Joint effort to map SNOMED CT to interRAI
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Outline of presentation

- What is interRAI
- interRAI in Belgium and New Zealand
- Why map interRAI and SNOMED
- Mapping approach
- High level results thus far
- Potential opportunities

Who are interRAI?

- interRAI (www.interRAI.org) is a not for profit collaborative network of 60 researchers and health/social service professionals in over 30 countries
- Their goal is to promote evidence-based clinical practice and policy decisions through the collection and interpretation of high quality data about the characteristics and outcomes of persons served across a variety of health and social services settings.

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interRAI assessment and care planning methodology

- Comprehensive geriatric assessment (CGA) instruments
- Designed for a range of clinical services across multiple care settings
- Develop an overall plan for treatment and long-term follow-up based on a common set of evidenced based items
- Used globally with implementations in 30 countries

Single assessment framework across health sector

80% of items common across the suite:

- Contact Assessment (screener assessment)
- ED assessments
- Home Care
- Long Term Care Facility
- Palliative Care
- Acute Care
- Post Acute Care
- Community Mental Health
- Mental Health Care
- Assisted Living
- Quality of life

....unique underlying assessment codes 'icodes'…

Assessment domains (home care example)

A. Identification Information	✓ complete	L. Skin Condition	✓ complete
B. Intake and Initial History	✓ complete	M. Medications	✓ complete
C. Cognition	✓ complete	N. Treatments and Procedures	✓ complete
D. Communication and Vision	✓ complete	O. Responsibility and Directives	✓ complete
E. Mood And Behaviour	✓ complete	P. Social Supports	✓ complete
F. Psychosocial well being	✓ complete	Q. Environmental Assessment	✓ complete
G. Functional Status	✓ complete	R. Discharge Potential and Overall Status	✓ complete
H. Continence	✓ complete	S. Discharge - Complete at Discharge Only	✓ complete
I. Disease Diagnoses	✓ complete	Assessment Summary	✓ complete
J. Health Conditions	✓ complete	T. Assessment Information	
K. Oral and Nutritional Status	✓ complete		

ihtsdo Delivering SNOMED CT

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Assessment domains
further details/coding - eg cognition

1	COGNITIVE SKILLS FOR DAILY DECISION MAKING	Making decisions regarding tasks of daily life—e.g., when to get up or have meals, which clothes to wear or activities to do
		◉ 0. Independent—Decisions consistent, reasonable, and safe
		○ 1. Modified independence—Some difficulty in new situations only
		○ 2. Minimally impaired—In specific recurring situations, decisions become poor or unsafe; cues/supervision necessary at those times
		○ 3. Moderately impaired—Decisions consistently poor or unsafe; cues / supervision required at all times
		○ 4. Severely impaired—Never or rarely makes decisions
		○ 5. No discernable consciousness, coma [Skip to Section G]

5	CHANGE IN DECISION MAKING	As compared to 90 days ago (or since last assessment if less than 90 days ago)
		○ 0. Improved
		◉ 1. No change
		○ 2. Declined
		○ 8. Uncertain

Multiple applications as by product of assessment

Case-mix

Care Plan (CAPs)   Resource Allocation

**Evaluate
Best Practices**

Assessment

Prevent Gaming

Outcome Measures   Quality Indicators

**Patient Safety
Quality Improvement
Public Accountability
Accreditation**

Examples of interRAI uses

Clinical – care planning, prioritisation, risk management, quality initiatives…

- Triggered CAPs - Institutional risk
  - 20 assessment items - if triggered then 40- 50% chance of admission to residential care in 12 months
- Outcome scores – **CHESS** (**C**hanges in **H**ealth, **E**nd-Stage Disease, **S**igns, and **S**ymptoms)
  - 11 assessment items – higher scores highly predictive of mortality within 12 months
- Risk scores – **MAPLe** (**M**ethod for **A**ssigning **P**riority **Le**vels)
  - 17 assessment items + 1 CAP and 2 outcome measures - 40-50% of those with higher scores likely to be admitted to residential care within one year. Highly correlated with carer stress

interRAI – Belgium & NZ

	Belgium	New Zealand
Web based national system	✅	✅
Accessible across continuum of care	✅	✅
Inception of national system	2008	2008
national training/competency	✅	✅
Volumes	circa 200,000	✅ circa 0.5M
Interoperability	…coming…	(HL7-CDA)

interRAI – Belgium & NZ

	Belgium	New Zealand
Contact assessment	n/a	live
Emergency dept screener	n/a	live
Community health assessment	n/a	live
Home care	live	live
Long term care	live	live
Palliative care	live	Piloted - likely roll out
Acute care	live	likely next pilot area
Post acute care	n/a	n/a
Community Mental Health	n/a	n/a
Emergency Screener for Psychiatry	n/a	n/a
Mental health	n/a	n/a
Assisted living	n/a	n/a
Intellectual disability	n/a	n/a
Children &Youth Mental Health	n/a	n/a
Quality of life	n/a	n/a

interRAI use globally...
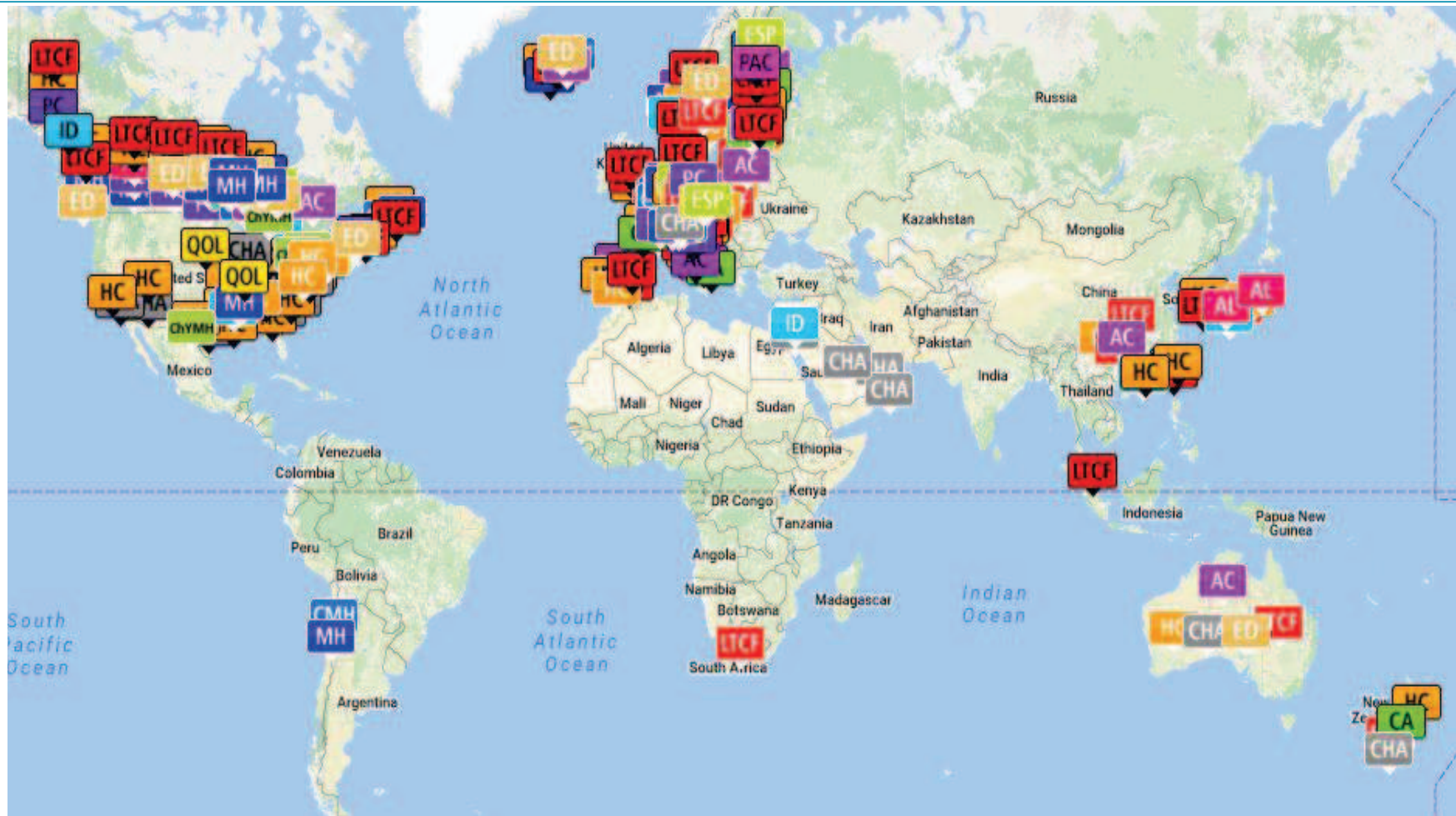

...millions of assessments...

interRAI to SNOMED mapping – why bother?

- Strengthen
  - Common language, understanding and consistency across health care settings
- Support
  - Common coding
  - Interoperability across systems - NZ uses HL7-CDA using unique interRAI icodes – future ability to add in SNOMED codes (?)
- **interRAI mapping project:**
  - Examine the conceptual relationship between the SNOMED CT and interRAI
  - Determining the feasibility of SNOMED CT to (semi)-automatically generate the items of the interRAI assessments

Method

- Dual blind mapping with adjudicator
- Using the interRAI icodes
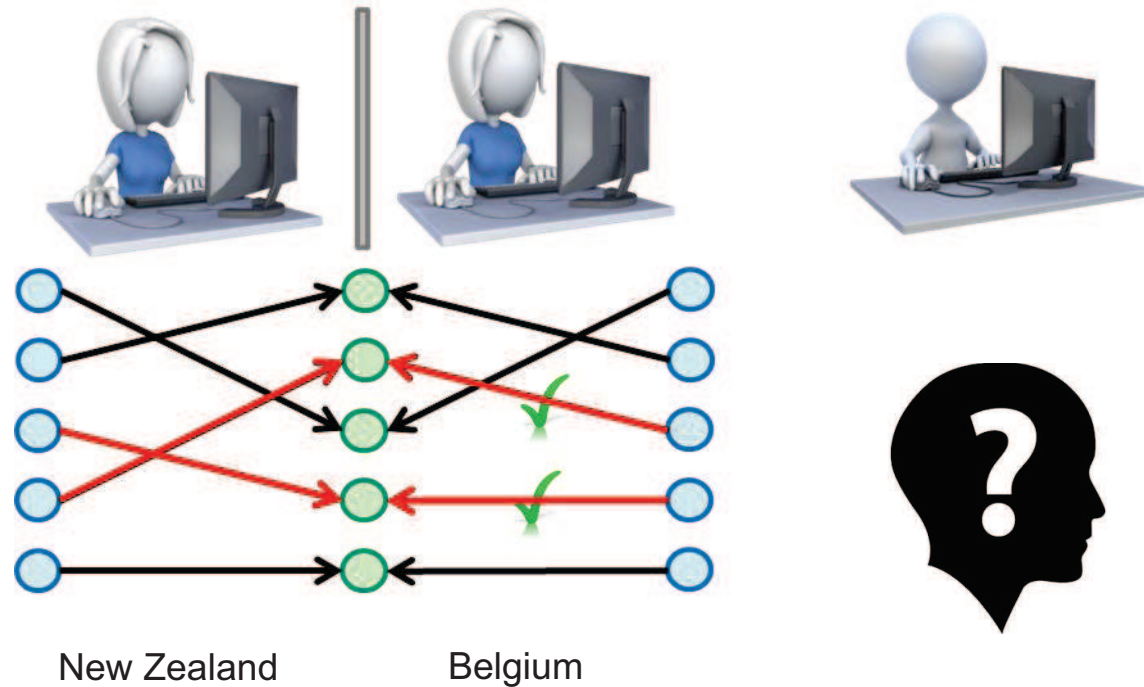
New Zealand   Belgium

Results

- The dual blind mappings are accomplished.
  - One-to-one mappings as well as one-to-many have been constructed.
    - 48.13% mappings are 1-1
    - 49.14% mappings are N-1
    - 2.73% were unmappable at this stage.
  - Further work is required by adjudicator
    - Partial absence of the semantic meaning of interRAI concepts while performing the dual blind mapping
- Understanding conceptual overlaps/gaps

Potential opportunities

- Mapping of interRAI assessment items/concepts to SNOMED CT and vice versa does appear to offer complimentary opportunities for both systems to support depth and breadth of uptake globally. This study is a first **tentative** step in this area
- Strengthening clinical assessment language and concepts and clinical terminology
- Encourage collaboration between IHTSDO and interRAI collaborative

Articles of interest

Devriendt, E., Wellens, N. I. H., Flamaing, J., Declercq, A., Moons, P., Boonen, S., & Milisen, K. (2013). The interRAI Acute Care instrument incorporated in an eHealth system for standardized and web-based geriatric assessment: strengths, weaknesses, opportunities and threats in the acute hospital setting. BMC Geriatrics, 13, 90

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John P Hirdes, Jeff W Poss and Nancy Curtin-Telegdi. The Method for Assigning Priority Levels (MAPLe): A new decision-support system for allocating home care resources. BMC Medicine 2008 6:9

Joint effort to map SNOMED CT to interRAI

Presenters: Arabella D'Havé/Katrien Scheerlinck, Belgian Federal Public Service of Health, Food Chain Safety and Environment & Belgian NRC for SNOMED CT; Andrew Downes, Healthshare Ltd, New Zealand

Audience

Everybody using interRAI and interested in (semi)-automatical generation of the interRAI assessments.

Objectives

The objective of this study is to examine the conceptual relationship between the SNOMED CT and interRAI and to assist in determining the feasibility of SNOMED CT to (semi)-automatically generate the items of the interRAI assessments.

Abstract

Introduction: The interRAI Suite consists of comprehensive geriatric assessment (CGA) instruments of the third generation, designed for a range of clinical services across multiple care settings [1]. Third generation instruments are instruments that facilitate data transfer between healthcare settings, based on a common set of standardized items [2,1].

Background: interRAI is used globally with implementations in 30 countries. Countries such as Belgium, New Zealand, Canada, Finland Singapore and the USA have (close to) national implementations with 'millions' of assessments completed. Mapping of interRAI assessment items/concepts to SNOMED CT and vice versa does appear to offer complimentary opportunities for both systems to support depth and breadth of uptake globally. This study is a first step in this area.

Methods: The mapping approach is conducted as a dual blind mapping with an adjudicator. Initially, the interRAI items were mapped manually to SNOMED CT by 2 independent mappers (international collaboration between Belgium and New-Zealand) using the interRAI iMATRIX. Subsequently, an adjudicator will compare the 2 mappings.

Results: The dual blind mappings are accomplished. One-to-one mappings as well as one-to-many have been constructed. Overall, 48.13% mappings are 1-1, 49.14% are 1-N and 2.73% were unmappable at this stage.

Conclusion: A restriction is the partial absence of the semantic meaning of interRAI concepts while performing the dual blind mapping. Therefore, it will be necessary for the adjudicator to take the semantics of all interRAI concepts into account when completing the map. A second restriction is the lack of concepts in SNOMED CT needed to describe the specific context of certain interRAI items (e.g. time related items; care setting related items,…). Post-coordination is an option to overcome this obstacle but will possibly not suffice.

References

1. Gray, L.C. et al. Sharing clinical information across care settings: the birth of an integrated assessment system. BMC Health Serv Res 9, 71 (2009).
2. Bernabei, R., et al. Second and third generation assessment instruments: the birth of standardization in geriatric care. J Gerontol A Biol Sci Med Sci 63, 308-313 (2008).
3. Wellens, N.I. et al. Validity of the interRAI Acute Care based on test content: a multi-center study. Aging Clin Exp Res 23, 476-486 (2011).
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