Best Practice Guidelines for the Preoperative Assessment of the Older Adult: Implications for the Nurse Practitioner

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Sinai Hospital
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1. Based on a case presentation, analyze factors influencing preoperative assessment of the older surgical patient.

2. Discuss perioperative strategies that may be used to optimize care processes and improve outcomes in older surgical patients.

3. List the 5 elements of the Fried Frailty phenotype assessment that may be used to predict potential postoperative complications in the older surgical patient.
What is “Old”?****
# Definition of “Old”

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicare</td>
<td>65</td>
</tr>
<tr>
<td>National Institute of Aging (NIA)</td>
<td>65</td>
</tr>
<tr>
<td>Social Security</td>
<td>66+</td>
</tr>
<tr>
<td>Physicians, NPs, PAs, Nurses and Staff</td>
<td>One year older than I am</td>
</tr>
</tbody>
</table>
Chronological vs Functional Age

70+ year olds bike across US


Who would you predict has the better ability to tolerate surgery?
Surgery in the Older Adult

• Most people 65 years of age are healthy enough to tolerate major surgery

• Surgical intervention requires health screening and preoperative assessment
Advancing age should not preclude a person from a surgical intervention.

Consider each older adult as unique.
Impact of Hospitalization on the Older Surgical Patient

- Hospitalization often represents a pivotal event in the life of an older person.

- Loss of function and independence represent frequent and unfortunate outcomes.
I. The clinical presentation of surgical problems in the older patient may be subtle or different from that of the general population. This may lead to a delay in diagnosis.

II. The older person handles stress well but severe stress poorly due to lack of organ system reserve.

III. Optimal preoperative preparation and attention to detail are essential. When preparation is not optimal the perioperative risk of surgery dramatically increases.
IV. The results of elective surgery in the older patient are reproducibly good; the results of emergency surgery are poor though still better than nonoperative treatment for most conditions.

V. Scrupulous attention to detail intraoperatively and perioperatively is of great benefit, as the older patient tolerates complications poorly.

VI. The results of elective surgery in the older patient are good and do not support prejudice against advanced age. Chronological age is not a contraindication to surgery.
Goals of a Geriatric Preoperative Assessment

• Early detection of the needs of the older adult.
• Identification of high risk events or potential problems not detected by routine history and physical examination.
• Implementation of preventive measures or interventions.
• Communication of information to all health care providers.
Assessment Tools

- Cognition assessment
- Decision making capacity
- Depression screen
- CAGE screening test for alcohol
- Cardiac and Pulmonary Evaluation
  - Patient-related risk factors
  - Surgery-related risk factors
- Functional assessment
  - ADLs
  - Timed Up and Go
Assessment Tools - con’t

- Frailty Index
- Nutritional assessment
- Hearing evaluation
- Medication review
- Patient Counseling
- Advanced Directives
- Charlson Comorbidity Index Score
- Fall Risk screen
- Performance status
- Risk Factors for Postoperative Delirium
Case Presentation

- 81 y/o male
- Chops wood daily
- Left lower lobe cancer
- Referred for surgical consult
Case Presentation

PMH/PSH

- Type II DM x 5 years
- CAD with CABG in 1985 ★14 stents in his heart
- Hyperlipidemia
- BPH
- Bilateral inguinal hernia repair
- Hemorrhoidectomy
- Bilateral cataract surgery

No known allergies

- Social: married; 2 sons living; daughter deceased; retired fire fighter; other odd jobs
- 68-pack-year smoking—stopped 1982
- Denies alcohol or drugs
- Family: father died age 63 of lung cancer; mother died age 94 of “old age”; 2 brothers deceased (one of dementia); sister died of complications of diabetes
Case Presentation

ROS:

- Active, vigorous, tanned gentleman

PE: T=97.6; P=55; R=20; Ht=68 cm; Wt=88.8 kg; O2 sat+94%
- Nonproductive cough
- Blood glucose fingersticks normal or slightly elevated
- Chronic low back pain
- Healed sternotomy scar
- Mild anemia

Medications

- Glyburide/metformin 1.25/250 twice a day
- Isosorbide 60 mg daily
- Toprol XL 50 mg daily
- Norvasc 10 mg daily
- Lipitor 20 mg daily
- Plavix 75 mg daily
- Aspirin 81 mg daily
- Vitamin D 400 units daily
- Multivitamins
- Fish oil
Studies

- Pulmonary function tests -- normal
- CT scan of brain -- negative
- PET scan 3.8 SUV in mass --- no evidence of metastatic disease
Plan

• Proposed thoracic surgery
• Family discussion
• Cardiac clearance
• To be seen in PreAnesthesia Screening Services (PASS)
• Geriatric Preoperative Assessment
Geriatric Preoperative Assessment
Cognition

Does the patient have the capacity to make a treatment decision?

Four components to assessing capacity

1. Understands the relevant information about surgery
2. Appreciate their situation
3. Uses reason to make a decision
4. Communicates their choice

Mini- Cog Assessment

3 Word Recall
- Recall = 0
- Recall = 1-2
- Recall = 3

Clock Draw
- Any Result
- Abnormal
- Normal

Evidence of Cognitive Impairment?
- Yes
- No

2 words

*Denotes abnormal result
The person undergoing testing is asked to:

- Draw a clock
- Put in all the numbers of the clock
- Draw the hands at ten minutes to two

## Patient Health Questionnaire-2 (PHQ-2)

1. In the past 12 months, have you ever had a time when you felt sad, blue, depressed, or down for most of the time for at least two weeks?
2. In the past 12 months, have you ever had a time, lasting at least two weeks, when you didn’t care about the things that you usually cared about or when you didn’t enjoy the things that you usually enjoyed?

### Interpretation of PHQ-2

If the patient answers YES to either question, then further evaluation is needed.

### Note

Note: This screening test has not been validated in extremely frail elderly patients, those with severe concurrent medical illnesses, are suffering from medication side effects, or those with impaired communication skills.

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Screen for Alcohol and Substance Abuse

• Modified version of CAGE
  - Have you ever felt you should Cut down on your drinking or drug use?
  - Have people Annoyed you by criticizing your drinking or drug use?
  - Have you ever felt bad or Guilty about your drinking or drug use?
  - Have you ever had a drink or drug first thing in the morning (Eye-opener) to steady your nerves or to get rid of a hangover?

# Pulmonary Evaluation

## Risk Factors for Postoperative Pulmonary Complications

### Patient-related Factors
- **Age > 60**
- **COPD**
- **ASA class II or greater**
- Functional dependence
- **CHF**
- Obstructive Sleep Apnea
- Pulmonary hypertension
- Cigarette use
- **Impaired sensorium**
- Preoperative sepsis
- Weight loss > 10% in 6 mo
- **Serum albumin < 3.5 mg/dL**
- **BUN > 21 mg/dL**
- **Serum creatinine > 1.5 mg/dL**

### Surgery-related Factors
- Prolonged operation > 3 hours
- **Surgical site**
- Emergency operation
- **General anesthesia**
- Perioperative transfusion
- Residual neuromuscular blockade after surgery

### NOT Risk Factors
- Obesity
- Well-controlled asthma
- Diabetes


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**How many steps can you climb?** 15
American Society of Anesthesiologist (ASA) Grading Classification system for assessing the fitness of patients before surgery

<table>
<thead>
<tr>
<th>Grade</th>
<th>ASA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A normal healthy patient</td>
</tr>
<tr>
<td>2</td>
<td>A patient with mild systemic disease (that does not limit activity)</td>
</tr>
<tr>
<td>3</td>
<td>A patient with severe systemic disease (limits activity, but not incapacitating)</td>
</tr>
<tr>
<td>4</td>
<td>A patient with severe systemic disease that is a constant threat to life</td>
</tr>
<tr>
<td>5</td>
<td>A moribund patient who is not expected to survive with or without the operation</td>
</tr>
</tbody>
</table>

Saklad M. Grading of patients for surgical procedures. Anesthesiology 1941; 2:281-4
Assess patient’s ability to perform ADLs.

1. Can you get out of bed or chair yourself? Yes
2. Can you dress and bathe yourself? Yes
3. Can you make your own meals? Yes
4. Can you do your own shopping? Yes

Note: Patient’s responses may not be reliable in the presence of cognitive Impairment or dementia.
Timed Up and Go Test

- Person sits in a standard arm chair
- Begin timing:
  - Rises from standard arm chair
  - Walks to line on floor
    - 10 foot length
  - Turns and walks back to chair
  - Sits in chair—End timing

Normal time is 12 seconds or less

13 seconds


Frailty Assessment

APPENDIX III. Frailty Score

FRAILTY SCORE

PATIENT RECEIVES ONE POINT FOR EACH CRITERION (0−3)

<table>
<thead>
<tr>
<th>Frailty Criteria</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Weight loss</td>
<td>Unintentional weight loss ≥10 pounds in the past year.</td>
</tr>
<tr>
<td>Decreased grip strength</td>
<td>Grip strength in the lowest 20th percentile by gender and BMI. Three trials are performed with a hand-held dynamometer and the average value is used.</td>
</tr>
<tr>
<td>(Weakness)</td>
<td></td>
</tr>
<tr>
<td>Exhaustion</td>
<td>For the following two statements:</td>
</tr>
<tr>
<td></td>
<td>* &quot;I felt that everything I did was an effort.&quot;</td>
</tr>
<tr>
<td></td>
<td>* &quot;I could not get going.&quot;</td>
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<td></td>
<td>The patient is asked: &quot;How often in the last week did you feel this way?&quot;</td>
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<td></td>
<td>0 = rarely or none of the time (&lt;1 day)</td>
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<td>1 = some or a little of the time (1−2 days)</td>
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<td></td>
<td>2 = a moderate amount of the time (3−4 days)</td>
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<tr>
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<td>3 = most of the time</td>
</tr>
<tr>
<td></td>
<td>The criterion is met if patient answers 2 or 3 to either statement.</td>
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<tr>
<td>Low physical activity</td>
<td>Weekly energy expenditure, determined with the short version of the Minnesota Leisure Time Activities Questionnaire (see Taylor et al.12) in the lowest 20th percentile by gender:</td>
</tr>
<tr>
<td>Slowed walking speed</td>
<td>Walking speed in the lowest 20th percentile by gender and height. Time is measured for a distance of 15 feet at normal pace. The average of three trials is used.</td>
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## APPENDIX III. Frailty Score

### Frailty Score\(^{89,93}\)

**Patient receives one point for each criterion (0–5)**

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<tr>
<td></td>
<td><strong>Men</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Women</strong></td>
</tr>
<tr>
<td>BMI</td>
<td>Kg Force</td>
</tr>
<tr>
<td>≤24</td>
<td>≤29</td>
</tr>
<tr>
<td>24.1–26</td>
<td>≤30</td>
</tr>
<tr>
<td>26.1–28</td>
<td>≤30</td>
</tr>
<tr>
<td>&gt;28</td>
<td>≤32</td>
</tr>
<tr>
<td></td>
<td>BMI</td>
</tr>
<tr>
<td>≤23</td>
<td>≤17</td>
</tr>
<tr>
<td>23.1–26</td>
<td>≤17.3</td>
</tr>
<tr>
<td>26.1–29</td>
<td>≤18</td>
</tr>
<tr>
<td>&gt;29</td>
<td>≤21</td>
</tr>
<tr>
<td>Exhaustion</td>
<td>For the following two statements:</td>
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<tr>
<td></td>
<td>• “I felt that everything I did was an effort.”</td>
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<td></td>
<td>The criterion is met if patient answers 2 or 3 to either statement.</td>
</tr>
<tr>
<td>Low physical activity</td>
<td>Weekly energy expenditure, determined with the short version of the Minnesota Leisure Time Activities Questionnaire (see Taylor et al.(^{119})) in the lowest 20th percentile by gender:</td>
</tr>
<tr>
<td></td>
<td><strong>Men:</strong> ≤383 kcal/week. <strong>Women:</strong> ≤270 kcal/week.</td>
</tr>
<tr>
<td>Slowed walking speed</td>
<td>Walking speed in the lowest 20th percentile by gender and height. Time is measured for a distance of 15 feet at normal pace. The average of three trials is used.</td>
</tr>
<tr>
<td></td>
<td><strong>Men</strong></td>
</tr>
<tr>
<td>Height</td>
<td>Time</td>
</tr>
<tr>
<td>≤173 cm</td>
<td>≥7 sec</td>
</tr>
<tr>
<td>&gt;173 cm</td>
<td>≥6 sec</td>
</tr>
<tr>
<td></td>
<td><strong>Women</strong></td>
</tr>
<tr>
<td>Height</td>
<td>Time</td>
</tr>
<tr>
<td>≤159 cm</td>
<td>≥7 sec</td>
</tr>
<tr>
<td>&gt;159 cm</td>
<td>≥6 sec</td>
</tr>
</tbody>
</table>

# Frailty Assessment

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Definition</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shrinkage</td>
<td>Unintentional weight loss ≥ 10 pounds in past year</td>
<td>No</td>
</tr>
<tr>
<td>Weakness</td>
<td>Decreased grip strength - Dynanometer</td>
<td>Yes</td>
</tr>
<tr>
<td>Exhaustion</td>
<td>Self-reported poor energy and endurance</td>
<td>No</td>
</tr>
<tr>
<td>Low physical activity</td>
<td>Low weekly energy expenditure</td>
<td>Yes</td>
</tr>
<tr>
<td>Slowness</td>
<td>Slow walking</td>
<td>4.3 sec/WNL</td>
</tr>
</tbody>
</table>

**Interpretation of the Frailty Score**

- The patient receives 1 point for each criterion met.
- 0-1 = Not Frail
- 2-3 = Intermediate Frail (Pre-frail)
- 4-5 = Frail

Grip Strength
## Screening for Severe Nutritional Risk

### Risk Factors for Severe Nutritional Risk

- BMI < 18.5 kg/m²
- Serum albumin <3.0 g/dL (with no evidence of hepatic or renal dysfunction)
- Unintentional weight loss >10% -15% within 6 months

### Interpretation of Nutritional Screening

If YES to any above criterion, then the patient is at severe nutritional risk and should, if feasible, undergo a full nutritional assessment by a dietician to design a perioperative nutritional plan to address deficits.

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Hearing Screen

- Check for wax in the ears
- Use of hearing aids
- Frequency screening-using audioscope

Bilateral cerumen impaction

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>20dB HL</th>
<th>40dB HL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right ear</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Left ear</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

A positive screen results when patient unable to hear TWO of four frequencies tested.
Medication Management

• Review and document the patient’s complete medication lists:
  – Including use of nonprescription (over-the-counter, NSAIDs, vitamins, eye drops, topical)
  – Herbal products
• Identify medications that should be:
  – Discontinued prior to a surgical operation
  – Avoided
• Minimize adverse effects of medications through dose reduction or substitution
# Preoperative Labs/Tests

## Recommended for **All** Geriatric Surgical Patients
- Hemoglobin
- Renal Function Tests (BUN, Cr)
- Serum Albumin

## Recommended for **Selected** Geriatric Surgical Patients
- WBC
- Platelet Count
- Coagulation Tests (PT, aPTT)
- Electrolytes
- Serum Glucose
- Urinalysis
- Chest Radiograph
- Electrocardiogram
- Pulmonary Function Tests
- Noninvasive Stress Testing
**Charleson Comorbidity Index**

Concurrent, independent health condition which may be a predictor of survival and resource requirements

*Age adjusted score = 7*

<table>
<thead>
<tr>
<th>Condition</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Myocardial Infarction</td>
<td>Hemiplegia</td>
</tr>
<tr>
<td>Congestive Heart Failure</td>
<td>Moderate/Severe renal disease</td>
</tr>
<tr>
<td>Peripheral Vascular Disease</td>
<td>Diabetes with organ damage</td>
</tr>
<tr>
<td>Cerebrovascular Disease</td>
<td><strong>Any tumor</strong></td>
</tr>
<tr>
<td>Dementia</td>
<td>Leukemia</td>
</tr>
<tr>
<td>Chronic Obstructive Pulmonary Disease</td>
<td>Lymphoma</td>
</tr>
<tr>
<td>Ulcer disease</td>
<td>Moderate/Severe liver disease</td>
</tr>
<tr>
<td>Mild liver disease</td>
<td>Metastatic solid tumor</td>
</tr>
<tr>
<td><strong>Diabetes</strong></td>
<td>AIDS</td>
</tr>
</tbody>
</table>

Falls Risk Screen

- Has the patient fallen in the past 6 months? Yes
- If the patient has fallen, did he or she hurt themselves? Yes
- Has any of the patient’s medications changed in the past month? No
Advance Directive/MOLST

*Advance Directive
- Yes
- Yes, patient does not want to provide for this admission
- No, educational information provided
- N/A Patient under 18 and not an emancipated minor
- Unable to obtain due to pt. cond. and/or family not present

Patient Wishes to Receive Further Information on Advance Directives
- Yes
- No

Type of Advance Directive
- Living will
- Medical durable power of attorney
- Written healthcare instructions
- Maryland EMS Do Not Resuscitate (DNR)
- Maryland EMS Medical Care Order
- Other:

Medical Durable Power of Attorney
Name & Phone Number

Surrogate Name & Phone Number

Reason Copy Cannot Be Obtained
- Patient agrees; no changes requested.
- Do not use Advance Directive; contact surrogate for instructions.
- Patient requests changes; new form provided.
- Unable to validate due to pt. condition and/or family not present.

Location of Advance Directive
- NW Patient - Copy obtained from previous records
- SHB Patient - Copy obtained from previous records
- NW Patient - Scanned copy obtained from EMR
- SHB Patient - Scanned copy obtained from EMR
- Copy placed on paper chart
- Family to bring in copy from home
- Unable to obtain copy
- Other:

Validation of Existing Advance Directive - Northwest ONLY
- Patient agrees; no changes requested.
- Do not use Advance Directive; contact surrogate for instructions.
- Patient requests changes; new form provided.
- Unable to validate due to pt. condition and/or family not present.

SINAI ONLY - If copy obtained from previous records, follow current paper process for validation of Advance Directives.

Does the Patient have a MOLST? (Medical Orders for Life Sustaining Treatment)
- Yes
- No

Location of MOLST
- Copy placed on paper chart
- Family to bring in copy from home
- Unable to obtain copy
- Other:

SINAI ONLY - Selecting Yes will trigger a Care Management Follow-up.
**Example:**

Eastern Cooperative Oncology Group (ECOG) Performance Status

<table>
<thead>
<tr>
<th>Grade</th>
<th>ECOG</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Fully active, able to carry on all pre-disease performance without restriction</td>
</tr>
<tr>
<td>1</td>
<td>Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work</td>
</tr>
<tr>
<td>2</td>
<td>Ambulatory and capable of all selfcare but unable to carry out any work activities. Up and about more than 50% of waking hours</td>
</tr>
<tr>
<td>3</td>
<td>Capable of only limited selfcare, confined to bed or chair more than 50% of waking hours</td>
</tr>
<tr>
<td>4</td>
<td>Completely disabled. Cannot carry on any selfcare. Totally confined to bed or chair.</td>
</tr>
<tr>
<td>5</td>
<td>Dead</td>
</tr>
</tbody>
</table>
# Psychosocial Issues

## Living Situation
- Independent
- **Living with family**
- Nursing Home
- Assisted Living
- Rehabilitation facility
- Other

## Quality of Health/Life
- What is your overall quality of health?
- What is your overall quality of life?
  - **Excellent = both questions**
  - Very good
  - Good
  - Fair
  - Poor

"Health is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity."
Risk Factors for Postoperative Delirium

- Cognitive impairment and dementia
- Depression
- Alcohol use
- Sleep deprivation
- **Severe illness/comorbidities**
- Renal insufficiency
- **Anemia**
- Hypoxia
- Poor nutrition
- Dehydration
- Electrolyte abnormalities
- Poor functional status
- Immobilization
- **Hearing/vision impairment**
- Age $\geq$ 70 years
- Polypharmacy and use of psychotropic medications
- **Risk of urinary retention or constipation, presence of urinary catheter**
Other Assessments

Activities of Daily Living

- Independent
- Partial assistance
- Total assistance
- Other

Estimated Creatinine Clearance 61.4 ml/min
Other Assessments

• Oral/Dental evaluation
  – Questions
  – Physical examination
  – Picture documentation

• Tobacco use

• Pinch grip assessment
“There are only four kinds of people in the world:
those who have been caregivers
those who currently are caregivers
those who will be caregivers
those who will need caregivers.”

Rosalynn Carter
Zarit Caregiver Burden Interview

1. Do you feel that your relative asks for more help than he/she needs?

2. Do you feel that because of the time you spend with your relative you don't have enough time for yourself?

3. Do you feel stressed between caring for your relative and trying to meet other responsibilities for your family or work?

4. Do you feel embarrassed over your relative's behavior?

5. Do you feel angry when you are around your relative?

6. Do you feel that your relative currently affects your relationship with other family members or friends a negative way?

7. Are you afraid what the future holds for your relative?

8. Do you feel your relative is dependent on you?

9. Do you feel stressed when you are around your relative?

10. Do you feel your health has suffered because of your involvement with your relative?

11. Do you feel that you don't have as much privacy as you would like because of your relative?

12. Do you feel that your social life has suffered because you are caring for your relative?

13. Do you feel uncomfortable about having friends over because of your relative?

Scoring

0-20—little or no burden
21-40—mild to moderate
41-60—moderate to severe
61-88—severe burden

Wife
14-little or no burden
Nursing “Gestalt” or Eyeball Test
Surgical Risk - 0 (Low) to 10 (High)

Pre Assessment Impression ------ 5
Post Assessment Impression ----- 5
J.C. and Family
Follow-up of J.C.

- **Surgery**
  - Flexible bronchoscopy, mediastinoscopy with biopsy, left thoracotomy, left lower lobectomy and mediastinal node dissection

- **Postoperative Course**
  - ICU for one night
  - Acute urinary retention – Foley reinserted
  - Experienced “some confusion”
  - Foley removed, narcotic pain med d/c
  - Discharged to home POD 5 (3)
Follow-up of J.C.

- **Clinic Follow-up**
  - Doing well from surgery
    - Pathology: 2.5 cm invasive well-differentiated adenocarcinoma LLL for aT2a N0 M0 or stage-IB, KRAS mutated adenocarcinoma
  - Referred back to medical oncology
    - No chemotherapy recommended at this time

- **To Date**
  - 10 months postop—severe chest pain → Redo CABG
  - F/U CT scan at one year—recurrent lung cancer
    - Chemotherapy
    - Last note 9/2014—stable but poor performance status
Key Factors Contributing to Decision Making for Surgery

- Age
- Organ Function
- Psychological Status
- Polypharmacy
- Finances
- Literacy
- Spiritual
- Culture
- Social Support
- Nutrition
- Cognition
- Functional Status

Individual’s Treatment Decision
Implications for the NP

- Ability to plan preoperative patient-centered interventions
- Improve postoperative outcomes
- Ability to start discharge planning at preoperative assessment
- Provide information to PCP
- Assess caregiver involvement
- Provide quality care