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Urinary Incontinence in the Elderly: Interactions with Frailty and Multi-Morbidity

Disclosures:

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- NIH and Department of Veterans Affairs

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- Consultant Rand Corporation

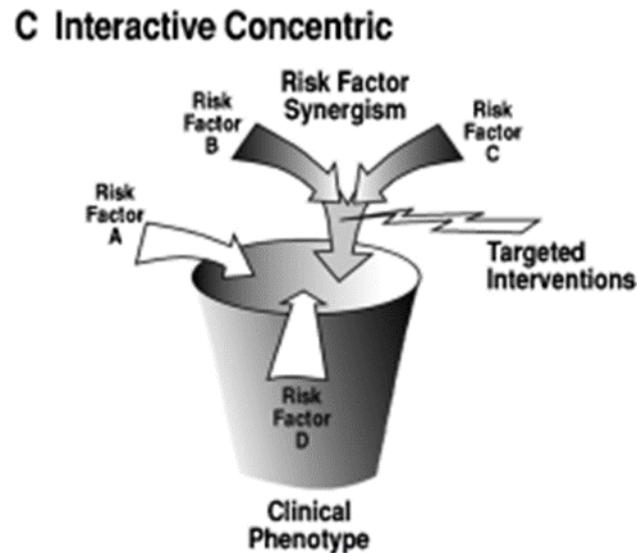
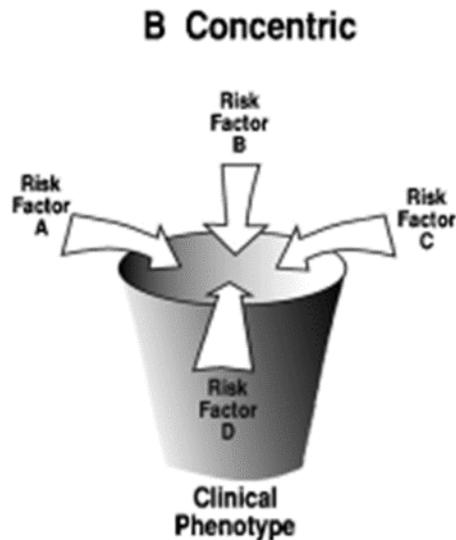
Conflicts of interest:

- None

Objectives:

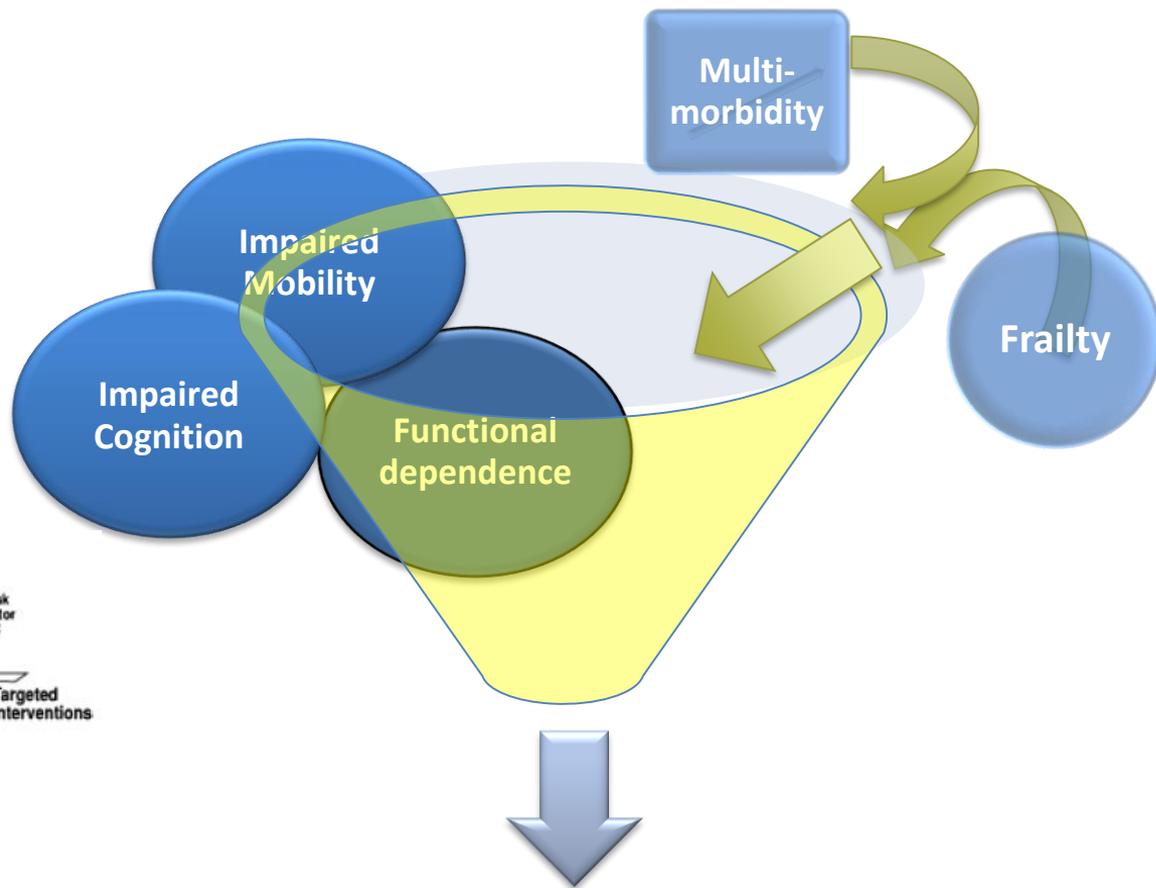
1. To compare and contrast associations of frailty and multi-morbidity with urinary incontinence (UI)
2. To provide the most current knowledge linking frailty and multi-morbidity with UI
3. To identify knowledge-gaps and research opportunities related to the intersection of frailty and multi-morbidity with UI

UI: A Geriatric Syndrome



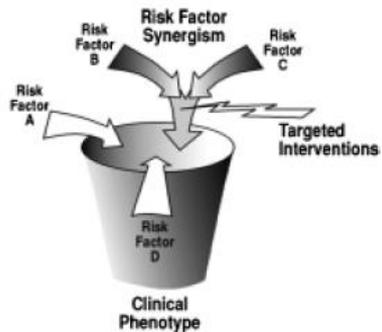
Inouye, Studenski, Tinetti,
and Kuchel, JAGS 2007

UI Risk Factors: Frailty and Multi-morbidity



Urinary Incontinence

C Interactive Concentric



Frailty

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Knowledge that will change your world

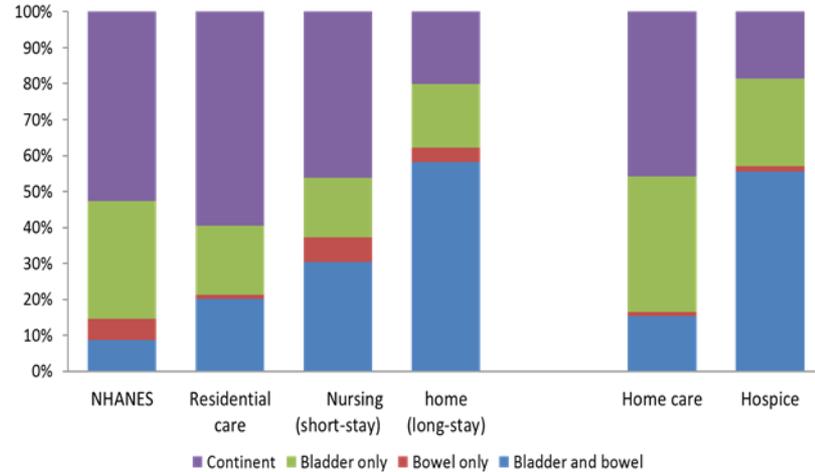
Frailty: Phenotype Definition

- Weight loss
- Strength loss
 - Grip strength
 - Rising from a chair
- Decreased gait speed
- Low physical activity
- Pt-reported exhaustion

Frailty phenotype = ≥ 3 criteria
Pre-frail = 1 or 2 criteria

Frailty and UI: Prevalence and Impact

- **Frailty** = 10-14% of older adults^{1,2}
 - Increases with age
 - Varies by gender, race/ethnicity
 - Hospitalization, injurious falls, long-term care, mortality
- **UI** = 44% of older adults³
 - Increases with age
 - Varies by gender, race/ethnicity
 - Falls, long-term care, \pm mortality
 - Varies by level of care
 - Top 10 prevalent condition⁴



SOURCES: CDC/NCHS, National Health and Nutrition Examination Survey, 2005-2009
CDC/NCHS, National Survey of Residential Care Facilities, 2010
Centers for Medicare and Medicaid, Long Term Care Minimum Data Set, 2009
CDC/NCHS, National Home and Hospice Care Survey, 2007

¹Collard RM et al, JAGS 2012

²Shamliyan et al, Aging Res Rev 2013

³CDC and Prevention, National Center for Health Statistics

⁴Clerencia-Sierra, PLOS One, 2015

Frailty Associations with UI

- **Clinical cohort**
 - Older women seeking care for pelvic floor disorders, 16% (25/150)¹
- **Population-based studies**
 - Women with daily UI increased odds (OR 3.3) for functional difficulty²
 - Incident UI associated with markers of frailty and functional decline³
- **Clinical trials for UI treatment**
 - Vulnerable Elders – Fesoterodine⁴
 - Ongoing trials

¹Erekson EA et al, Int Urogyn J 2014

²Erekson EA et al, FMPRS 2015

³Miles et al, J Gerontol Med Sci A 2001

⁴DuBeau et al, J Urol 2014

Frailty Components: Overlap with Mobility

- Urgency UI vs Stress UI¹
 - Associated with decreased gait speed & balance
- Bladder function and gait speed²
 - 36 continent women
 - Mean age 50 years
 - Strong desire to void vs post void
 - Slower gait speed
 - Decreased stride length



¹Fritel, BJOG 2013

²Booth, Neurourol Urodyn 2013

Multi-Morbidity

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Multi-morbidity: Definitions and Impact

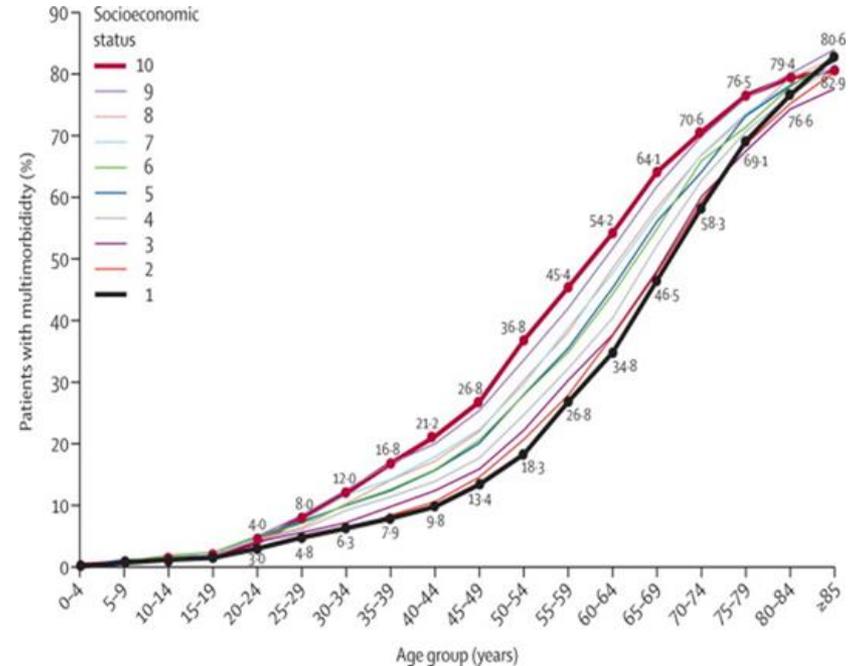
- Presence of at least 2 medical conditions¹
 - “Most common chronic condition”²
- Interactions
 - Conditions and treatments
 - Functional limitations
 - Life expectancy
- Patient-centered rather than disease-oriented care

¹AGS Expert Panel on Care of Older Adults with Multimorbidity, JAGS 2012

²Tinetti, Fried, Boyd, JAMA 2012

Multi-morbidity: Prevalence Rates

- **Multi-morbidity = 25% all adults**
 - 62% ages 65-74; 82% ages ≥ 85 years¹
 - Varies by gender, race/ethnicity
 - Incident rate 4x higher in adults <65 years of age²
- Associated with higher rates of:
 - Death
 - Disability
 - Adverse effects
 - Institutionalization
 - Impaired quality of life



Barnett et al, Lancet 2012

¹Weiss et al, JAMA 2007

²St Sauvier et al, BMJ Open 2015

20 DHHS Chronic Conditions: UI & Lower Urinary Tract Symptoms

Metabolic disease

- Diabetes – 6 vs 15%
- Obesity – 60-70% in severe obesity

Musculoskeletal

- Arthritis – 24 vs 47%
- Osteoporosis – unclear results

Neurologic

- Dementia – OR 2.34; 95% CI 1.6–3.3
- Parkinson's – 60% have LUTS

Cardiovascular

- HTN – 25 vs 44%
- Hyperlipidemia – 0.97 (95% CI, 0.81-1.16)
- Arrhythmias – drug interactions
- CAD – 3 vs 9%
- Stroke – UI poor prognostic factor
- CHF – 34-43% have severe OAB

Psychiatric

- Depression – 12 vs 36%
- Anxiety – 2 vs 12%
- Schizophrenia - ↑ rates with antipsychotics

Respiratory

- COPD - OR 1.56; 95% CI 1.2–2.1

Gastrointestinal

- Hepatitis - unknown

Cancer – ↑ prostate, GU, GI, Gyn

Substance abuse – ketamine, opioids, etoh

CKD – UI ↑ diuretic avoidance

HIV – 25.2%

Autism Spectrum Disorder - ↑ rates

Coyne, EpiLUTS 2009

U.S. Department of Health and Human Services. *Multiple chronic conditions*. Washington, DC. 2010

Multi-morbidity and UI: Impact

- Negative impairments in health-related QOL^{1,2}
 - Adjustment for multi-morbidity

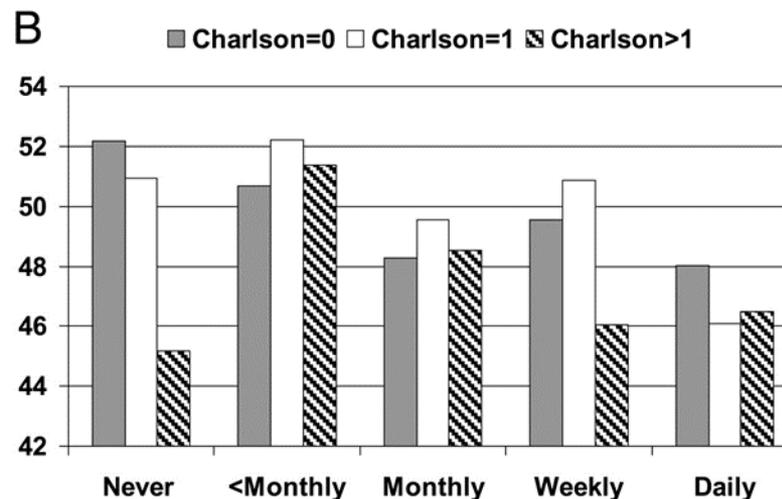
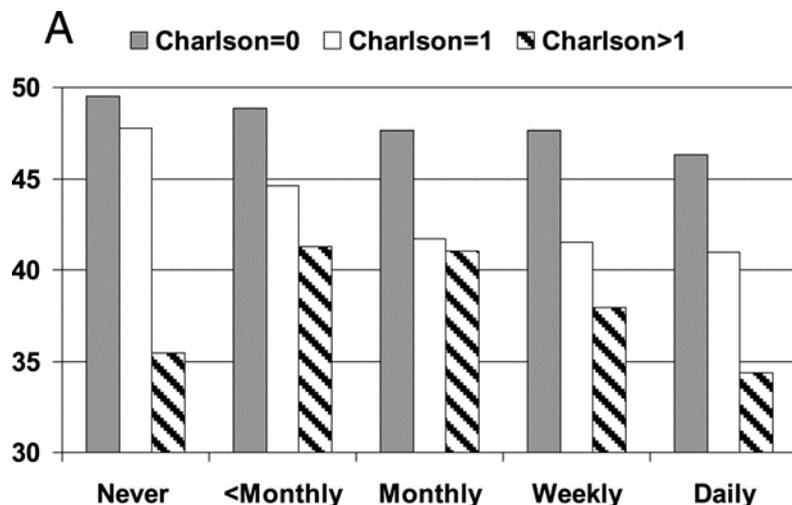


Fig A: Mean physical component MOS-36 summary scores for incontinence frequency by Charlson level.

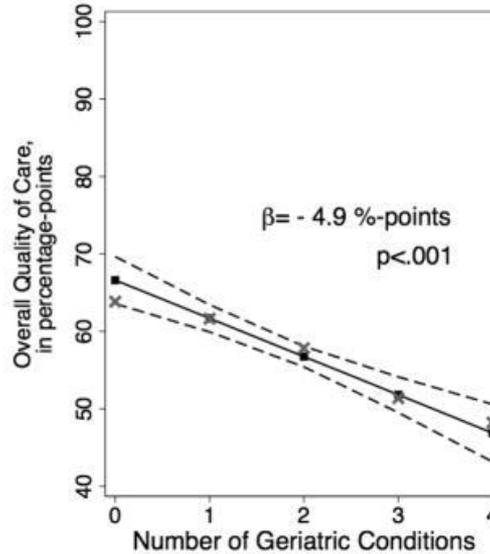
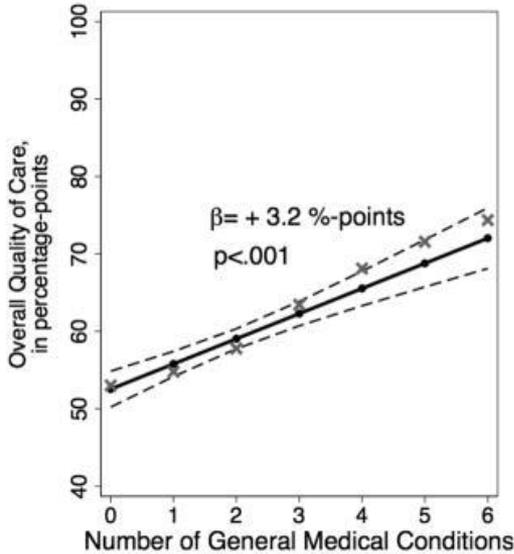
Fig B: Mean mental component MOS-36 summary scores for incontinence frequency by Charlson level.

Adjusted for age, body mass index, income and race²

¹Kwang et al, Gender Medicine 2012

²Ragins et al, J Urol 2008

Multi-morbidity and UI: Quality of Care



- Medical Comorbidity Count ■ Geriatric Comorbidity Count

N=644

Dashed lines=bootstrapped 95% confidence intervals.

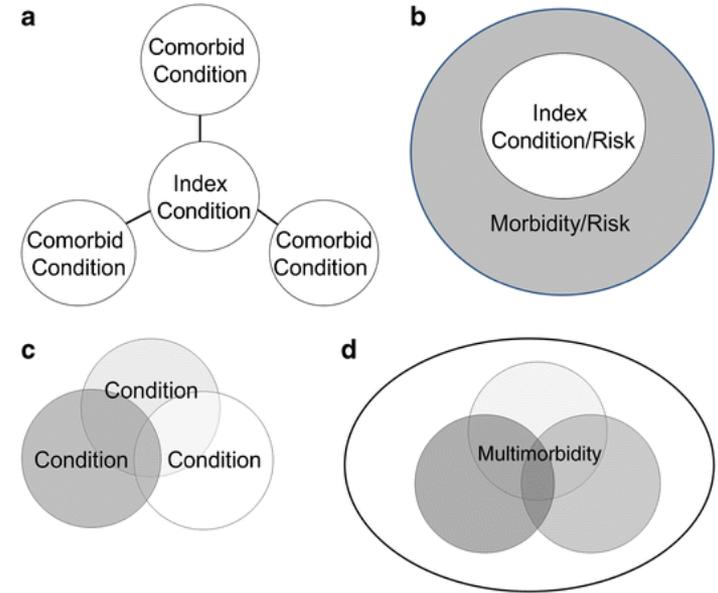
X = unadjusted mean values; β = beta-coefficient of the medical comorbidity count on left and geriatric comorbidity count on right.

- Medical comorbidity count associated with better overall quality of care, but geriatric comorbidity count associated with poorer quality of care in this linear regression controlling for both comorbidity counts, age, sex, site, visits, and random effect of provider.

Multi-morbidity & Frailty: UI Clinical Trials & Guidelines

Participants with co-morbid conditions/multi-morbidity and frailty:

- Excluded from evidenced-based reviews¹
- Not defined well in UI clinical trials
 - Assessment varies
 - Difficult to discern treatment effects
- Excluded from UI clinical practice guideline recommendations:
 - AHRQ
 - ACP
 - AUA
 - AAFP
- Included in International Consultation on Incontinence (ICI) Publications³



A Framework for Crafting Clinical Practice Guidelines that are Relevant to the Care and Management of People with Multimorbidity²

¹Boyd et al, PLOS One 2012

²Uhlrig et al, JGIM 2014

³Wagg et al, Neurourol Urodyn 2015

Multi-morbidity & Frailty with UI: Gaps & Opportunities

- Integration in existing data analysis
 - Additive effects or synergistic?
 - Additional studies needed
- Assessment in ongoing and future clinical trials
 - Inclusion of functional status measures
 - Planned sub-group analysis
- Integration in clinical care
 - Identification and treatment
 - Quality measures
- Dissemination in clinical practice guidelines (CPGs)
 - Existing examples of CPGs - other chronic conditions

From: **States Worse Than Death Among Hospitalized Patients With Serious Illnesses**

JAMA Intern Med. Published online August 01, 2016. doi:10.1001/jamainternmed.2016.4362

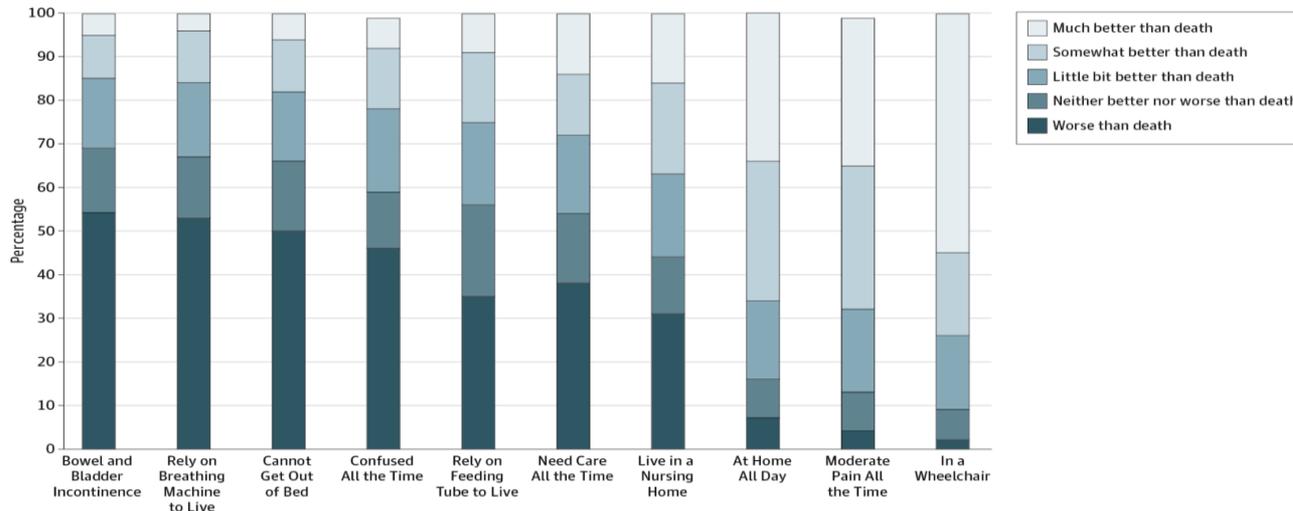


Figure Legend:

Ratings of States of Functional Debility Relative to Death by Hospitalized Patients With Serious Illnesses. Distribution of patient ratings of each queried health state on a 5-point Likert scale.