Emergency Care of Frail Older People

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Emergency Physicians

Conflicts of interest

- Chris Carpenter – Chair ACEP Geriatric Section
- Jay Banerjee - GEM Lead, CEM UK
- No financial conflicts of interest
Objectives

- Explore growing importance of frail older people in emergency departments
- Assess and manage frailty - systems and processes
- Implementing quality care for older people - considerations

Why older people?
ED attendances

- 63.5/100 persons/year in the ≥75 years attend EDs in the USA compared to 39 or less/100 persons/year in the 41-74 age group
- The older people population: 12% (2005) to 19% (2050) in the USA
- The 65+ comprise 43% of all admissions from ED in the USA which compares to that in the UK and Australia
- 57% of all Medicare hospital admissions come through EDs; 70% - medical (not surgical) diagnosis at discharge
• Per-person dementia related costs $41,689 to $56,290/year
• Total U.S. monetary cost of dementia in 2010 was $157-$215 billion, of which Medicare paid $11 billion
Annual costs: in £000’s/person with disease (UK, 2010) – burden of disease

Hospital bed use: England

73% of bed-days = older people
Increasing attendance to ED?

- While a substantial research literature describes general patterns of ED use, there is much less research on ED use as a function of other health service use. Gaps in the research literature result in a limited understanding of the full scope of the issue and opportunities for practice and policy intervention.


Thinking in systems
Focus on LTC and more effective responses to urgent care needs

Clear operational performance framework and integrated with GP processes

Improved integration with primary care responders

Front load senior decision process including primary care and with processes

Primary Care → Community & home Care → 911 → ED → Decision unit → Inpatient Wards

Left Shift Model

Optimise care; Early supported discharge

Redesign to left shift LOS; SS

Patients age 85 and over account for 10.2% of all hospital days in the United States while accounting for 1.7% of the population. Only 41% of these patients are discharged home, while 33% are sent to institutional care.

Geriatric utilization rates (ACEP, 2008)

- 15-20% of all Patients
- 7 x More Usage of ED Services
- 43% of all Admissions
- 48% of all Critical Care Admissions
- 20% Longer Length of Stay
- 50% more Lab
- 50% more Radiology
- 400% more Social Service Interventions

Older people: ED outcomes

- ACEP survey 2008
doi:10.1016/j.aenj.2011.04.001

Higher delays in diagnosis:
AMI, sepsis, appendicitis, ischemic bowel

Unsuspected diagnoses:
Delirium, depression, drug and alcohol use, elder abuse, polypharmacy

Undertreatment:
Low rates PCI, TPA, pain management

Overtreatment:
Higher rates of foley catheters
Adverse drug events
Overuse of sedation and restraints
Frailty and associations

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 "sloshed 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, standing) 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 questionnaire 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.

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Frailty

• For years, frailty was like pornography, says Dr. John W. Rowe, professor of health policy and management at the Mailman School of Public Health at Columbia University — it was hard to define, but you knew it when you saw it.....

• Frail older adults are weak, often have many complex medical problems, have a lower ability for independent living, may have impaired mental abilities, and often require assistance for daily activities (dressing, eating, toileting, mobility) [Janet M. Torpy, MD; Cassio Lynn, MA; Richard M. Glass, MD. Frailty in older adults. JAMA. 2006;296(18):2280. doi:10.1001/jama.296.18.2280]

Frailty mapping in the ED, Leicester, UK

• All attendees > 70 yrs of age and any of following: fragility fracture, resides in care home, acute confusion, Braden > 25
• 3% of all attendees, 11% of all patients staying >4hrs in ED, 15% of all admissions to medicine, 30% of all bed-days
• 93% of this group in the ED had delirium/dementia
• Overall older people comprised 18% of attendees, 35% of admissions, 70% of in-patient bed days
Patients characterised by frailty

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Number with data</th>
<th>Frail</th>
<th>Non-frail</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean)</td>
<td>177</td>
<td>84.5</td>
<td>81.7</td>
<td>&lt;0.00</td>
</tr>
<tr>
<td>Gender (% male)</td>
<td>177</td>
<td>22 (42%)</td>
<td>54 (44%)</td>
<td>&lt;0.02</td>
</tr>
<tr>
<td>Previous admission</td>
<td>28</td>
<td>5/11 (45%)</td>
<td>7/17 (41%)</td>
<td>&lt;0.03</td>
</tr>
<tr>
<td>≥3 comorbidities</td>
<td>40</td>
<td>7/19 (37%)</td>
<td>6/21 (29%)</td>
<td>&lt;0.04</td>
</tr>
<tr>
<td>Geriatric syndromes</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Fall</td>
<td>56</td>
<td>20/28 (71%)</td>
<td>18/28 (64%)</td>
<td>&lt;0.06</td>
</tr>
<tr>
<td>Immobility</td>
<td>46</td>
<td>9/25 (36%)</td>
<td>3/21 (14%)</td>
<td>&lt;0.07</td>
</tr>
<tr>
<td>Incontinence</td>
<td>34</td>
<td>7/20 (35%)</td>
<td>3/14 (21%)</td>
<td>&lt;0.08</td>
</tr>
<tr>
<td>Confusion</td>
<td>48</td>
<td>27/29 (93%)</td>
<td>0/19 (0%)</td>
<td>&lt;0.09</td>
</tr>
<tr>
<td>Polypharmacy</td>
<td>31</td>
<td>24/35 (69%)</td>
<td>15/26 (58%)</td>
<td>&lt;0.10</td>
</tr>
<tr>
<td>Pressure sore</td>
<td>36</td>
<td>5/20 (15%)</td>
<td>3/16 (0%)</td>
<td>&lt;0.11</td>
</tr>
</tbody>
</table>

Frailty correlation

- The operational definition of frailty was strongly correlated with the number of geriatric syndromes, (Pearson’s correlation coefficient 0.56, p<0.0001), but not significantly correlated with age (p=0.76), comorbidities (p=1.0), or previous fall (p=1.0).
- It was moderately well correlated with the ISAR score>2. AUC 0.73.
- Not correlated with decision to admit from the ED.
Mortality

- Albumin <3 g/dL, creatinine >1.5 mg/dL, total dependence on admission, systolic blood pressure <100 mmHg, white blood cell count ≥10 or ≤4 × 10^9/L, total bilirubin >1.2 mg/dL and malignancy history
  

- Systolic blood pressure, pulse rate, respiratory rate, body temperature and level of consciousness (MEWS). Patients with MEWS < or = 4 were discharged after a mean stay of 8.3 days, and alive patients with MEWS of five or more were discharged after a mean stay of 9.4 days (p = ns). A patient with a MEWS of zero at admission has a very low probability to die or to be transferred because of clinical instability (OR 0.14, 95% CI: 0.08-0.24).

Lactate & mortality

• Normal, moderately elevated, and severely elevated lactate was associated with mortality rates of 15% (95% confidence interval [CI] 12-18.8%), 23.4% (95% CI 2-32.4%), and 39.6% (95% CI 26.5-52.8%), respectively. Compared with the normal lactate group, patients in the severely elevated lactate group had 4.2 increased odds of death [Callaway et al. Serum lactate and base deficit as predictors of mortality in normosensitive elderly blunt trauma patients. J Trauma. 2009 Apr;66(4):1040-4. doi: 10.1097/TA.0b013e3181895e9e.]

• In patients with infections, increasing serum lactate values of ≥2.0 mmol/L were linearly associated with relative risk (RR) of mortality during hospitalization (RR=1.9 to 3.6 with increasing lactate), at 30 days (RR=1.7 to 2.6), and at 60 days (RR=1.4 to 2.3) when compared to patients with serum lactate levels of <2.0 mmol/L. In patients without infections, a similar association was observed (RR=1.1 to 3.9 during hospitalization, RR=1.2 to 2.6 at 30 days, RR=1.1 to 2.4 at 60 days) [del Portal et al. Emergency department lactate is associated with mortality in older adults admitted with and without infections; Acad Emerg Med. 2010 Mar;17(3):260-8. doi: 10.1111/j.1553-2712.2010.00681.x.]

ED assessment
Current ED Screening Practice

![Graph showing current ED screening practice for various conditions such as Dementia, Progosis, Falls, Vision, Polypharmacy, Fx Status, and Immunizations. There are bars for RN and MD.]
B  Geriatric Emergency Care Model*

![Geriatric Emergency Care Model diagram](image)

![Process Flow Diagram](image)
Self-Administration of eMoCA

Instructions from the tablet based on recorded voice of actor give clear, consistent instructions uniformly across all participants.

1. The participant either responds verbally or uses stylus to draw on the tablet to complete cognitive assessment.

2. The tablet repeats instructions if time-out waiting for a response occurs.

3. The researcher scores participants recorded responses.

Depression

• 3-item Emergency Department Depression Screening Instrument
  sensitivity: 74% specificity
  Lee et al; Hong Kong j. emerg. med.; Vol. 13(1); Jan 2006
Comprehensive geriatric assessment for older adults admitted to hospital: meta-analysis of randomised controlled trials

Graham Ellis consultant geriatrician and honorary senior clinical lecturer, Martin A Whitehead consultant geriatrician, David Robinson consultant geriatrician, Desmond O’Neill associate professor of gerontology, Peter Langhorne professor of stroke care

Conclusions Comprehensive geriatric assessment increases patients’ likelihood of being alive and in their own homes after an emergency admission to hospital. This seems to be especially true for trials of wards designated for comprehensive geriatric assessment and is associated with a potential cost reduction compared with general medical care.
Comprehensive geriatric assessment

Commonly Used Tools in CGA 46

Cognitive Status
- Mini Mental Status Examination (MMSE)

Affective Status
- Westhove Geriatric Depression Scale (GDS)

Mobility – Gait and Balance
- Tinetti Performance-Oriented Mobility Assessment (POMA)

Functional Status – Activities of Daily Living
- Katz Activities of Daily Living (ADL)

Functional Status – Instrumental Activities of Daily Living
- Lawton Instrumental Activities of Daily Living (IADL)

Nutritional Adequacy
- Mini Nutritional Assessment (MNA®)

Service delivery
Geriatric ED Distribution
United States, 2013


Geri ED effectiveness

8 Distinct Geriatric ED Case Management Model Components

1. Evidence-based practice model
2. Nursing clinical involvement or leadership
3. High-risk screening processes
4. Focused geriatric assessments
5. Initiation of care and disposition planning in the ED
6. Inter-professional and capacity-building work practices
7. Post-ED discharge follow-up with patients
8. Evaluation and monitoring processes

Sinha, S. Annals of Emergency Medicine, 2011; 57(6), 672-682.
A controlled evaluation of comprehensive geriatric assessment in the emergency department: the ‘Emergency Frailty Unit’

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Methods: a pre-post cohort study of the impact of embedding CGA within a large ED in the East Midlands, UK. The primary outcome was admission avoidance from the ED, with readmissions, length of stay and bed-day use as secondary outcomes.

Results: attendance to ED increased in older people over the study period, whereas the ED conversion rate fell from 69.6 to 61.2% in people aged 85+, and readmission rates in this group fell from 26.0% at 90 days to 19.9%. Inpatient bed-day use increased slightly, as did the mean length of stay.

Discussion: it is possible to embed CGA within EDs, which is associated with improvements in operational outcomes.

Specialty training
Fellowship in Geriatric EM

Purpose
• To understand the importance of the bio-psycho-social model of care for older people and be able to deliver patient-centred clinical care based on these principles
• To appreciate the influence of socio-cultural factors on presentation and shared decision making in the management of acutely unwell and injured older patient
• To be a champion of older peoples’ care in the ED and develop liaison with relevant services
• To facilitate the learning of colleagues in caring for older people

USA - New York, Michigan, Chapel Hill
UK - Leicester

Building frail friendly ED
Environmental considerations

- Sky or ceiling lights or diurnal lighting changes
- Soundproof curtains
- Handrails
- Hearing assistance or amplifying devices
- Removal of noise distracters (e.g., televisions)
- Large-faced clocks, calendars, boards with names of hospital and clinical staff
- Visual aids (e.g., magnifying glasses, fluorescent tape on call bells, telephones with large keyboards, aisle lighting)
- Rubber-mat or nonskid floor surfaces, hand rails on walls and hallways, aisle lighting, bedside commodes
- Minimum use of urethral catheters and other "tethering" devices reduce patient immobility
- Low beds with thick mattresses

Optimizing Care of Older in the ED

Primary Drivers:  Secondary Drivers:  Change package:

Goal
ED will provide optimal care for older patients in <3 years

Linkages to community services
Improved information sharing
Clinical navigators /discharge planners,
Ambulatory pathways (single system)
Complex pathways (frailty syndromes)

ED pathways

Desired Outcomes:
Hospitalization will decrease by 10%
Wait time in the ED will be decreased by 25%
Patient satisfaction metrics will increase by 50%

Staff Education
Privacy, dignity & autonomy of elders

Staff Activation
Multidisciplinary input
Geriatric assessment standardised
Use of safety trigger tools

Policy
Incentives for alternatives to admissions
Incentives for better community care
Recent and future developments
Silver Book (http://tinyurl.com/c48ytvc)

The Geriatric Emergency Room Initiative

GEDI WISE
Geriatric Emergency Department Innovations through Workforce, Informatics, and Structural Enhancement
Take home message

If you don't have space for a Geriatric ED…. Make your entire ED a Geriatric ED.

If the ED is Designed for the Most Frail and Vulnerable ..... It will work for the Strongest

There is plenty of opportunity for research and quality improvement for older people in EDs.
Questions

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