

# Frailty and Recognizing Appropriate Medications In Geriatrics and Long-Term Care. [FRAMING-LTC]



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# Collaborators, Partners & HQP:

## Collaborators:

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## Partners:

- **Accreditation Canada**
- **ISMP Canada**
- **MSH-UHN Geriatrics Program**
- **Saskatchewan Health Quality Council**
- **Canadian Institute for Health Information [CIHI]**
- **Institute for Clinical Evaluative Sciences [ICES]**

## HQP:

- **Kathryn Stock** MSc, University of Waterloo
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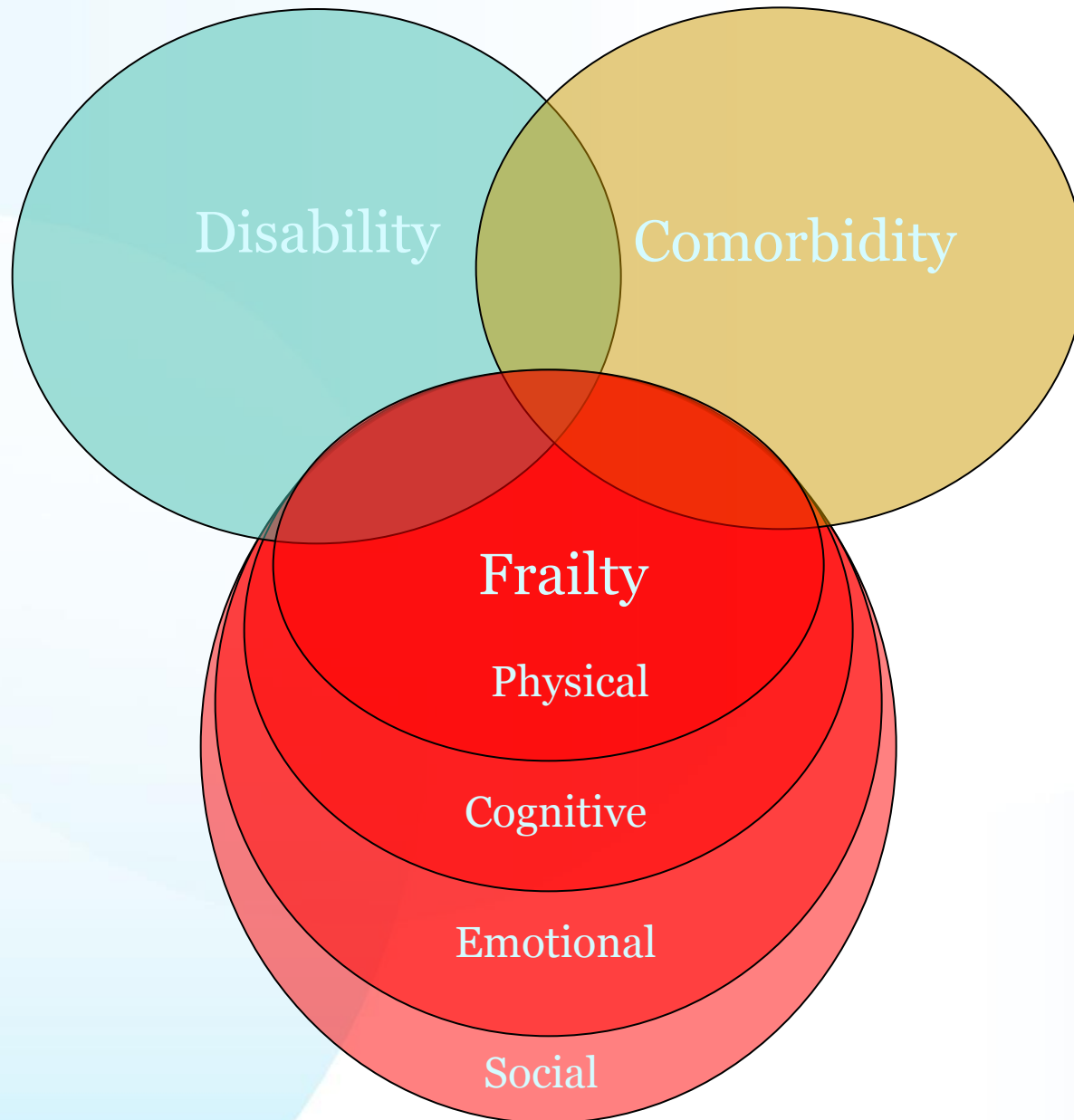
# Frailty: Current Accepted Framework

- No consensus on how best to identify or define frailty in an older person...but most agree:
- “increased **vulnerability** to stressors due to impairments in **multiple, inter-related systems** that lead to decline in **homeostatic reserve** and **resiliency**.”

... vulnerability to decline and poor outcomes

... more common with age and among women

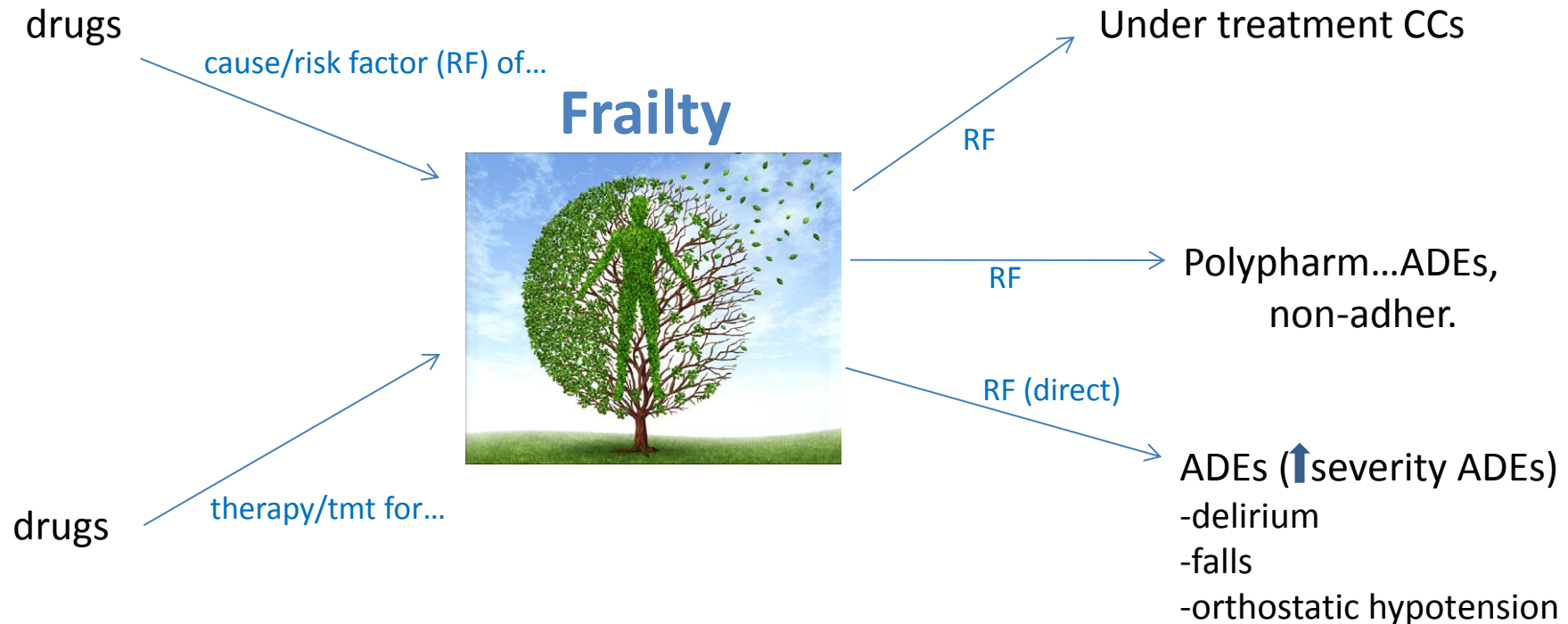
Frailty: Related, but distinct from disability and comorbidity...



# Frailty: Why is it important?

- Identification of 'frailty' may help to...
  - define a sub-group at higher risk of adverse outcomes
  - help better predict which older adults will tolerate/benefit from intensive forms of therapy (ICU care, surgery, chemotherapy...)
  - & if coupled with effective interventions – offer opportunities to maximize seniors' independence and enhance quality of life
- Research on development, progression & consequences of frailty has relevance for...
  - elucidating the pathophysiology of age-related functional impairment
  - identifying potential therapeutic opportunities

# Background: Why consider frailty in drug use?



...thus, need for different / special approach to prescribing drugs in persons living with frailty – with careful consideration of goals of care  
[ may mean a more conservative approach with focus on QoL]

# Few pharmacological agents have been investigated in frailty...priority for future research

- role as predictors?
- role in prevention / treatment?
- *role in modifying risk of potential ADE (beyond age)*
  - Pharmacokinetic alterations (A – D - M – E)?
  - Pharmacodynamic alterations (receptors / sensitivity)?
  - Cognitive, psychological & social vulnerability
- frailty measures to be incorporated into RCTs and clinical practice guidelines for care of older adults



# Overall Aim & Objectives: FRAMING-LTC

- Mixed Methods Approach –

To understand factors that contribute to prescribing of Potentially Inappropriate Medications (PIMs) and associated adverse outcomes in frail LTC residents

## A) Quantitative Component

- provide sampling frame for qualitative work
- series of pharmacoepi studies across LTC settings (AB, SK, ON)

## B) Qualitative Component

- tap into rich descriptive data on context
- perspectives from residents, family & staff
- facility and system factors

# Overall Aim & Objectives – A) Quantitative

Use linked administrative data to understand the relationship between frailty, PIMs (defined for priority medication classes), and outcomes across LTC facilities

1. antimicrobials
  2. antipsychotics (see poster #33 & 35)
  3. cholinesterase inhibitors
  4. lipid-lowering medications
- different drivers for utilization, adverse effects, and economic implications
  - LTC facilities examined across 12 strata  
(bed size / frailty / hyperpolypharmacy [10+ drugs])
- outcomes (hosp/ED visit; mortality, fx'l decline)

# Exploring - 2 Main Models of Frailty

- Phenotype Model (Fried L, et al. 2001) [AB data]
  - Cardiovascular Health Study, 65+
  - Established frailty phenotype (physical) with 5 key variables/criteria:
    - Weight loss
    - Slow gait speed
    - Weak grip strength
    - Low energy expenditure
    - Self-reported exhaustion
- Cumulative Deficit Model (Rockwood K, et al.) [AB/ICES data]
  - Frailty Index (F<sub>1</sub>), # of deficits present / # deficits measured
  - Biomedical, Clinical, Functional AND Psychosocial factors
  - Items from comprehensive geriatric assessment
  - The more individuals have wrong with them – more likely to be frail

# Also Exploring – CHES Scale [RAI data]

- CHES Scale (Hirdes et al., 2003) (ICES data)
  - Health Instability measure (range 0-5)
  - Predictive of mortality and hospitalization in HC & LTC populations
  - Presence of:

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Symptoms (No symptoms = 0 ; 1 symptom present = 1 ; 2+ symptoms present = 2)

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Vomiting

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Dehydration (insufficient fluid)\*

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Decline in fluid/food intake\*

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Weight loss

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Shortness of breath

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Edema

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Worsening of decision making over previous 90 days (1)

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Decline in activities of daily living over past 90 days (1)

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End-stage disease (1)

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\*Two of the items from the CHES scale were not included in the interRAI-AL, and thus, cannot be used for the calculation of the CHES score in the proposed research

## Prevalence of Antipsychotics: Assisted Living [AB], n=1089

Overall use = 26.4% [94% atypical agents]

### Frailty Measure

	FI	CHS	CHES
Frail	41.0%	24.2%	31.6%
Pre-Frail	23.4%	23.5%	21.9%
Robust	18.0%	26.9%	26.4%

# A) Quantitative Methods: Study Design & Setting

Population-based, retrospective cohort studies using linked health administrative data from Ontario, Canada (with further work in AB/SK)

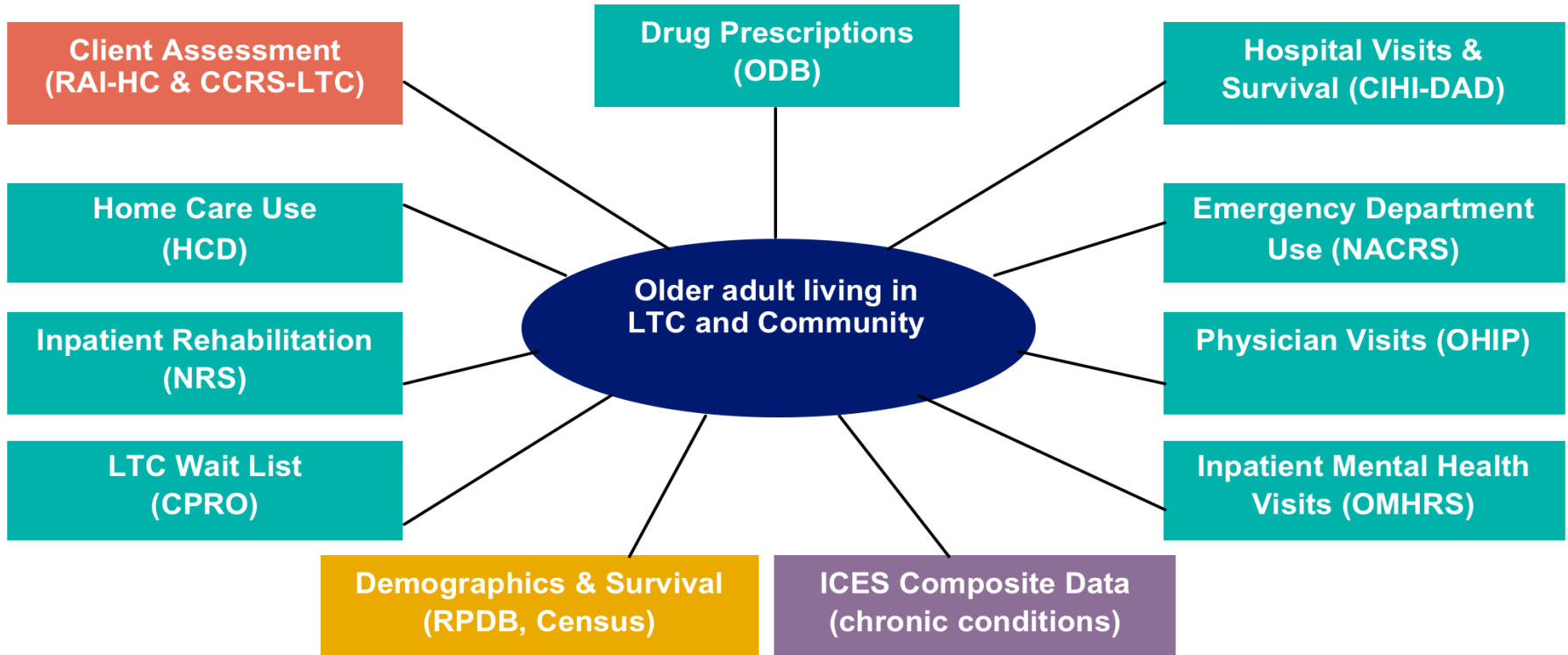
- Canada's largest province with more than 13 million residents
  - ~ 2 million 65+ years of age
- Costs of all **medically necessary** care are covered by public health insurance
  - Includes hospital, physician, home care, long-term care, drug therapies (65+ and low-income)

Data are housed at the Institute for Clinical Evaluative Sciences (ICES)

- Not-for-profit research institute
- Strict privacy policies and procedures
- All datasets were linked using unique, encoded identifiers and analyzed at ICES

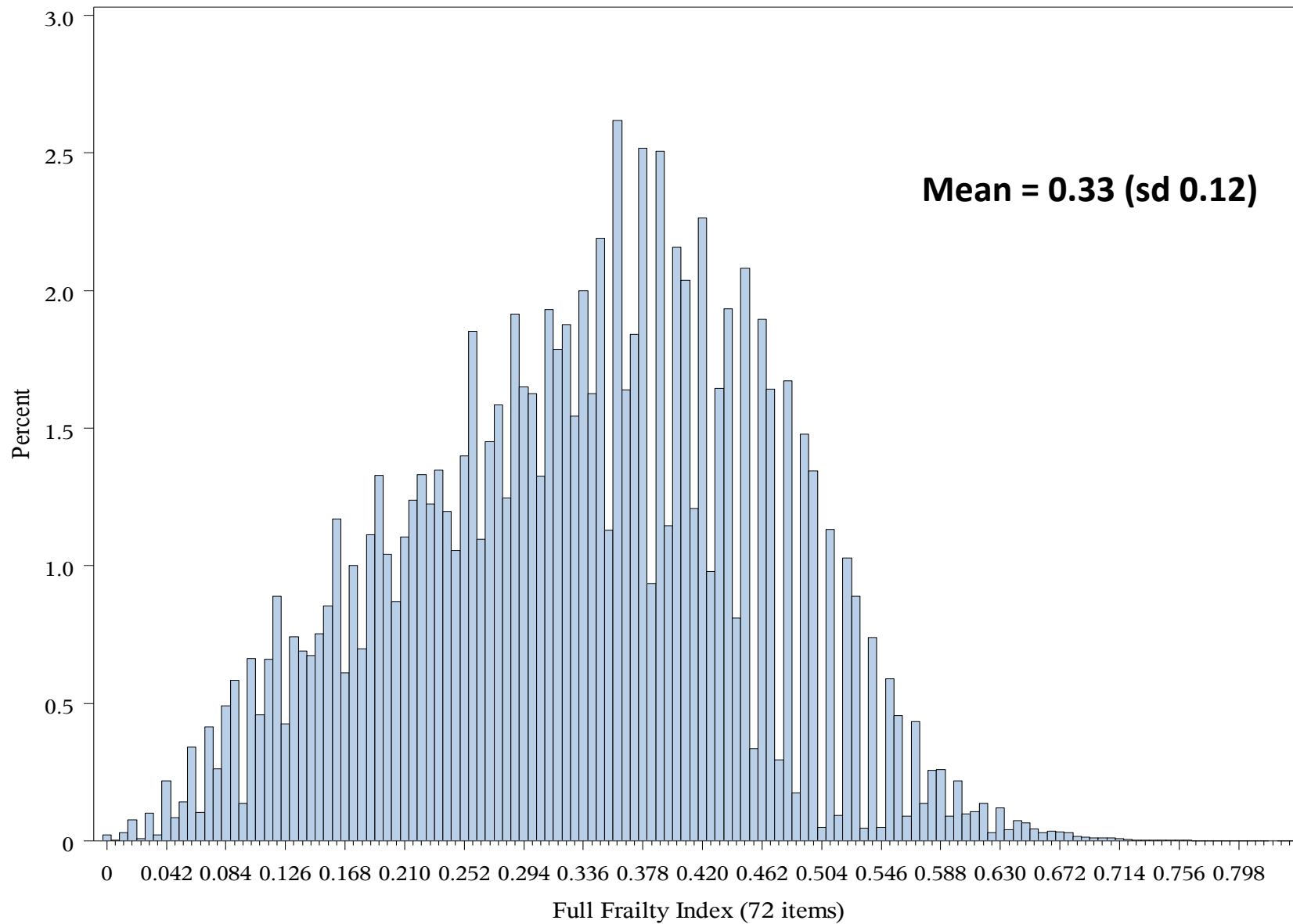
Data are well-validated for research

# A) Quantitative Methods: Data Sources



- *Administrative Databases:* CIHI-DAD, CPRO, NACRS, CCRS (and new OCCM), NRS, ODB, OHIP, HCD, RPDB, RAIHC, OMHRS, PCCF/Census
- *ICES Composite Databases and Registries:* Asthma, Congestive Heart Failure, COPD, Hypertension, Diabetes, Ontario Cancer Registry

# Distribution of FI – LTC Residents in Ontario





## Overall Aim & Objectives – *B) Qualitative*

Conduct a series of interviews (healthcare providers, LTC residents, and family members) and chart reviews, and examine contextual factors resulting in prescribing decisions

...randomly selected LTC facility from each of 12 strata

...root cause analysis of these decisions, looking at factors leading to and resulting from PIM prescribing:

1. Identify & define situations where PIMs are used to treat older adults living in LTCF;
2. Delineate factors influencing the decision to treat older adults in LTCF with PIMs.

## B) Qualitative Methods: Study Design/Sampling & Data

### Embedded single case design

- 12 LTCFs recruited across Ontario (R selected from 12 strata)
  - Maximum variation sampling
  - Also explore facility type, seasonality, healthcare staff mix, system factors, and resident characteristics

### Data Sources

- Chart reviews; observations; interviews with administrators, providers, residents and families
- Methods and tools have been developed & pilot tested
- Training of inter-professional research staff completed

### Analysis

- Charmaz's textual analysis & iterative directed content analysis [interviews & observation field notes]
- Case study database to permit triangulation of key themes, categories & codes

On track for completing mid-2016 [see Poster # 40]

# Significance of Study

- Employ framework for complex interventions to utilize study findings to design pilot interventions to improve quality of pharmacotherapy and health outcomes in LTC.
- Will align interventions with priorities guided by national partners & stakeholder groups (ensure uptake in LTC sector).  
Accreditation Canada; ISMP; CIHI; HQC; others...
  - AB, SK and ON
  - inter-disciplinary team: physicians/specialists, nurses, pharmacists, epidemiologists; health services researchers; health quality/policy
- Utilize integrated knowledge translation framework – to refine research objectives and facilitate dissemination & uptake at regional, provincial & national levels.

# Thank-you

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