Innovation in models of care for older adults living with frailty:

What can Canada learn from Australia?

Scott Morrison announces royal commission into aged care after string of scandals

PM says abuse, neglect and failures can't be excused ahead of ABC Four Corners' investigation airing on Monday

- **'I'd rather die': the horror stories of aged care don't tell the whole story**

The application of the frailty concept to clinical practice in acute care

Why consider frailty in clinical practice?

- Predict clinical outcomes
- Guide clinical decision-making
- Support communication among health professionals
- Workload analysis
- Offer interventions that reverse frailty

Approaches to measurement

- Phenotype approach (Fried)
  - Fried LP, et al. Frailty in older adults: evidence for a phenotype. J Gerontol A Biol Sci Med Sci. 2001;56(3):M146-56.

- Deficit accumulation approach (Rockwood)
  - Mitniski AB, Mogilner AJ, Rockwood K. Accumulation of deficits as a proxy measure of aging. Sci World J. 2001;1.

EDITOR'S CHOICE

Development and validation of an electronic frailty index using routine primary care electronic health record data

Andrew Clegg ✉, Chris Bates, John Young, Ronan Ryan, Linda Nichols, Elizabeth Ann Teale, Mohammed A. Mohammed, John Parry, Tom Marshall

Age and Ageing, Volume 45, Issue 3, 1 May 2016, Pages 353–360, https://doi.org/10.1093/ageing/afw039

Published: 03 March 2016 **Article history** ▾

A correction has been published:

Age and Ageing, Volume 47, Issue 2, 1 March 2018, Pages 319, https://doi.org/10.1093/ageing/afx001

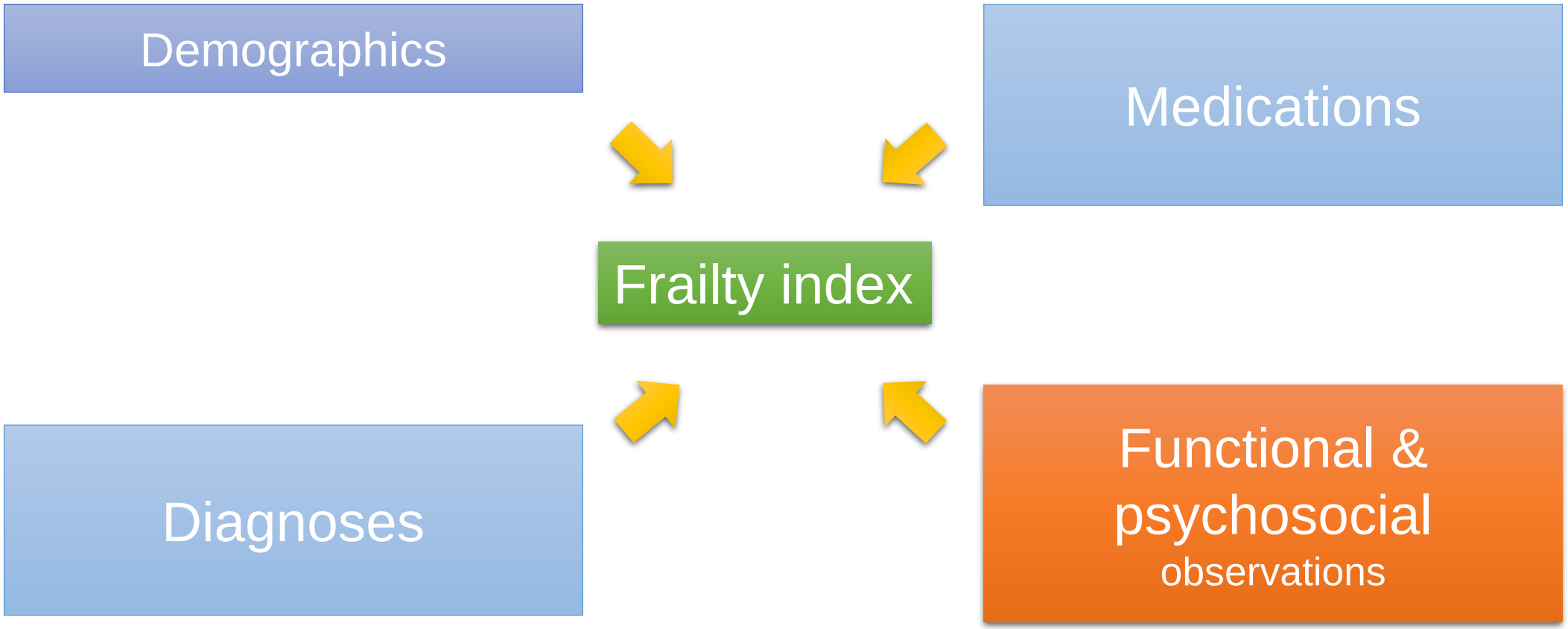
The challenges

- System immaturity
  - Absent or incomplete digital records
  - Lack of access to community records
- Resource intensive
  - Extensive data collection
  - Documentation & task burden
- Impractical
  - Not all patients can perform tasks

Our challenge:
To measure frailty in the acute care setting

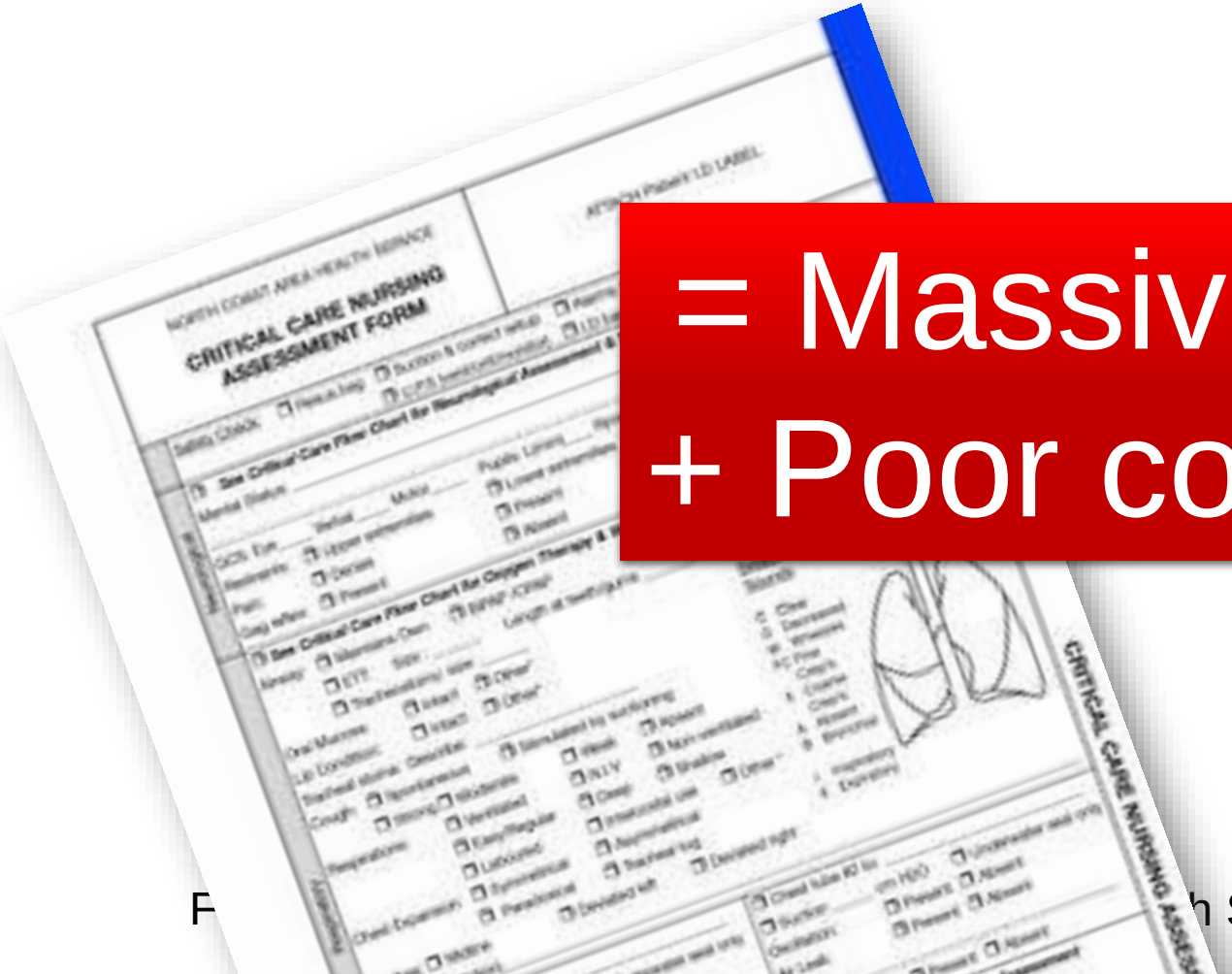
Our opportunity:
Efficient assessment using the interRAI Acute Care

Building a frailty index



Nursing assessment: A jigsaw of observations, screeners & forms

Current nursing assessment forms

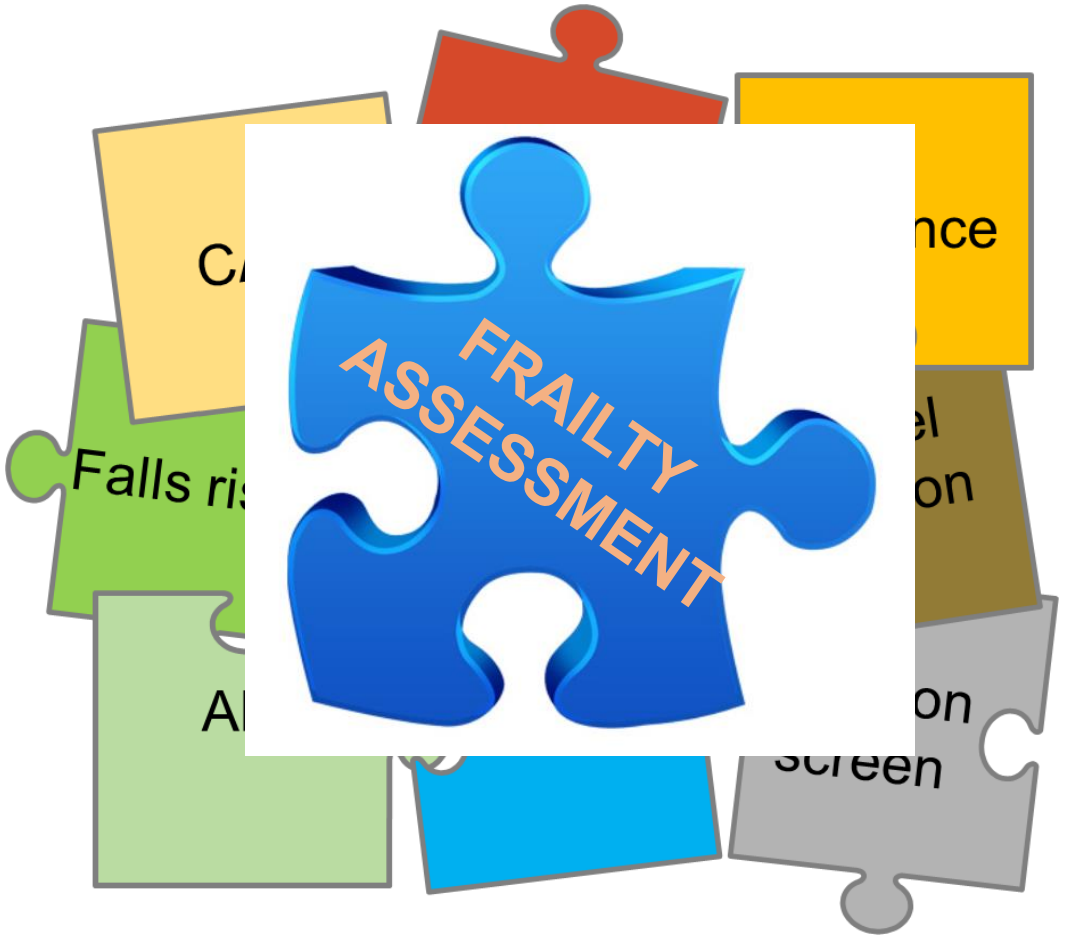


Victorian Documentation Study

- 11 hospitals studied
- ssment
- 1) forms
- an 345) items
- s universal
- 1283 data items selective

= Massive burden
+ Poor compliance

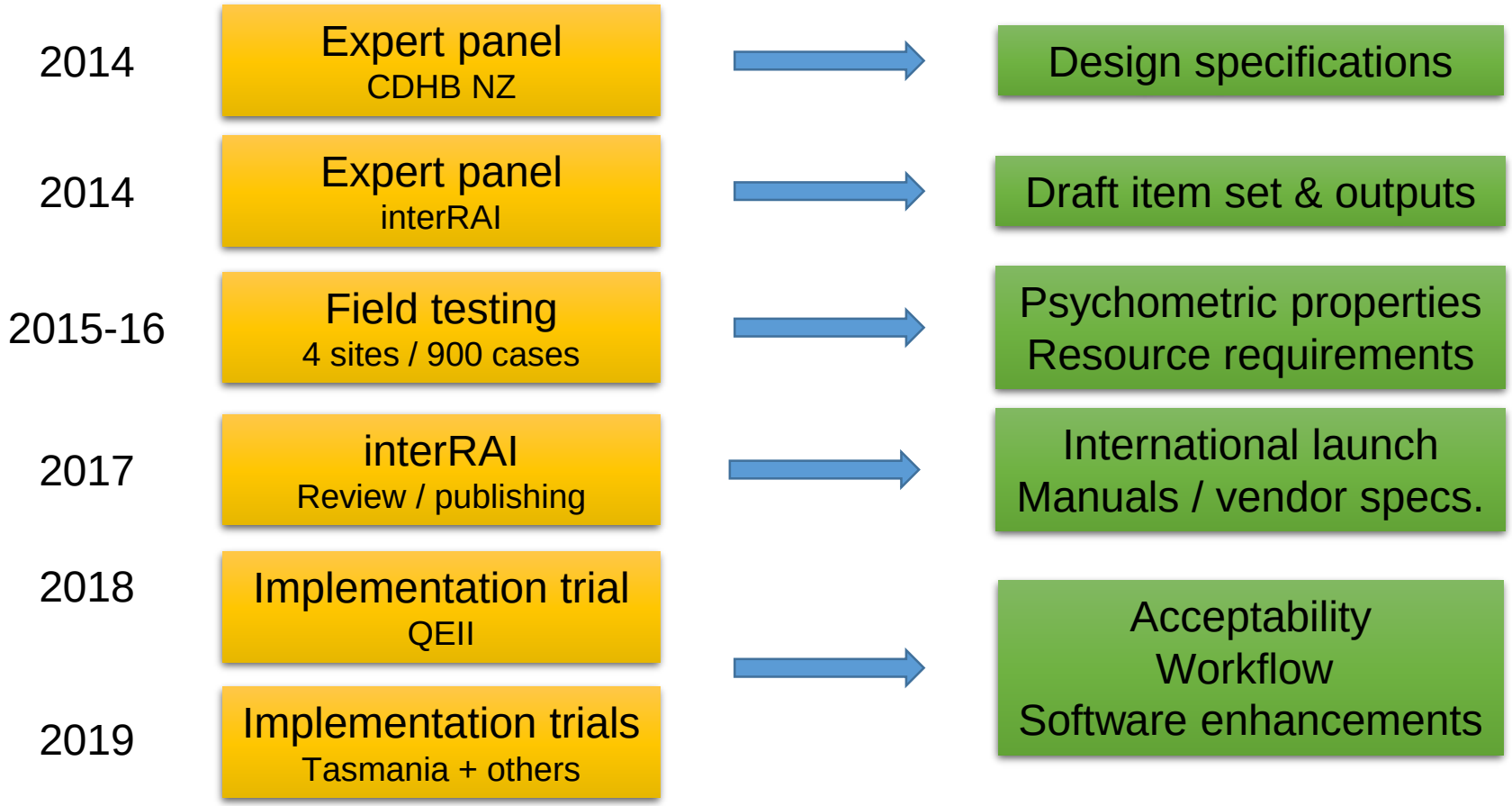
A jigsaw of observations, screeners & forms



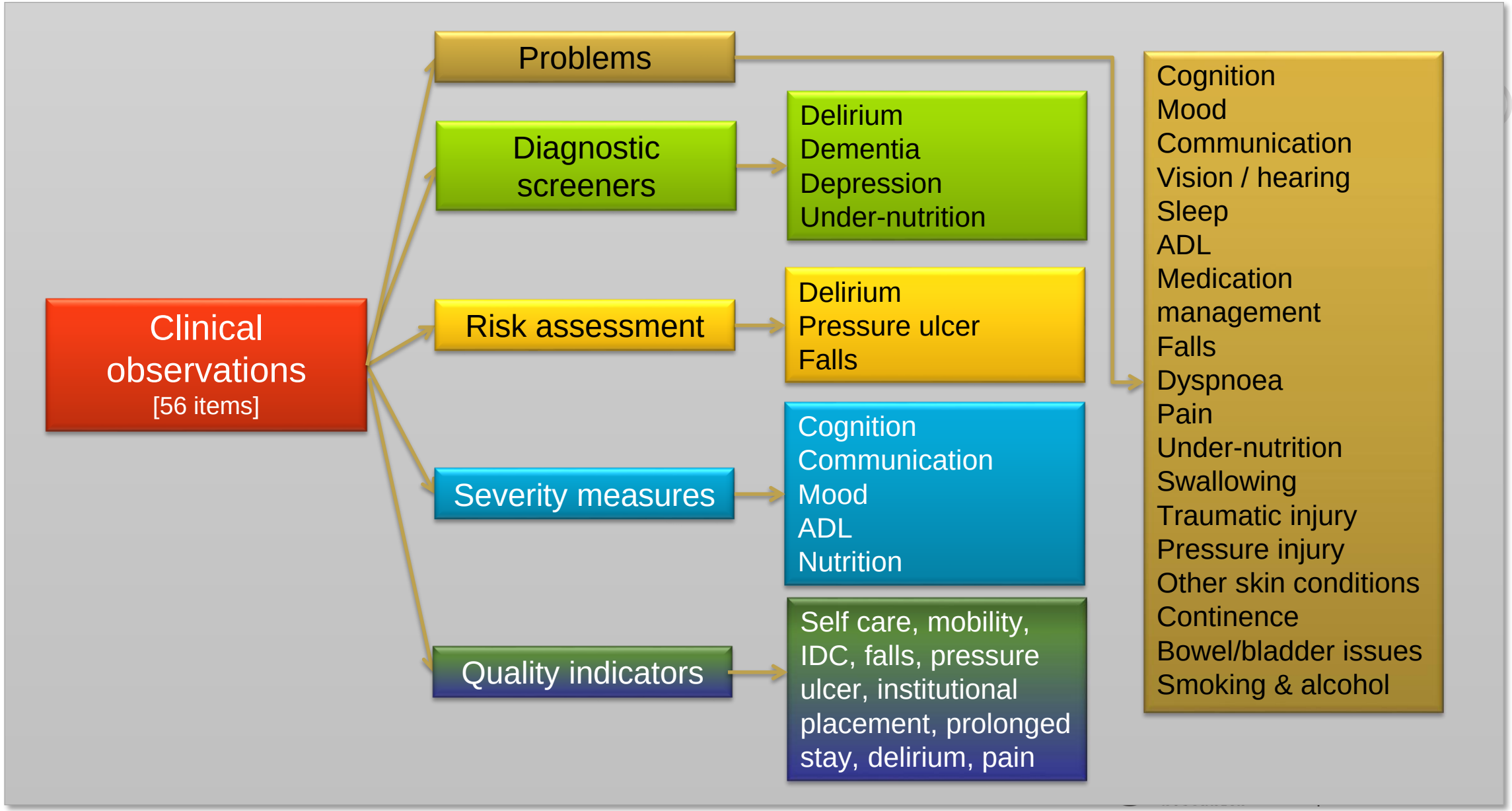
Building the interRAI AC: System aspirations 2014…

- Reduce nursing documentation **burden**
- **Integrate assessment** into the care delivery process
- Improve the **quality, availability and value** of nurse generated data
- Create **consistency** across the continuum of care

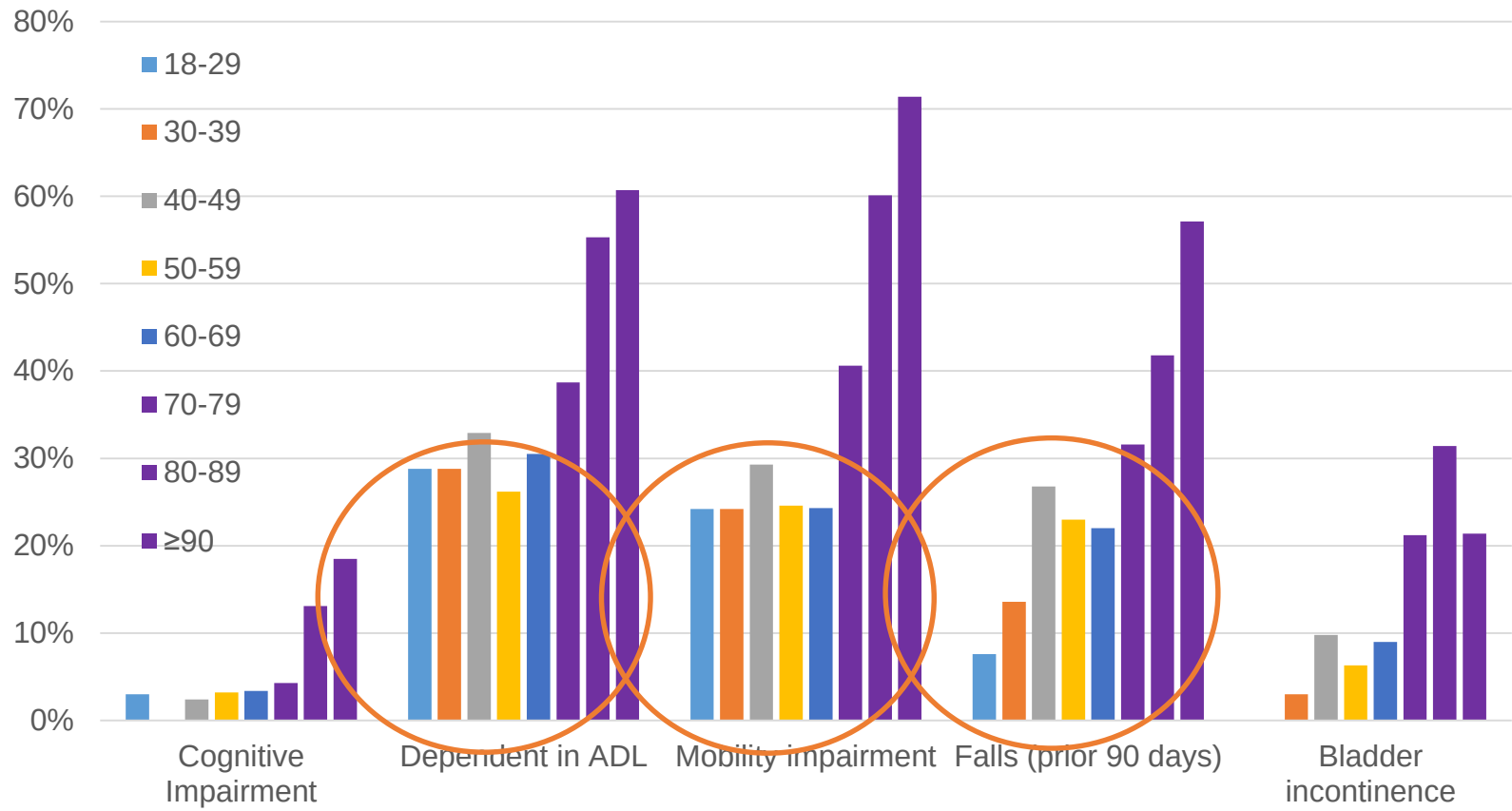
The interRAI AC Development strategy



The interRAI Acute Care System

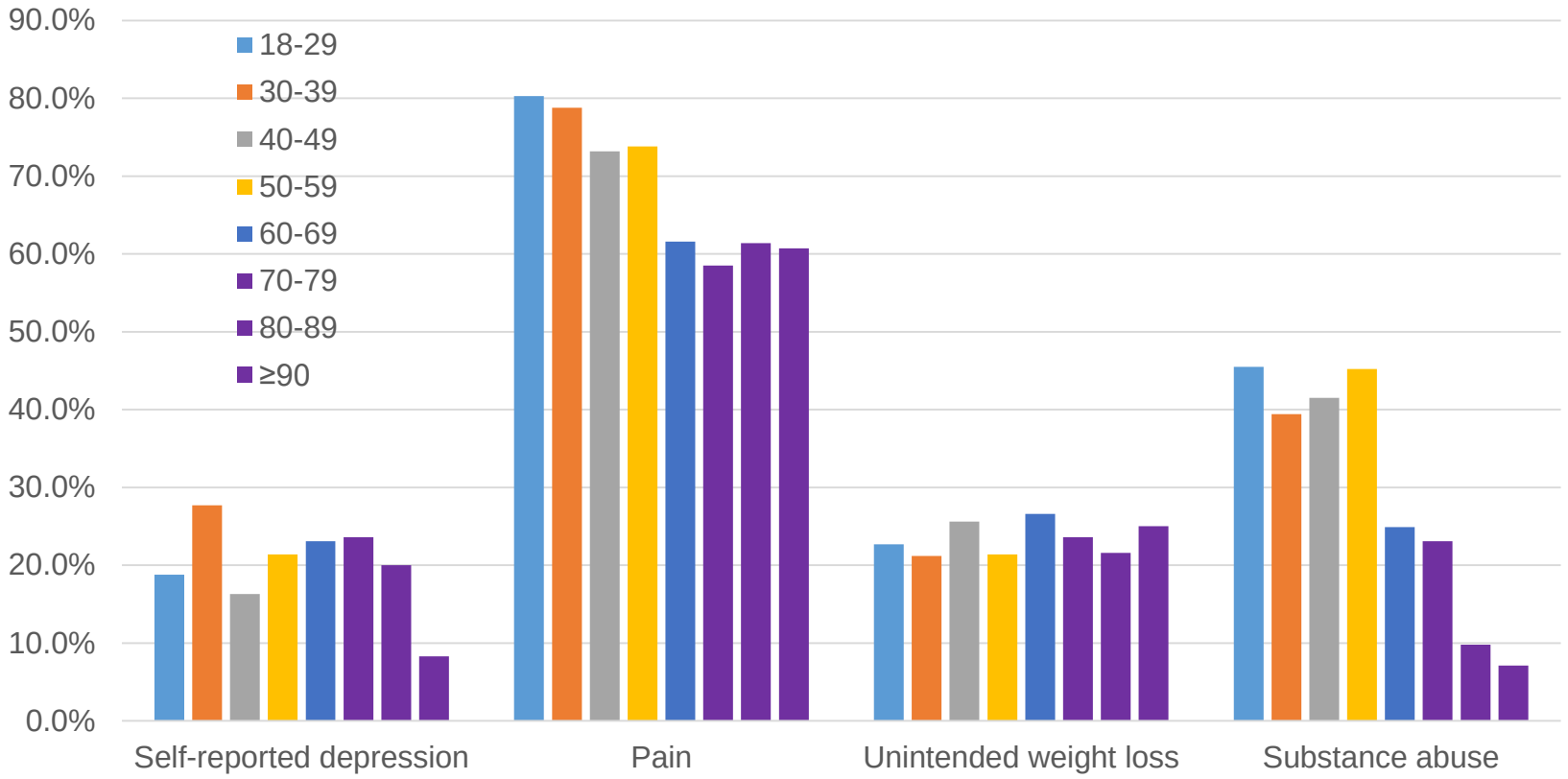


Functional syndromes: Age-related



- Cognitive impairment
- Delirium
- ADL
- Mobility
- Balance
- Bladder incontinence
- Skin integrity

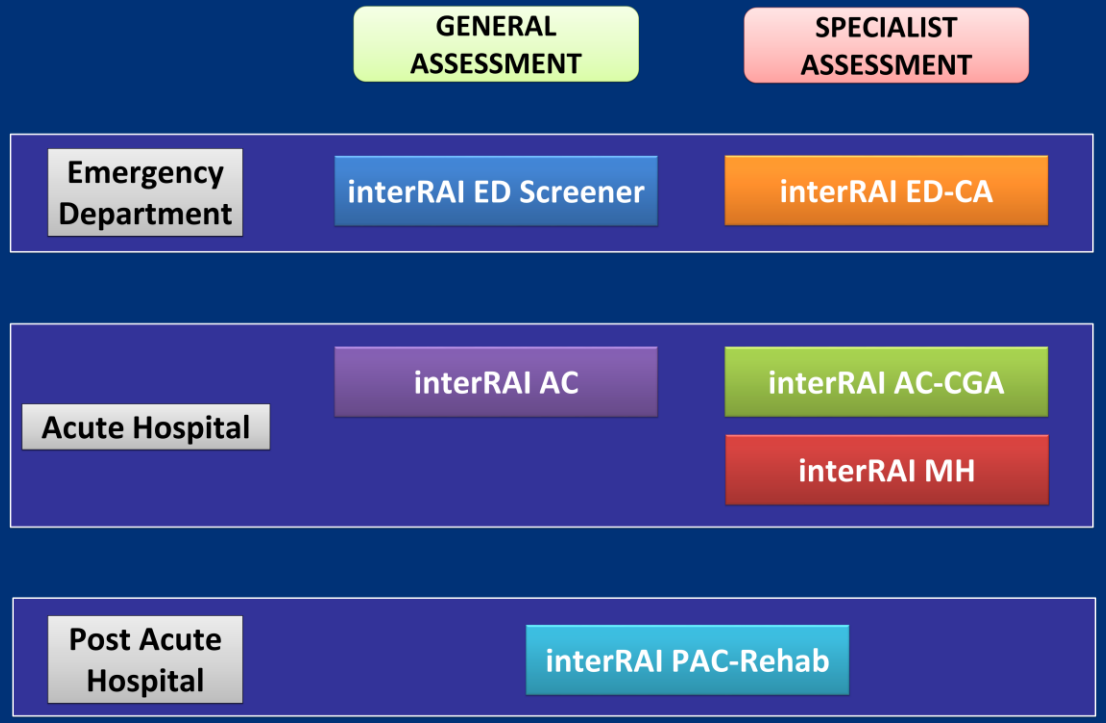
Functional syndromes: Non-age related

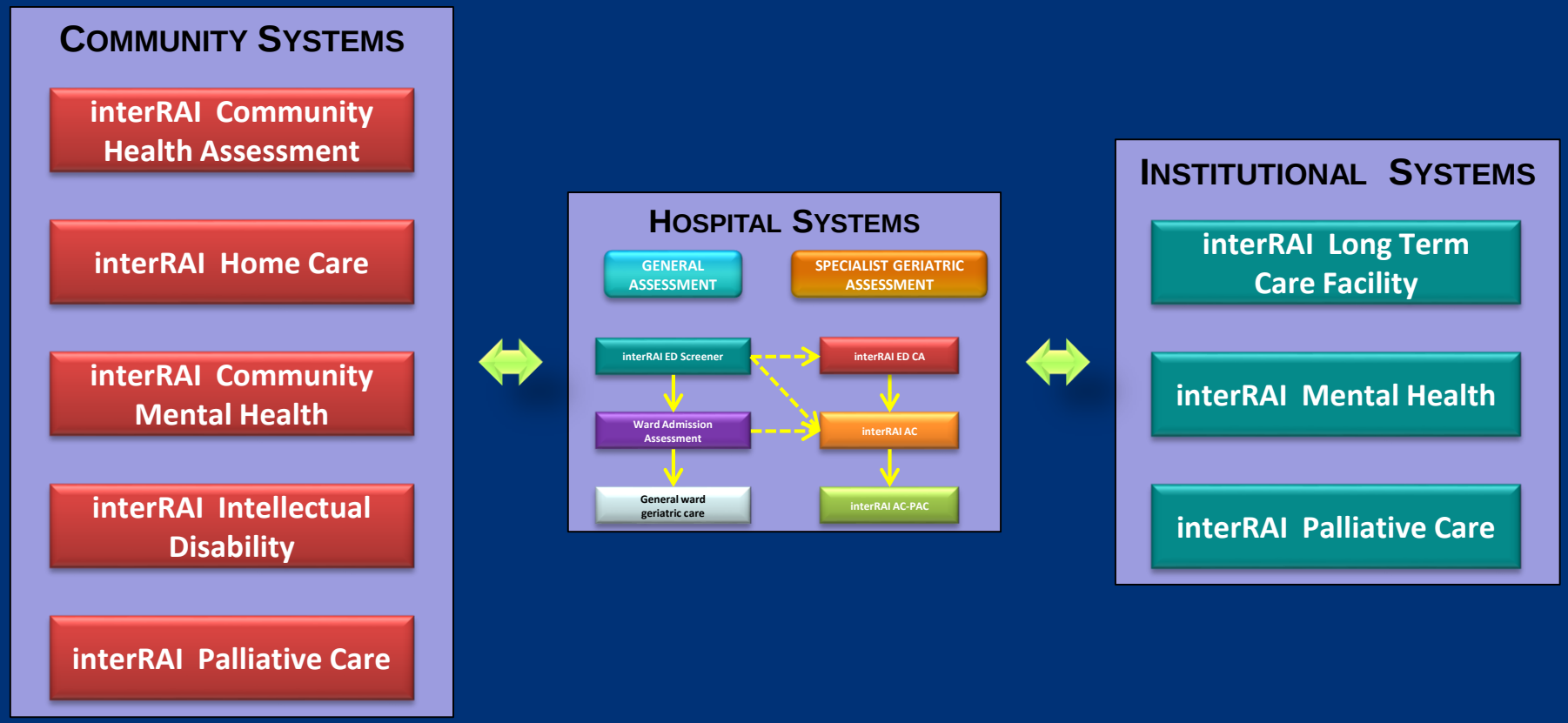


- Self reported depression
- Pain
- Sleep disturbance
- Oral health problem
- Unintended weight loss
- Substance abuse
- Housebound?

The interRAI Hospital Systems

…integrated assessment across the hospital continuum

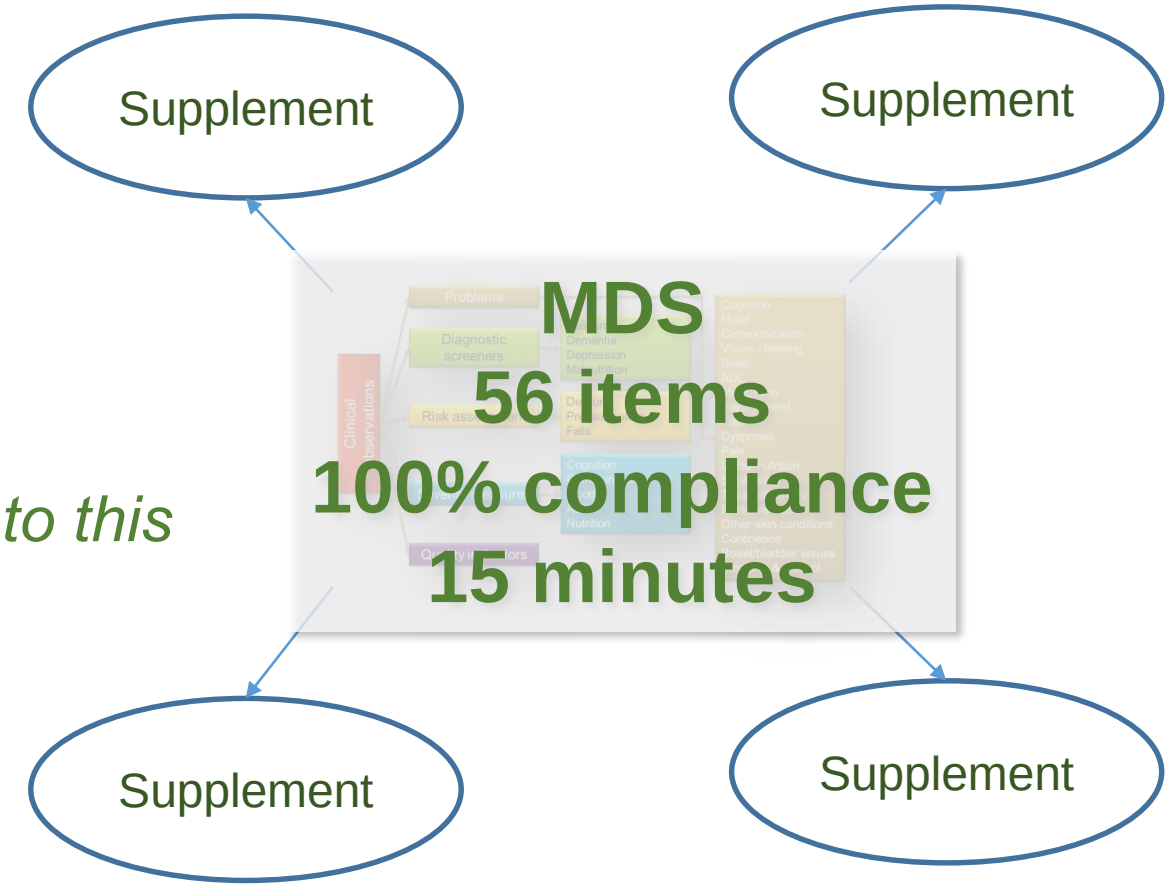



COMMUNITY SYSTEMS
interRAI Community Health Assessment
interRAI Home Care
interRAI Community Mental Health
interRAI Intellectual Disability
interRAI Palliative Care
HOSPITAL SYSTEMS
GENERAL ASSESSMENT
SPECIALIST GERIATRIC ASSESSMENT
interRAI ED Screener
interRAI ED CA
Ward Admission Assessment
interRAI AC
General ward geriatric care
interRAI AC-PAC
INSTITUTIONAL SYSTEMS
interRAI Long Term Care Facility
interRAI Mental Health
interRAI Palliative Care

Transforming nursing documentation

…from this…

…to this

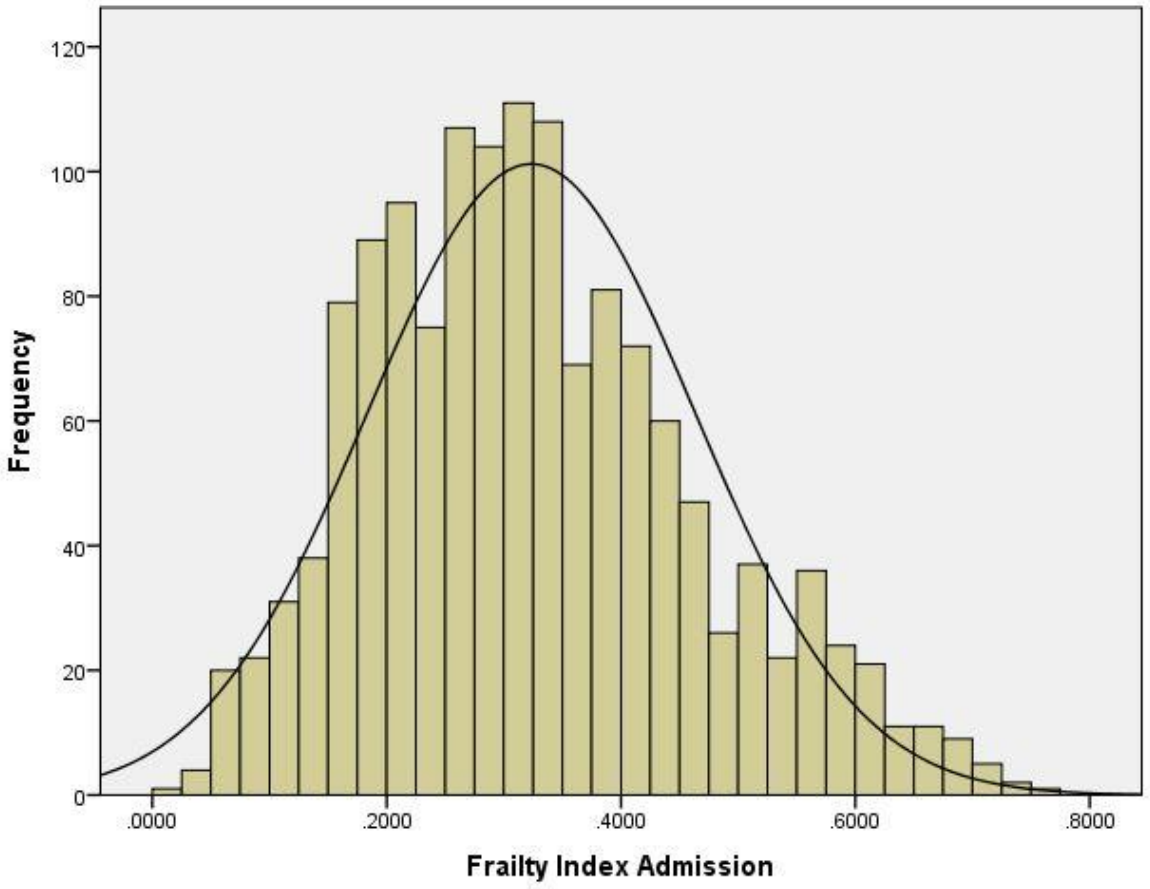


Derivation of FI from interRAI Acute Care

- Large amount of information across functional, cognitive, sensory, medical domains
- We chose “core” items in interRAI AC-CGA common to most interRAI instruments
- 39 variables selected adding to 56 possible deficits
  - 15 potential deficits allowed for comorbidities; 4 for polypharmacy categories

Hubbard RE, Peel NM, Samanta M, et al. Derivation of a frailty index from the interRAI acute care instrument. BMC Geriatr. 2015;15:27.

Results: FI-AC Distribution



N=1418
Mean (SD)=0.32 (0.14)
Median (IQR)=0.31 (0.22-0.41)
99th percentile= 0.69

Results: FI-AC vs Discharge Destination

Discharge Destination	n (%)	FI-AC Mean (SD)
Community	917 (64.7%)	0.28 (0.12)
Continuing inpatient care including rehabilitation	237 (16.7%)	0.39 (0.13)
Residential Aged Care	207 (14.6%)	0.41 (0.13)
Died	57 (4.0%)	0.47 (0.16)

Comparison of mean FI-AC between groups (ANOVA) significant at p<0.001
Ordinal regression showed progressive frailty OR: 1.93 (1.77-2.12)

Predictive and discriminative capacity of FI for adverse events

Adverse Event	OR* (95% CI)	AUC (95% CI)	At FI>0.4			
			Sensitivity	Specificity	PPV	NPV
Inpatient falls	1.29 (1.10-1.50)	0.61 (0.55-0.67)	43%	74%	9%	95%
Inpatient delirium	2.34 (2.08-2.63)	0.79 (0.76-0.82)	61%	83%	52%	88%
Inpatient pressure injury	1.51 (1.23-1.87)	0.72 (0.66-0.78)	55%	76%	7%	98%
Composite adverse event	2.21 (1.98-2.46)	0.77 (0.74-0.80)	57%	84%	58%	84%

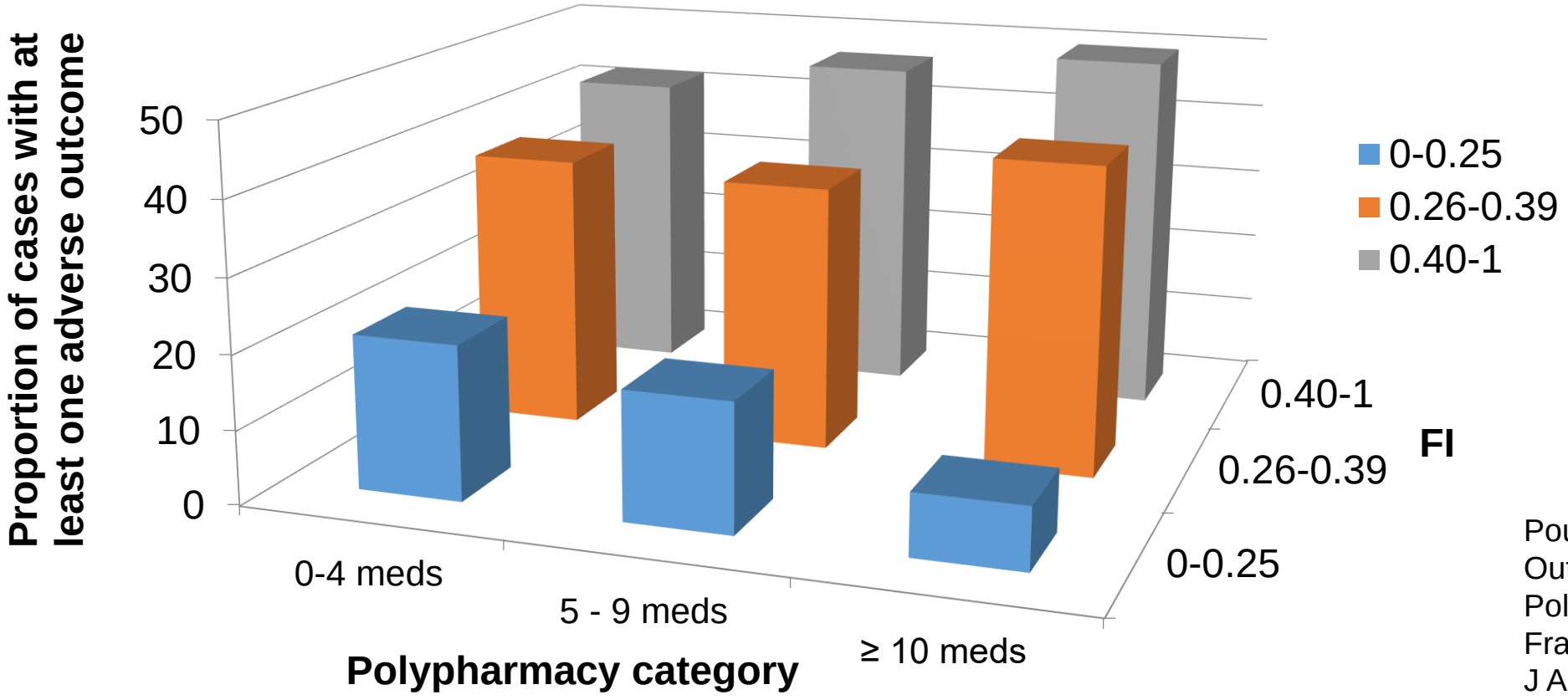
*** OR associated with 0.1 FI increments; adjusted for age and gender**

Predictive and discriminative capacity of FI for adverse outcomes

Adverse Outcome	OR* (95% CI)	AUC (95% CI)	At FI>0.4			
			Sensitivity	Specificity	PPV	NPV
Length of Stay>28 days	1.29 (1.10-1.52)	0.62 (0.56-0.69)	45%	74%	9%	96%
New discharge to RAC	1.31 (1.10-1.57)	0.65 (0.58-0.71)	44%	75%	8%	96%
Inpatient mortality	2.01 (1.66-2.42)	0.76 (0.69-0.83)	67%	75%	10%	98%
Died within 28 days discharge	1.66 (1.35-2.03)	0.71 (0.64-0.78)	55%	76%	8%	98%
Composite adverse outcome	1.67 (1.48-1.88)	0.71 (0.67-0.75)	55%	77%	24%	93%

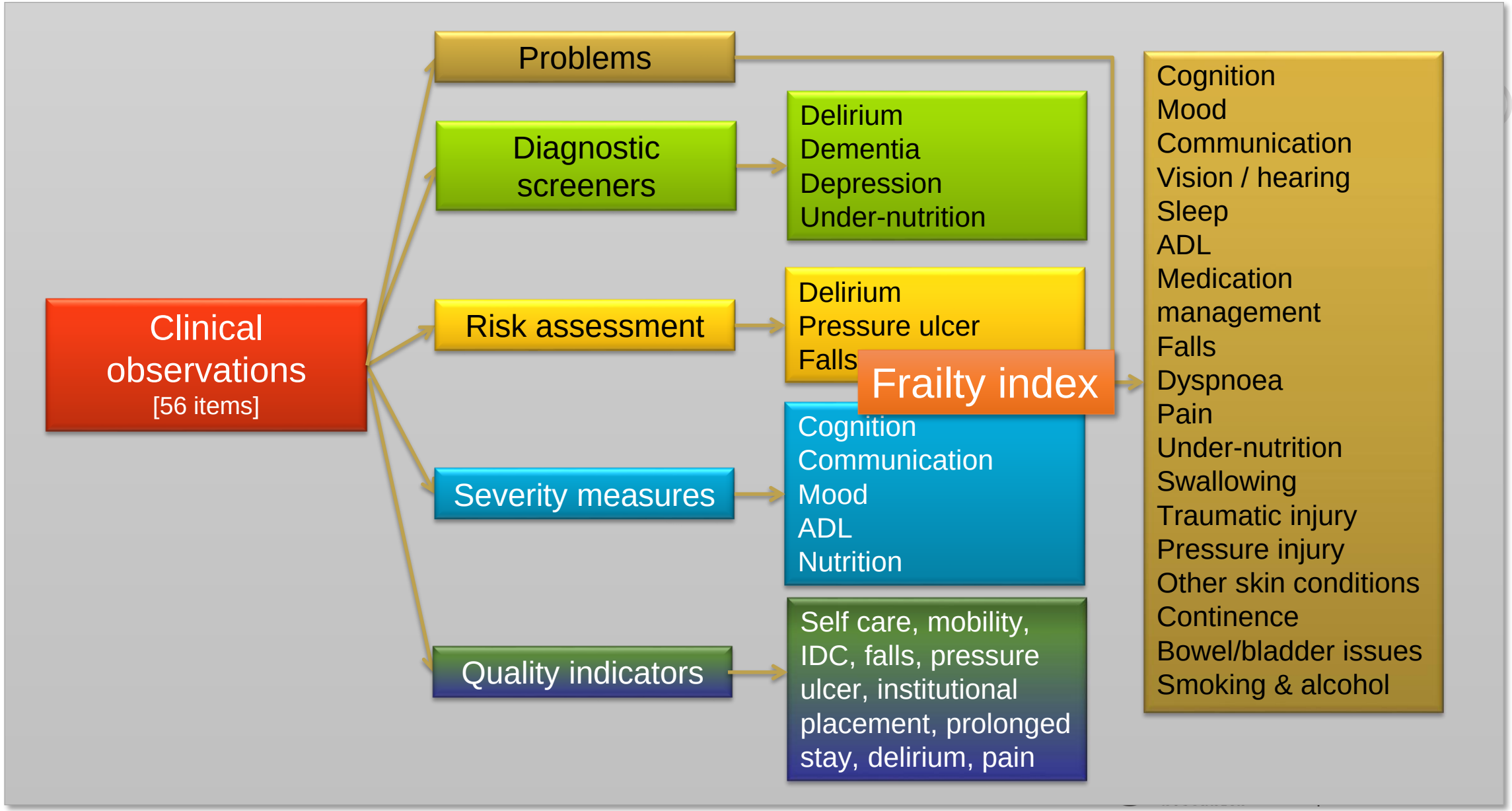
* **OR associated with 0.1 FI increments; adjusted for age and gender**

FI and Polypharmacy



Poudel A, et al. Adverse Outcomes in Relation to Polypharmacy in Robust and Frail Older Hospital Patients. J Am Med Dir Assoc. 2016;17(8):767.e9-.e13.

The interRAI Acute Care System



Frailty and patient management

Increasing interest in measuring frailty for risk stratification of patients for:

- Surgery
- Renal dialysis and transplants
- Chemotherapy
- Pharmacotherapy

Conclusions…

Efficient robust nursing assessment using the interRAI Acute Care will enable formulation of a **Frailty Index - FREE OF CHARGE!**

The opens the door to frailty assessment for a wide range of purposes in the hospital setting

Acknowledgements

- A/Prof Ruth Hubbard
- Dr Nancye Peel
- Dr Melinda Martin-Khan
- Staff of the CHSR
- Senior nursing staff Canterbury District Health Board (NZ)
- The interRAI research collaborative

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

Create change

Contact details:

Len Gray
len.gray@uq.edu.au

07-31765530
www.uq.edu.au