



## CRACKCast E181 – Approach to the Geriatric Patient

*Italicized text refers to passages quoted from Rosen's Emergency Medicine (9<sup>th</sup> Ed).*

### Key concepts:

- We are in the midst of a silver tsunami, with 10,000 Americans turning 65 every day. Older ED patients have the greatest resource use, longest lengths of stay, and highest admission rates of any age group
- Delirium is underrecognized by emergency clinicians; recognition of delirium should prompt investigation for life-threatening emergencies, including infection, metabolic abnormalities, and acute coronary syndrome (ACS).
- Many older patients with ACS present without chest pain, especially females and patients older than 85 years. ACS in older adults is more often complicated by acute heart failure due to age-related decreases in left ventricular compliance. Recommendations regarding medical and revascularization therapy in those with non-STEMI and STEMI have no age limitations.
- Almost one-third of older ED patients presenting with abdominal pain are ultimately found to have a surgical condition causing the abdominal pain. Biliary tract disorders are the most common cause of abdominal pain in the older adult.
- Non-specific complaints such as generalized weakness are among the top ten presenting complaints for older ED patients. Acute onset and focality of symptoms increase the likelihood of stroke or intracranial hemorrhage.
- Mortality from sepsis approaches 40% for patients older than 85 years, with respiratory and genitourinary infections being the most common sources. Older adults with serious infection may have SIRS-negative sepsis.

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### Core Questions

1. List 10 items found on a functional assessment of the elderly (ADLs & IADLS).
2. List 6 factors that lead to altered pharmacokinetics in the elderly
3. List reason why the elderly are predisposed to adverse drug reactions
4. List 15 Physiologic changes of aging that affect illness in the elderly
  - a. List 5 age-related changes to the cardiovascular system
5. Describe an approach to generalized weakness in the geriatric patient based on onset and focality.
6. List 8 predisposing risk factors for sepsis in the elderly
7. What is sundown syndrome?

### Wisecracks

1. What are the most common medications implicated in adverse events for the elderly
  2. List the reasons why diagnosing abdominal pain may be difficult in the elderly
  3. Most common abdominal pathologies (note 60% surgical)
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## Rosen's In Perspective

Taking care of the elderly is hard! Given the Silver-Tsunami that is currently crashing down on us, we better get comfortable with this population.

But our classic history & gestalt can be difficult in the population

- Difficult due to vague symptoms
- Difficult history due to cognitive or physical deficits (hearing)
- Blunted tachycardia response (use of beta blockers, antihypertensives)
- Blunted immune response (Hyper or Hypothermia)

**Screening tools are important:**

### Box 183.1 Identification of Seniors at Risk (ISAR) Tool

1. Before the illness or injury that brought you to the emergency department, did you need someone to help you on a regular basis? (yes)
2. Since the illness or injury that brought you to the emergency department, have you needed more help than usual to take care of yourself? (yes)
3. Have you been hospitalized for one or more nights during the past 6 months (excluding a stay in the emergency department)? (yes)
4. In general, do you see well? (no)
5. In general, do you have serious problems with your memory? (yes)
6. Do you take more than three different medications every day? (yes)

Each “yes” response counts as 1 point, for a total score ranging from 0 to 6. A patient is considered at high risk when the score is 2 or more.

*Adapted from McCusker J, Bellavance F, Cardin S, et al: Detection of older people at increased risk of adverse health outcomes after an emergency visit: the ISAR screening tool. J Am Geriatr Soc 47:1229–1237, 1999.*

### **bCAM Assessment** (Brief Confusion Assessment Method)

Figure 183.2

Need both of:

1. **Acute altered mental status or fluctuating course**
2. **Inattention (months of year backward, or digit spans)**

Need one or more of:

3. Disorganized thinking
4. Altered level of consciousness

CAM Screen is positive if BOTH features 1 and 2 plus 3 or 4 are positive.

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## [1] List 10 items found on a functional assessment of the elderly (ADLs & IADLS).

Table 183.1: Functional Assessment

ACTIVITIES OF DAILY LIVING	INSTRUMENTAL ACTIVITIES OF DAILY LIVING
<ol style="list-style-type: none"><li>1. Bathing</li><li>2. Dressing</li><li>3. Toileting</li><li>4. Transferring</li><li>5. Continence</li><li>6. Feeding</li></ol>	<ol style="list-style-type: none"><li>1. Telephone</li><li>2. Shopping</li><li>3. Food preparation</li><li>4. Housekeeping</li><li>5. Laundry</li><li>6. Transportation</li><li>7. Medication management</li><li>8. Ability to handle finances</li></ol>

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## [2] List 6 factors that lead to altered pharmacokinetics in the elderly

- Altered GI motility and perfusion (blood flow)
- Decreased hepatic function
- Decreased renal function
- Decreased lean body mass
- Increased adipose tissue
- Changes in protein binding

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## [3] List reason why the elderly are predisposed to adverse drug reactions

- Polypharmacy / drug interactions
- Comorbidities
- All of the pharmacokinetic reasons
  - Altered GI motility and perfusion (blood flow)
  - Decreased hepatic function
  - Decreased renal function
  - Decreased lean body mass
  - Increased adipose tissue
  - Changes in protein binding

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## [4] List 15 Physiologic changes of aging that affect illness in the elderly, and list age-related changes to the cardiovascular system.

- Nervous System
  - Decreased BBB function = increased risk meningitis
  - Decreased temp responses = impaired thermoregulation



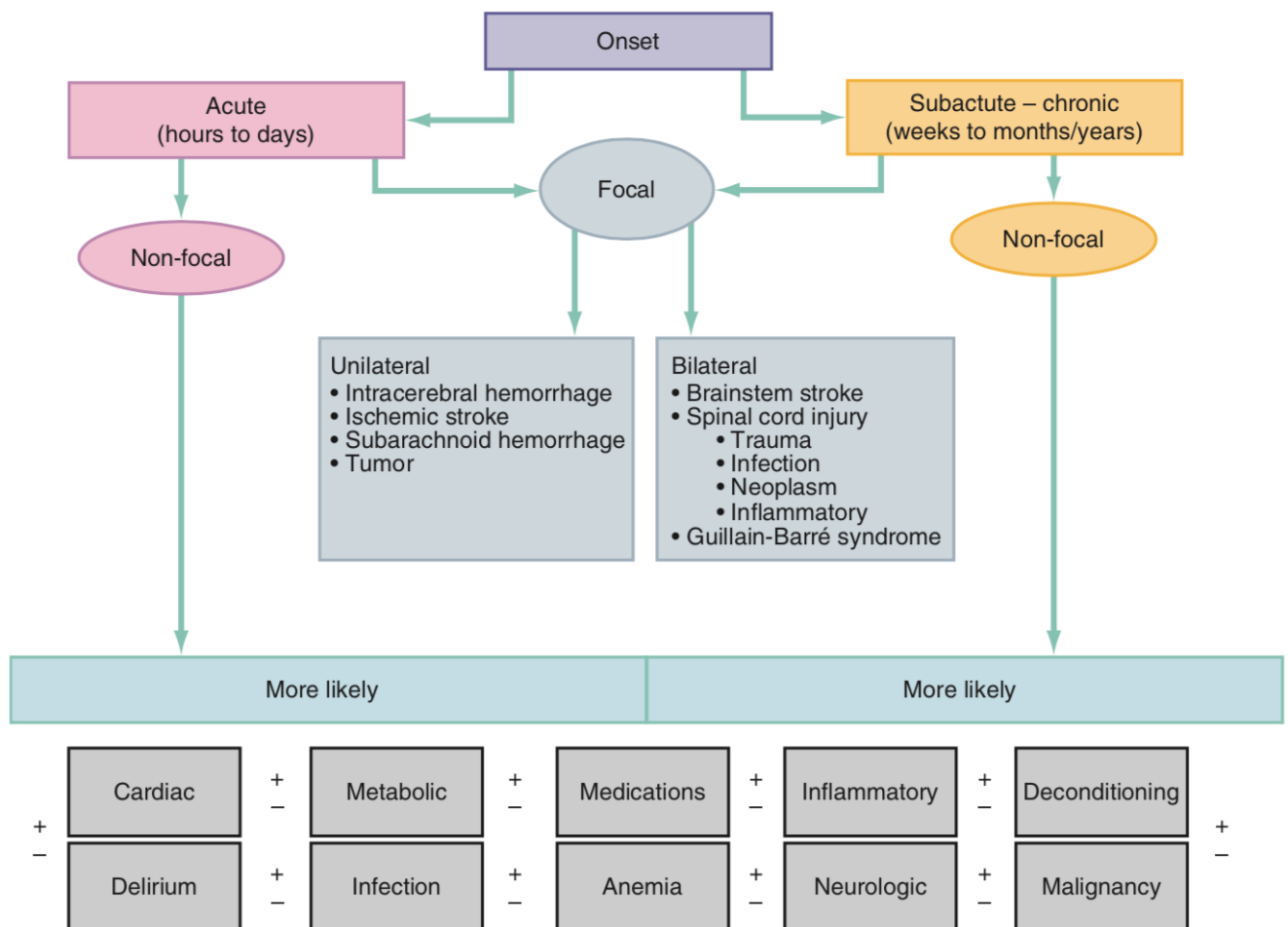
- Skin
  - Atrophy of the skin = increased infections
  - Sweat gland function decreased = risk of hyperthermia
- MSK
  - Osteoporosis = fracture risk
  - Lean body mass decreased = pharmacokinetic changes
- Immune
  - Decreased antibodies = increased infections
  - Decreased cell-mediated-immunity = increased infections
- CVS
  - Decreased inotropy = impaired Cardiac Output
  - Decreased chronotropy = impaired Cardiac Output
- Pulmonary
  - Decreased VC
  - Decreased compliance
- Hepatic
  - Decreased hepatic blood flow = altered pharmacokinetics
  - Decreased p450 enzymes = altered pharmacokinetics
- Renal
  - Decreased renal cell mass = altered pharmacokinetics
  - Decreased total body water = altered pharmacokinetics
- GI
  - Decreased gastric mucosa = ulcer risk
  - Decreased bicarb = ulcer risk

**Table 183.2: Age-related changes to the cardiovascular system.**

AGE-RELATED CHANGE	CLINICAL CONSEQUENCE
Decreased arterial compliance	Increased afterload, left ventricular hypertrophy, hypertension
Myocardial cell hypertrophy, interstitial fibrosis, drop out of cardiac myocytes	Decreased left ventricular compliance, increased contribution of atrial contraction to left ventricular end-diastolic volume (LVEDP)
Apoptosis of sinoatrial pacemaker cells, fibrosis and loss of His bundle cells	Slower intrinsic heart rate, varying degrees of heart block
Decreased responsiveness to $\beta$ -adrenergic stimulation and reactivity to baroreceptors and chemoreceptors	Increased circulating catecholamines
Fibrosis and calcification of heart valves	Aortic valve sclerosis and stenosis

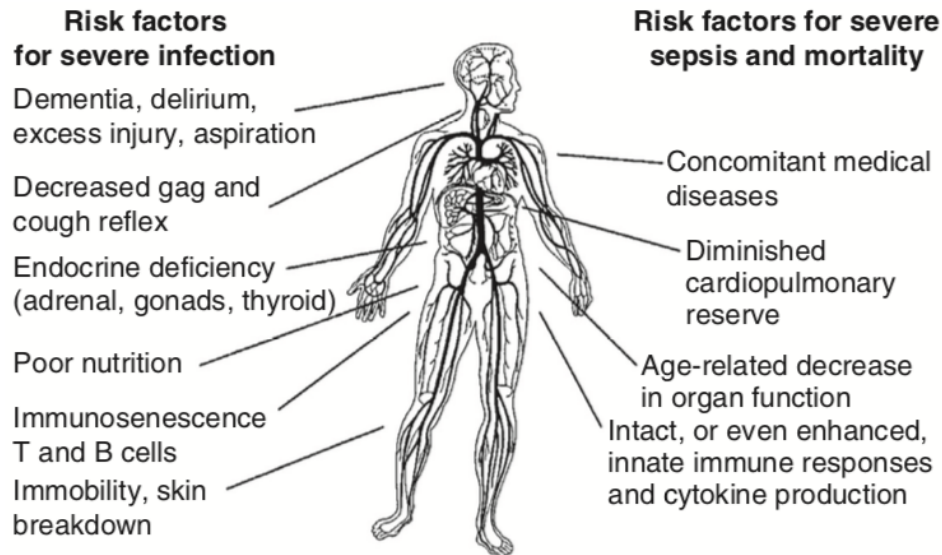


**[5] Describe an approach to generalized weakness in the geriatric patient based on onset and focality.**



**Fig. 183.3.** Diagnostic approach to weakness by onset and focality. (From Anderson RS, Hallen SAM: Generalized weakness in the geriatric emergency department patient: an approach to initial management. Clin Geriatr Med 29:91–100, 2013.)

## [6] List 8 predisposing risk factors for sepsis in the elderly.



**Fig. 183.4.** Predisposing factors for sepsis in older individuals. (From Girard TD, Opal SM, Ely EW: Insights into sepsis in older patients: from epidemiology to evidence-based management. Clin Infect Dis 40:719–727, 2005.)

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## [7] What is sundown syndrome?

As per uptodate

“**Sundowning** — Delirium should be distinguished from "sundowning," a frequently seen but poorly understood phenomenon of behavioral deterioration seen in the evening hours, typically in demented, institutionalized patients. Sundowning should be presumed to be delirium when it is a new pattern. Patients with established sundowning and no obvious medical illness may be suffering the effects of impaired circadian regulation or nocturnal factors in the institutional environment (eg, shift changes, noise, reduced staffing).”

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## Wisecracks

### [1] What are the most common medications implicated in adverse events for the elderly?

- Most common = Cardiovascular meds
- Diuretics
- NSAIDS



- Opioids
- Oral anticoagulants
- Hypoglycemics

**[2] List the reasons why diagnosing abdominal pain may be difficult to diagnose in the elderly.**

- Difficult history due to vague symptoms
- Difficult history due to cognitive or physical deficits (hearing)
- Blunted hemodynamic responses (BB/antihypertensives)
- Blunted Immune Response (fever/WBC)
- Decreased abdo wall muscles = decreased guarding / rebound
- Shrinkage of omentum = decreased containment of intra-abdo processes
- Increased rates of perforation (app/gall bag/bowel) = due to atherosclerosis / poor blood flow
- Increased rates of mesenteric ischemia = due to atherosclerosis / poor blood flow

**[3] List the most common abdominal pathologies in the elderly.**

**60% is surgical!**

- Cholecystitis
- Appendicitis
- Bowel obstruction
- Hernia