Post-Operative and Hospital Complications in the Elderly

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UTHSCA
Objectives

- Understand that the elderly are at unique risk during inpatient hospitalizations and in the post-operative period.
- Prevention and treatment of specific problems:
  - Delirium
  - Falls
  - Pain
- Comprehensive Geriatric Assessment
- Prevention of functional decline
Epidemiology

- Life expectancy is increasing:
  - In 2011, average life expectancy = 78.3 years
  - In 2050, estimated life expectancy = 83.85 years
- Over 55% of surgeries performed in 2006 were done on adults > 65
- More minimally invasive surgeries

### Patient Visits by Specialty for Those Age > 65 and Enrolled in Medicare

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophthalmology</td>
<td>56%</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>54%</td>
</tr>
<tr>
<td>Urology</td>
<td>46%</td>
</tr>
<tr>
<td>Internal Medicine</td>
<td>39%</td>
</tr>
<tr>
<td>General Surgery</td>
<td>33%</td>
</tr>
<tr>
<td>Neurology</td>
<td>26%</td>
</tr>
<tr>
<td>Dermatology</td>
<td>26%</td>
</tr>
<tr>
<td>ENT</td>
<td>25%</td>
</tr>
<tr>
<td>Orthopedic</td>
<td>22%</td>
</tr>
<tr>
<td>Family Medicine</td>
<td>21%</td>
</tr>
</tbody>
</table>

Significance of Post-Op Complications

1. Increased risk of mortality
2. Increased in-hospital morbidity
3. Increased length of hospital stay ($$$)
4. Increased discharge to facilities (SNF)
5. Decreased quality of life
6. Decreased surgical success
7. Decreased functional capacity
Inpatient Hospital Stays

Source: CDC/NCHS, National Hospital Discharge Survey, 2005.

Figure 1. Percent distribution of hospital discharges, days of care, and the civilian population, by age: United States, 2005

DeFrances, DJ et al. Vital Health Statistics (Series 13) 2007; 1-209.
Cost to Care for Elderly Inpatients

Table 1. Characteristics of hospitalizations among non-elderly and elderly populations, 2003

<table>
<thead>
<tr>
<th></th>
<th>Younger than 65 years</th>
<th>65 years and older</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of U.S. population*</td>
<td>88%</td>
<td>12%</td>
</tr>
<tr>
<td>Number of hospital stays (percent)</td>
<td>24,931,800 (65.3%)</td>
<td>13,232,900 (34.7%)</td>
</tr>
<tr>
<td>Mean length of stay, days</td>
<td>4.0</td>
<td>5.7</td>
</tr>
<tr>
<td>Mean charges</td>
<td>$17,000</td>
<td>$24,800</td>
</tr>
<tr>
<td>Mean charge per day</td>
<td>$4,250</td>
<td>$4,350</td>
</tr>
<tr>
<td>National bill (aggregate charges)</td>
<td>$424 billion (56.3%)</td>
<td>$329 billion (43.6%)</td>
</tr>
<tr>
<td>Percentage admitted through the emergency department</td>
<td>36.2%</td>
<td>57.4%</td>
</tr>
<tr>
<td>Percentage died in the hospital</td>
<td>0.9%</td>
<td>4.7%</td>
</tr>
</tbody>
</table>

*U.S. Census Bureau, Population Division, Census 2003.
Complications of Acute Hospitalization

- Functional Decline
- Surgical Complication
- Medication
- Nosocomial Infection
- Delirium
- Fall with Possible Fracture
FUNCTIONAL DECLINE

Why Do Older Patients Decline in the Hospital?
Figure 1. The cascade to dependency.

Decreased muscle mass and muscle strength

Bed Rest = Decreased strength by Hospital Day #2: 5%/Day

Lack of Independence and inability to go home = LTC
Effects of illness on physical functioning

- Usual (normal aging)
- Acute illness (surgery)
- Rehabilitation
- Frailty

Healthy, Independent Older Man

Post-Op Older Man

Dependent Older Man
Case Presentation

Col. A is a 93 y/o male with a h/o dementia, BPH, HTN and osteoporosis. Prior to his hospitalization, he was living with his wife, doing his ADLs and IADLs. His medications include HCTZ, Proscar, Fosamax and Aricept. He fell at home and came to BAMC ER where he was found to have a hip fracture.

Labs notable for:
BUN:Crt 24:1, Hgb 12, Alb 3.8, TSH 4.0
Case Question #1

Which of these statements is correct?

a. His risk of delirium is increased due to his pre-existing dementia.
b. His risk of postoperative delirium is 10%.
c. Postoperative delirium cannot be prevented.
d. Preoperative Haloperidol 0.5 mg BID will decrease his risk of delirium.
Delirium
Delirium: Epidemiology

- 33% of elderly patients presenting to the ER
- Affects up to 50% of patients during their hospital stay, 70-87% of patients in ICUs
- 2-3 million elderly patients/year = 17.5 million inpatient days = $4 billion for Medicare
- Recognition and documentation:
  - RNs < 50%
  - Providers < 20%
Morbidity Associated with Delirium

- In-hospital mortality rates: 22-76%
- 1 year mortality: Up to 40%
- Increased hospital costs and LOS
- Poor functional recovery
  - Often requires institutionalization

<table>
<thead>
<tr>
<th></th>
<th>Delirium Present (n = 64)</th>
<th>Delirium Absent (n = 80)</th>
<th>P values (&lt; 0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of ICU Stay (days)</td>
<td>9.7 +/- 8.0</td>
<td>4.6 +/- 2.1</td>
<td>P &lt; 0.001</td>
</tr>
<tr>
<td>Length of Hospital Stay (days)</td>
<td>16.3 +/- 10.9</td>
<td>7.6 +/- 3.9</td>
<td>P &lt; 0.001</td>
</tr>
<tr>
<td>Cost of Hospitalization ($ in 1000s)</td>
<td>50.1 +/- 33.6</td>
<td>31.6 +/- 14.1</td>
<td>P &lt; 0.001</td>
</tr>
<tr>
<td>Post-Discharge Institutionalization</td>
<td>33%</td>
<td>1%</td>
<td>P &lt; 0.001</td>
</tr>
<tr>
<td>Hospital Mortality</td>
<td>5%</td>
<td>0%</td>
<td>P = 0.086</td>
</tr>
<tr>
<td>30 Day Mortality</td>
<td>9%</td>
<td>1%</td>
<td>P = 0.045</td>
</tr>
<tr>
<td>6 Month Mortality</td>
<td>20%</td>
<td>3%</td>
<td>P = 0.001</td>
</tr>
</tbody>
</table>

### Table 1. Clinical Features and Factors Contributing to Postoperative Delirium in Elderly Surgical Patients

#### Main Clinical Features of Delirium
- Acute onset
- Fluctuating course
- Inattention
- Disorganized thinking
- Alteration in consciousness
- Cognitive deficit (memory, orientation, executive functions)
- Hallucinations (30% of the patients)
- Psychomotor disturbances
- Lethargy (hyposactive delirium)
- Agitation (hyperactive delirium)
- Alteration in the sleep-wake cycle
- Emotional disturbances

#### Factors Contributing to Postoperative Delirium

<table>
<thead>
<tr>
<th>Patient-related factors</th>
<th>Patient-unrelated factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>Use of physical restraint</td>
</tr>
<tr>
<td>Hypoxemia</td>
<td>Cardiac surgery</td>
</tr>
<tr>
<td>Hypercarbia</td>
<td>Central nervous system</td>
</tr>
<tr>
<td>Hypotension</td>
<td>drugs (anesthetics,</td>
</tr>
<tr>
<td></td>
<td>sedatives,</td>
</tr>
<tr>
<td></td>
<td>benzodiazepines,</td>
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<tr>
<td></td>
<td>anticholinergics)</td>
</tr>
<tr>
<td>Sepsis</td>
<td>Sleep deprivation</td>
</tr>
<tr>
<td>Drug withdrawal</td>
<td></td>
</tr>
<tr>
<td>Pre-existing disease</td>
<td></td>
</tr>
</tbody>
</table>

* Included in the confusion assessment method for intensive care unit patients diagnosis scale.³
## Estimating the Risk of Delirium

<table>
<thead>
<tr>
<th>Clinical Criteria</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE ( \geq 70 )</td>
<td>1 point</td>
</tr>
<tr>
<td>H/O ETOH abuse</td>
<td>1 point</td>
</tr>
<tr>
<td>Baseline dementia</td>
<td>1 point</td>
</tr>
<tr>
<td>Severe physical impairment</td>
<td>1 point</td>
</tr>
<tr>
<td>Abnormal preoperative electrolytes or glucose</td>
<td>1 point</td>
</tr>
<tr>
<td>Non-cardiac thoracic surgery</td>
<td>1 point</td>
</tr>
<tr>
<td>AAA surgery</td>
<td>2 points</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Points</th>
<th>Risk of postoperative delirium</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 points</td>
<td>2% risk</td>
</tr>
<tr>
<td>1-2 point</td>
<td>11-32% risk</td>
</tr>
<tr>
<td>( \geq 3 ) points</td>
<td>50% risk</td>
</tr>
</tbody>
</table>

Diagnosis of Delirium (Confusion Assessment Method [CAM])

- Acute Onset
- Fluctuating Course
- Inattention
- Disorganized Thinking
- Altered Level of Consciousness

AND

OR

Sensitivity = 93%
Specificity = 98%

Medications That Can Cause Delirium

- Anticholinergics
- Benadryl (Tylenol PM, Advil PM)
- Sedative hypnotics
- Opioids
- Lithium
- Muscle relaxants
- NSAIDs
- Antibiotics
- H2 Blockers (Zantac)

- Anticonvulsants
- Aricept
- Digoxin
- Beta blockers
- Diuretics
- Sinimet
- Benzodiazepines
- Anti-emetics (Phenergan)
Inpatient Management of Delirium

- Interdisciplinary team
- Reorientation
- Allow for uninterrupted nighttime sleep
- Removal of lines, catheters, restraints
- Discontinue precipitating medications
- Family or a sitter
- Early mobilization

<table>
<thead>
<tr>
<th>Class and Drug</th>
<th>Dose</th>
<th>Adverse Effects</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antipsychotic: Haldol</td>
<td>0.25-1.0 mg PO BID or 0.5-1.0 mg IM x 1</td>
<td>EPS (especially &gt; 3 mg/day)</td>
<td>Avoid IV due to short duration of action.</td>
</tr>
<tr>
<td>Atypical Antipsychotic:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risperidone</td>
<td>0.25 mg BID</td>
<td>EPS</td>
<td>Associated with increased mortality among older patients with dementia.</td>
</tr>
<tr>
<td>Olanzapine</td>
<td>2.5-5.0 mg QD</td>
<td>Prolonged QT</td>
<td></td>
</tr>
<tr>
<td>Quetiapine</td>
<td>12.5-50 mg QD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antidepressant: Trazodone</td>
<td>25-150 mg QHS</td>
<td>Oversedation</td>
<td>Tested only in uncontrolled studies</td>
</tr>
</tbody>
</table>

Case Continued

Col. A undergoes an ORIF and by POD #2, he becomes delirious. Due to his delirium, he is found to be agitated and restless, he has pulled out his IV line and is getting ready to pull out his Foley catheter. He is placed in restraints. He then tries to get out of bed and falls.
Case Question #2

Which of the following is correct?

a. Restraints reduce the risk of injury.

b. Restraints can cause agitation, confusion, decubiti, deconditioning and death.

c. 40% of institutionalized elders fall each year.

d. Vitamin D decreases the risk of falls by 5%/year.
"The restraints are for your own protection, Mr. Norris. We're concerned that if you rung the nurses station once more, they'll starngle you."

Restraints and Falls
Restraint Use

- Loss of dignity and autonomy
- Increased risk of falls
- May cause:
  - Agitation
  - Confusion
  - Decubiti
  - Deconditioning
  - Strangulation
  - Death
Alternative Restraints/”Tethers”

- IV lines
- SCDs
- Nasal cannula
- Foley catheter
- NGT
- PEG
- Bedrails
Restraints and Falls

- Falls
- Serious Falls
- Restraints

Powell, C et al. CMAJ 1989; 141: 561-565
<table>
<thead>
<tr>
<th>Exposure</th>
<th>Cases (n = 228)</th>
<th>Matched Controls (n = 228)</th>
<th>Univariate RR (95% CI)</th>
<th>Multivariate* RR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (≥65)</td>
<td>57.8</td>
<td>50.4</td>
<td>1.2 (0.9–2.0)</td>
<td>1.4 (0.9–2.1)</td>
</tr>
<tr>
<td>Gender, male</td>
<td>49.6</td>
<td>41.2</td>
<td>1.2 (0.9–1.5)</td>
<td>1.4 (0.9–2.1)</td>
</tr>
<tr>
<td>Race, non-white</td>
<td>45.6</td>
<td>43.4</td>
<td>1.0 (0.9–1.3)</td>
<td>1.2 (0.8–1.9)</td>
</tr>
<tr>
<td>Parkinson's disease</td>
<td>0.8</td>
<td>1.3</td>
<td>0.6 (0.1–4.0)</td>
<td>1.0 (0.7–1.6)</td>
</tr>
<tr>
<td>Dementia</td>
<td>10.2</td>
<td>9.3</td>
<td>1.1 (0.6–2.0)</td>
<td>1.0 (0.6–1.5)</td>
</tr>
<tr>
<td>Falls before admission</td>
<td>20.9</td>
<td>14.2</td>
<td>1.5 (0.8–2.8)</td>
<td>0.9 (0.9–1.0)</td>
</tr>
<tr>
<td>Cardiovascular drug at index time</td>
<td>46.0</td>
<td>42.1</td>
<td>1.2 (0.8–1.7)</td>
<td>0.9 (0.6–2.4)</td>
</tr>
<tr>
<td>Psychotropic drug at index time</td>
<td>54.8</td>
<td>36.4</td>
<td>2.4 (1.6–3.7)</td>
<td>2.4 (1.6–3.8)</td>
</tr>
<tr>
<td>Orders for restraints at index time</td>
<td>9.6</td>
<td>2.2</td>
<td>6.7 (2.0–22.4)</td>
<td>6.3 (1.8–22.3)</td>
</tr>
</tbody>
</table>

*Relative risks (RR) adjusted for all other variables in table.

Why Should We Care About Falls?

- Markers for poor health and declining function
- Institutionalization
- Psychological toll
- 25% of all fallers limit their activities
- 50% result in injuries
Epidemiology of Falls

- 33% of community elders fall each year
- 60% institutionalized elderly fall each year
- More than 90% of hip fractures occur as a result of falls
- 16,000 deaths in older Americans are associated with falls each year

FALLER

History & Physical Examination
Timed Get Up & Go Test
Mobility evaluation

Explore & Observe Precipitating Activity

Leg Extension Weakness
- Resistance training
- Quadriceps sets

Poor Balance
- Balance training
  - Widen base of support
  - Shoes
  - Quad cane
  - Walker
- Correct vision
- Correct hearing

Medication Toxicity
- Drug withdrawal
- Drug substitution
- Drug reduction

Hypotension
- Drug reduction
- Behavior change
  - Drug/meal separation
  - Posture
  - Meals
  - Exercises
- Volume
  - Salt
  - Stockings
  - Head of bed elevation
- Pharmacologic, e.g.
  - Fludrocortisone, midodrine

Environmental Safety + Osteoporosis prevention (Ca + Vitamin D)
adapted Lipsitz 1996
Treat Falls with Multi-Disciplinary Approach
Prevention of Falls in Institutions

- Nursing staff education: RR 0.81
- “High risk” labels or bracelets: RR 0.94
- Bed alarms: RR 0.32
- Miscellaneous:
  - Location closer to nursing station, floor lights
  - Avoiding physical restraints
  - Fall Precautions Protocol

Gillespie, LD et al. Cochrane Database Review 2009 (2): CD 000340
On post-op day #3, Col. A is now having significant pain. He is still delirious and nobody wants to give him pain medication due to the concern of worsening confusion.

PE notable for BP 160/95, P 105, RR 24. He appears somnolent, but uncomfortable, and moans when moved.
Case Question #3

Which is the appropriate next step?

a. Get him out of bed and begin mobilization with PT
b. Start scheduled opioids
c. Give only PRN opioids
d. Give Haldol 0.5 mg IV x 1 now
Pain management
Difficulties in Pain Management

- Assessing an elderly patient
- Medication side effects
- Older patients are less likely to complain
- Poor pain control leads to:
  - Increased LOS
  - Decreased functional status even two months after discharge
Physiological Effects of Undertreating Pain

- Increased catabolic demand
- Impaired healing
- Impaired respiratory effort
- Impaired mobility

- Increased sympathetic stimulation
- Decreased immune responsiveness
- Increased Na and water retention
Psychological Effects of Undertreating Pain

- Depression
- Insomnia
- Delirium
- Anxiety
- Anger
- Hopelessness
- Suffering
Wong-Baker Faces Pain Scale

0 = VERY HAPPY, NO HURT
1 = HURTS JUST A LITTLE BIT
2 = HURTS A LITTLE MORE
3 = HURTS EVEN MORE
4 = HURTS A WHOLE LOT
5 = HURTS AS MUCH AS YOU CAN IMAGINE

(Don’t have to be crying to feel this much pain)
## Checklist of Nonverbal Pain Indicators (CNPI)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>With Movement</th>
<th>At Rest</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vocal Expressions:</strong> Moans, grunts, cries, gasps</td>
<td>0 = none 1 = evident</td>
<td>0 = none 1 = evident</td>
</tr>
<tr>
<td><strong>Facial Expression:</strong> Wincses, grimace, tight lips, clenched teeth, furrowed brow</td>
<td>0 = none 1 = evident</td>
<td>0 = none 1 = evident</td>
</tr>
<tr>
<td><strong>Bracing:</strong> Clutching or holding onto side rails, bed tray, table, painful area</td>
<td>0 = none 1 = evident</td>
<td>0 = none 1 = evident</td>
</tr>
<tr>
<td><strong>Restlessness:</strong> Shifting position, hand movements, unable to keep still</td>
<td>0 = none 1 = evident</td>
<td>0 = none 1 = evident</td>
</tr>
<tr>
<td><strong>Rubbing:</strong> Touching, holding, rubbing or massaging affected area</td>
<td>0 = none 1 = evident</td>
<td>0 = none 1 = evident</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>0-5</strong></td>
<td><strong>0-5</strong></td>
</tr>
</tbody>
</table>
Decreasing pain

Multimodality:
- Opioids
- Non-opioids
- Non-pharmacologic

Use of a consistent pain scale

Avoid Meperidine*

Opioid addiction in the elderly is rare!

* Increases the risk of delirium
# Opioid Choice

<table>
<thead>
<tr>
<th>OPIOID</th>
<th>DOSING</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>1-4 mg IV q2-4 hrs</td>
<td>Best choice</td>
</tr>
<tr>
<td></td>
<td>MS Contin 15 mg BID</td>
<td>Beware in pts with renal/hepatic dysfunction</td>
</tr>
<tr>
<td>Tylenol #3</td>
<td>1-2 tabs q4-6 hr</td>
<td>Most CONSTIPATING</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>5 mg q4-6 hr</td>
<td>Use scheduled dose if pain is anticipated to continue</td>
</tr>
<tr>
<td>Oxycontin</td>
<td>10 mg Q12hr</td>
<td></td>
</tr>
<tr>
<td>Vicodin</td>
<td>1-2 tabs q4-6 hr</td>
<td>Elixir has less Acetaminophen</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>25 mcg patch q3d</td>
<td>Long acting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Takes about 3 days to achieve steady state</td>
</tr>
</tbody>
</table>
By the time of discharge, Col. A is able to walk with a walker independently, he can shave himself and dress, but needs help bathing. He can no longer self-administer medications or cook meals. He no longer feels comfortable driving.
Case Question #4

What is the next appropriate management step?

a. Discharge to sub-acute rehabilitation
b. Discharge home with home health services
c. Discharge to long term care facility
d. Discharge home without home health services
Transitions of Care

- Hospital admission is just the FIRST transition of care.
- Decline in functional ability:

35%
Factors Associated with Functional Decline

- Age > 85
- Gait instability
- Malnutrition
- Cognitive impairment
- Lower pre-admission functional status
- Depression

Prevention of In-Hospital Complications
Comprehensive Geriatric Assessment (CGA)

- Functional
- Cognitive
- Social
- Emotional
- Medical
- Physical (gait)
Benefits of Inpatient CGA

- Increased rates of patients living at home
- Decreased rates of functional decline
- Increased use of home services
- Improved patient satisfaction
- Decreased rates of LTC placement
Inpatient Models to Minimize Functional Decline

ACE (Acute Care of the Elderly) Units
- Safe, homelike physical environment
- Patient-Family centered care
- Immediate discharge planning
- Dedicated staff with expertise in aging
- Interdisciplinary teamwork
- Ongoing medication review

Table 2. Recommendations for Modification of Physical and Functional Environment

<table>
<thead>
<tr>
<th>Ambulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low beds without rails</td>
</tr>
<tr>
<td>Carpeting</td>
</tr>
<tr>
<td>Encouragement and assistance</td>
</tr>
<tr>
<td>Minimization of “tethers”</td>
</tr>
<tr>
<td>Reality orientation</td>
</tr>
<tr>
<td>Clocks</td>
</tr>
<tr>
<td>Calendars</td>
</tr>
<tr>
<td>Dressing and undressing</td>
</tr>
<tr>
<td>Communal dining</td>
</tr>
<tr>
<td>Increased sensory stimulation</td>
</tr>
<tr>
<td>Proper lighting and decorating</td>
</tr>
<tr>
<td>Attention to glasses and hearing aids</td>
</tr>
<tr>
<td>Newspapers and books</td>
</tr>
<tr>
<td>Available recreation</td>
</tr>
<tr>
<td>Functional change</td>
</tr>
<tr>
<td>Primary care concept</td>
</tr>
<tr>
<td>Team management</td>
</tr>
<tr>
<td>Interdisciplinary rounds</td>
</tr>
<tr>
<td>Sharing of objectives</td>
</tr>
<tr>
<td>Family participation</td>
</tr>
<tr>
<td>Early discharge planning</td>
</tr>
</tbody>
</table>

ACE Cards® Check List to Improve the Hospital Care of the Elderly

**Prevent Problems:** Critically review the necessity of all tests/procedures.

**Pressure Ulcers:** Ambulate; avoid “bed rest” order. Correct nutrition restrictions. Turn q 2 hrs. if bedridden.

**Delirium:** Assess cognitive function. Bring in glasses/hearing aide/items from home. Keep hydrated p.o.

**Immobility/Falls:** Prescribe assist device; physical therapy. Order acute rehab therapy consult. Walk with assist. (Else, consider DVT prophylaxis.)

**Functional Decline:** Define baseline ADLs. Increase activity level. Avoid restraint and catheters.

**Constipation:** Provide prune juice/power pudding. Provide stool softener.

**Undernutrition:** Review serum albumin. Consider nutrition consult; supplement. Could medications contribute to anorexia?

**Depersonalization:** Music, pictures, food from home. Encourage visitors, stuffed animals. Chaplain visit (hospice care).

**History:** Collaborate data with family; nursing staff. Define goals of care. Define Advanced Directives. Assess for pain. Define baseline functional status ADLs.


**Data Collection:** Review vital signs, intake/output, daily weight, diet intake, bowel movement. Review the medication cardex; How does it compare to Rx prior to admit? Could problems be caused by the Rx? Should any Rx be stopped? Add multiple vitamin. Review therapy notes (PT/OT/speech). Review social service note (living situation/support). Review dietitian notes; lab data changes.

**Communicate:** Talk with the nurse to assess status; discuss goals and anticipated discharge. Update family of anticipated discharge plans or change in status.
Inpatient Models to Minimize Functional Decline

- HELP (Hospital Elder Life Program)
  - Orientation
  - Sleep
  - Early mobilization
  - Vision and hearing
  - Dehydration
- Decreased delirium from 26%-8%
- Decreased functional decline

HELP Reduces Delirium

Goals of Hospital Care in the Elderly

- Understand that the elderly are at unique risk for hospital complications
- Identify the vulnerable/frail elder on admission
- Minimize complications by anticipation and prevention
- Discharge to the same level of care
Goals in Post-operative Care

- Avoidance of delirium
- Avoidance of complications
- Avoidance of restraints
- Minimize falls
- Improve pain control
- Prevent functional decline
- Discharge to prior level of independence
“The hospitalization, not the illness, may be the deciding factor in the functional ability of the frail, elderly at discharge.”

Norman Boyer, MD, 1986