Inpatient Geriatric Oncology and the ACE Model of Care

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Older Adults in Acute Care

- Between ’79 & ’00, hospitalization rates for all age groups declined, except for the elderly whose rates increased by 23% (Habel, ’04)
- 46% of hospital days are for pts ≥65 (Hall & DeFrances, ’03)
- 1/3 have ≥ 2 comorbidities (HCUP, ’00)
- 21% increase in acuity (Stanton ’04)
- Avg LOS 5.98 days

Gerontological Nursing

- Quality of Life is Central
- Focus on Maintaining Functional Independence
- Individualized, Person- Centered vs. Disease- Centered
- Comprehensive, Holistic
- Advocacy, Preservation of Dignity
- Envisions patient beyond the hospital

Geriatric Syndromes in Hospitalized Older Oncology Patients

- Functional Decline
  - Falls
  - Depression
  - Delirium
  - Polypharmacy

Functional Decline

- Leading complication of hospitalization for older adults (Inouye, 2000)
- 35% of all patients age 70 and older more dependent at discharge than 2 weeks prior to admission (Covinsky, 2003)
- Recovery of functional status takes longer than resolution of acute illness (Jacelon, 1999)

Functional Decline

- Influences quality of life, caregiver burden, and costs
- 11% of all patients d/cd to LTCF; % doubles for those 65-84, quadruples for the 85+ (HCUP, 2000)
### Functional Decline -- Assessment
- Katz ADL, Lawton IADL
- Pre/Post illness, History of any decline
- Hx of falls, adaptive equipment
- Living situation
- Collateral source for unreliable patients
- Nursing and rehab staff report

### Functional Decline -- Etiology
- Deconditioning
- Pain
- Fatigue, anemia
- Malnutrition, nausea
- Depression
- Knowledge deficit, Cognitive impairment
- Lack of resources, social support

### Functional Decline -- Prevention/Intervention
- Mobility protocols, Exercise
- PT & OT consults, include O2 assessments
- Treat pain, premedicate before therapy
- Monitor and treat anemia
- Teach energy conservation
- Non-pharmacologic sleep protocols and rest periods

### Functional Decline -- Falls
- Fall incident rates 3x> in Hospitals than in Community for older people (AGS, BGS, AAOS Panel on Falls Prevention, 2001)

### Functional Decline -- Consequences of Falls
- Leading cause of accidental death in the elderly
- Injury from 37-42% of first falls in hospitals (Halfon, et al., 2001; Hitcho, et al., 2001)
- ½ with hip fracture die within 1 yr, 50% are d/c to NH, ½ still in NH 1 yr later
- >dependency; 25% limit normal activities due to fear
- Depression
- >LOS, >Costs (Abraham et al 1999)
Functional Decline – Risk Factors for Falls in the Hospital
- High Risk Medication Use
- Generalized muscle weakness
- History of falls
- Gait disorders
- Greater comorbidity
- Depression
- Cognitive Impairment


Functional Decline – Falls Prevention
- Assess for risk factors at admission and ea shift
- Observe Gait; compare with pt's perception of ability
- Monitor for Orthostasis
- Communicate risk to other team members
- Educate pt and family re: risk of falling

Functional Decline – Fall Prevention
- Keep necessary items in reach; practice call light
- Provide clean senory aids, proper lighting
- Limit clutter; D/c unnecessary lines and tubes
- Upper side rail use
- Low beds, chairs with arms

Functional Decline – Fall Prevention
- Tailor interventions to risks
- Decrease Use of High Risk Medications
- PT, OT consults; Mobility protocols
- Provide assistive devices, non-slip footies
- Bed exit alarms, ↑ supervision
- Toileting "Rounds," BSCs
- Treat anemia, nutrition deficits

Functional Decline – Urinary Incontinence
- 5-15% of community dwelling elderly incontinent; 40-60% of hospitalized elderly
  (Ouslander & Johnson, 2003)
- Avoid Indwelling Catheter Use
- Toileting "rounds", BSCs

Depression
- 16% of Americans age 65+
- 30% of older adults in Acute Care! (Kurlowicz & NICHE)
- 63% of elderly who are more physically impaired vs. 11% of those less impaired
- 10-40% of those with dementia
- Major depression occurs in 20-25% of all pts with CA (pancreatic, oropharynx, breast)
Consequences of Depression in the Elderly
- Amplification of pain & disability
- Worsening of medical symptoms, delayed recovery;
  $\uparrow$ risk of physical illness
- $\uparrow$ Healthcare Utilization; Resistance to care, treatment refusal
- Malnutrition
- Cognitive Impairment, $<$ decisional capacity

Depression -- Assessment
- GDS
- DSM IV criteria Mild depression 2-4x more common than major depression in the elderly
- Collateral Source
- Clues: high use of call light, non-compliance, lots of excuses of why there are no workable solutions, focused on the worst possible scenario, you feel exhausted after being with them

Depression -- Intervention
- Rx based on side effect profile
- Interdisciplinary approach
  MD, RN, Spiritual Care, SW, PT, OT
- Minimize aggravating conditions
  Promote nutrition, appropriate sleep/rest, physical comfort, control
- Patient and Family Education

Delirium/Acute Confusion
- Syndrome of disturbed consciousness, attention, and cognition or perception, which develops acutely, fluctuates during the course of the day, and is attributable to a physical disorder
- 14-56% of elderly medical patients (Inouye, 1999)

Consequences of Delirium
- Carries a 30-60% mortality rate in acute care
- Post-hospitalization cognitive decline
- Loss of independent living
- Complete recovery in only 52% of cases
- Excess health care expenditures of $1-2 billion
## Risk Factors for Delirium

- > 30 predisposing and 25 precipitating factors (Inouye, 2000)
- Sensory Impairment
- Severe Illness
- Cognitive Impairment (MMSE<24)
- Dehydration (BUN/Cr >18mg/dl)

## Delirium—Precipitating Factors

- Physical restraints
- Malnutrition
- Addition of 3 or more meds
- Indwelling bladder catheter
- Any iatrogenic event (Inouye, 2000)

## Delirium--Assessment

- Risk Factors, Labs
- MMSE or SBT, CCT
  - History of mental status changes
- CAM, Neecham
- Observe for signs, staff report
  - hypoactivity & functional change

## Delirium--Etiology

- Drug toxicity* anticholinergics, benzos
- Electrolyte imbalance*, environmental disturbance*
- Low pO2 – MI, CVA, PE, anemia, COPD
- Infection*, Impaction
- Retention of urine, restraints
- Ictal states
- Undernutrition and dehydraton*
- Metabolic*: liver or renal failure, hypothyroid
- Subdural hematoma, sleep deprivation, sensory disturbance*

## Delirium—Prevention & Intervention

- Minimize risk factors and precipitators
- Recognize it early
- Identify and treat cause
- Maintain safety
- Therapeutic Communication
- Family education
- Antipsychotics as last resort
- Refer for full dementia workup at d/c

## High Risk Medications

- Beers Criteria
- Polypharmacy = > 4 different meds
  - Avg of 9 in hospitalized elderly = nearly 100% odds of a.e. (Walker, et al. 1999)
Nurses’ Role Safe Medication Administration in Older Adults

- MASTER Rules
  - Minimize
  - Alternatives
  - Slow, low
  - Titrate
  - Educate
  - Review

Iatrogenesis

- Adverse events from diagnosis, intervention, or omission involving a reasonable clinical standard
- Poor outcomes worse than what would be expected as a natural consequence of the patient’s underlying disease process
- Cascade iatrogenesis (Habel ’04)

Iatrogenesis

- Occurs disproportionately in older adults (Jacelon, ’99)
- Complications occur 3-5x more frequently in older adults (Inouye, et al., ’00)
- Post-op complications 2x > in age 70-79, 3x > in 80+ age group (Polanczh, ’01)

ACE (Acute Care for the Elderly) Program Components

- “Prepared” environment to promote mobility, socialization, and safety
- Patient-centered care with nurse driven protocols
- Daily interdisciplinary rounds
- Discharge planning beginning day one

ACE Outcomes

- Increased recognition and treatment of geriatric syndromes
- Improved functional status, less functional decline
- Fewer d/cs to LTC
- Improved pain management
- Decreased LOS
- Increased pt, provider, & staff satisfaction
- Decreased mortality

ACE Units: Randomized Controlled Trials

- University Hospitals of Cleveland
- 651 pts aged ≥ 70 admitted for acute medical illness from 11/90 – 3/92
- Randomized to ACE Unit vs Usual care
- Outcome: Change in performance of 5 basic ADLs from admission to discharge
ACE Units: Randomized Controlled Trials

Change in patients' ability to perform ADLs from admission to discharge (p.009)

- Much Worse
- Worse
- Unchanged
- Better
- Much Better

ACE Units:  Randomized Controlled Trials

- Demonstrated improved processes of care in the intervention unit
  - Reduced use of restraints
  - Fewer high risk meds
  - Earlier and more frequent involvement of physical therapy and social work
  - Improved patient and provider satisfaction

ACE in a Community Hospital

- 1531 community-dwelling patients age ≥ 70 admitted for acute medical illness
- Randomized to ACE vs Usual Care
- Demonstrated improved processes of care in the intervention unit
  - Reduced use of restraints
  - Fewer high risk meds
  - Earlier and more frequent involvement of physical therapy and social work
  - Improved patient and provider satisfaction

ACE Units Reduce Mortality

- 254 patients age >75 meeting a targeting criteria for frailty admitted for any acute illness
- Randomized to ACE Unit vs Usual Care

<table>
<thead>
<tr>
<th>Months after Discharge</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GEMU</td>
</tr>
<tr>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>6</td>
<td>16%</td>
</tr>
<tr>
<td>12</td>
<td>28%</td>
</tr>
<tr>
<td>24</td>
<td>50%</td>
</tr>
</tbody>
</table>

LOS and Costs on ACE

- Landefeld et al, NEJM, 1995: LOS and hospital charges similar for ACE vs Usual Care
- Counsell et al, JAGS, 2000: no difference in LOS, costs, or home healthcare visits
- Asplund et al, JAGS, 2000: reduced LOS
- Rubenstein et al, NEJM, 1984: GEMU with fewer hospital days and lower direct costs for institutional care in the first year
- Saunders et al, JAGS, 1983: Decreased LOS and fewer NH admissions

Barnes-Jewish Hospital ACE Unit

- March 2000 on General Medicine Div
- October 2000 Oncology overflow began
- Includes all patients > 65 on unit
- 95% have oncology diagnoses

“Prepared” Environment

- Hand rails in hallway
- Carpeted floors
- New seating in waiting room & end of hallway
- Donated activities
- Attention to safety (clutter reduction, etc.)
- Volunteer visits
- Amplifier
- Pagers
**Patient-Centered Care**

- Nurse-Driven Protocols
- Nursing Education
- Universal, comprehensive screening:
  - Function, cognition, gait, living situation, +/− depression
- Mobility protocol: gait belts, minimal bed rest, OOB for meals, early d/c of tubes and lines
- Skin care: consistent assessment, products
- Nutrition: supplements with meals
- Avoidance of high risk meds

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**Interdisciplinary Team Rounds**

- Daily at 10:30 M-F
- Geriatric MDs, gerontological CNS, SW, CC, PT, OT, RD, PharmD, hospice coordinator, chaplain, staff RNs
- Established ground rules
- Consistent use of report sheet
- 30”; 5” for each nurse

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**Rounds, cont.**

- D/c planning integral
- Recommendations relayed to primary MD
- Summary note documented by GCNS in computer record

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**Functional Status BJH ACE**

<table>
<thead>
<tr>
<th>Katz Index of ADLs</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent in all ADLs</td>
<td>53 (55)</td>
</tr>
<tr>
<td>Dependent in 1 ADL</td>
<td>11 (12)</td>
</tr>
<tr>
<td>Dependent in 2 ADLs</td>
<td>7 (7)</td>
</tr>
<tr>
<td>Dependent in ≥3 ADLs</td>
<td>25 (26)</td>
</tr>
</tbody>
</table>

| Katz score range | 0-15 |

<table>
<thead>
<tr>
<th>Lawton Index of IADLs</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent in all IADLs</td>
<td>19.7 ± 5.0</td>
</tr>
<tr>
<td>Dependent in 1 IADL</td>
<td>25 (26)</td>
</tr>
<tr>
<td>Dependent in 2 IADLs</td>
<td>9 (10)</td>
</tr>
<tr>
<td>Dependent in ≥3 IADLs</td>
<td>57 (61)</td>
</tr>
</tbody>
</table>

| Lawton score range | 0-26 |

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**Diagnoses**

<table>
<thead>
<tr>
<th>Oncology/hematology diagnoses</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung cancer</td>
<td>36 (30)</td>
</tr>
<tr>
<td>Gastrointestinal malignancy</td>
<td>27 (23)</td>
</tr>
<tr>
<td>Hematologic malignancy</td>
<td>25 (21)</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>8 (7)</td>
</tr>
<tr>
<td>Other</td>
<td>23 (19)</td>
</tr>
<tr>
<td>History of a prior malignancy</td>
<td>20 (17)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Most prevalent admitting diagnoses</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory symptoms</td>
<td>33 (28)</td>
</tr>
<tr>
<td>Nausea, vomiting, and/or dehydration</td>
<td>20 (17)</td>
</tr>
<tr>
<td>Pain</td>
<td>18 (15)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Laboratory Data</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hgb on admission (g/dl)</td>
<td>10.7 ± 2.2</td>
</tr>
<tr>
<td>Hgb on discharge (g/dl)</td>
<td>10.8 ± 1.6</td>
</tr>
<tr>
<td>Discharge Hgb &lt;12 g/dl</td>
<td>94 (80)</td>
</tr>
<tr>
<td>Discharge Hgb &lt;10 g/dl</td>
<td>41 (35)</td>
</tr>
<tr>
<td>Albumin on admission (g/dl)</td>
<td>3.2 ± 0.5</td>
</tr>
<tr>
<td>Creatinine on admission (mg/dl)</td>
<td>1.1 ± 0.4</td>
</tr>
</tbody>
</table>

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**Geriatric Syndrome Prevalence**

<table>
<thead>
<tr>
<th>Geriatric Screens</th>
<th>Mean ± SD (% abnormal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Blessed Test Score, N=93</td>
<td>6.7 ± 7.0 (27)</td>
</tr>
<tr>
<td>Clock Construction Test Score, N=83</td>
<td>3.6 ± 2.5 (51)</td>
</tr>
<tr>
<td>Geriatric Depression Scale Score, N=46</td>
<td>3.5 ± 2.6 (33)</td>
</tr>
<tr>
<td>Braden Scale Score, N=119</td>
<td>18.5 ± 2.1 (18)</td>
</tr>
</tbody>
</table>
Barnes-Jewish Hospital ACE Outcomes
- Increased recognition of geriatric syndromes
- Approximately 5 nursing or MD care recommendations per ACE pt
- Reduced use of high risk meds (benadryl)
- Higher usage of PT, OT, and nutritional supplements

BJH Outcomes, cont.
- Decreased readmission within 60 days
- Consistently high patient satisfaction scores
- Reduction in falls and restraint use
- 86% return home
- LOS = 6 days

Nursing Division for ACE Unit

<table>
<thead>
<tr>
<th>Nursing Division</th>
<th>Fall Index 1999</th>
<th>Fall Index 2002</th>
<th>Total Restraint Episodes 2002</th>
<th>Total Time in Restraints (hours) 2002</th>
<th>Average Daily Census 2002</th>
<th>%Age ≥ 65 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>3200</td>
<td>7.17</td>
<td>3.31</td>
<td>10</td>
<td>370</td>
<td>14.91</td>
<td>29%</td>
</tr>
<tr>
<td>7900</td>
<td>3.42</td>
<td>4.27</td>
<td>50</td>
<td>2454</td>
<td>30.81</td>
<td>30%</td>
</tr>
<tr>
<td>9100</td>
<td>2.91</td>
<td>3.32</td>
<td>26</td>
<td>2235</td>
<td>22.3</td>
<td>44%</td>
</tr>
<tr>
<td>9200</td>
<td>3.26</td>
<td>4.35</td>
<td>76</td>
<td>2463</td>
<td>22.04</td>
<td>46%</td>
</tr>
<tr>
<td>10100</td>
<td>4.21</td>
<td>6.31</td>
<td>87</td>
<td>3053</td>
<td>20.42</td>
<td>41%</td>
</tr>
<tr>
<td>10200</td>
<td>3.22</td>
<td>6.32</td>
<td>95</td>
<td>2731</td>
<td>20.82</td>
<td>43%</td>
</tr>
<tr>
<td>11100</td>
<td>4.13</td>
<td>6.85</td>
<td>111</td>
<td>4257</td>
<td>22.29</td>
<td>43%</td>
</tr>
<tr>
<td>11200</td>
<td>3.72</td>
<td>4.74</td>
<td>120</td>
<td>5474</td>
<td>21.97</td>
<td>42%</td>
</tr>
<tr>
<td>12100</td>
<td>3.19</td>
<td>4.78</td>
<td>68</td>
<td>2816</td>
<td>12100 + 12200 = 24372</td>
<td>42%</td>
</tr>
<tr>
<td>12200</td>
<td>3.19</td>
<td>7.53</td>
<td>76</td>
<td>3820</td>
<td>12200 = 44.19</td>
<td></td>
</tr>
</tbody>
</table>

ACE Unit Alternatives
- Too few older patients reached by intervention
- Increase geriatric knowledge base
- HELP program to target modifiable risk factors
- CGA
- Interdisciplinary careplanning