

GERIATRIC TRAUMA MANAGEMENT AD HOC COMMITTEE

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- Prioritize ACS guidelines for R8
- Topics
- Survey

BEST PRACTICES GUIDELINES

GERIATRIC TRAUMA MANAGEMENT

November 2023

ACS Trauma
Programs

American College of Surgeons



Last year, hospitals in Region 8 placed 1,492 incidents into the trauma registry of patients aged 65 or older.

(Patient Registry, extract 4/9/2024, all incidents CY2023 65+.)

17.7% of Michigan residents are aged 65 years or older, whereas in the UP 22.9% of residents are 65 or older.

If college and university populations in addition to prisons' populations were subtracted, the percentage of persons 65 years and older residing in the UP increases from 22.9% to 24.9%.

(2021 UP Community Health and Needs Assessment)



Geriatric trauma care is exceedingly diverse due to baseline variability. Providers must have a high index of suspicion for complicating factors in each individual patient. Prior medical records can be invaluable, when available, for determining baseline heart rate, blood pressure, rhythm and medications that may influence trauma care.

Your Geriatric Trauma Management Ad Hoc Committee submits:

Part 1 Acute Care Management/Primary Survey

A through F

A: AIRWAY

Potentially difficult to secure airway due to tissue redundancy, loss of muscular pharyngeal support, and limited mandibular protrusion. Have airway adjuncts and rescue airways available. Second-generation supraglottic devices offer greater aspiration protection.

A: AIRWAY

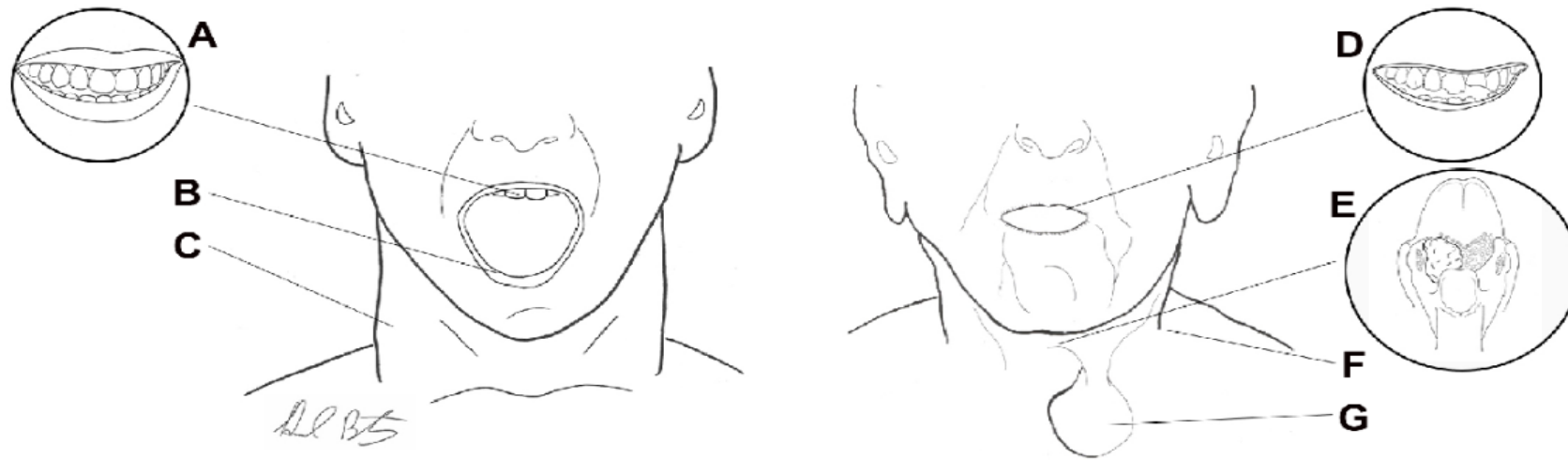


Figure 1 Anatomical variation in young and elderly. Notes: (A) Teeth present and undamaged; (B) thick lips, ability to open mouth widely; (C) long, thick, muscular neck; (D) damaged and missing teeth, thin and fragile lips, inability to open mouth widely; (E) posterior view of oropharyngeal cancer at base of tongue; (F) short, stiff neck; and (G) thyroid mass. [Collapse](#)

Published in *Clinical Interventions in Aging* 2015

Anatomic and physiopathologic changes affecting the airway of the elderly patient: implications for geriatric-focused airway management

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A: AIRWAY

Arthritis

Can cause difficult cord visualization and intubation

Temporomandibular joint disease

May required the need for cricothyroidotomy

Dentition

Leave dentures in when bagging

Take dentures out when intubating

Airway collapse/friable and dry mucosal tissues

Increased tendency for airway collapse and obstruction

A: AIRWAY

Dose adjustments for RSI

Ketamine = Increased oxygen demand

Propofol = Generally well tolerated

Ketofol = Combination of ketamine and propofol improved hemodynamic stability

Etomidate = Reduced dose

Fentanyl = Reduce dose by 20% to 40%

Reduced dose on all other opioids

Midazolam = Reduce dose by 20% to 40%

Succinylcholine (depolarizing neuromuscular blocking agent) = May have a 2-minute delay and a longer duration of action

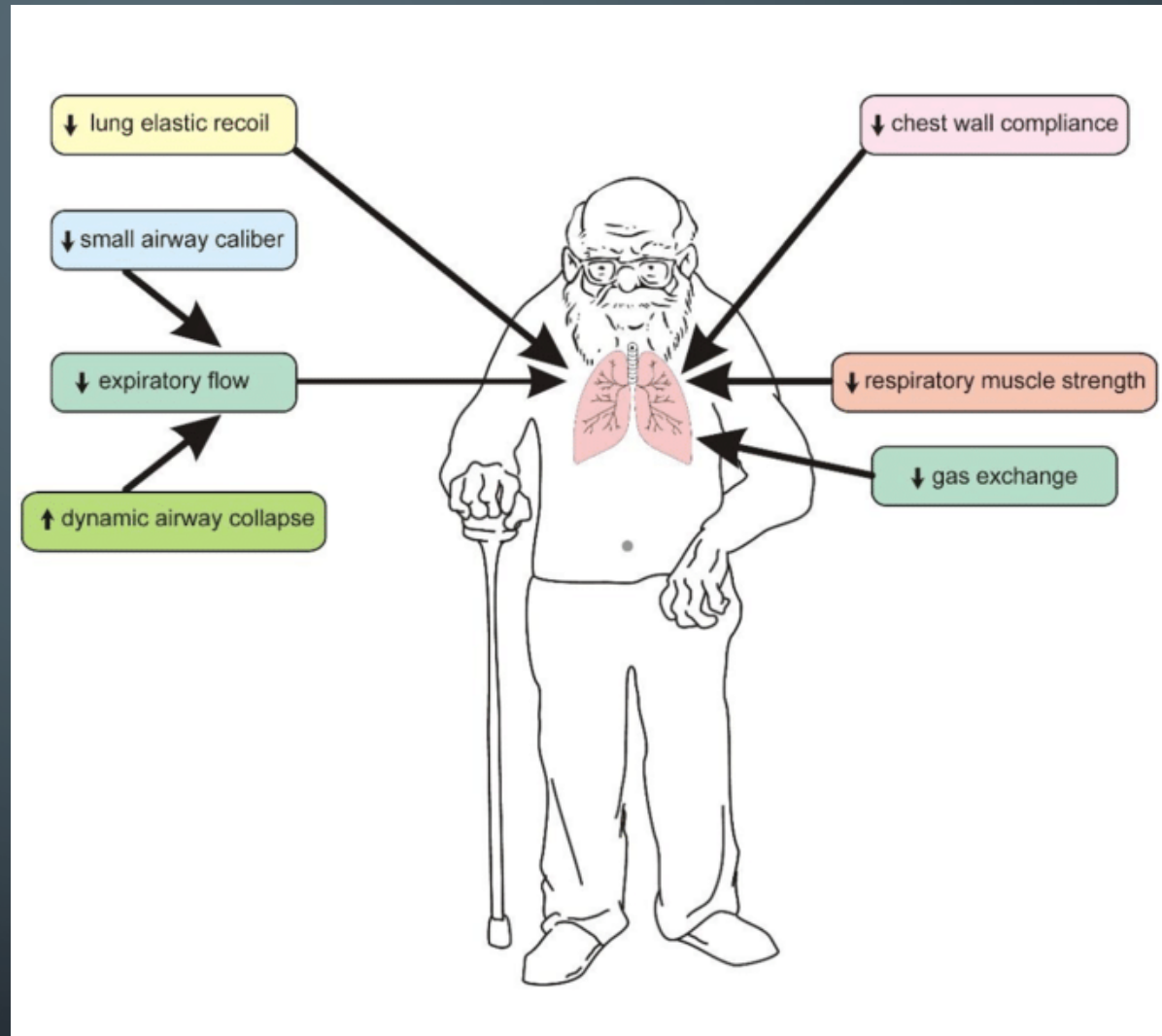
Rocuronium (nondepolarizing neuromuscular blocking agent) = Have longer duration of action

Cisatracurium (nondepolarizing neuromuscular blocking agent) = Has smallest duration variability and greatest reliability

B: BREATHING

Older adults may have a normal respiratory rate of up to 25 breaths per minute.

A higher rate can be the first sign of lower respiratory tract compromise.



Handgrip Strength and Pulmonary Disease in the Elderly: What is the Link?
January 2019, Aging and Disease 10(5); DOI:[10.14336/AD.2018.1226](https://doi.org/10.14336/AD.2018.1226)

B: BREATHING

Hypoxia and Hypercarbia

- Geriatric patients have weaker respiratory muscles and decreased elastic recoil reducing vital capacity
- Increased dead space and decreased respiratory reserve
- Response to hypoxia and hypercarbia declines by 50% and 40%, respectively
- Maintain oxygen saturation in the low 90's

B: BREATHING

Ventilator Management

- Low volumes and lower-pressure ventilation associated with better outcomes
- Consider vent settings of 6 mL/kg and plateau pressures of 30cm of H₂O or less
- PCO₂ should guide assessment of ventilation not pulse oximetry
- Hyperventilated trauma patients appear to have increased mortality compared with non-hyperventilated patients

Remember:

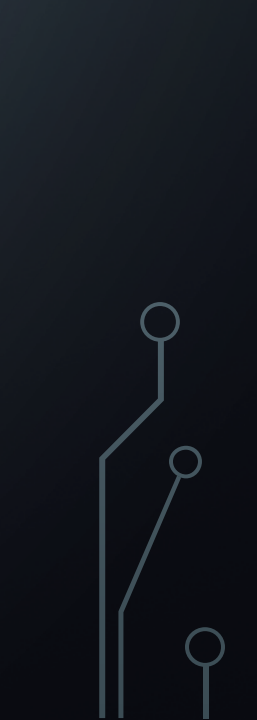
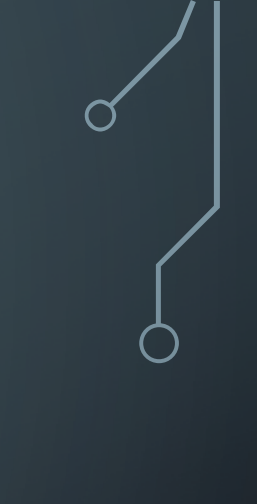

Patients with absolute or relative hypovolemia, high ventilation rates and positive pressure ventilation may compromise venous return, worsening hypotension, and even cardiovascular collapse.



C: CIRCULATION

Cardiovascular abnormalities can precipitate traumatic events as well as develop in response to them.

Hypotension, hypertension, tachycardia, bradycardia and orthostasis are examples.



C: CIRCULATION

High index of suspicion for occult hemodynamic instability

Shock Index (SI = heart rate divided by systolic blood pressure) < 1 is associated with higher mortality

Heart rate over 90 or SBP under 110 = trauma alert

Fluid resuscitation is a “*start low, go slow*” to minimize the risk of fluid overload

Crystalloid boluses should be 250-500 cc with frequent reassessment of response

Transfusion should be considered early as baseline anemia from dietary causes (iron and vitamin deficiency), occult GI losses and anemia of chronic illness (renal failure) may be present and misdirect management

New or chronic atrial fibrillation, as well as atherosclerosis, predisposes to fluid overload

C: CIRCULATION

Cardiovascular status via vital signs may be inaccurate due to blunted responses from medications (*Beta-blockers, calcium channel blockers*)

Other means of assessing perfusion such as serum lactate levels

- Lactate over 2.4 indicates inadequate perfusion and hemodynamic instability
- Even when normal, lactate levels should be rechecked in 30 minutes

Anticoagulation medications increase risk of hemorrhage

- Consider reversal early

D: DISABILITY

Gentle slow approach is key

Reduced hearing and vision could add to confusion in the environment

Glaucoma, cataract surgery or some systemic meds may cause altered eye findings on GCS

Preexisting dementia may cause falsely decreased GSC due to unknown baseline

Dementia and cognitive impairment are risk factor for falls and TBI's

Delirium is an acute phase of confusion; frequently missed and signal for acute illness

Cervical spondylosis increases risk for spinal cord injury

E: EXPOSURE

More susceptible to hypothermia and skin breakdown

- ✓ Attempt to warm
- ✓ Hypothermia can cause dysrhythmia and coagulopathy
- ✓ Increase room temp, warm blankets, warming devices, warmed fluids

Skin breakdown can occur in as little as 2 hours

- C-collars, backboards, stretchers, immobility all can cause skin breakdown
- Pad areas of risk - chin, occiput, sacrum and heels
- Early CT scan, reading, and equipment removal

F: FRAILITY



Stinson
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Weakness

Slow walking speed

Low level of physical activity

Fatigue or exhaustion

Unintentional weight loss



F: FRAILITY

Identification of frailty can help guide decisions about patient management and prognosis

Frailty is a dynamic state of heightened vulnerability to stressors. It is a multidimensional syndrome that places individuals at risk for adverse health outcomes, including falls, disability, admission to hospital and death.

(Clegg A, Young J, Iliffe S, et al. Frailty in elderly people. Lancet 2013;381:752–62)