmonary edema</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• May not subjectively experience the classic symptoms such as paroxysmal nocturnal dyspnea or coughing</td>
</tr>
<tr>
<td>• Typical onset is insidious with change in function, food or fluid intake, or confusion</td>
</tr>
</tbody>
</table>

Gerurse Online   CONSIDER: ATYPICAL PRESENTATION
Determining if an Atypical Presentation Exists

What you can do?

- Vital signs may be taken more frequently
- Core or rectal temperature may be more accurate and essential in determining the presence of conditions such as hypothermia related to bacteremia
- Daily intake and output of oral fluids may be required to rule out such conditions as dehydration along with other types of laboratory work-up such as serum electrolytes, BUN and creatinine
Determining if an Atypical Presentation Exists con’t.

- Daily weights
- Frequent assessments of:
  - pain
  - function
  - behavior
- Use of “Try This” Assessment Tools
  - One to two page tools to assess status of older adults
  - Click on the following URL to gain access to tools as well as videos demonstrating how to perform the assessments
Determining if an Atypical Presentation Exists con’t

- Atypical presentation can actually be a medical emergency, as in the case of acute myocardial infarction, time is of the essence in terms of selecting appropriate nursing intervention.
Let’s explore atypical presentation in the context of the cardiovascular and pulmonary systems in older adults...
Biggest concern... Hypertension

- Heart failure
- Heart Attack
- Stroke
- Anemia
- Peripheral Vascular Disease
<table>
<thead>
<tr>
<th>Classis signs observed with an MI</th>
<th>Atypical presentation of MI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-sternal chest pain</td>
<td>Mild or absent pain</td>
</tr>
<tr>
<td>Radiating pain to neck, jaw or arm</td>
<td>Acute confusion</td>
</tr>
<tr>
<td>Shortness of breathe/dyspnea</td>
<td>Mild or absent dyspnea</td>
</tr>
<tr>
<td>Diaphoresis</td>
<td>No electrocardiogram evidence or Non-Q wave infarction or silent</td>
</tr>
<tr>
<td>Electrocardiogram evidence of infarction</td>
<td></td>
</tr>
</tbody>
</table>
New-onset atrial fibrillation and other arrhythmias may signal the onset of serious underlying illness such as hyperthyroidism, electrolyte disturbances, or myocardial infarction. All older patients with complaints of “skipped beats” or “fluttering in the chest” should be referred for medical evaluation.
Hypertension

The predominant cause of cardiovascular disease in older adults.

- Untreated or under-treated HTN leads to left ventricular hypertrophy (LVH)
- Important marker for adverse cardiac outcomes
- LVH increases with age
  - Occurs in 33% of men and 49% of women over the age of 70
Background: Etiology of Hypertension

- HTN is **not** an inevitable consequence of aging
- 1 of 3 adults have HTN
- More common in older women and African Americans
- Target goals are not met in many
- No evidence of increased use of meds to control HTN.
- Therefore many go untreated.
Background: Etiology of Hypertension

- Arthritis is a common co-morbidity in this age group and many are treated with non-steroidal anti-inflammatory agents (NSAIDs).

- NSAID’s yield increase in BP of 3-6 mm Hg which increases CVD event rates.
Physical Examination of Older Adults with HTN

- Requires careful measurement of SBP and DBP
- Environmental factors can influence BP determination
  - Room should be a comfortable temperature
  - Relaxed, seated, legs uncrossed with the back and arm supported. 5 minute rest before taking the first reading to offset "white coat hypertension"
  - Clothing that covers the area where the cuff will be placed should be removed
  - The middle of the cuff on the upper arm should be at a level of the right atrium
Diagnostic criteria for HTN

- HTN Diagnosis depends on 2 or more properly measured seated BP readings on each of 2 or more office visits using the mean value.

- Blood pressure is classified according to four (4) stages in adults 18 and older:
  - Normal, < 120/80 mm Hg
  - Pre-hypertension, SBP 120-139 or DBP 80-89 mm Hg
  - Stage 1 HTN, SBP 140-159 or DBP 90-99 mm Hg
  - 4 Stage 2 HTN, SBP > 160 or DBP > 100 mm Hg.
Orthostatic Hypotension

- Dependent on the ability to adapt to small increases or decreases in plasma volume.
  - For example, venous return in the elderly when standing up is slowed, dropping blood pressure.

- Normal changes of aging apply to the baroreceptors as well making them less responsive to changes in blood pressure.

- Occurs with little warning.

- Orthostatic hypotension is a common problem and very dangerous.
Practice Pearl

Because changes of aging cause the baroreceptors to be less efficient, it is essential to check postural blood pressures in older patients to prevent postural hypotension and falls.
Background: Etiology of Orthostatic Hypotension

- Causes of orthostatic hypotension
  - Medications
  - Impaired venous return
  - Hypovolemia and impaired cardiac contractility
  - Multi-system atrophy
Role of Co-morbid Conditions

Diabetes mellitus (DM)
  - Diabetic autonomic neuropathy
    ■ Postural symptoms of lightheadedness or dizziness with standing
    ■ Blood pressure drops with changes in position (orthostatic hypotension)

■ Symptoms of lightheadedness may be delayed or absent altogether, giving no signal or warning of an impending fall
Other important considerations...

Orthostatic hypotension
- Detected on physical assessment by measuring postural vital signs
- Can coexist with elevated blood pressure

Example:
A blood pressure of 190/60 supine and 170/50 standing is diagnostic for both orthostatic hypotension and systolic HTN
Physical Examination of Older Adults with HTN

- **Orthostatic hypotension** - Take BP within 3 minutes after a change in position
  - SBP falls by at least 20 mm Hg
  - DBP by 10 mm Hg

- Frail older adults require assistance transitioning from supine to sitting position especially with orthostatic hypotension to prevent falls.
HTN is a precursor to Heart Failure 75% of the time.
- Multiple co-morbidities complicate assessment and management of HTN and HF
- DM is a potent contributor to HF

DM associated with higher HF-related morbidity and mortality

Older patients with DM, 22% HF diagnosis with the prevalence increased with increasing age

High Risk for HF: Women with DM & those treated with insulin
Etiology of Heart Failure

- Atherosclerotic CHD is the most common etiology of HF in the US, followed closely by HTN alone and valvular disease.

- Thyroid dysfunction
  Low Thyroid Function Leads to HF due to
  - Cardiac Atrophy with Chamber Dilation
  - Impaired Myocardial Blood Flow
  - Loss of Arterioles
  - Severe Systolic Dysfunction

Cardiovascular Research Institute-South Dakota Health Research Foundation, Sioux Valley Health System and The University of South Dakota School of Medicine. Nov. 15 2005 issue of Circulation, the journal of the American Heart Association.
Etiology of Heart Failure con’t

- **Alcoholic Cardiomyopathy (ACM)**
  - weakened by chronic alcohol intake.
- ACM is characterized by an increase in myocardial mass, dilation of the ventricles & wall thinning.

http://chestjournal.chestpubs.org/content/121/5/1638.short

Consider the possibility of asymptomatic or silent ischemia or infarction as a cause of HF
Other causes

- Pre-existing co-morbidities accentuating orthostatic hypotension
- Plasma volume depletion from fluid loss or dehydration,
- Parkinson’s disease
- Numerous medications
Diagnostic Breakthrough:
Heart Failure can be detected earlier via MRI

Very Early Signs Of Atherosclerosis And Heart Failure Seen Together On MRI

“Even though the participants did not have any symptoms of cardiovascular disease, increased intima-media thickness was related to reduced heart pumping function.”

http://www.medicalnewstoday.com/releases/45602.php
Health History of Older Adults with HTN and HF

- Assessment
  - Lifestyle
  - CVD risk factors
  - Causes of HTN
  - Presence or absence of end-organ damage
  - Coexisting CVD
Health History of Older Adults with HTN and HF

- **Additional Assessments**
  - Current prescription
  - Over-the-counter medications
  - Alternative therapies

- Eligible for aspirin, beta-blockers and angiotensin-converting enzyme (ACE) inhibitors (*older adults are not prescribed these medications as often as younger adults*)

- Medications to treat HTN and lipid abnormalities
  - may not be well tolerated
  - side effects
  - drug interactions
Symptomatology of Older Adults with HTN/ HF

- Gastrointestinal symptoms
  - Anorexia
  - Early satiety
  - Postprandial hypotension
  - Abdominal fullness
  - Fatigue during meals

- Advanced HF with restricted cardiac output
  - Mesenteric ischemia following meals

- Warfarin *unexplained elevation in protime due to hepatic congestion can be diagnostic of HF prior to overt symptoms
Co-morbidity and risk factors
- Patients with renal dysfunction
- Pulmonary disease
- Diabetes
- HTN
- Cancer
- Smoking

Greater risk of mortality when coupled with a decrease in functional status
- Difficulty bathing
- Managing finances
- Walking several blocks
- Pushing or pulling heavy objects
Management of Older Adults with HTN and HF

- Primary goal in the treatment of HTN
  - Blood pressure of $< 140/90$ mm Hg
  - With DM or chronic kidney disease of $< 130/80$ mm Hg
- Lifestyle interventions and medications are often required
Management of Older Adults with HTN and HF

- Drugs are added until the blood pressure goal is reached
- Lower initial doses may be required to avoid symptoms and orthostatic hypotension

Case Study

Diuretics may be especially effective in the elderly as well as in African-Americans
Management of Older Adults with HTN and HF cont

- **Lifestyle modifications** can contribute to blood pressure reduction:
  - Weight reduction 4-8% decrease in body weight is associated with a 3 mm Hg reduction in SBP and DBP
  - Adoption of Dietary Approaches to Stop Hypertension (DASH) eating plan
  - Sodium restriction to 2.4 grams per day
  - Increases in physical activity to at least 30 minutes per day, most days of the week
  - Limiting alcohol consumption to ≤ 2 drinks per day
Management of Older Adults with HTN and HF

Interventions

- Prevention Education
- Scheduled Re-assessments
- ACE inhibitors prevented cardiac events in high-risk patients without HF or known low ejection fractions
Almost 10 percent of the older population is currently anemic. Signs and symptoms include:
- Weakness
- Shortness of breath
- Pallor (paleness of the skin)
- Dizziness
- Coldness in hands and/or feet
- Chest pain
- Headache
- Pounding or “whooshing” in ears
Factors in Developing Anemia

**Age Related Changes**

- Decreased production of Intrinsic Factor in GI tract
- Total serum iron binding capacity and absorption decreased
- Decline in bone marrow activity and RBC production

**Risk Factors**

- Rheumatoid arthritis or other autoimmune disease
- Kidney disease
- Cancer
- Liver disease
- Thyroid disease
- Inflammatory bowel disease (Crohn disease or ulcerative colitis)
Other causes of Anemia

Atrophic gastritis

• Stomach disorder that is *unique to the elderly*.

• Involves a shrinking and inflammation of the inner lining of the stomach.

• May be asymptomatic but can increase the risk for stomach cancer.

• Usually diagnosed in 6th decade when pernicious anemia is manifested.

• Once thought to be a normal process of aging

• Now believed that it is caused by a prolonged infestation with *helicobacter pylori* (H. pylori) or *campylobactor pylori* (C. Pylori), which is common in older adults.
Other causes of Anemia

Achlorhydria

• An insufficient production of stomach acid.

• May be caused by atrophic gastritis. The most common cause of B12 deficiency.

• The stomach must secrete adequate amounts of gastric acid and a protein known as "intrinsic factor" as well as produce the digestive enzyme pepsin for vitamin B12 to be absorbed.
• Changes in the G.I. tract can affect absorption of vitamin B12. Since the liver is able to store large amounts of B12 it can take up to 5 years before symptoms of deficiency appear.

NOTE: It's important to recognize symptoms early since any neurological damage may be irreversible.

• Symptoms include extreme fatigue, dementia, confusion, and tingling and weakness in the arms and legs.

• Symptoms of B12 deficiency can be misdiagnosed since they can look like Alzheimer's or other chronic conditions.
Lab Values and the Older Adult

- Traditional, normal ranges of values for adults may not apply to older adults.
- The values must be interpreted in relation to the patient’s age and physical assessment rather than just compared to traditional normal readings for adults.
- A client’s nutritional status, co-morbid conditions and medications may be factors in interpreting lab values.
<table>
<thead>
<tr>
<th>Test</th>
<th>Normal Adult Value</th>
<th>Geriatric Value</th>
<th>Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin</td>
<td>M 13.0 gm/dl</td>
<td>M 11.5 gm/dl</td>
<td>↓: Anemias, cirrhosis of liver, leukemias, Hodgkin’s disease, cancer</td>
</tr>
<tr>
<td></td>
<td>F 12.0 gm/dl</td>
<td></td>
<td>(intestine, rectum, liver, or bone), kidney disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>↑: Dehydration, COPD, CHF, polycythemia</td>
</tr>
<tr>
<td>Hematocrit</td>
<td>M 40% - 54%</td>
<td>M 30% - 45%</td>
<td>↓: Anemias, leukemia, Hodgkin’s disease, multiple myeloma, cirrhosis of liver,</td>
</tr>
<tr>
<td></td>
<td>F 36% - 46%</td>
<td></td>
<td>protein malnutrition, peptic ulcer, chronic renal failure, rheumatoid arthritis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>↑: Dehydration, severe diarrhea, polycythemia vera, diabetic acidosis, emphysema</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>transient cerebral ischemia</td>
</tr>
<tr>
<td>White Blood Cells</td>
<td>4,500 - 10,000 μl/mm³</td>
<td>3,000 - 9,000 μl/mm³</td>
<td>↓: Hematopoietic diseases, viral infections, alcoholism, systemic lupus erythematos (SLE), rheumatoid arthritis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>↑: Acute infection, tissue necrosis, leukemias, hemolytic anemia, parasitic diseases</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>stress</td>
</tr>
<tr>
<td>Platelets</td>
<td>150,000 - 400,000 μl</td>
<td>Minimal change</td>
<td>↓: Idiopathic thrombocytopenia purpura, multiple myeloma, cancer, leukemias, anemias, liver disease, SLE, kidney disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>↑: Polycythemia, trauma, post-splenectomy, metastatic carcinoma, pulmonary embolism, tuberculosis</td>
</tr>
</tbody>
</table>

Source: Brigden & Heathcote, 2000
<table>
<thead>
<tr>
<th>Test</th>
<th>Normal Adult Value</th>
<th>Geriatric Value</th>
<th>Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Protein</td>
<td>6.0 - 8.0 g/dl</td>
<td>5.6 - 7.6 g/dl</td>
<td>↓: Prolonged malnutrition, low-protein diet, cancer (GI tract), severe liver disease, chronic renal failure ↑: Dehydration, vomiting, multiple myeloma</td>
</tr>
<tr>
<td>Albumin</td>
<td>3.0 - 5.0 g/dl</td>
<td>Slight decrease</td>
<td>↓: Severe malnutrition, liver failure, renal disorders, prolonged immobilization ↑: Dehydration, severe vomiting, diarrhea</td>
</tr>
<tr>
<td></td>
<td>52 - 68% of total protein</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Beers & Berkow, 2000; Kee, 2002
### Table 4.
**Geriatric Laboratory Values and Interpretations of Selected Renal Function Tests**

<table>
<thead>
<tr>
<th>Test</th>
<th>Normal Adult Value</th>
<th>Geriatric Value</th>
<th>Implications</th>
</tr>
</thead>
</table>
| BUN                | 5 - 25 mg/dl       | 8 - 28 mg/dl or slightly higher | ↓: Liver damage, low protein diet, overhydration, malnutrition  
↑: Dehydration, high protein diet, GI bleeding, pre-renal failure |
| Creatinine         | 0.5 - 1.5 mg/dl    | 0.6 - 1.2 mg/dl                  | ↓: None for older adult  
↑: Renal failure, shock, leukemia, SLE, acute MI, CHF, diabetic neuropathy |
| Creatinine Clearance | 85 - 135 ml/min   | Formula                          | ↓: Mild-to-severe renal impairment, hyperthyroidism, amyotrophic lateral sclerosis, thiazide use  
↑: Hypothyroidism, renal-vascular hypertension |


### Table 5.
**Estimating Creatinine Clearance Values for Men**

\[
\text{Creatinine clearance} = \frac{(140 \text{ - age in years}) \times \text{(body weight in kilograms)}}{(72 \times \text{serum creatinine in mg/dl})}
\]
<table>
<thead>
<tr>
<th>Test</th>
<th>Normal Adult Value Male (M) Female (F)</th>
<th>Geriatric Value</th>
<th>Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholesterol</td>
<td>&lt;200 mg/dl</td>
<td>M may increase by 30 mg/dl F may increase by 55 mg/dl</td>
<td>↓: Hyperthyroidism, starvation, malnutrition, anemia ↑: Acute MI, atherosclerosis, uncontrolled diabetes mellitus, hypothyroidism, biliary obstruction, cirrhosis</td>
</tr>
<tr>
<td>High-Density Lipoproteins (HDL)</td>
<td>M &gt;45 mg/dl F &gt;55 mg/dl</td>
<td>M increases by 30% between ages 30 and 80 F decreases by 30% between ages 30 and 80</td>
<td>↓: Chronic obstructive lung disease ↑: Acute MI, hypothyroidism, diabetes mellitus, multiple myeloma, high-fat diet</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>M 40 - 160 mg/dl F 35 - 135 mg/dl</td>
<td>M increases by 30% F increases by 50%</td>
<td>↓: Hyperthyroidism, hyperparathyroidism, protein malnutrition, exercise ↑: Acute MI, hypertension, hypothyroidism, nephritic syndrome, alcoholic cirrhosis, pancreatitis, high-carbohydrate diet</td>
</tr>
</tbody>
</table>

Source: Brigden & Heathcote, 2000; Kee, 2002
<table>
<thead>
<tr>
<th>Test</th>
<th>Normal Adult Value</th>
<th>Geriatric Value</th>
<th>Implications</th>
</tr>
</thead>
</table>
| Serum Glucose     | 70 - 110 mg/dl     | 70 - 120 mg/dl  | ↓: Hypoglycemia, cancer (stomach, liver), malnutrition, alcoholism, cirrhosis of liver  
|                   |                    |                 | ↑: Diabetes mellitus, adrenal gland hyperfunction, acute MI, stress, crushing injury, renal failure, cancer (pancreas), CHF |
| Calcium           | 4.5 - 5.5 mEq/l    | No change       | ↓: Diarrhea, lack of calcium intake, chronic renal failure, alcoholism, pancreatitis  
|                   |                    |                 | ↑: Hyperparathyroidism, malignant neoplasms (bone, lung, breast, bladder, kidney), malignant myeloma, prolonged immobilization, multiple fractures, renal calculi |
| Potassium         | 3.5 - 5.3 mEq/l    | Slight increase | ↓: Vomiting, diarrhea, dehydration, malnutrition, starvation, stress, diabetic acidosis  
|                   |                    |                 | ↑: Acute renal failure, acidosis (metabolic or lactic), crushing injury, Addison’s disease |

Source: Kee, 2002; Kennedy-Malone et al., 2004; Martin et al., 1997; Tripp, 2000
Pulmonary Function
Promoting Respiratory Wellness in Older Adults

**Nursing Assessment**
- Overall respiratory function
- Signs and symptoms of infection
- Tobacco use and attitudes about quitting
- Immunization status

**Age-Related Changes**
- ↑ stiffness of chest wall
- ↑ anteroposterior diameter
- Enlarged alveoli
- Weaker respiratory muscles
- ↓ response to hypercapnia or hypoxia

**Negative Functional Consequences**
- ↑ use of accessory muscles
- ↓ cough and gag reflexes
- ↑ energy expenditure for breathing
- ↓ efficiency of gas exchange
- ↑ susceptibility to respiratory infections

**Risk Factors**
- Tobacco smoking
- Environmental pollutants
- Occupational exposure to respiratory toxins

**Nursing Interventions**
- Teaching about smoking cessation
- Teaching about flu and pneumonia immunizations
- Teaching about preventing respiratory infections

**Wellness Outcomes**
- Improved respiratory function
- Decreased risk of respiratory infection
- Improved health from quitting smoking
Normal Aging of Immune Function Can Affect Pulmonary Function

- Decrease in the nature + quantity of antibodies produced
- Cilia less effective in removing debris → more foreign bodies in lungs
- Use of medications → suppress immune function
Changes That Affect Pulmonary Function

- Loss of muscle tone
  - Exacerbated by deconditioning + sedentary lifestyle
- Increased thoracic rigidity
- Osteoporotic changes to the spine (kyphosis)
Changes That Affect Pulmonary Function

- Medication use can cause:
  - Fatigue
  - Depressed cough reflex
  - Insomnia
  - Dehydration
  - Bronchospasm
An illness or anesthesia puts demands for oxygen on body, age-related respiratory changes can influence overall function of older adult
Question

Older adults are most likely to enter an emergency room with which of the following symptoms of pneumonia?

A. Cough productive of large amounts of mucus
B. Altered mental status
C. Temperature above 100.5°F
D. Shortness of breath
Answer

**Answer:** B. Altered mental status

**Rationale:** Older adults with pneumonia do not always meet the typical assessment criteria for pneumonia, such as a cough, chills, dyspnea, elevated temperature, and elevated white blood count. Older adults are more likely to have subtler and nonspecific disease manifestations, such as altered mental status, or other changes in functioning, such as incontinence, unexplained falls, sudden aggravation, or failure to thrive.
Hypoxia and Hypercapnia

- For the older adult – diminished response to either – manifests in mental changes rather than breathlessness if blood gases abnormal.
Question

Which of the following is the most common reason for older adults to be more susceptible to tuberculosis than their younger counterparts?

A. Primary infection during exposure
B. Secondary infection after pneumonia
C. Reactivation of dormant tuberculosis
D. Cumulative effects of respiratory failure
Answer: C. Reactivation of dormant tuberculosis

Rationale: Older adults are more susceptible to tuberculosis than younger adults as the reactivation of dormant tuberculosis occurs in the presence of risk factors such as smoking, diabetes, malnutrition, debilitating conditions, or long-term use of corticosteroids.
Pathological Conditions

- COPD – group of diseases
  - Emphysema and chronic bronchitis
  - Characterized by chronic airflow obstruction
  - Manifestations = cough, dyspnea, wheezing, increased sputum production
  - Longer hospitalizations and greater possibility to discharge to institutional setting
Clubbing of fingers

Increased Anterior/Posterior Diameter
Nursing Assessment of Respiratory Function

- Identifying Other Risk Factors
  - Nutrition
  - History of respiratory infections
  - Exposure to smoke and environmental pollutants
  - Occupational exposure
  - Activity level
Nursing Assessment of Respiratory Function (cont’d)

- Physical Assessment Findings
  - Normal age-related changes
  - Breathing pattern
  - Lung sounds
Nursing Interventions for Respiratory Wellness

- Smoking cessation
- Disease prevention
- Vaccinations
- Eliminate exposure to environmental pollutants
- Influenza and pneumonia vaccination
- Nutrition
- Hydration
- Oral hygiene
- Handwashing
- Positioning and turning
Prevention of Aspiration Pneumonia

- Not just a problem when swallowing.
- Reflux and/or regurgitation is a factor.
- Keep upright during meals or tube feedings.
- Myth that PEG tubes prevent aspiration.
- Soft/Pureed foods and thickened fluids are easier to swallow.
- Remain upright for 1 hour after meals if possible.
- Tachypnea +/- Mental changes – may be most reliable sign of lower respiratory infection in older adult (greater than 26 breaths/min)

- Temperature elevations may occur later –
  - 2 degrees above normal (must know baseline temperature)
  - WBCs – 2000 above the client normal
Preventing Aspiration
Pneumococcal Vaccination Schedule

- All persons > 65 years
- All adults with immunosuppression or chronic illnesses
- Revaccination every 6 years for persons with
  - Renal failure
  - Splenectomies
  - Underlying malignancies
  - HIV/AIDS
- Provide influenza vaccine annually