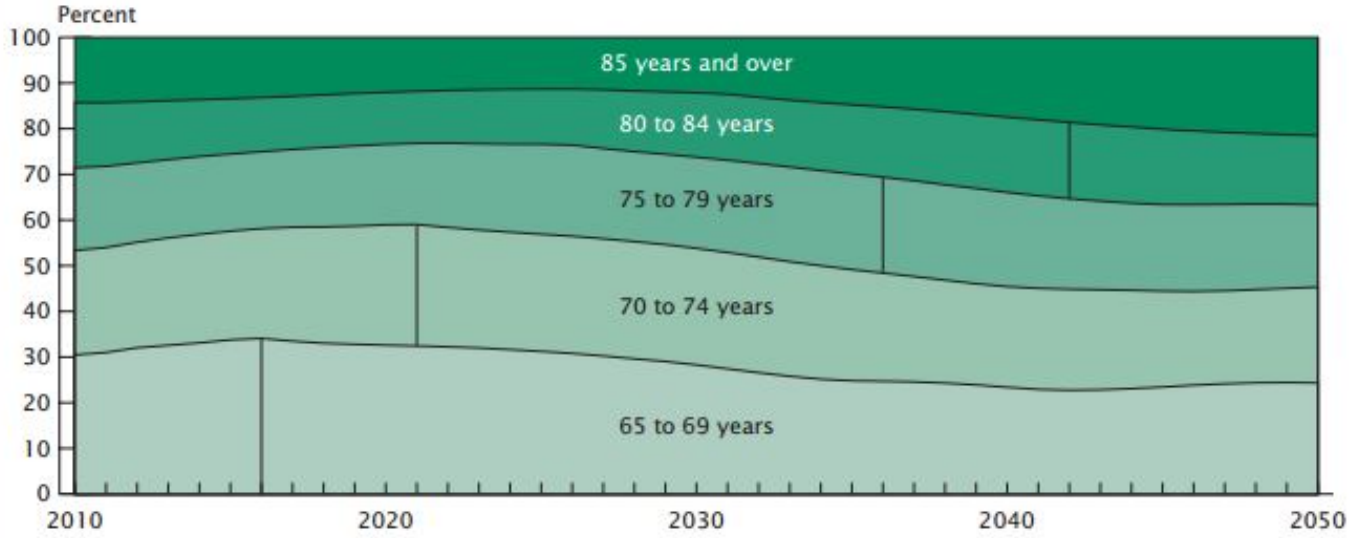
Common Acquired Hospital Complications of the Older Adult

HRSA GERIATRIC WORKFORCE ENHANCEMENT FUNDED PROGRAM Grant #U1QHP2870

Background

Older Adult Population

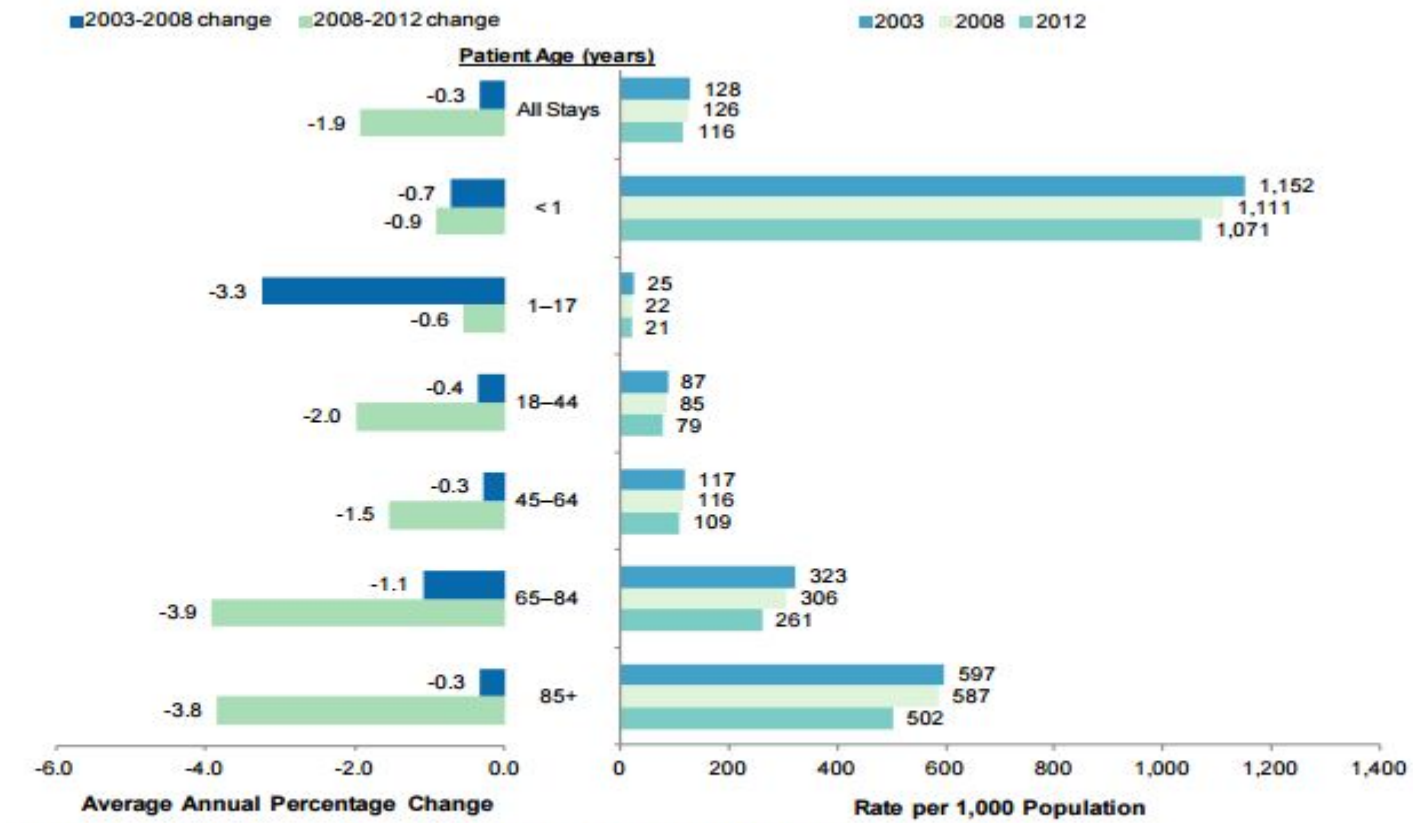
Figure 3.
Distribution of the Projected Older Population by Age for the United States: 2010 to 2050



Note: Line indicates the year that each age group is the largest proportion of the older population.
Source: U.S. Census Bureau, 2008.

(Reprinted, Vincent & Velkoff, 2010, p. 4)

U.S. Hospitalization Rates by Age



Note: Data from 2008 were used as end points in both the 2003–2008 and the 2008–2012 analyses.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), National (Nationwide) Inpatient Sample (NIS), 2003, 2008, 2012

(Reprinted: Weiss & Elixhauser, 2014, p. 9)

Acknowledgements

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Learning Objectives

Upon completion of this module, learners will be able to:

1. List complications commonly experienced by hospitalized older adults
2. Identify the role that providers and the interprofessional team have in caring for hospitalized older adults and preventing complications
3. Identify risk factors that increase the “revolving door syndrome” and complications of hospitalizations in older adults
4. Identify the stages and causes of pressure injuries

Acute Care and the Older Adult

Acute Care and the Older Adult

Hospitalization and Readmission Rates ("Revolving Door Syndrome")

- Readmitted to the hospital within 30 days of being discharged
- 19.6% of Medicare patients were readmitted to hospital within 30 days of being discharged
- 34% within 90 days of discharge
- 56.1% within one year of discharge
- Readmissions within 30 days accounted for $15 billion in Medicare spending
- Medicare spending account for 14% of the GDP in 2014
- Totaling an estimated $597 billion
  - 23% of which was spent for inpatient services

(Jencks et al., 2009)

The "Revolving Door"

- To access the variation in readmissions rates in the U.S. for Medicare patients visit The Robert Wood Johnson Foundation and review *The Revolving Door: A Report of Hospital Readmissions* (2013)
  - http://www.rwjf.org/en/library/research/2013/02/the-revolving-door--a-report-on-u-s--hospital-readmissions.html

(Robert Wood Johnson Foundation, 2013)

Iatrogenesis

- Refers to adverse events that occur as injury or illness as a result of medical care
  - These adverse events occur from the diagnosis, intervention, or omission involving a reasonable clinical standard and result in outcomes worse than what would be expected as a natural consequence
- Occurs disproportionately in older adults
  - The risk of iatrogenesis in persons over 65 years is twice as high as that of a younger person
- On the next slide is an image illustrating some of the impacts hospitalization can have upon older adults

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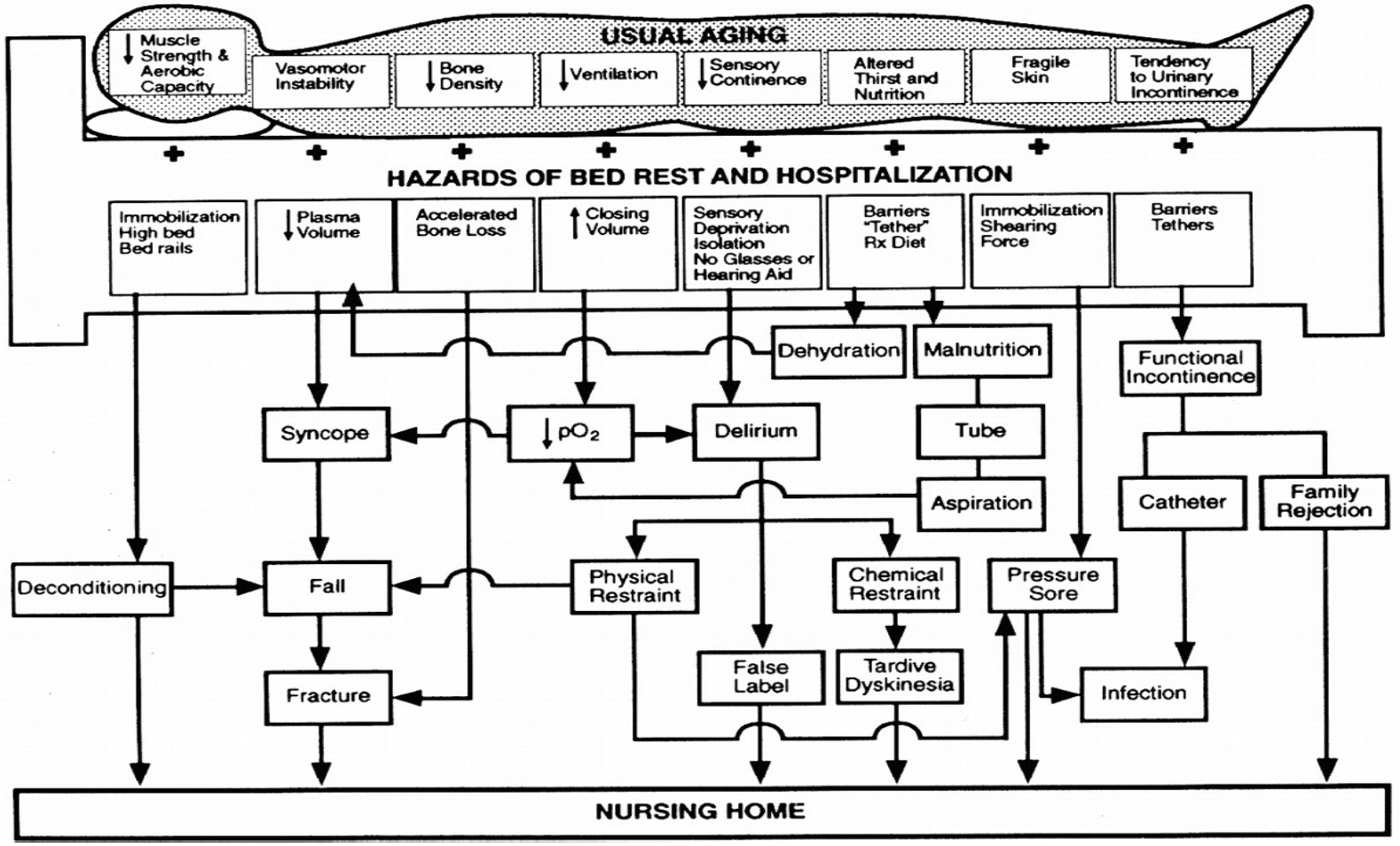
(Barr & Kaufman, 2014)

Effect of Hospitalization on Older Adults

- Cascade iatrogenesis is when one adverse event begins a series of such events

(Barr & Kaufman, 2014)



(Creditor, 1993)

Five Common Complications Among Older Adults

- Functional decline
- Delirium
- Falls
- Pressure injuries
- Medication adverse effects

(iLuque, et al., 2016)

Functional Decline

Effects of Immobility from Bed Rest

- Among older adults who are hospitalized, functional decline can occur in a matter of days
- Bed rest causes a muscle loss rate of 1-1.5% daily
- Most rapid changes take place in the lower extremities
- Loss of strength results in increase in falls among older adults

(Saunders, 2015)

Predictors of Function Decline

- Increasing age
- Low Mini-Mental State Examination (MMSE) score or cognitive impairment
  - Score of less than 24 increases the risk of functional decline
- Low pre-admission score on Independent Activities of Daily Living (IADL)
- Patient's hospital admission risk profile
- The higher the patient's risk, with indicators such as frailty and vulnerability, the more likely that she or he will experience functional decline

(Stenholm et al., 2015)

Functional Decline

Outcomes

- Prolonged hospital length of stay
  - Longer the older adult stays in the hospital, the greater their functional decline (Bo et al., 2016)
- Many older patients experience a decline in baseline activities of daily living (ADL) from time of admission to time of discharge (Reichardt et al., 2016)

Functional Decline: Prevention

- Upon admission:
  - Assess functional status of the older adult, includes ADLs and IADLs
  - Determine risk factors they have that may result in functional decline and mitigate the risks
  - The older adults should be reassessed regularly during the acute hospitalization to identify any status changes

Functional Decline: Prevention

- Interprofessional collaboration:
  - *Referral Cue: Physical Therapy (PT) consult can identify the patients' strengths and limitations and work on maintaining strength and independence*
  - Consider early discontinuation of equipment (when possible) that may be restricting mobility
  - Address patient safety
  - Educate the patient on the importance of early ambulation and the consequences of immobility

Functional Decline: Prevention

- Staff should encourage and support the patient to perform all ADLs to the extent of their ability
- *Referral Cue: Collaboration with occupational therapists can assist patients in addressing their limitations*
- Facilitate early discontinuation of equipment that restrict mobility (catheters, IV lines, oxygen tubing)
- Encourage patients to perform ADLs to the extent of their ability

Assessment Question 1

Mr. Cubios was recently hospitalized due to a case of community-acquired pneumonia. His symptoms include shortness of breath, cough and chest pain.

Should the attending physician order bed rest for Mr. Cubios?

Assessment Question 1

a) Yes, Mr. Cubios should rest as much as possible and remain in bed until he is able to walk without shortness of breath
b) Yes, Mr. Cubios should be on bed rest until the course of antibiotics is complete
c) No, Mr. Cubios should be mobile; bed rest causes muscle loss at the rate of 10% weekly, which leads to functional decline
d) Yes, Mr. Cubios should remain on bed rest until his chest X-ray shows resolution of the pneumonia

Assessment Question 1: Answer

a) Yes, Mr. Cubios should rest as much as possible and remain in bed until he is able to walk without shortness of breath

b) Yes, Mr. Cubios should be on bed rest until the course of antibiotics is complete

c) No, Mr. Cubios should be mobile; bed rest causes muscle loss at the rate of 10% weekly, which leads to functional decline (Correct Answer)

d) Yes, Mr. Cubios should remain on bed rest until his chest X-ray shows resolution of the pneumonia

Assessment Question 2

***Match* the health provider to the statement that best describes his/her role in preventing hospital acquired complications among older adults:**

Match	
Occupational therapists	Have a critical role in predicting pressure injury risk
Physical therapists	Contribute to prevention of functional decline by providing problem solving strategies to increase participation in ADLs, IADLs and other valued activities
Nurses	Have an important role in preventing medication adverse events
Pharmacists	Contribute to prevention of functional decline by providing exercise interventions

Assessment Question 2: Answer

Correct Matches	
Nurses	Have a critical role in predicting pressure injury risk
Occupational therapists	Contribute to prevention of functional decline by providing problem solving strategies to increase participation in ADLs, IADLs and other valued activities
Pharmacists	Have an important role in preventing medication adverse events
Physical therapists	Contribute to prevention of functional decline by providing exercise interventions

Delirium

Defining Delirium

- One of the five most common complications amongst older adults
- Common clinical syndrome characterized by inattention and acute cognitive dysfunction
- A disturbance of consciousness with inattention, accompanied by a change in cognition or perceptual disturbance that develops over a short period of time (usually hours to days) and fluctuates over time (DSM)

Delirium

Incidence

- On presentation to emergency department, delirium is present in:
  - 8-17% of all older adults (Inouye et al., 2014)
  - 40% of nursing home residents (Inouye et al., 2014)
- Delirium incidence during hospitalization is 6-56% (Inouye, 2006)
- Post-op delirium occurs 15-52% and 75% of patients after cardiac surgery (Inouye, 2006; Saczynski et al., 2012)

Outcome

- There is a five times increased risk of mortality within six months for older adults admitted to post-acute care with delirium (Marcantonio et al., 2005)

A Comparison of DSM-5 and DSM-IV Criteria for Delirium

DSM-5	DSM-IV	Comments
A. A disturbance in attention (i.e., reduced ability to direct, focus, sustain, and shift attention) and awareness (reduced orientation to the environment)	**A.** Disturbance of consciousness (i.e., reduced clarity of awareness of the environment) with reduced ability to focus, sustain or shift attention	The cardinal criterion for DSM-5 and DSM-IV includes both inattention and reduced awareness of the environment. Although attention and awareness are important components of normal consciousness, they do not fully represent it. The suggestion that orientation to the environment indicates awareness is new to DSM-5

A Comparison of DSM-IV and DSM-5 Criteria for Delirium

DSM-5	DSM-IV	Comments
B. The disturbance develops over a short period of time (usually hours to a few days), represents a change from baseline attention and awareness, and tends to fluctuate in severity during the course of a day	**C.** The disturbance develops over a short period of time (usually hours to days) and tends to fluctuate during the course of the day	Change from baseline is noted only in DSM-5 as this relates to attention and awareness

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A Comparison of DSM-IV and DSM-5 Criteria for Delirium

DSM-5	DSM-IV	Comments
C. An additional disturbance in cognition (e.g., memory deficit, disorientation, language, visuospatial ability, or perception)	**B.** A change in cognition or the development of a perceptual disturbance that is not better accounted for by a pre-existing, established or evolving dementia	DSM-5 lists examples of other affected cognitive domains with perception. Change from baseline for other cognitive domains is noted in DSM-IV

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A Comparison of DSM-IV and DSM-5 Criteria for Delirium

DSM-5	DSM-IV	Comments
D. The disturbances in Criteria A and C are not better explained by a pre-existing, established or evolving neurocognitive disorder and do not occur in the context of a severely reduced level of arousal, such as coma	**B.** A change in cognition or the development of a perceptual disturbance that is not better accounted for by a pre-existing, established or evolving dementia	Unlike DSM-IV, DSM-5 criteria specifically excludes coma from being labeled as delirium but suggests that where reduced arousal impairs ability to engage with cognitive testing that this can be deemed evidence of severe inattention. Both exclude dementia as the primary cause of the disturbance while DSM-5 more broadly includes other neurocognitive disorders besides dementia

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A Comparison of DSM-IV and DSM-5 Criteria for Delirium

DSM-5	DSM-IV	Comments
E. There is evidence from the history, physical examination or laboratory findings that the disturbance is a direct physiological consequence of another medical condition, substance intoxication or withdrawal, or exposure to a toxin, or is due to multiple etiologies	**D.** There is evidence from the history, physical examination or laboratory findings that the disturbance is caused by the direct physiological consequences of a general medical condition	DSM-5 has a broader list of etiological types

Note: Adapted to allow direct item comparison from DSM-IV (Meagher et al., 2014; APA, 1994; APA, 2013)

Delirium Types

Agitated Delirium

- Hyperactive, excitable, restless, picking at bedclothes, or irritable

Hypoactive Delirium

- Lethargic, apathetic, sluggish, unaware, and develop sparse or slow speech

Mixed Delirium

- A combination of both agitated and hypoactive delirium

Risk Factors

Modifiable Risk Factors
Sensory impairment
Immobilization
Medications
Neurological disease
Metabolic derangement
Surgery
Pain

Non-Modifiable Risk Factors
Dementia
Advancing age (>65 years of age)
History of delirium
Stroke
Male sex
Multiple comorbidities

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Modifiable Risk Factor: Medication-Induced

- Medication-induced delirium in 11-30% of cases
  - Medications with anticholinergic effects are the most common cause of delirium

(Moore & O'Keefe, 1999)

Modifiable Risk Factor: Medication-Induced

Additional Resources	Link
Beers List (2015)	http://geriatricscareonline.org/ProductAbstract/american-geriatrics-society-updated-beers-criteria-for-potentially-inappropriate-medication-use-in-older-adults/CL001 (American Geriatrics Society, 2015. Accessed September 9, 2016)
STOPP	http://www.ncbi.nlm.nih.gov/pubmed/18218287 (Gallagher P et al., 2008. Accessed September 9, 2016)
START	http://ageing.oxfordjournals.org/content/36/6/632.abstract (Barry PJ, et al., 2007. Accessed September 9, 2016)

Delirium: Assessment Tool

The Confusion Assessment Method (CAM) Tool

- Sensitivity of 94-100%
- Specificity of 90-95%
- Significantly correlates with the Mini-Mental Status Examination, Visual Analog Scale for Confusion, and the Digit Span Test

(Inouye, 2006)

Delirium: Assessment Tool

CAM Includes Two Parts

- Part One: Assessment instrument that screens for overall cognitive impairment
- Part Two: The four features found to have the greatest ability to distinguish delirium or reversible confusion from other types of cognitive impairment
  - https://www.healthcare.uiowa.edu/igec/tools/cognitive/CAM.pdf

(Inouye, 2006)

Tips for Managing Delirium in the Hospitalized Older Adult

- Avoid physical restraints
- Reduce potential causes, such as metabolic disturbances, sedative and analgesic meds, infection, and withdrawal
- Avoid offending medications, such as morphine, anticholinergics, neuroleptics, and benzodiazepines
- Use specific medications for delirium; use low doses and follow delirium and alcohol withdrawal guidelines
- Treat pain [not discussed in the film]
- Anticipate evening/nighttime agitation [not discussed in the film]

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Tips for Managing Delirium in the Hospitalized Older Adult Expert Interview: Lalitha Dileep-Ansal, MD

Listen to Our Expert Discuss:

- Prevention includes trying to have a familiar face at the hospital bedside
  - Try to reorient the patient frequently
  - Try to minimize disruptions at night allowing them to get a good night's rest
  - Minimize disruptions into their daily routine
  - Have a sitter at the bedside, who should be someone that they are seeing day-to-day

Delirium: Prevention

- 30-40% of delirium cases are preventable
- The Hospital Elder Life Program (HELP)
  - http://www.hospitalelderlifeprogram.org
  - Innovative strategy of hospital care for elderly patients
  - Uses tested delirium prevention strategies to improve overall quality of hospital care

(Siddiqi et al., 2006)

Delirium: Prevention

The Hospital Elder Life Program (HELP) (Continued)

- Includes the following:
  - Maintaining orientation to surroundings
  - Meeting needs for nutrition, fluids, and sleep
  - Promoting mobility within the limitations of the patient's physical condition
  - Providing visual and hearing adaptations for patients with sensory impairments

(Siddiqi et al., 2006)

Delirium: Prevention

For a comprehensive training module, see the ENGAGE-IL module

"Depression and Delirium of the Older Adult" at engageil.com

Assessment Question 3

Mr. Cubios presents to the hospital with several risk factors. Which of the statements below accurately links the risk factor to the hospital acquired complication it is associated with as described in this module?

a) Delirium is associated with pain, metabolic derangement and immobilization

b) Pressure injury is associated with increased mobility, increased friction, and increased sensation

c) Falls are associated with prior history of falls, infrequent urination, and renal failure

d) Functional decline is associated with male sex, memory related disease and delayed onset of a neurological condition

Assessment Question 3: Answer

Mr. Cubios presents to the hospital with several risk factors. Which of the statements below accurately links the risk factor to the hospital acquired complication it is associated with as described in this module?

a) **Delirium is associated with pain, metabolic derangement and immobilization (Correct Response)**

b) Pressure injury is associated with increased mobility, increased friction, and increased sensation

c) Falls are associated with prior history of falls, infrequent urination, and renal failure

d) Functional decline is associated with male sex, memory related disease and delayed onset of a neurological condition

Falls

Falls in Acute Care

Falls

- Falls are the leading cause of injury-related morbidity and mortality for older adults, resulting in direct medical costs of $30 billion (Stevens et al., 2006)
- Each year, 700,000 – 1,000,000 hospitalized patients fall
- Clinicians working with older adults must be well trained in falls

Fall Assessment

For a comprehensive training module, see the ENGAGE-IL module

"Preventing Falls Among Community-Dwelling Older Adults" at engageil.com

Falls in Acute Care

Injury

- Although much research exists on fall risk assessment and fall prevention in acute care inpatient settings, relatively little research specifically addresses factors that predispose the patient to injury from falls
- Though most hospitals use assessment tools to predict fall risk, few hospitals assess risk of injury from a fall and target interventions based on a fall injury risk assessment
- 30% of falls result in injury
- Consequences include hip fractures, soft tissue injuries, decline in functional abilities, traumatic pain syndromes, developing a fear of falling, and increased mortality (Alekna et al., 2015)

Falls in Acute Care

Injury (Continued)

- Johns Hopkins Nursing Evidence-Based Practice: Model and Guidelines (Copyrighted)
  - Assessment of fall injury risk factors and implementation of appropriate interventions were found to decrease serious injury from falls in the adult acute care setting
    - http://www.hopkinsmedicine.org/evidence-based-practice/jhn_ebp.html

Falls in Acute Care

Injury (Continued)

- Cvach & Dawson
- Three falls injury risk categories:
  - Advanced age (over 80 years)
  - Bleeding risk
  - Fracture risk
- Only patients in the high risk for falls and positive injuries risk categories would require an attendant for supervision

Assess: Risk for Fall

Multifactorial Assessment Includes:

- Focused history
- Physical examination
- Functional assessment
- Environmental assessment

- Clinician or multidisciplinary team with the appropriate skills or training should perform the multifactorial fall risk assessment

(AGS and BGS, 2011)

Assess Risk for Falls: Fall Assessment Tool

Risks	Points
History of fall	1 point
Agitation present	1 point
Visual impairment	1 point
Frequent urination	1 point
Poor mobility or transferability	1 point

Score:

- 0-1 points: 2.4 to 4.1% risk of fall
- 2-5 points: 42 to 65% risk of fall

(Oliver et al., 1997)

Assess Fall Injury

Fall Injury Assessment

- NDNQI-National Database of Nursing Quality Indicators
- The primary outcomes are categorized as one of the following:
    - None
    - Minor: Resulted in application of a dressing, ice, cleaning of a wound, limb elevation, or topical medication
    - Moderate: Resulted in suturing, application of butterfly stitches, skin glue, or splinting

Assess Fall Injury

- The primary outcomes are categorized as one of the following (continued):
  - Major: Resulted in surgery, casting, traction, or required consultation for neurologic or internal injury
  - Death: The patient died as a result of injuries sustained from the hospital fall, but not from the physiologic events causing the fall

Preventing Falls in the Community
STEADI-Based Assessment Resources

Algorithm for Fall Risk Assessment and Interventions http://www.cdc.gov/steadi/pdf/algorithm_2015-04-a.pdf	The Provider Pocket Guide, an easy-to-use tool that walks health care providers through key points of fall prevention http://www.cdc.gov/steadi/pdf/preventing_falls_in_older_patients_provider_pocket_guide_2015-a.pdf
The Fall Risk Checklist: A checklist that allows health care providers to summarize an older patient's fall risk http://www.cdc.gov/steadi/pdf/fall_risk_checklist-a.pdf	Simple evidence-based balance and gait tests http://www.cdc.gov/steadi/materials.html

Preventing Falls in the Community
STEADI-Based Assessment Resources

The *Stay Independent* brochure: includes a 12-question self-assessment http://www.cdc.gov/steadi/pdf/stay_independent_brochure-a.pdf • Includes the instructions: "Add up the number of points for each 'yes' answer. If you scored 4 points or more, you may be at risk for falling. Discuss this brochure with your doctor."	Provider training materials, including instructional videos http://www.cdc.gov/steadi/pdf/case_study_1-a.pdf
	Referral forms targeting both clinical specialists and community programs http://www.cdc.gov/steadi/materials.html

Preventing Falls in a Hospital Setting

- Frequent staff education
- Tools to assess high fall risk and high risk for injury
- Individualized care plan for high-risk patients
- Sitters for patients with delirium
- Quality improvement techniques to monitor and reduce falls

Pressure Injuries

“Pressure Injuries” Replaces “Pressure Ulcers”

- A pressure injury is an injury to the skin and/or underlying tissue, usually over a body prominence, as a result of pressure, or pressure in combination with shear and/or friction
- Four stages of increasing degree of skin and tissue damage (Stage 1, Stage 2, Stage 3 and Stage 4) and measures of “unstageable pressure injuries” and “deep tissue pressure injuries”

Pressure Injuries (PIs)

- 2.5 million people in U.S. develop pressure injuries each year
- Pressure injuries are a major health issue, with serious health complications, including death
  - 33% of ICU patients with full thickness PIs will die within 30 days of onset and 73% die within one year

(AHRC, 2014)

Pressure Injuries are Serious Reportable Events (SREs)

- The National Quality Forum (NQF) has identified 29 serious reportable events SREs (2011)
- Serious Reportable Events (SREs) are severe, largely preventable, hospital-acquired conditions

(National Quality Forum, 2011)

Pressure Injuries: Serious Reportable Events

- Hospital SREs are no longer reimbursed
- Report includes “care management events” such as any Stage 3, Stage 4, and unstageable pressure injuries acquired after admission or presentation to a healthcare setting
- Following practice guidelines and quality improvement initiatives indicate that it is possible to reduce the incidence of pressure injuries by 50%

(National Quality Forum, 2011)

National Guidelines

- The Agency for Healthcare Research and Quality (AHRQ) has established evidence-based clinical practice guidelines for pressure ulcer (PU)* prevention
- The National Pressure Ulcer Advisory Panel (NPUAP) has also established guidelines
  - http://www.npuap.org/
- Note: AARQ has not updated to the new term pressure injury as of November 2016 [not in narration]

Pressure Injuries: Contributing Factors

External Contributing Factors
Pressure
Friction
Moisture
Incontinence
Shear

(National Quality Forum, 2011)

Pressure Injuries: Contributing Factors

Intrinsic Contributing Factors
Malnutrition
Dehydration
Impaired mobility
Chronic conditions
Impaired sensation or paralysis
Decreased level of consciousness (LOC)
Infection Advancing age Steroid use Present or a history of PI

(National Quality Forum, 2011)

Braden Scale: Predicting Pressure Injury Risk: Sensory Perception

Braden Scale for Predicting Pressure Injury Risk	
Sensory perception	Ability to respond meaningfully to pressure related discomfort
1. Completely limited	Unresponsive (does not moan, flinch, or grasp) to painful stimuli, due to diminished level of consciousness or sedation OR limited ability to feel pain
2. Very limited	Responds only to painful stimuli; cannot communicate discomfort except by moaning or restlessness OR has a sensory impairment which limits the ability to feel pain or discomfort over ½ of body

(Bergstrom et al., 1987)

Braden Scale: Sensory Perception

Braden Scale for Predicting Pressure Injury Risk	
3. Slightly limited	Responds to verbal commands, but cannot always communicate discomfort or the need to be turned OR has some sensory impairment which limits ability to feel pain or discomfort in 1 or 2 extremities
4. No impairment	Responds to verbal commands; has no sensory deficit which would limit ability to feel or voice pain or discomfort

(Bergstrom et al., 1987)

Braden Scale: Moisture

Braden Scale for Predicting Pressure Injury Risk	
Moisture	Degree to which skin is exposed to moisture
1. Constantly moist skin	Kept moist almost constantly by perspiration, urine, etc.; dampness is detected every time patient is moved or turned
2. Very moist skin	Often, but not always moist; linen must be changed at least once a shift
3. Occasionally moist skin	Occasionally moist, requiring an extra linen change approximately once a day
4. Rarely moist skin	Usually dry, linen only requires changing at routine intervals

(Bergstrom et al., 1987)

Braden Scale: Activity

Braden Scale for Predicting Pressure Injury Risk	
Activity	Degree of physical activity
1. Bedfast	Confined to bed
2. Chairfast	Ability to walk severely limited or non-existent; cannot bear own weight and/or must be assisted into chair or wheelchair
3. Walks occasionally	Walks occasionally during day, but for very short distances, with or without assistance; spends majority of each shift in bed or chair
4. Walks frequently	Walks outside room at least twice a day and inside room at least once every two hours during waking hours

(Bergstrom et al., 1987)

Braden Scale: Mobility

Braden Scale for Predicting Pressure Injury Risk	
Mobility	Ability to change and control body position
1. Completely immobile	Does not make even slight changes in body or extremity position without assistance
2. Very limited	Makes occasional slight changes in body or extremity position, but unable to make frequent or significant changes independently
3. Slightly limited	Makes frequent though slight changes in body or extremity position independently
4. No limitation	Makes major and frequent changes in position without assistance

(Bergstrom et al., 1987)

Braden Scale: Nutrition

Braden Scale for Predicting Pressure Injury Risk	
Nutrition	Usual food intake pattern
1. Very poor	Never eats a complete meal; rarely eats more than ⅓ of any food offered; eats 2 servings or less of protein (meat or dairy products) per day; takes fluids poorly; does not take a liquid dietary supplement OR is NPO and/or maintained on clear liquids or IVs for more than 5 days
2. Probably inadequate	Rarely eats a complete meal and generally eats only about ½ of any food offered; protein intake includes only 3 servings of meat or dairy products per day; occasionally will take a dietary supplement OR receives less than optimum amount of liquid diet or tube feeding

(Bergstrom et al., 1987)

Braden Scale: Nutrition

Braden Scale for Predicting Pressure Injury Risk	
3. Adequate	Eats over half of most meals; eats a total of 4 servings of protein (meat, dairy products) per day; occasionally will refuse a meal, but will usually take a supplement when offered OR is on a tube feeding or TPN regimen which probably meets most of nutritional needs
4. Excellent	Eats most of every meal; never refuses a meal; usually eats a total of 4 or more servings of meat and dairy products; occasionally eats between meals; does not require supplementation

(Bergstrom et al., 1987)

Braden Scale: Friction and Shear

Braden Scale for Predicting Pressure InjuryRisk	
1. Problem	Requires moderate to maximum assistance in moving; complete lifting without sliding against sheets is impossible; frequently slides down in bed or chair, requiring frequent repositioning with maximum assistance; spasticity, contractures or agitation leads to almost constant friction
2. Potential problem	Moves feebly or requires minimum assistance; during a move skin probably slides to some extent against sheets, chair, restraints or other devices; maintains relatively good position in chair or bed most of the time but occasionally slides down
3. No apparent problem	Moves in bed and in chair independently and has sufficient muscle strength to lift up completely during move; maintains good position in bed or chair

(Bergstrom et al., 1987)

Braden Scale: Predicting Pressure Injury Risk

- *Referral Cue: Nurses have a critical role in predicting pressure injury risk*

Pressure Injury Assessment, Diagnosis, and Treatment

- The National Pressure Ulcer Advisory Panel and European Pressure Ulcer Advisory Panel

The Classification System

- Stages: Increasing degrees of skin and tissue damage
  - Stage 1: Non-blanchable erythema of intact skin
  - Stage 2: Partial-thickness skin loss with exposed dermis
  - Stage 3: Full-thickness skin loss
  - Stage 4: Full-thickness skin and tissue loss

Pressure Injury Assessment, Diagnosis, and Treatment

Qualitative Descriptors

- Deep Tissue Pressure Injury: Persistent non-blanchable deep red, maroon, or purple discoloration
- Unstageable Pressure Injury: Obscured full-thickness skin and tissue loss

Pressure Injury Assessment, Diagnosis, and Treatment

- Clinician should include in the assessment:
  - Pressure injury staging class
  - Size measurement
  - Undermining or tunneling
  - Base tissues
  - Exudate
  - Status of the edge or perimeter
  - Pain
  - Infection

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Pressure Injury Assessment, Diagnosis, and Treatment

- Ankle-brachial index for comparison of perfusion pressures
- Pulse volume recording to determine perfusion volume
- Doppler waveforms to determine single vessel flow
- Duplex imaging which is ultrasound imaging for venous disease
- Transcutaneous oxygen pressure ($TcPO_2$)

Pressure Injury Assessment, Diagnosis, and Treatment

Protect the Wound and Periwound Skin

- Barrier products to protect from adhesives and moisture
- Change dressings at appropriate intervals to avoid pooling of exudates

Debridement

- To remove nonviable tissue and growth medium
- Controls or prevents infection
- Defines extent of PI
- Stimulates healing

Pressure Injury Assessment, Diagnosis, and Treatment

- Types of wound dressings determined by:
  - Cause of wound
  - Size of wound
  - Base of wound
  - Exudates

Pressure Injury Assessment, Diagnosis, and Treatment

- Wound dressing products: Antimicrobial, barrier, alginates, collagen, composite products, compression wraps, foams, gauze, hydrocolloids, hydrofiber, hydrogels, NaCl-impregnated dressings, petrolatum-impregnated dressings, transparent films
- Negative pressure wound therapy: Vacuum-Assisted Closure (VAC) system
- Surgical repair: Variety of types of reconstruction

Pressure Injury: Keys To Prevention

- Identify those at risk
- Manage chronic illnesses
- Minimize pressure, friction, shear
- Purchase assistive durable medical equipment (DME)
- Promote increased activity
- Provide adequate nutrition and hydration
- Manage incontinence
- Educate patient/caregiver

Pressure Injury: Management and Prevention

Risk: Impaired Mobility

- Proper size/fit wheelchair to avoid pressure points!
- Order bariatric size for persons > 250 pounds
- Wheelchair cushions are also very useful

Pressure Injury: Management and Prevention

Risk: Pressure

- Managing Pressure:
  - Off-load heels: use pillows, positioning boot, heel protectors
  - Use pillow between legs for side lying
  - Do not position directly on hip bone
  - Do not use doughnut-type devices
  - Reposition every two hours and as needed [not discussed in the film]

Pressure Injury

Risk: Friction and Shear

- Use bed trapeze
- Hospital bed:
  - Keep head of bed elevated 30 degrees
  - Elevate foot of bed slightly
- Use pillows or a wedge to support hip for side-lying
- Order lifts and transfer devices
- *Referral Cue: Remember that physical therapists are experts in durable medical equipment (DME)*

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Enhancement of Geriatric Care for All

Assessment Question 4

***Match* the stage of pressure injury with the correct description:**

Match	
Stage 2	Non-blanchable erythema
Stage 3	Partial-thickness skin loss
Stage 4	Full-thickness skin loss
Stage 1	Full-thickness tissue loss

Assessment Question 4: Answer

CORRECT MATCHES

Correct Matches	
Stage 1	Non-blanchable erythema
Stage 2	Partial-thickness skin loss
Stage 3	Full-thickness skin loss
Stage 4	Full-thickness tissue loss

Medication Adverse Effects

Medication Adverse Effects

- Polypharmacy not clearly defined
  - Clinical cut-offs reported as >5 or >10 medications
- Polypharmacy should be measured according to:
  - Age
  - Morbidity
  - Other population characteristics

Medication Adverse Effects

- > 10 medications may be considered “excessive polypharmacy”
- > 5 or more medications considered polypharmacy (Jyrkka et al., 2011)
- Use of 6.5 – 3.5 medications associated with
  - Frailty
  - Disability
  - Mortality
  - Falls (Jyrkka et al., 2011)

Medication Adverse Effects

- Polypharmacy as defined by number of medications may be a useful indication for medication review in older adults, however it may not be clinically useful or associated with adverse outcomes such as:
  - Functional impairment
  - Institutionalization
  - Mortality

Medication Adverse Effects

- Factors which affect adverse effects:
  - Exposure to specific pharmacologic drug classes such as:
    - Anticholinergics
    - Sedatives
  - Total medication exposure
  - Drug-drug interactions
  - Medication adherence
- Threshold for experiencing adverse events depends on co-morbidities and other individual characteristics

Preventing Medication Adverse Events

- At admission: complete medication list, including over-the-counter products
- When prescribing to older adults:
  - Benzodiazepines should be titrated off to avoid withdrawal
  - Antidepressants should be continued unless contraindicated
  - Use lower initial doses and slowly titrate
- Consider non-pharmacologic approaches
- *Referral Cue: Remember pharmacists are experts*

Medication Adverse Effects

For a comprehensive training module, see the ENGAGE-IL module

"Drug Therapy in Older Adults" at engageil.com

Acute Care *Specialized* Geriatric Units

- Acute care for elders (ACE)
- Mobile acute care for elders (MACE)
- Geriatric monitoring unit (GMU)

Facility Outcomes
Decreased length of stay (LOS) (Bowman & Flood, 2015)
Lower costs (Bowman & Flood, 2015)
Lower mortality rates (Yue et al., 2015)

Acute Care *Specialized* Geriatric Inpatient Units

Patient Outcomes
Lower percentage of discharges to nursing homes (Bowman & Flood, 2015)
Increased identification of delirium, depression, dementia (Bowman & Flood, 2015)
Improved functional status and decreased functional decline (Bowman & Flood, 2015)
Early rehabilitation (Fox et al., 2013)
Better pain management (Nipp et al., 2012)

Resources

http://geriatricscareonline.org/ProductAbstract/american-geriatrics-society-updated-beers-criteria-for-potentially-inappropriate-medication-use-in-older-adults/CL001 Accessed November 23, 2016

www.pogoe.org Accessed November 23, 2016

www.pogoe.org/productt/20875 Accessed November 23, 2016

www.npuap.org Accessed November 23, 2016

www.hopkinsmedicine.org/gec/series/wound_care.html#wound_assessment Accessed November 23, 2016

www.mayoclinic.com/health/bedsores/DS00570/DSECTION=treatments-and-drugs Accessed November 23, 2016

http://www.rwjf.org/en/library/research/2013/02/the-revolving-door--a-report-on-u-s--hospital-readmissions.html Accessed November 23, 2016

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