The Older ICU Patient

- CAUTI / CLABSI

August, 2016
<table>
<thead>
<tr>
<th>Objectives</th>
<th>Define Post-Intensive Care Syndrome (PICS)</th>
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<tr>
<td></td>
<td>Describe the vulnerability of older ICU patients to poor functional outcomes such as PICS</td>
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<tr>
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<td>Define Frailty and Geriatric Syndrome</td>
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<td>Apply the socioadaptive changes of the AHRQ Safety Program for ICU CLABSI/CAUTI Collaborative and the discipline of geriatrics to achieve optimal outcomes for our older ICU patients</td>
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Triage for Admission of Elderly Patients to ICU

Recommendation:

We suggest basing the decision to admit an elderly (>80 yr.) patient to an ICU on the patient’s comorbidities, severity of illness, pre-hospital functional status, and patient preferences with regard to life-sustaining treatment, not on their chronological age (grade 2C).

95 year old craftsman
Geriatric Syndromes are clinical conditions common in older adults that share underlying causative factors and involve multiple organ systems.

They include a number of clinical conditions that, unlike traditional syndromes, do not fit a discrete disease category.


Examples:
- Incontinence
- Cognitive impairment
- Delirium
- Falls
- Pressure ulcers
- Pain
- Weight loss
- Anorexia
- Functional decline
- Depression
- Multimorbidity.
A geriatric syndrome is a multifactorial condition occurring primarily in frail elderly which is usually due to multiple contributing factors and results from an interaction between patient-specific impairments and situation–specific stressors.

Ten Ways to Improve the Care of Elderly Patients in the Hospital. Angelena Maria Labella et al. Journal of Hospital Medicine 2011; 6: 351-357.
5.7 million patients admitted annually to ICUs in the United States

5 primary ICU admission diagnoses for adults:

- Respiratory system diagnosis with ventilator support
  - 20-30% of U.S. ICU admissions
- Acute Myocardial Infarction
- “Stroke”:
  - Intracranial hemorrhage or cerebral infarction
- Percutaneous cardiovascular procedure drug-eluting stent
- Septicemia or severe sepsis without mechanical ventilation.

Society of Critical Care
95 year old fisherman
**Clinical Frailty Scale**

1 **Very Fit** – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.

2 **Well** – People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.

3 **Managing Well** – People whose medical problems are well controlled, but are not regularly active beyond routine walking.

4 **Vulnerable** – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being “slowed up,” and/or being tired during the day.

5 **Mildly Frail** – These people often have more evident slowing, and need help in high order IADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.

6 **Moderately Frail** – People need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.

7 **Severely Frail** – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~6 months).

8 **Very Severely Frail** – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.

9 **Terminally Ill** – Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise evidently frail.

**Scoring frailty in people with dementia**

The degree of frailty corresponds to the degree of dementia. Common symptoms in mild dementia include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal. In moderate dementia, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting. In severe dementia, they cannot do personal care without help.
Hospital management of older adults  Author Melissa Mattison, MD, SFHM
Section Editors Kenneth E Schmader, MD Andrew D Auerbach, MD, MPH Deputy Editor Lee Park, MD, MPH
Frail elderly patients are at greater risk for adverse events...careful consideration of the need for all diagnostic tests and procedures may reduce risks.
Perspective

20th Century

Sanitation
Nutrition

Medications
Insulin
Penicillin

Immunizations
Polio
Smallpox
Tetanus
Diphtheria

Adult Smokers
1964: 50%
2008: 21%
2013: 18%

Diabetes & Cardiovascular Disease
Heart Disease
Hypertension
Stroke
Cancer

1900
- 47 yrs
1923
- 57 yrs
1950
- 68 yrs
1975
- 73 yrs
2000
- 78 yrs
(Life Expectancy average of male and female ages)
Life Expectancy average of male and female ages:

- 1900: 47 yrs
- 1923: 57 yrs
- 1950: 68 yrs
- 1975: 73 yrs
- 2000: 78 yrs

1953: Bjorn Ibsen set up the first ICU in Europe

“father” of intensive care

1952: Copenhagen polio epidemic

1st application in the US: 1955 by Dr. William Mosenthal, Dartmouth-Hitchcock Medical Center

Intensive care medicine is 60 years old: the history and future of the intensive care unit. Fiona E Kelly et al. Clinical Medicine 2014. vol 14, No. 4: 376-379
• Mortality from Critical Illness is Decreasing
  – Annually 3.5 million people survive a critical illness

• Post-Intensive Care Syndrome (PICS)
  – Cognitive Impairments: (40-70%)
  – Physical Impairments: (60-80%)
  – Mental Health Impairments: (10-30%)
Patient Video from ICUDelirium.org
Ten Tethers

- IV tubing
- NG feeding tube
- Oxygen
- 2 wrist restraints
- Indwelling (Foley) urinary bladder catheter
- 2 Sequential compression devices (legs)
- 2 Seizure precaution padding each side

Drawing & case source: Joseph H. Flaherty
Source: Department of Internal Medicine, Division of Geriatrics, Saint Louis University School of Medicine & Geriatric Research, Education and Clinical Center (GRECC), St. Louis VA Medical Center, St. Louis, MO.
• Mortality
  – & Delirium
  – & ICU-Acquired Weakness
“Delirium is the poster child for the Triple Aim”

Lyn S. Lindpaintner, MD
Concord Hospital

2016
American Delirium Society Annual Symposium
The elderly, patients with preexisting comorbidities, and those experiencing delirium during hospitalization are at elevated risk for impairment after critical illness resolves.
85+ year old male

Impaired glucose tolerance
Hypercholesterolemia
Chronic Kidney Disease,
Chronic Anemia & Thrombocytopenia
BPH
Institute of Medicine (IOM) reports on challenges ... as the population ages.

1900: 47 yrs

1923: 57 yrs

1950: 68 yrs

1975: 78 yrs

2000: 78 yrs
- **1st Geriatric Certifying examination**

  **1988:**
  - The challenge ... even more difficult by the fact that **geriatric medicine is a young discipline**...

- **2015**
  - IOM Report: *Retooling for an Aging America*
    - Scarcity of faculty
    - Few providers choose this career
    - Decreasing number entering training programs
    - Decreasing number choose to recertify

- **2008**
“Ten Evidence Based Pearls for care of the older hospitalized patient”

Hospitalists care for elderly patients daily, but few have specialized training in geriatric medicine.

Ten Ways to Improve the Care of Elderly Patients in the Hospital. Angelena Maria Labella et al. Journal of Hospital Medicine 2011; 6: 351-357.
‘TADA’
Tolerate,
Anticipate,
Don’t
Agitate

“Delirium goes down as ambulation goes up”

“The brain works better in an upright position”

“The more vertical you are the better you think”

Joseph H. Flaherty
Source: Department of Internal Medicine, Division of Geriatrics, Saint Louis University School of Medicine & Geriatric Research, Education and Clinical Center (GRECC), St. Louis VA Medical Center, St. Louis, MO.
Perspective
“To Err is Human” (1999)

• Institute of Medicine

44,000 – 98,000 patient deaths per year from medical errors
210,000 to 440,000 patients, each year, suffer from preventable harm that contributes to their death.

Journal of Patient Safety, September 2013, Volume 9, Issue 3

1205 people per day...
"Third leading cause of death behind heart disease and cancer"

<table>
<thead>
<tr>
<th>Year</th>
<th>All Causes</th>
<th>Heart</th>
<th>Cancer</th>
<th>COPD</th>
<th>CVA</th>
<th>Accidents</th>
<th>Alzheimer’s</th>
<th>Diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>~2.5 million</td>
<td>~600,000</td>
<td>~580,000</td>
<td>~143,000</td>
<td>~130,000</td>
<td>~128,000</td>
<td>~84,000</td>
<td>~74,000</td>
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Martin Makary BMJ 2016;353:i2139
The ICU

...medical errors are most likely to occur because of the complexity of care.

Since the patient population is severely ill and undergoes multiple complex interventions at the same time, these patients are extremely vulnerable to experiencing adverse outcomes.
Critically ill patients admitted to an ICU experience, on average, 1.7 medical errors each day...

and many patients suffer a potentially life-threatening error during their stay.

Medications errors in Critical Care: risk factors, prevention and disclosure.
Eric Camire et al. CMAJ. April 28, 2009. 180 (9). 936-943
...frail patients are at risk for **marked and often disproportionate decompensation**, adverse events, procedural complications, prolonged recovery, functional decline, disability, and mortality.

For the frail, older patient...

"we have to get it right"

<table>
<thead>
<tr>
<th>Mobilization is important</th>
<th>Removing lines are important enablers of mobilization</th>
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</table>

Sedation does not equal sleep

(American Delirium Society)
“ALWAYS RETHINK … STEP BACK & RETHINK”

HEIDI SMITH MD
VANDERBILT
<table>
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<tr>
<th><strong>Interdisciplinary Rounds – ABCDEF Bundle &amp; Nursing Objectives</strong></th>
</tr>
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<tbody>
<tr>
<td><strong>1. Asses Pain:</strong> What is the current score? What is the pain goal and current scale?</td>
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</table>
| **2. Breathing:** Both SAT and SBT  
  – Were they coordinated and what was the result? |
| **3. Choice of Sedation:** Name of medication, route and dosage |
| **4. Delirium:** What is the CAM-ICU result?  
  If +, possible causes & interventions? |
| **5. Exercise:** Mobility Level?  
  – Can they progress?  
  – PT/OT consult? |
| **6. Family:** Family questions? Patient goals for the day?  
  Who will update pt/family? When?  
  *(Continued on back)* |
| **7. Severe Sepsis screen result? + or −  
  – On the bundle? What goals have not been met?** |
| **8. Vasoactive Infusions** |
| **9. Skin:** Pressure Ulcer? POA?  
  – Current description of PU |
| **10. Foley:** Can it be D/Cd?  
  – Renew Order |
| **11. Lines / Tubes:**  
  – Vascular Access?  
  – Feeding / Other Tubes? |
| **12. Patient Diet / Tube Feeding / Bowel Regimen** |
| **13. Restraints:** Type? New Order? Time of Order Expiration? |
| **14. Time of scheduled procedures today? Expected labs / tests** |
| **15. Other:** Nursing / Patient Concerns |

*Source: Creating Sustainable Change to Prevent Harm in the ICU: Culture Matters  
Pat Posa RN, BSN, MSA, FAAN  
Quality Excellence Leader  
St Joseph Mercy Health System  
Ann Arbor, MI*
13% of population

8% of hospital discharges

1.8% of population

40% of hospitalized patients

Source:
UpToDate: Accessed 1/15/2016
Agency for Health Care Policy and Research. Rockville, MD 2010
“Once a man, twice a child”

“Getting people back to their person hood...the personness of older adults...their dignity

...we often ignore older adults”

“Bring humanity to medicine”

(Paraphrased quotes from Wesley Ely of Vanderbilt University at 2016 American Delirium Society Annual Symposium)
To do things differently, we must see things differently.

John Kelsch, Xerox,
Quality Healthcare in America Project
Relentless Mindfulness
Conclusions (all ICU patients):

Impairments in function after resolution of critical illness are common and may be under-recognized.

Cognitive dysfunction, mood disorders, respiratory impairment, physical debility and reduced quality of life, occur at high rates among survivors of critical illness...
Optimal outcomes can be achieved by carefully applying the principles of intensive care medicine to the older patient; though this will require socio-adaptive changes incorporating the science of safety and geriatrics care into these processes for this to be realized.
Reference Slides:  
will not be addressed in presentation
Components of the ABCDEF bundle

A Assess, Prevent, and Manage Pain
   There are validated tools that are recommended that can be used in every patient every day.

B Both Spontaneous Awakening Trials & Spontaneous Breathing Trials
   This means providing these powerful medications when needed but stopping them when unnecessary to avoid over-use and unwanted side effects.

C Choice of Analgesia and Sedation
   Published evidence helps the team decide which are the safest sedatives and analgesics to use and which are the most important medications to avoid for a specific patient’s circumstances.

D Delirium: Assess, Prevent and Manage
   There are validated tools that are recommended that can be used in every patient every day. We will dive deeper into this aspect, DELIRIUM, in the page below.

D Early Mobility and Exercise
   This step involves optimizing mobility and exercise for every patient to the best of her or his ability (through the help of any member of the team assigned to perform this piece of care) and advancing that daily as clinically able.

F Family Engagement and Empowerment
   Good communication with the family is critical at every step of a patient’s clinical course, and empowering the family to be part of the team to ensure best care is adhered to diligently will improve many aspects of the patient’s experience. The F was recently added to help to keep patients and families as the center and focus of care.

Source: ICU Delirium.org Accessed 8/6/16
Delirium & prognosis

- Being positive for delirium affects prognosis
- The longer delirium lasts, the worse the prognosis
  - (? > 5 days)
- Delirium accelerates the dementia trajectory

From 2016 American Delirium Society Symposium
Why is delirium important?

Prevalent in the ICU

- 60-80% ventilated patients
- 20-50% lower severity ICU patients

Source: Pratik Pandharipande Vanderbilt University
## Why is delirium important?

<table>
<thead>
<tr>
<th>Impact on outcomes</th>
<th>Details</th>
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<td>Increased ICU Length of stay (8 vs. 5 days)</td>
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<tr>
<td>Increased hospital length of stay (21 vs. 11 days)</td>
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<tr>
<td>Increased time on the ventilator (9 vs. 4 days)</td>
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<td>Higher costs ($22,000 vs. $13,000 in ICU costs)</td>
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<td>9 X higher incidence: long term cognitive impairment</td>
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<td>3 X increased risk of death</td>
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<td>2-3 X institutionalization</td>
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### Source

Heidi AB Smith & Pratik Pandharipande, Vanderbilt University

### Impact on Outcomes

- Increased ICU Length of stay (8 vs. 5 days)
- Increased hospital length of stay (21 vs. 11 days)
- Increased time on the ventilator (9 vs. 4 days)
- Higher costs ($22,000 vs. $13,000 in ICU costs)
- 9 X higher incidence: long term cognitive impairment
- 3 X increased risk of death
- 2-3 X institutionalization

### References

Milbrandt E, et al. CCM 2004. 32:955-962
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<th>Cardiac Surgery</th>
<th>40-50% develop delirium</th>
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<td></td>
<td>Delirium is independent predictor of functional decline after cardiac surgery</td>
</tr>
<tr>
<td></td>
<td>(“Atherosclerotic” related surgery has higher risk of delirium in general)</td>
</tr>
<tr>
<td></td>
<td>(source: Jay Rudolph. Post-operative Delirium: paraphrased)</td>
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</table>

Non-cardiac surgery also

Source: Pratik Pandharipande Vanderbilt University