Clinical Issues in the Care of the Frail Elderly in the Acute Hospital Environment

Dr John Gommans FRACP
  • General Physician & Geriatrician
  • Chief Medical Officer, Hawke’s Bay Hospital, NZ
  • President of the Internal Medicine Society of Australia & New Zealand (IMSANZ)

www.imsanz.org.au

Clinical Issue #1: Patients come First!

A Patient is the most important Person in our Hospital. He is not an interruption to our work. He is the purpose of it. He is not an outsider in our Hospital, He is part of it. We are not doing him a favour by serving him, he is doing us a favour by giving us an opportunity to do so.

Bombay Hospital Motto - Adapted from a quotation of Mahatma Gandhi
#1: Patients come First... not their disease(s)!

‘Modern medicine is seen as an interaction between a physician and a disease rather than between a physician and an ill person striving to get well’

Scovern 1999

#1: Patients come First... not our hospitals, targets, etc!

‘Future Hospital’ report to RCP
London Sept 2013

‘The patient must be the first priority in all of what the NHS does. Within available resources they must receive effective services from caring compassionate and committed staff working within a common culture, and they must be protected from avoidable harm and any deprivation of their basic rights.’

(Robert Francis QC)¹

‘Patient safety should be the ever-present concern of every person working in or affecting NHS-funded care. The quality of patient care should come before all other considerations in leadership and conduct of the NHS, and patient safety is the keystone dimension of quality.’

(Don Berwick, 2013)²
Robert Francis
(First Mid Staffs Enquiry 2010)

“Many of the cases in which patients and their families have reported concerns have involved elderly patients. The multiple needs of such patients in terms of diagnosis, management, communication and nursing care are in many ways distinct from those of younger patients...”
Clinical Issue #2: There are (increasingly) more Old People! & these Older People are living longer (Australian Projections)

#2: Older People = Multi-morbidity is the most common long term condition!
Impact on our Hospitals?

• 2/3 of admissions are now aged 65+ yrs
• 1/4 bed days occupied by those aged 85+ yrs
• Patients are more complex (multimorbidity)
  – 1/4 of admissions have dementia
• LOS is now increasing in those aged 85+ yrs

Clinical Issue #2: In our Hospitals
Older People are our Core Business...

• Most acute admissions (esp undifferentiated take) are older, frailer & multi-morbid
• Enhanced skills in ‘Geriatric Medicine’ will be essential for all clinicians
  – ED, Medical, Orthopaedic, Surgical, etc...
  – We can’t refer (almost) everyone to ‘Specialist Geriatric Services’

Acute care of the frail elderly seminar
A focus on issues and systems of care for those who work with the acutely unwell frail elderly
Friday 20th June 2014
Clinical Issue #2: In our Hospitals
Older People are our Core Business...

- The Emergency Department is the largest ‘Geriatric Assessment Unit’ in any Hospital
  - 70+ yrs = 339 ED presentations/1000 persons
  - 85+ yrs = 583 ED presentations/1000 persons
  - J Lowthian et al IMJ 2013;43:554–560

Session 4 Today!

- The ED Perspective. Dr Peter Archer
- Effective Discharge Strategies from ED to Community. Dr Judy Lowthian

Clinical Issue #3: Frailty vs Older Age?
Frailty...

• **A state of poor physiological & functional reserve** (lack of resilience to stressors)
  – cumulative decline in multiple physiologic systems

• **Associated with**...
  – disproportionate reduction in health/functional status & poor recovery in response to stressors
  – Increased risk of adverse outcomes including; falls, delirium, disability, long term care & death

• **Affects 25-50% of people aged >85 years**

_w Frailty in elderly people_  
_Lancet 2013; 381: 752–62_

_Andrew Clegg, John Young, Steve Iliife, Marcel Olde Rikkert, Kenneth Rockwood_

Figure 1: Vulnerability of frail elderly people to a sudden change in health status after a minor illness
The green line represents a fit elderly individual who, after a minor stressor event such as an infection, has a small deterioration in function and then returns to homoeostasis. The red line represents a frail elderly individual who, after a similar stressor event, undergoes a larger deterioration, which may manifest as functional dependency, and who does not return to baseline homoeostasis. The horizontal dashed line represents the cutoff between dependent and independent.
Panel 1: Frequent clinical presentations of frailty

Non-specific
Extreme fatigue, unexplained weight loss, and frequent infections.

Falls
Balance and gait impairment are major features of frailty, and are important risk factors for falls. A so-called hot fall is related to a minor illness that reduces postural balance below a crucial threshold necessary to maintain gait integrity. Spontaneous falls occur in more severe frailty when vital postural systems (vision, balance, and strength) are no longer consistent with safe navigation through undemanding environments. Spontaneous falls are typically repeated and are closely associated with the psychological reaction of fear of further falls that causes the patient to develop severely impaired mobility.

Delerium
Delerium (sometimes called acute confusion) is characterised by the rapid onset of fluctuating confusion and impaired awareness. Delerium is related to reduced integrity of brain function and is independently associated with adverse outcomes. Roughly 30% of elderly people admitted to hospital will develop delerium, and the point prevalence estimate for delerium for patients in long-term care is 15%.

Fluctuating disability
Fluctuating disability is day-to-day instability, resulting in patients with "good", independent days, and "bad" days on which (professional) care is often needed.
Defining Frailty: Phenotypic Model
US Cardiovascular Health Study

- 5 variables, used lowest quintiles (n=5317 age 65+)
- ≥3 = frail (7%), 2 = pre-frail or vulnerable (47%)

Panel 2: The five phenotype model indicators of frailty and their associated measures

- Weight loss
  - Self-reported weight loss of more than 4.5 kg or recorded weight loss of ≥5% per year
- Self-reported exhaustion
  - Self-reported exhaustion on US Center for Epidemiological Studies depression scale
  - (3–4 days per week or most of the time)
- Low energy expenditure
  - Energy expenditure <383 kcal/week (men) or <270 kcal/week (women)
- Slow gait speed
  - Standardised cutoff times to walk 4.57 m, stratified by sex and height
- Weak grip strength
  - Grip strength, stratified by sex and body-mass index

Fried et al. 2001

CV Health Study
1989-90,
Aged 65+

52% (2762 of 5317)
had at least one of Disability, Comorbidity or Frailty

Untangling the concepts of Disability, Frailty, and Comorbidity: Implications for Improved Targeting and Care.
Fried et al. J. Gerontology 2004;59:255-263
Frailty: Cumulative Deficits Model
Canadian Study of Health & Ageing

• **Frailty Index:**
  – 92 variables: mixture of symptoms, physical signs, test results, disabilities, diseases
  – Can reduce to 70, 50 & 30 variables with some validity

• Cumulative effect on severity of frailty
  – ~63+/92 not sustainable - death likely
  – Regression uncommon

• Identifies vulnerability - ↑ risk of adverse outcomes
• Frailty ↑ with age, ~ 25% in >85 yrs (community)

---

A global clinical measure of fitness and frailty in elderly people
‘clinical judgment’

Box 1: The CSHA Clinical Frailty Scale

1. Very fit — robust, active, energetic, well motivated and fit; these people commonly exercise regularly and are in the most fit group for their age
2. Well — without active disease, but less fit than people in category 1
3. Well, with treated comorbid disease — disease symptoms are well controlled compared with those in category 4
4. Apparently vulnerable — although not frankly dependent, these people commonly complain of being “slowed up” or have disease symptoms
5. Mildly frail — with limited dependence on others for instrumental activities of daily living
6. Moderately frail — help is needed with both instrumental and non-instrumental activities of daily living
7. Severely frail — completely dependent on others for the activities of daily living, or terminally ill

Note: CSHA = Canadian Study of Health and Aging.
Impact of frailty & age on outcomes - of Acute Medical Admission?

CLINICAL INVESTIGATION

Recovery of Activities of Daily Living in Older Adults After Hospitalization for Acute Medical Illness

Cynthia M. Boyd, MD, MPH,*† C. Seth Landefeld, MD,‡§ Steven R. Counsell, MD,‖
Robert M. Palmer, MD, MPH,* Richard H. Fortinsky, PhD,*** Denise Kresevic, RN, PhD,††
Christopher Burant, MA, PhD,‡‡ and Kenneth E. Covinsky, MD, MPH††

- Admissions to Acute General Medicine Services (2 US hospitals)
  - Included: aged 70yrs or older & discharged alive
  - Excluded: ICU or expected LOS < 2 days
- Measure: independence in 5 self care ADLs = need any help from another person with: Bathing, Dressing, Eating, Transfer from Bed to Chair, using Toilet?
- premorbid (2 wks), admission, discharge & up to 1 yr

JAGS 2008; 56:2171-79
2274 eligible discharges

- Trajectories of ADL function: at discharge = either “same as” (2/3) or “worse than” (1/3) baseline function (= 2 weeks pre-admission)

![Diagram showing ADL function over time with two groups: Group 1: Discharged with baseline function (n=1,480); Group 2: Discharged with new or additional disability in ADLs (n=799).]

- If aged 70+ yrs and acute admission under General Medicine (LOS > 2/7)...

- If no loss of function:
  - 18% (1 in 6) dead at 1 yr

- If acutely disabled & don’t recover:
  - 44% dead at one year (vs 18%)
  - only 30% recover to baseline function by 1 yr
    - 62% of these do so within 1 month
  - Increased LOS = 8.2 days (+6.6) vs 5.3 (+3.6)

JAGS 2008; 56:2171-79
Disabling Disease Codes Predict Worse Outcomes for Acute Medical Admissions

- **Irish Study** - St James Hospital, Dublin
- 67,971 acute medical admissions **2002-12**
- Used Disease Specific ICD9/10 codes that were deemed to reflect disability
- Outcome Measures =
  - 30 day mortality
  - LOS - capped at 30 days

Chotirmall et al IMJ **2014** (on line)

Disability Score & Outcomes *(all p 0.001)*

<table>
<thead>
<tr>
<th>Disability score</th>
<th>%</th>
<th>Mortality 30/7 OR (95%CI)</th>
<th>LOS (Median &amp; IQR) OR (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>11</td>
<td>0.9% 0.16 (0.12-0.20)</td>
<td>1.8 days (0.5, 5.0) 0.23 (0.22-0.25)</td>
</tr>
<tr>
<td>1</td>
<td>23</td>
<td>2.6% 3.09 (2.35-4.05)</td>
<td>3.9 (1.6, 8.1) 2.09 (1.96-2.24)</td>
</tr>
<tr>
<td>2</td>
<td>29</td>
<td>4.1% 4.83 (3.71-6.30)</td>
<td>6.1 (2.8, 12.5) 3.91 (3.67-4.16)</td>
</tr>
<tr>
<td>3</td>
<td>22</td>
<td>6.3% 7.73 (5.93-10.1)</td>
<td>8.1 (4.0, 17.2) 6.40 (5.99-6.83)</td>
</tr>
<tr>
<td>4+ (Max 8)</td>
<td>15</td>
<td>10.9% 14.0 (10.8-18.2)</td>
<td>9.7 (5.0, 21.2) 8.61 (8.03-9.24)</td>
</tr>
</tbody>
</table>
#3 Understanding Frailty is a key skill for all Clinicians...

• “Frailty is a practical, unifying notion in the care of elderly patients that directs attention away from organ-specific diagnoses (i.e. disease) towards a more holistic viewpoint of the patient and their predicament”

• Assessment of frailty is essential for decision making & patient management. It allows...
  – Us to weigh up benefits and risks (of interventions)
  – Patients to make properly informed choices

Lancet 2013; 381: 752-62

How to use ‘Frailty’ when managing older inpatients?

• Prognosis: predicts death, institutionalisation, dependency & adverse outcomes with medical interventions

• Management: ‘Patient & their Predicament’
  – Ability to tolerate hospitalisation, interventions?
  – Applicability of Evidence Based Medicine?
  – Life expectancy - to benefit from interventions?
  – Need for advance care planning
  – Efforts to minimise risk
FRAILsafe: A safety checklist for frail older patients entering acute hospital care

Project aims
The key aim of this project is to improve measured quality of care for frail older patients admitted to 12 NHS hospitals with medical emergencies by July 2015.
**Frailty in Oncology - ECOG score**

*Eastern Cooperative Oncology Group - for Performance Status*

0 – **Asymptomatic** (Fully active, carry on all activities)

1 – **Symptomatic but completely ambulatory** (Restricted in strenuous activity but able to carry out light/sedentary work)

2 – **Symptomatic, <50% in bed during the day** (Ambulatory and capable of all self care but unable to carry out any work activities. Up and about more than 50% of waking hrs)

3 – **Symptomatic, >50% in bed, but not bedbound** (Capable of only limited self-care, confined to bed or chair > 50% waking hrs)

4 – **Bedbound** (Completely disabled. Cannot carry on any self-care. Totally confined to bed or chair)

5 – Death

---

**Frailty - ICU, Anaesthesia, Surgery...**

Prevalence and impact of frailty on mortality in elderly ICU patients: a prospective, multicenter, observational study

– Pascale Le Maguet et al. Int Care Med 2014;40:674-682

---

**Multidimensional Frailty Score for the Prediction of Postoperative Mortality Risk**

Sun-wook Kim, MD; Ho-Seong Han, MD, PhD; Hee-won Jung, MD; Kwang-il Kim, MD, PhD; Dae Wook Hwang, MD, PhD; Sung-Bum Kang, MD, PhD; Cheol-Ho Kim, MD, PhD

---

**Invited Commentary**

More Powerful Than the American Society of Anesthesiology Score

Michael E. Zenilman, MD

**Original Investigation | SURGICAL CARE OF THE AGING POPULATION**

**Published online May 7, 2014.**
**How to Assess Frailty?**

- Frailty Index (CSHA 92/70/50/30 items)
  - too complicated for routine practice

- Phenotypic model (5 items, community based)
  - Predicts vulnerability but some items not routine (wgt loss, exhaustion, energy expenditure, slow gait, grip strength)

- ‘Clinical Judgment’ (4 groups, community based)
  - Well +/- comorbid vs ‘slowed up’ or disease symptoms (independent but ‘vulnerable’) vs mildly frail (IADL help) vs mod-severely frail (ADL help)

- FrailSafe (3 items, on admission to hospital)
  - Confusion or mobility problems or Aged Care Home

**Clinical Issue #4: Delirium in acutely hospitalised older people...**

- Very Common...
  - 30-50% of acute admissions
  - 15-50% of post op & 70-87% in ICU

- Associated with increased...
  - Mortality, LOS (2x) & institutionalisation
  - Adverse Events (>3x): falls, incontinence, pressure areas (ANZSGM Position Statement)

**Session 1: Delirium identification and management in frail elderly.** Prof Alison Hutchinson

**Session 4: Competency Assessment...** Prof Peteris Darzins
Raising Delirium Awareness & need for a Systematic Approach (e.g. Delirium Card)

Confusion? Altered consciousness? Think of delirium!

Yes
Is CAM positive?

Diagnosis of delirium

No

Not delirium

Search for medical precipitants and treat urgently

- Drugs (anticholinergics, benzodiazepines and alcohol withdrawal) Dehydration
- Electrolyte disturbance (e.g. Na⁺ and Ca⁺²)
- Lots of pain
- Infection/Inflammation (post surgery)
- Respiratory failure (hypoxia, hypercapnia)
- Impaction of faeces
- Urine retention
- Metabolic disorder (liver/kidney failure, hyper/hypo-glycaemia)

CAM positive if 1 and 2 and either 3 or 4)
1. Acute onset and fluctuating course of
2. Inattention
3. Disorganised thinking (illogical/rambling)
4. Altered consciousness (hypo/hyper alert)

Management – turn over

Don’t forget to document delirium diagnosis in notes/EDL!

…and on the other side – keep it simple

**Do’s**

- **ALL MDT members**
  - STRATIFY – follow inpatient falls pathway
  - Orientate frequently
  - Involve familiar family/friends and use familiar nursing staff
  - Use calming speech and manner
  - Hydrate
  - Enable sleep
  - Correct sensory impairment
  - Encourage early supervised mobilisation

- **Nursing/medical staff**
  - Investigate for delirium precipitating factors
  - Treat precipitants urgently
  - Review medication
  - Optimise oxygen saturation and blood pressure
  - Pharmacological approach only if all fails

**Don’ts**

- Have long delay to attend patients – high mortality!
- Argue
- Have frequent bay/ward changes
- Catheterise unnecessarily
- Perform unnecessary procedures
- Use physical restraints routinely

**Haloperidol** (as PRN medication):
- 0.5-1mg 1-2 hourly, max 5mg every 24hrs (po/IM)
- **Lorazepam** (as PRN medication) - if haloperidol contraindicated – QTc>500ms; Parkinsonism/Lewy body dementia
- 0.5-1mg 1-2 hourly, max 4mg every 24hrs (po)
#5: Falls…

- 5-20% of older inpatients fall in hospital
- Falls are the largest category of serious and sentinel events reported by NZ hospitals in 2012/13 (52%)
  - 42% fractured Neck of Femur
  - 9% Serious Head Injury
  - 8% Pelvis
  - 8% # Arms

http://www.hqsc.govt.nz/

Clinical Issue #6: Ageing and Disease = End of Life Care
**Death by Age: Projections (NZ)**

Expected to be a continued decline in deaths under age 65 and age 65-74 with a dramatic increase in the number of deaths over age 85


- 1% population dies each year
- **UK - ‘58% die in hospital, largely under care of physicians’**
  - **NZ 34%** die in hospital, 31% in aged residential care, 22% home, 6% hospice, 7% other (2007)
- Up to 75% of deaths thought ‘to be expected’
- Of deaths (UK) in 2008
  - Most are in very old - 2/3 in people over 75yrs
  - Pneumonia = cause in 12% of those 90+ yrs
Acute Hospitalisation = Increased Mortality!

- 10,743 inpatients, 25 Scottish Hospitals on 31/3/10.
  - Prevalence cohort study
  - Excluded inpatients under Older People’s Services.
- 28.8% dead @ 1 year (1/3 during admission)
  - 8.9% @ 30 days, 16.0% @ 3 months, 21.2% @ 6 months.
- Mortality at 1 year increased with...
  - Age > 85 yrs 45.6% vs 13.1% aged < 60 years (p < 0.001).
  - Medical specialty admission compared to surgical patients (OR: 3.13, 95% CI: 2.48–4.00).

Clark et al. Palliat Med 2014; 28(6) 474-479

Implications for Hospitals...

- Older people (especially aged 85+) & people with frailty/multi-morbidity are those most likely to die
- Many (most?) will die in hospital, most under care of Physicians
- What is our role for these older inpatients?
  - always to care but only sometimes to cure!
  
  #6: Skills in ‘Advanced Care Planning & End of Life/Palliative Care’ will be essential for all Clinicians
  - Can’t refer everyone to specialist services!
Main Trajectories at End of Life

Number of deaths in each trajectory, out of the average 20 deaths each year per UK general practice list of 2000 patients
- Cancer (n=5)
- Organ failure (n=6)
- Physical and cognitive frailty (n=7)
- Other (n=2)

RCP: ‘Prompt Tool’ for post-take & general ward rounds (2012, appendix 2)

- Does patient have an advance care plan?
- Does patient have a valid and applicable advance decision to refuse treatment?
- Does patient fall into one of these categories?
  - advanced, progressive, incurable condition(s)?
  - general frailty and comorbidities that mean they may be expected to die within next 12 months?
  - existing condition(s) as a result of which they are at risk of dying from a sudden acute crisis?
  - life-threatening acute condition caused by sudden catastrophic event(s)?

If so...
If so... ‘discuss preferences of treatment & place of care with the patient and family’

Patients & Families will require Physicians to be comfortable (and competent) with...

– Difficult conversations and decision making
– Advance directives
– End of Life Care

Session 3: End of Life/Palliative Care.
A/Prof Peter Hunter

Clinical Issue #7: Polypharmacy & Adverse Drug Reactions

• 1 in 6 acute admissions due to serious ADR
  – 2 drugs = 13% risk ADR contributed to their ED presentation
  – 4 drugs = 38% risk
  – 7 or more = 82% risk
• 1 in 3 older persons on 5 or more medications will suffer an ADR each year
• Many ADR preventable by avoiding inapprop medication (i.e. where risk of ADR > benefit)
  – 35% to 55% of admissions with ADR

Scott & Jayathissa IMJ 2010;40:7-18
Clinical Issue #7: Polypharmacy & Adverse Drug Reactions

“It is an art of no little importance to administer medicines properly: but, it is an art of much greater and more difficult acquisition to know when to suspend or altogether to omit them”

Philippe Pinel, 1745-1826

• Less may be more!
  – Considering subtracting medication rather than adding to the older patient’s burden

• Polypharmacy increases risk of adverse events...
  – Impaired physical and cognitive function, falls, institutionalisation, hospitalisation and death
  – Independent of co-morbidities

• Consider Deprescribing (drug withdrawal) if...
  – Polypharmacy
  – Adverse Drug Reactions
  – No or unlikely efficacy
  – Goals of therapy change e.g. frailty, dementia, palliative

= Session 2: Deprescribing.
A/Prof Sarah Hilmer
AEME - Academy for Elderly Medicine Education

The Geriatrician’s Scalpel

Bohemian Polypharmacy
James McCormack  Feb 19, 2014

a quick (<7 minute) tutorial...
http://www.youtube.com/watch?v=Lp3pFjKoZl8
#8 Patients (especially Frail Older People) may do poorly in Hospital...

- **Patient Care Factors**
  - Iatrogenic complications occur in 30-40% of older hospitalized patients
  - Both diagnostic and therapeutic procedures
  - New medications in particular...

---

**Published**

1978

**The House of GOD**

Samuel Shem

(Dr Stephen Bergman)

---

**Hazards of Bed Rest & Hospitalisation in Elderly: Creditor 1993**

---

Figure 1. The cascade to dependency.

Hazards of Hospitalisation...

• ‘Preventable adverse events in hospitalised patients are at least the eighth leading cause of death in the USA’
  – *To err is human: building a safer health system*
  – Kohn, Corrigan, Donaldson (Editors) 1999

• **Risks include:** Falls, medication errors, ADRs, infections, delirium, VTE, pressure areas...

Hazards of Hospitalisation...

[Images of reports from 2010 and 2013]
#8 Hospitalisation may be Hazardous for Frail Older Patients

Session 1: *Minimising deconditioning in acute care.*
A/Prof Gideon Caplan

Session 2: *Iatrogenesis in the frail elderly.*
Prof Michael Dooley

Session 2: *Nutrition in the frail elderly.*
Prof Renuka Visvanathan

---

**Clinical Issue #9: The Future for Hospitals & Clinicians will involve Change!**

- “It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change.”
  – *Charles Darwin*

- “Doctors are all for progress... ...its just change that we don’t do”
  – *Andrew Connolly*
    - Chair Medical Council of NZ & General Surgeon
    - 2013 meeting of RACP, RACS & RCPSC on Generalism
The Hospital System...

QUALITY CARE FOR OLDER PEOPLE WITH URGENT & EMERGENCY CARE NEEDS

‘Silver Book’ - June 2012

Cowboys and Pit Crews
Atul Gawande The New Yorker May 26, 2011

Clinical Teamwork: a speech at Harvard Medical School

Acute care toolkit 3
Acute medical care for frail older people March 2012

ACUTE MEDICINE
UK CONSENSUS CONFERENCE
Improving quality of care through effective patient flow – it’s everyone’s business!
Friday 15–Saturday 16 November 2013

THE CHECKLIST MANIFESTO
HOW TO GET THINGS RIGHT
ATUL GAWANDE
BESTSELLING AUTHOR OF BETTER AND INCIDENCES
How Physicians & Teams Work…?

Ward Rounds

• “We count and cost outpatients, theatre lists, invasive investigations like endoscopies, procedures….
• But no one counts, measures or does quality control on doctors’ ward rounds…..
• Why?”

Gordon Caldwell: Western Sussex Hospitals, NHS

#9: To address ‘clinical issues in the care of the frail elderly in the acute hospital environment’ will involve Change!

Session 3: Ward Rounding (the Alfred way)…
A/Prof Harvey Newnham

Session 4:
Opportunities for promoting care in appropriate sites (MATS)
Dr Suma Poojary

What would an effective approach look like?
Dr Karen Hitchcock
To address ‘clinical issues in the care of the frail elderly in the acute hospital environment’ will involve Change!

1. Patients must come first
2. Older people are our core business
3. Frailty
4. Delirium
5. Falls
6. End of Life Care
7. Polypharmacy & Adverse Drug Reactions
8. Hazards of Hospitalisation

Don’t treat risk factors

Don’t even treat disease

Just treat the patient

….and always as an individual

Prof AJ Campbell, 2007
Chairman MCNZ