UNIVERSITY OF SOUTH FLORIDA
GERIATRIC WORKFORCE ENHANCEMENT PROGRAM (GWEP)
FACULTY DEVELOPMENT MASTERWORKS SERIES

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Making Life Better®
OCCAM’S RAZOR REVISITED: MEDICATION, MENTATION, AND MOBILITY- GERIATRIC SYNDROMES

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USF GWEP PRESENTATION
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PRESENTATION OBJECTIVES:

After this presentation, the participant will be able to:

- Define a Geriatric Syndrome
- Describe the interaction between medications, mentation, and mobility in older adults
- Formulate a rationale for a “geriatric approach” to evaluation and management of the older adult post fall
OCCAM’S RAZOR

• The law of parsimony

• Among competing hypotheses, the one with the fewest assumptions should be selected

• In medicine- when diagnosing a given injury, ailment, illness, or disease a doctor should strive to look for the fewest possible causes that account for all the symptoms

• "when you hear hoofbeats, think horses, not zebras"
OCCAM’S RAZOR

- “Plurality must not be posited without necessity”
- Law of Parsimony of Diagnosis
DEFINITION: “SYNDROME”

- a group of symptoms that together are characteristic of a specific disorder, disease, or the like
- the pattern of symptoms that characterize or indicate a particular condition
  - Ex.: Parkinson’s Syndrome, Cushing’s Syndrome, Congestive Heart Failure
AGING

1. Physiologic changes of aging
   - diminished *reserve* capacity of organs and organ systems

2. Cumulative effects of trauma, (wear and tear) over time
   - Chemical, mechanical, physical
   - Oxidative damage
   - Mitochondrial DNA mutations

3. Accumulation of residual effects of acute and chronic diseases
AGING

- Diminished homeostatic reserve capacity of all organ systems called **homeostenosis**
- In the absence of significant stressors, homeostenosis causes no symptoms and very few restrictions on routine activities
- Progressive risk of homeostatic failure with increasing age
"Oxidative stress" leads to:

- Decreased antioxidant and scavenging capacity
- Increased intracellular reactive oxygen metabolites
- Damage to membranes, proteins, and genetic integrity
- Loss of tissue and organ functional reserve
- Decreased bioenergetic capacity
- Increased susceptibility to disease, infection and injury
- Increased probability of death
GERIATRIC SYNDROME

“Geriatric Syndromes are multifactorial health conditions that occur when the accumulated effects of impairments in multiple systems renders a person vulnerable to situational challenges.”

Tinetti, Williams and Gill; Dizziness among Older Adults: A Possible Geriatric Syndrome; Ann Intern Med. 2000;132:337 - 344
# Geriatric Syndromes

- Dementia
- Delirium
- Depression
- Polypharmacy
- Urinary Incontinence
- Gait Disturbances/Falls
- Dizziness
- Hearing Impairment
- Visual Impairment
- Osteopenia/osteoporosis
- Eating Problems
- Malnutrition
- Pressure Ulcers
- Sleep Problems
- Frailty
GERIATRIC SYNDROME CHARACTERISTICS

- Multifactorial etiologies
- Common risk factors among the syndromes
- Intimate association with functional impairment /decline
- Association with increased morbidity and mortality
Characteristic: Multifactorial Etiology

- Malnutrition
- Geriatric Syndrome
- Medications (Anticonvulsants, benzodiazepines, Digoxin, metformin, etc)
- Poor Oral Health
- Periodontal Disease
- Arthritis
- Impaired Dexterity
- Immobility
- Congestive Heart Failure
- Na restriction
- Anorexia
- Fatigability
- Sarcopenia
- Muscle Protein
- Muscle Strength
- Depression
- Anhedonia
- Social Isolation
- Eating Alone
- Poor mealtime ambience
- Economics
- Low income
- No glasses
- No dentures
- Poor Vision
- Can’t read labels or recipes
- Medications (Anticonvulsants, benzodiazepines, Digoxin, metformin, etc)
GERIATRIC SYNDROMES

Malnutrition

Incontinence

Falls

FUNCTIONAL DECLINE
CONSIDER A CASE

• Mrs. A, a 78 year old woman presents to the emergency room having been brought in by EMS after being found on the floor outside of her bathroom by her daughter.

• ER evaluation show that she has sustained a right inter-trocanteric fracture of the femur.

• What do you do now?
MRS. A PROBLEM LIST

- HTN
- DM 2
- Osteoporosis
- Osteoarthritis
- Memory loss
- Anxiety
- Insomnia
- Stress urinary incontinence, chronic
# MRS. A MEDICATION LIST

<table>
<thead>
<tr>
<th>RX</th>
<th>OTC</th>
</tr>
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<tbody>
<tr>
<td>- Metformin 1000mg BID</td>
<td>- Naproxen 500mg BID prn joint pains</td>
</tr>
<tr>
<td>- Glyburide 5mg QAM</td>
<td>- Tylenol PM qhs for sleep</td>
</tr>
<tr>
<td>- Lisinopril 10mg QAM</td>
<td>- Vitamin D 2000 U daily for bone health</td>
</tr>
<tr>
<td>- Diazepam 10mg BID</td>
<td>- Aspirin 325mg daily for heart health</td>
</tr>
<tr>
<td>- Donepezil 5mg daily</td>
<td>- Co Q10 200mg daily for heart health</td>
</tr>
<tr>
<td>- Oxybutinin 10mg BID</td>
<td>- Ginko biloba and ginseng because Dr. Oz says they are good for you</td>
</tr>
</tbody>
</table>
MRS. A ADMISSION VITALS/LABS

- BP 112/56, P 80, RR 16, T 98.2
- Hgb/Hct 10.6/31
- Urinalysis: + ketones, + blood, +1 bacteria
- BUN 40
- Creatinine 1.42
STANDARD MEDICAL APPROACH

- Continue home med list, except DM meds- switch to SSI
- Cardiac clearance for ORIF
- Monitor post-op pain control
- Treat the bacteriuria with antibiotic
- Watch for delirium
- Discharge to SNF for rehab
LET’S RECONSIDER……

• Why did Mrs. A fall?
GERIATRIC SYNDROME

FALL

- ARTHRITIC KNEES
- ORTHOSTATIC HYPOTENSION
- THROW RUGS
- URGE INCONTINENCE
- MEDICATIONS
- DIABETES
WHAT SHOULD BE ADDRESSED- MEDICATIONS

- Chronic long-acting benzodiazepine
- Multiple anticholinergics (oxybutynin, diphenhydramine)
- Glyburide- excessive risk of hypoglycemia
- Aspirin dose
- NSAID use
- Unnecessary OTCs
WHAT SHOULD BE ADDRESSED - MENTATION

- Why is she taking donepezil, low dose?
- Does she have Alzheimer's dementia?
- Delirium?
- Is she safe living alone?
WHAT SHOULD BE ADDRESSED- MOBILITY

- Does she have diabetic neuropathy?
- How does her osteoarthritis affect her gait/balance?
- Does she have/need/use an assistive device? Is it appropriate?
- Does she exercise regularly?
HICKAM’S DICTUM

- Patients can have as many diseases as they d#$*$ well please.
GERIATRICISED MEDICAL APPROACH

- Evaluate Geriatric Syndromes
  - Incontinence ameliorated; Bedside commode ordered
  - Get-up-and-Go: PT and Rx of appropriate assistive devise
  - Cognition evaluated, MoCA 25/30
  - Anti-hypertensive treatment modified; orthostatic hypotension reduced
  - Next fall averted, fracture prevented