Neurological Conditions Across the Continuum of Care:
Using interRAI Instruments to Respond to the Needs of Special Populations

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Innovations in Data, Evidence, and Applications for Persons with Neurological Conditions (*ideas* PNC)

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- **Consultants:** Poss

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Project Activities

A) Estimate prevalence of the neurological conditions across the continuum of care

B) Develop detailed clinical profile of persons with 10 neurological conditions in different care settings

C) Evaluate applicability of current interRAI care planning approaches to persons with neurological conditions

D) Examine access to and utilization of health and social services by persons with neurological conditions

E) Examine costs of care associated with neurological conditions including both formal and informal sources

F) Identify approaches for performance measurement and develop recommendations on reporting and risk adjustment methods

G) Examine experience of informal caregivers providing support, including extent and type of care provided

Things designed for the "general" population may not work so well for "special" populations

Implementation & Testing of interRAI Instruments:
A Unique Opportunity to Study Neurological Conditions Across the Continuum of Care
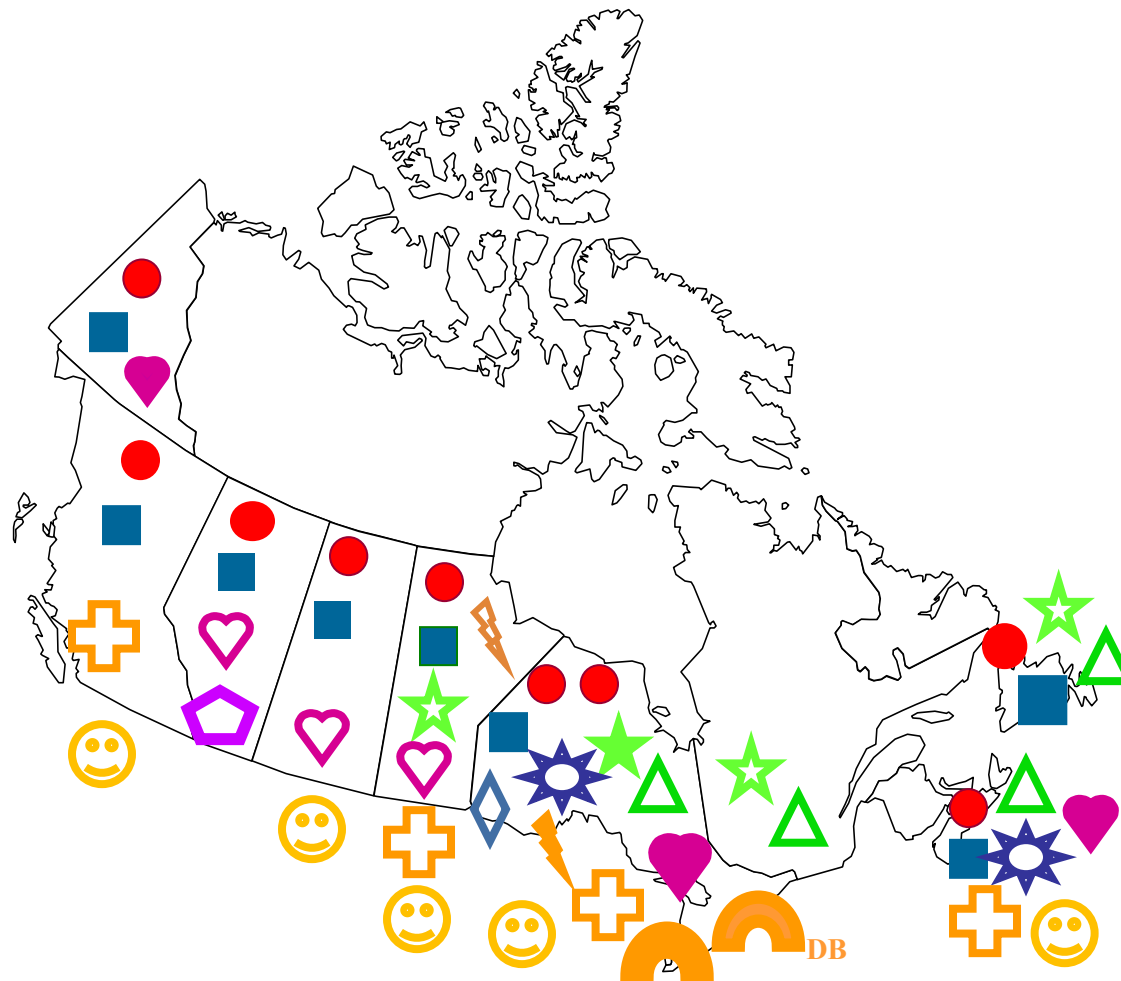
- RAI 2.0
- RAI-HC
- RAI-MH
- interRAI CMH
- interRAI ESP
- interRAI PC
- interRAI ID
- interRAI ED/AC
- interRAI CA
- interRAI CHA
- interRAI AL
- interRAI SQoL

Clinical Profiles of Persons with Neurological Conditions in the Continuum of Care

About the Data

- CIHI's interRAI data holdings
  - Complex Continuing Care (CCC) from CCRS - Apr 1996 to Mar 2011

  - Nursing Homes/Long Term Care (LTC) from CCRS - Jun 2003 to Mar 2011

  - Home Care Long Stay (HC) from OACCAC and HCRS - Jan 2002 to Dec 2010

  - Mental Health (MH) from OMHRS - Oct 2005 to Mar 2010 (Ontario only)

- Linked data sets
  - CIHI RAI data linked to DAD, NACRS, NRS 2003-10
  - ICES RAI data linked to DAD, ODB, physician billing (Ontario only)
  - RAI-HC data linked to OACCAC admin database (Ontario only)

Sample sizes of the neurological conditions

	CCC	LTC	MH	HC Long Stay
Non PHAC Neuro/Non Stroke	86,218	51,540	111,182	348,167
Any PHAC neurological conditions	47,945	119,687	3,576	142,090
ADRD	34,573	106,364	533	107,563
Epilepsy	8,061	9,132	1,372	3,324
Parkinson's	6,372	12,132	771	20,388
Brain Injury	2,217	1,848	368	7,352
Multiple Sclerosis	1,981	2,409	268	6,412
Cerebral Palsy	600	1,021	184	2,369
ALS	367	240	7	1,561
Huntington's	158	413	139	185
Muscular Dystrophy	50	61	31	982
Spinal Cord Injury	19	23	16	2,208

Demographics
and Clinical Characteristics

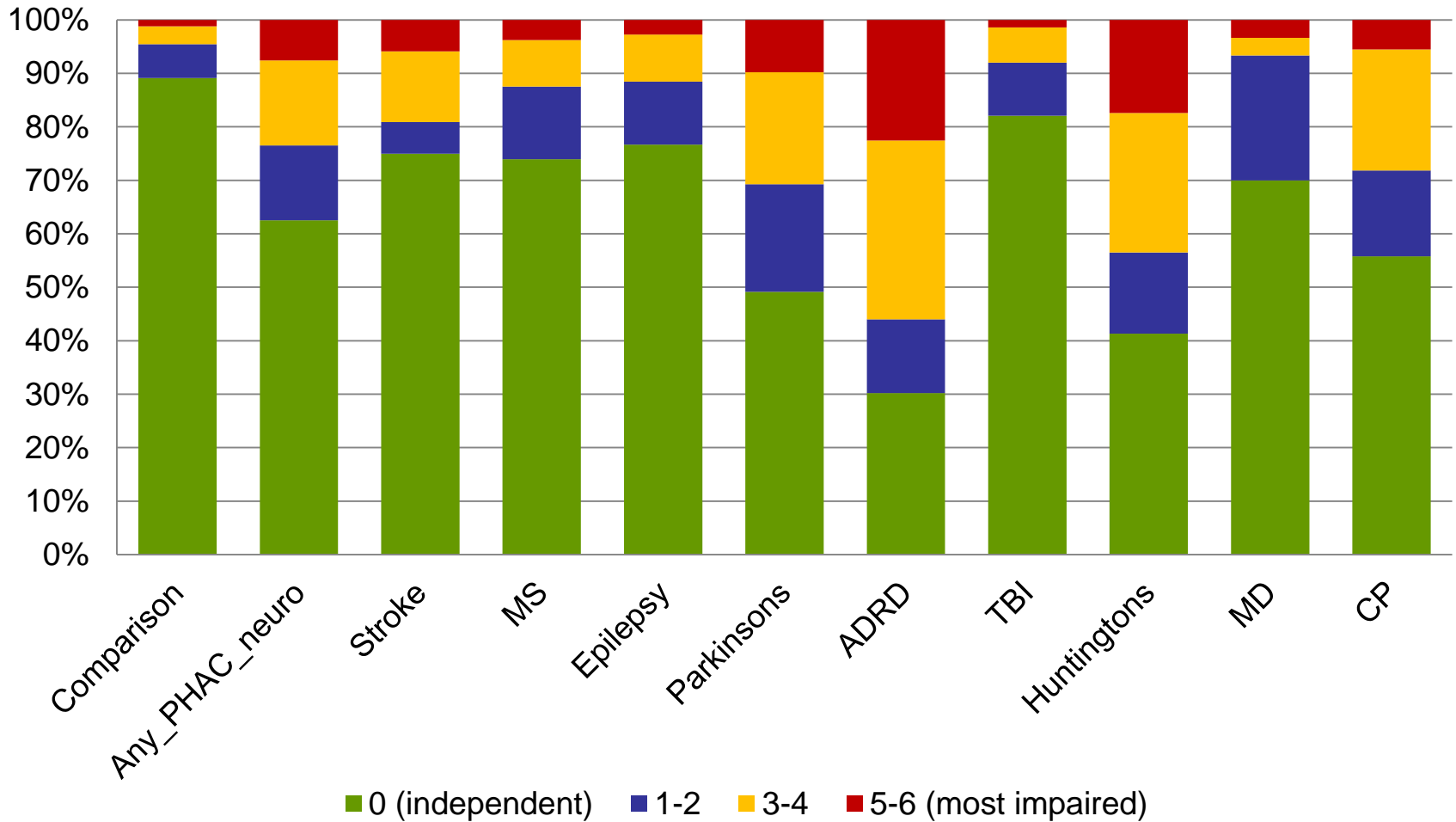# Age distribution of persons with brain injury by Care Setting, Ontario, 2010

Legend:
- ■ age >85
- ■ age 75-85
- ■ age 65-75
- ■ age <65

Categories: CCC, LTC, MH, HC
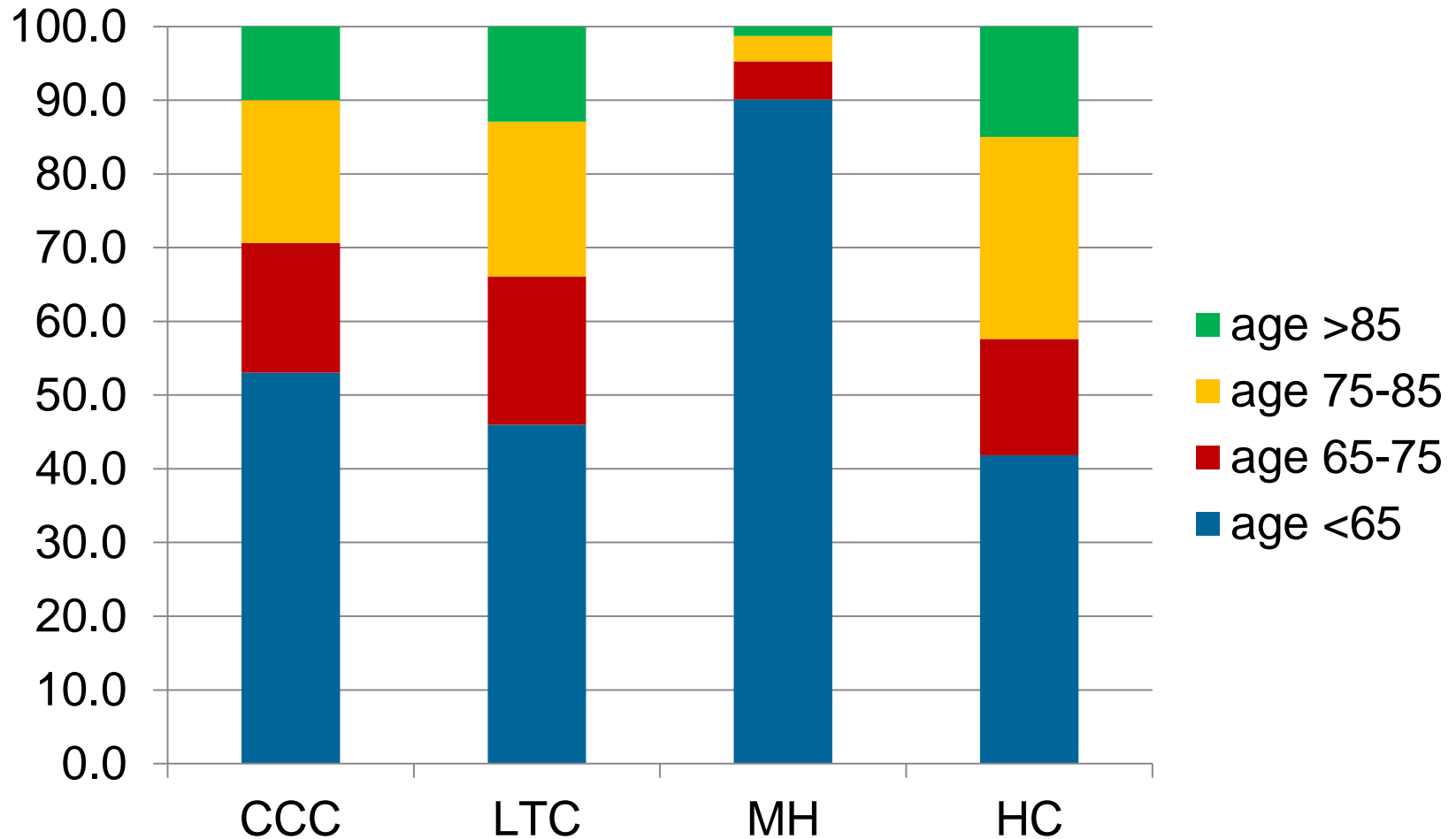
Cross-sector trajectories of change

Cognition and ADL

HC Long Stay – ADL Self-performance Hierarchy

Legend: 0 (independent), 1-2, 3-4, 5-6 (most impaired)

Categories: Comparison, Any_PHAC_neuro, Stroke, MS, Epilepsy, Parkinsons, ADRD, TBI, Huntingtons, SCI, ALS, MD, CP
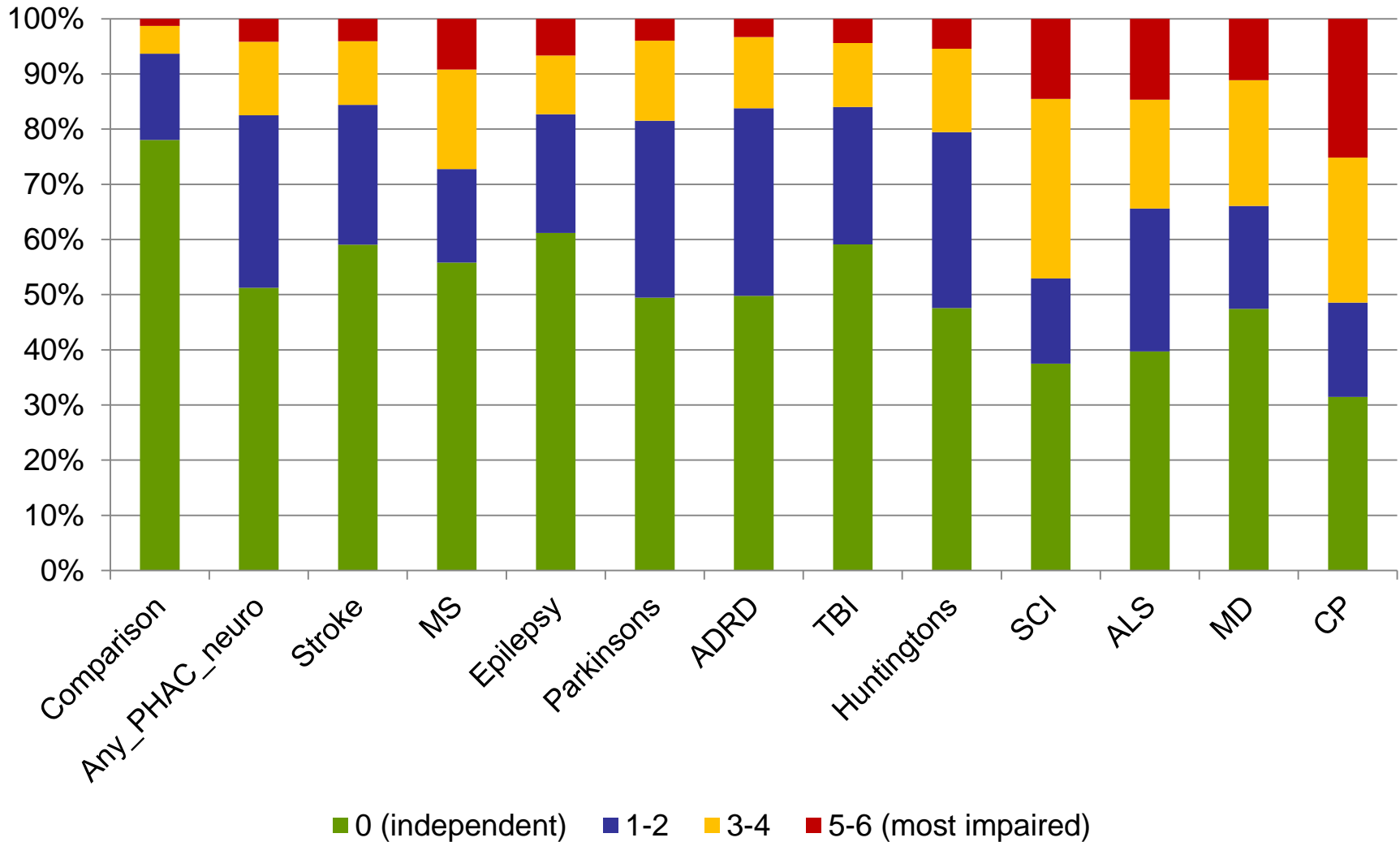
MH – ADL Self-performance Hierarchy

SCI, ALS groups n<30, thus not included

LTC - ADL Self-performance Hierarchy

Legend: 0 (independent), 1-2, 3-4, 5-6 (most impaired)

Categories: Comparison, Any_PHAC_neuro, Stroke, MS, Epilepsy, Parkinsons, ADRD, TBI, Huntingtons, ALS, MD, CP
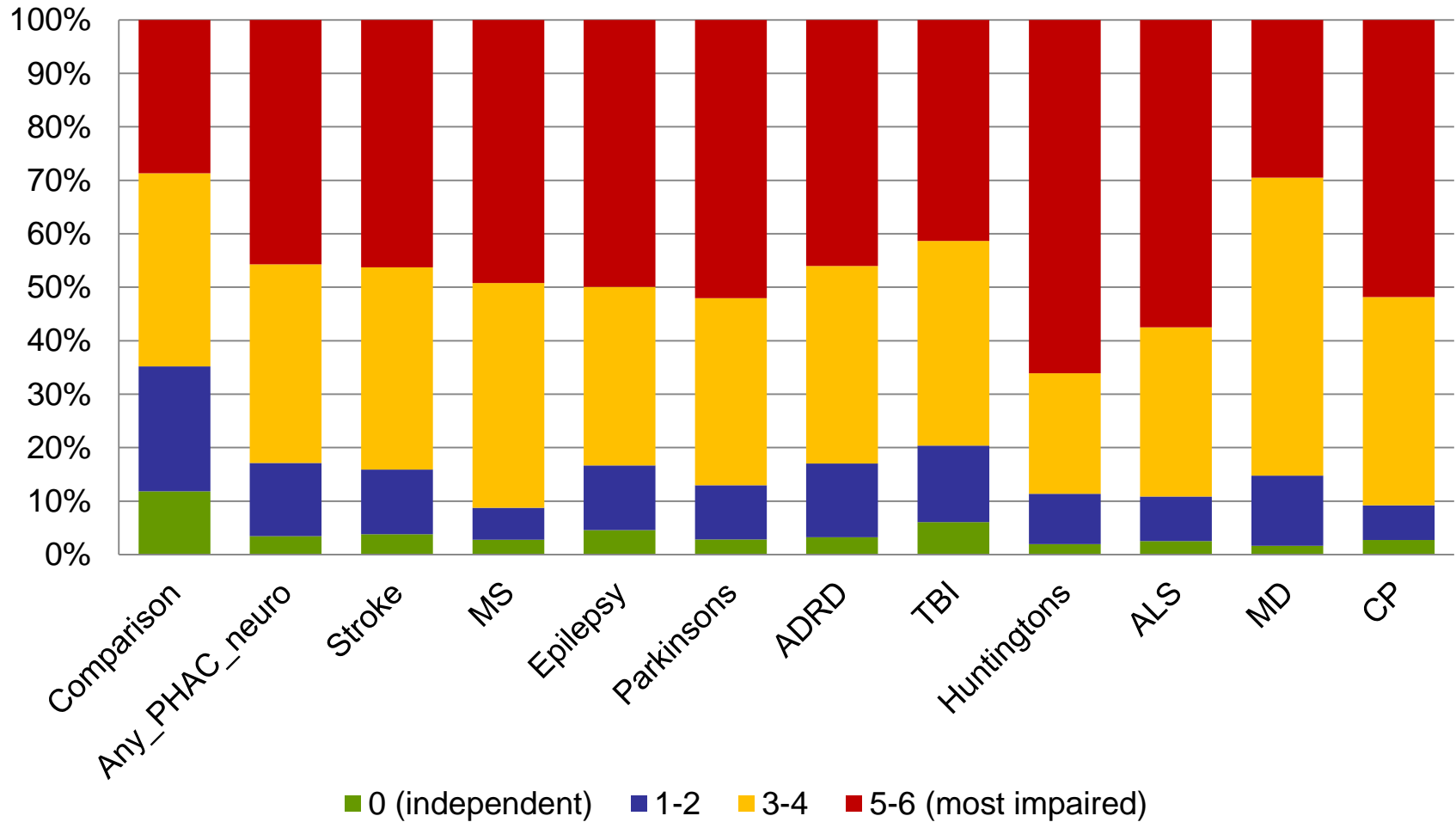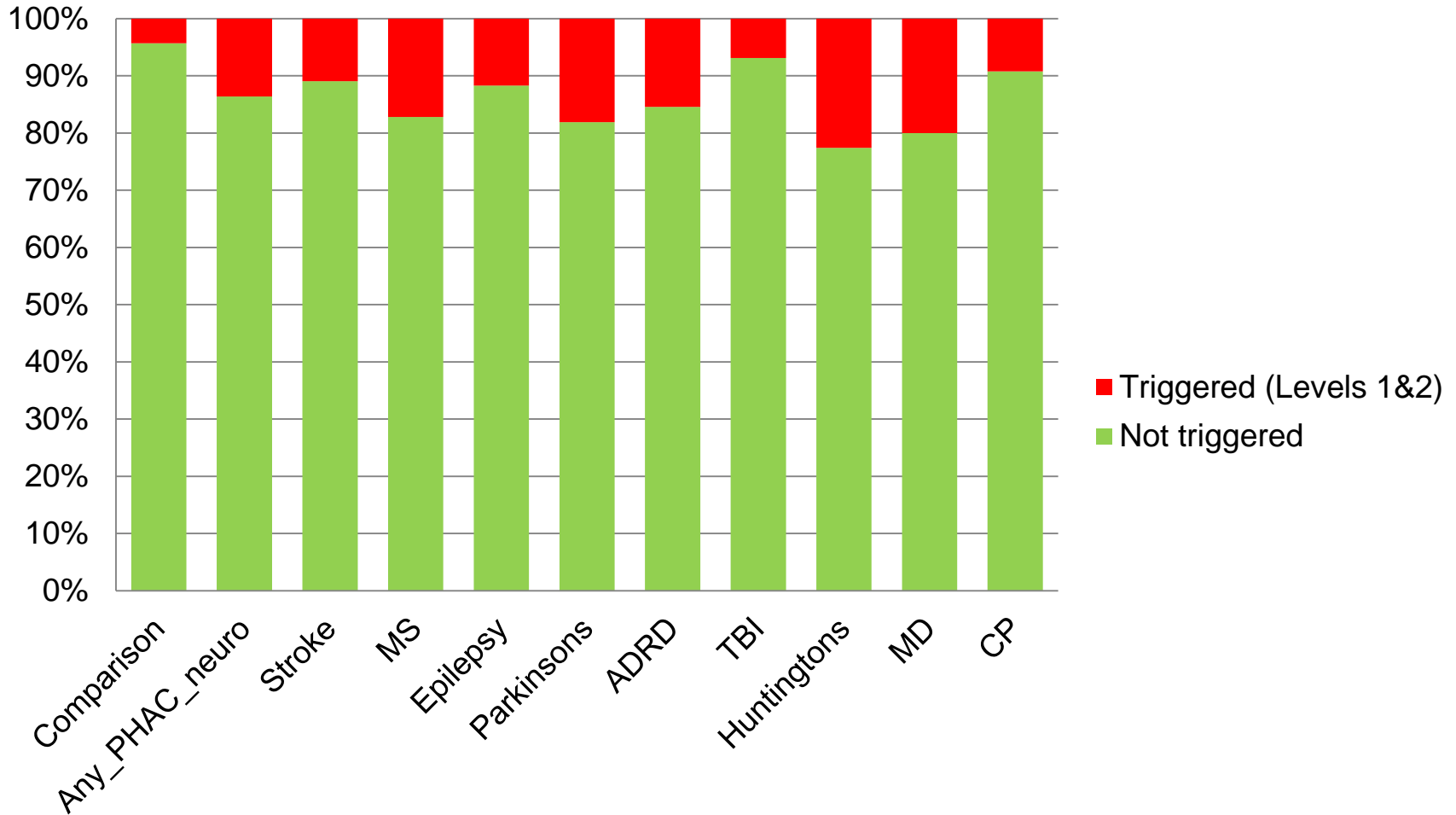
SCI group n<30, thus not included

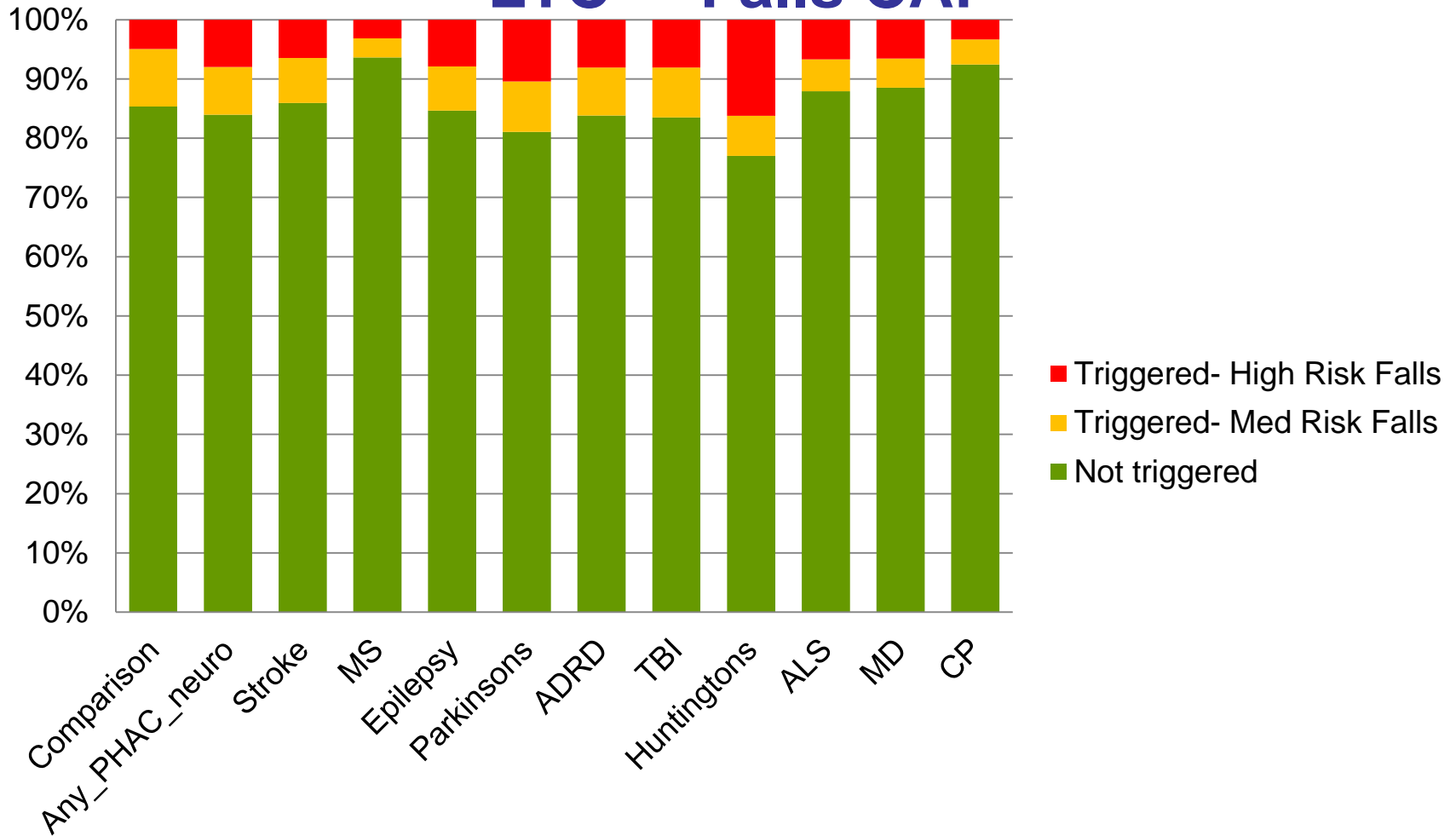# Use of interRAI Clinical Assessment Protocols (CAPs) among Persons with Neurological Conditions
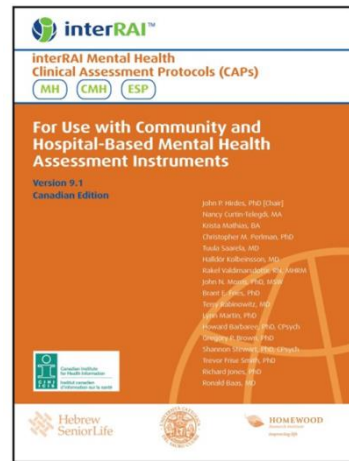
MH – Falls CAP
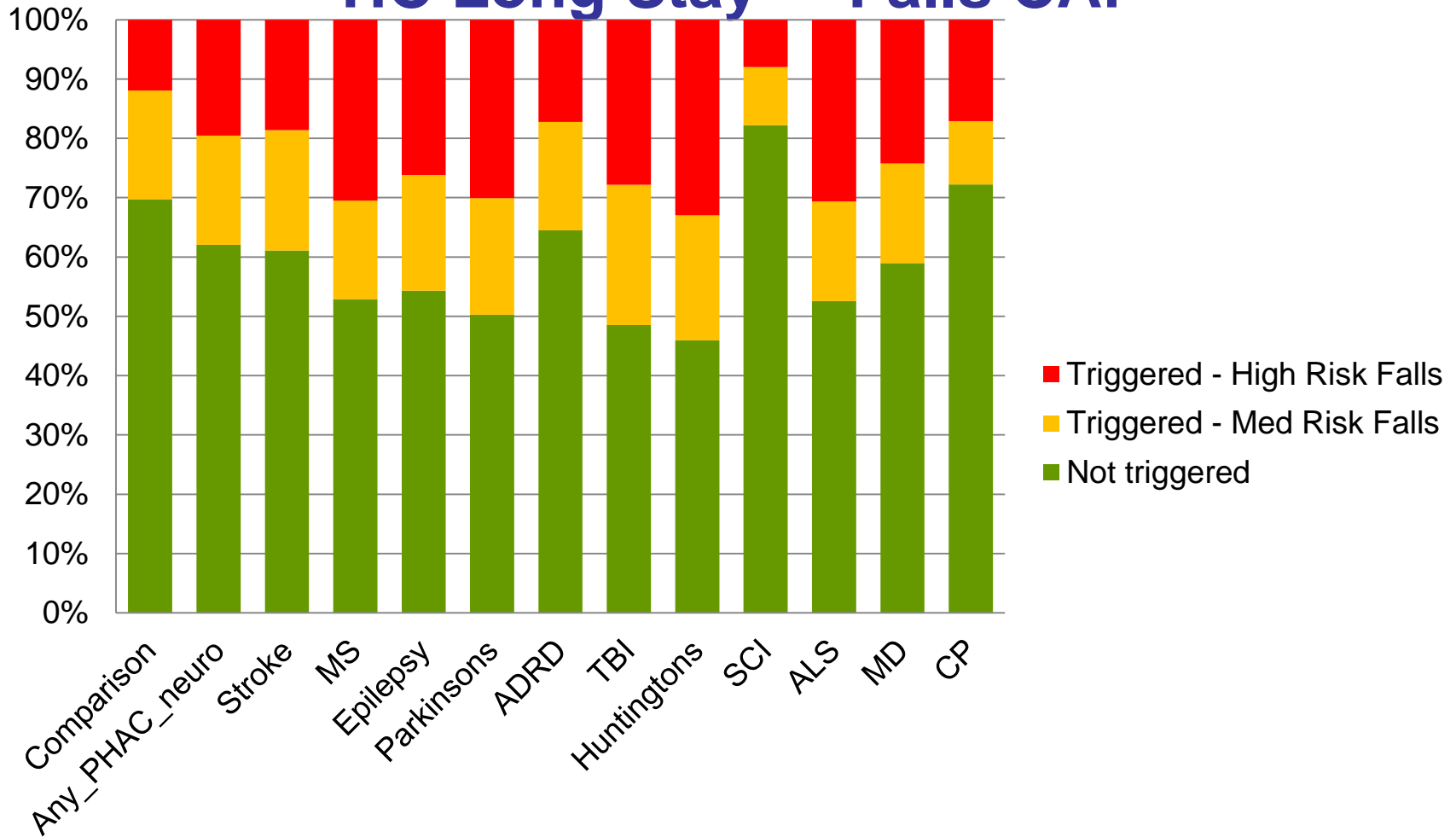## (Note: Only two levels shown - multiple falls not captured prior to 2009)
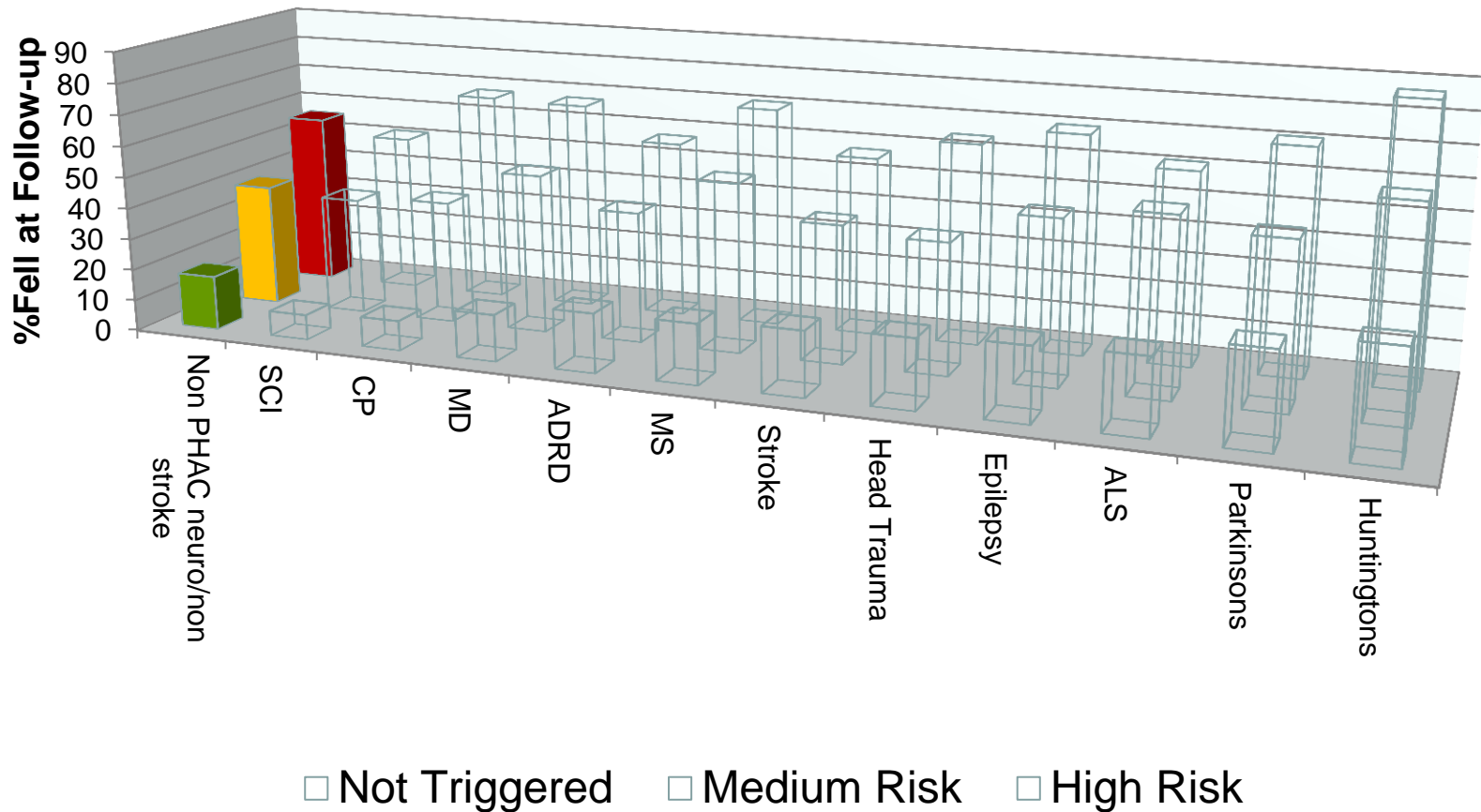

SCI, ALS groups n<30, thus not included

LTC – Falls CAP

SCI group n<30, thus not included

HC Long Stay – Falls CAP

Legend:
- Triggered - High Risk Falls
- Triggered - Med Risk Falls
- Not triggered

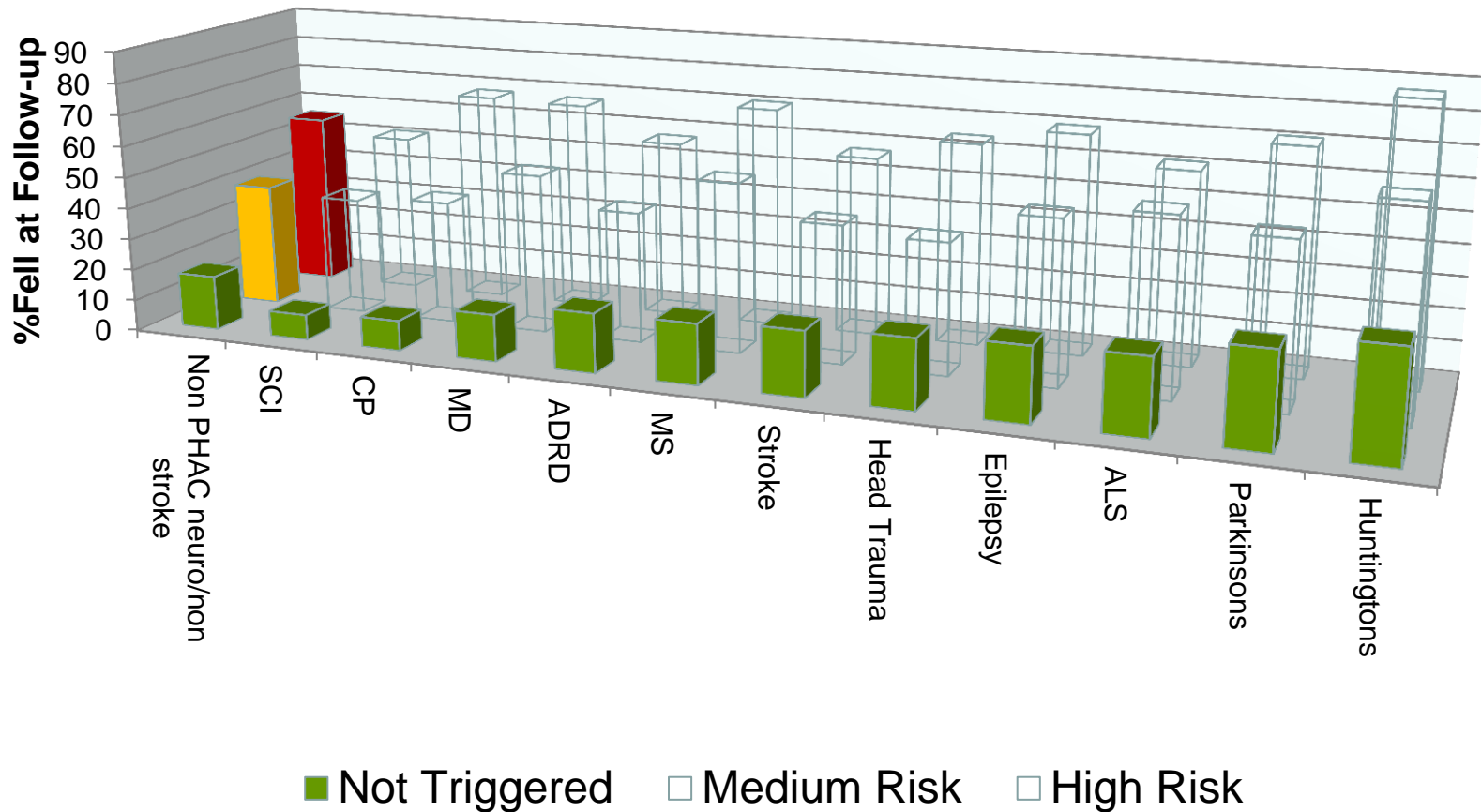Categories: Comparison, Any_PHAC_neuro, Stroke, MS, Epilepsy, Parkinsons, ADRD, TBI, Huntingtons, SCI, ALS, MD, CP

Rates of falls at follow-up by baseline Fall CAP, home care client prevalence samples (YT, Northern BC, WRHA, ON, NS) 2007 & 2010

%Fell at Follow-up (y-axis: 0, 10, 20, 30, 40, 50, 60, 70, 80, 90)

Categories: Non PHAC neuro/non stroke, SCI, CP, MD, ADRD, MS, Stroke, Head Trauma, Epilepsy, ALS, Parkinsons, Huntingtons

☐ Not Triggered   ☐ Medium Risk   ☐ High Risk

**Rates of falls at follow-up by baseline Fall CAP, home care client prevalence samples (YT, Northern BC, WRHA, ON, NS) 2007 & 2010**

Legend: ■ Not Triggered □ Medium Risk □ High Risk

Y-axis: %Fell at Follow-up (0, 10, 20, 30, 40, 50, 60, 70, 80, 90)

X-axis categories: Non PHAC neuro/non stroke, SCI, CP, MD, ADRD, MS, Stroke, Head Trauma, Epilepsy, ALS, Parkinsons, Huntingtons

Rates of falls at follow-up by baseline Fall CAP, home care client prevalence samples (YT, Northern BC, WRHA, ON, NS) 2007 & 2010
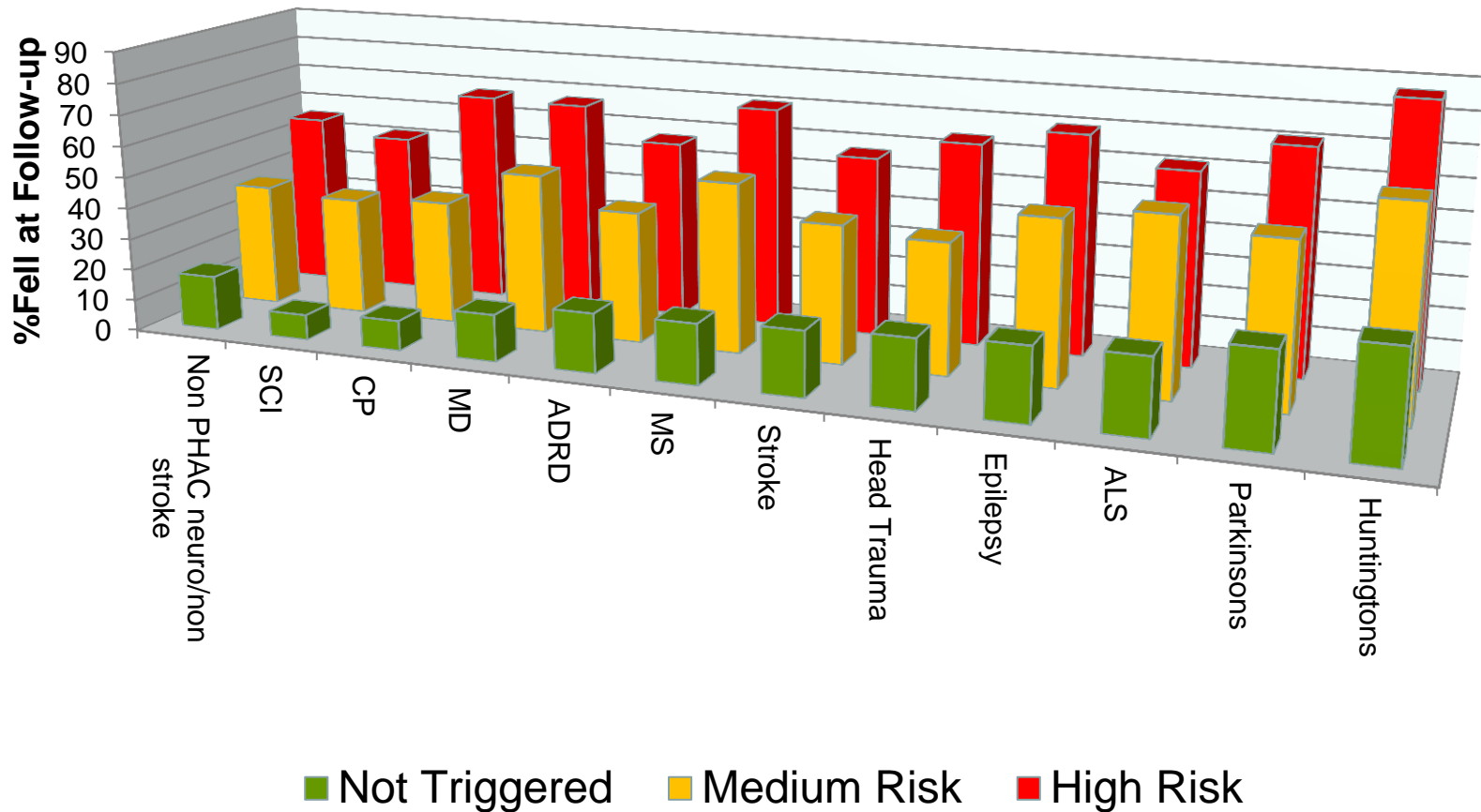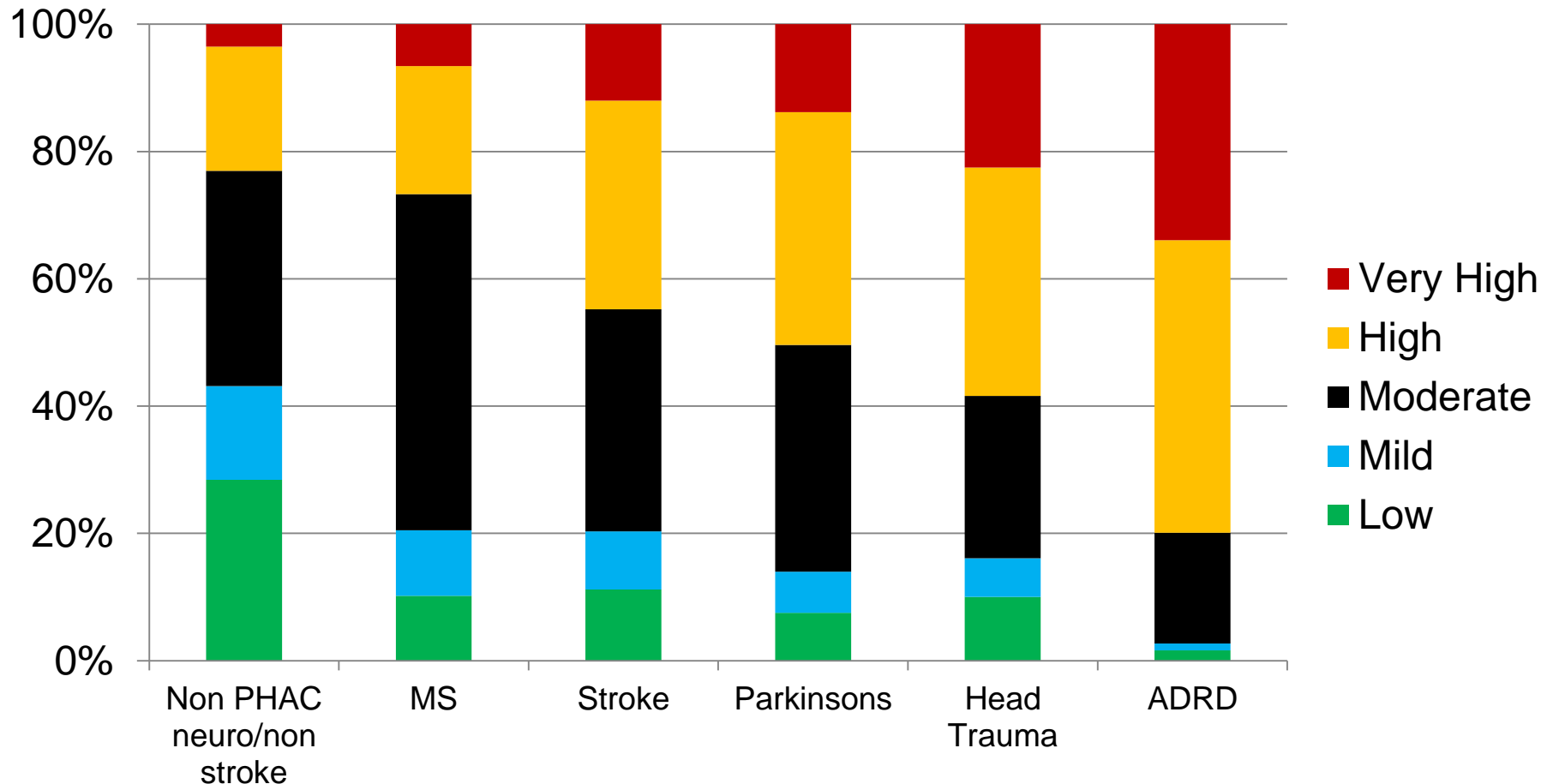
Validation of Scales and Algorithms for Persons with Neurological Conditions
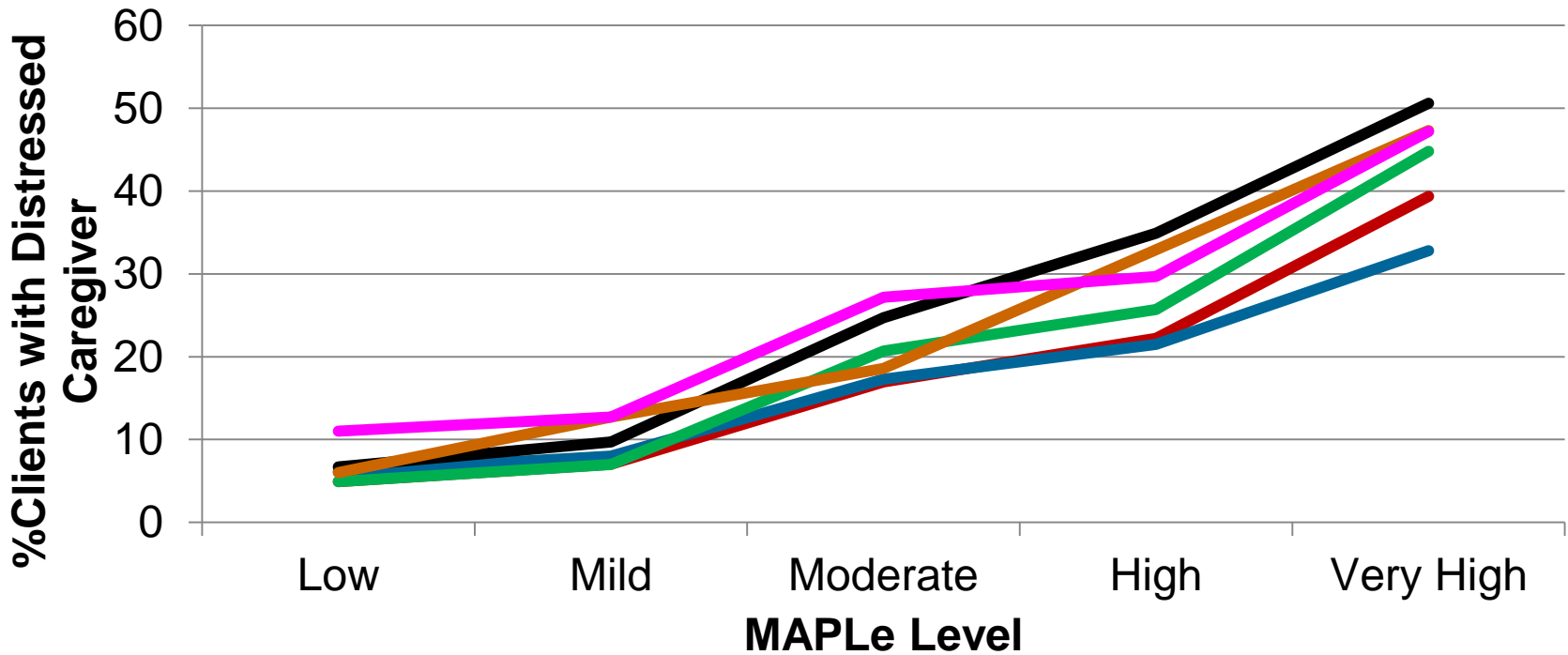
MAPLe and CHESS

MAPLe
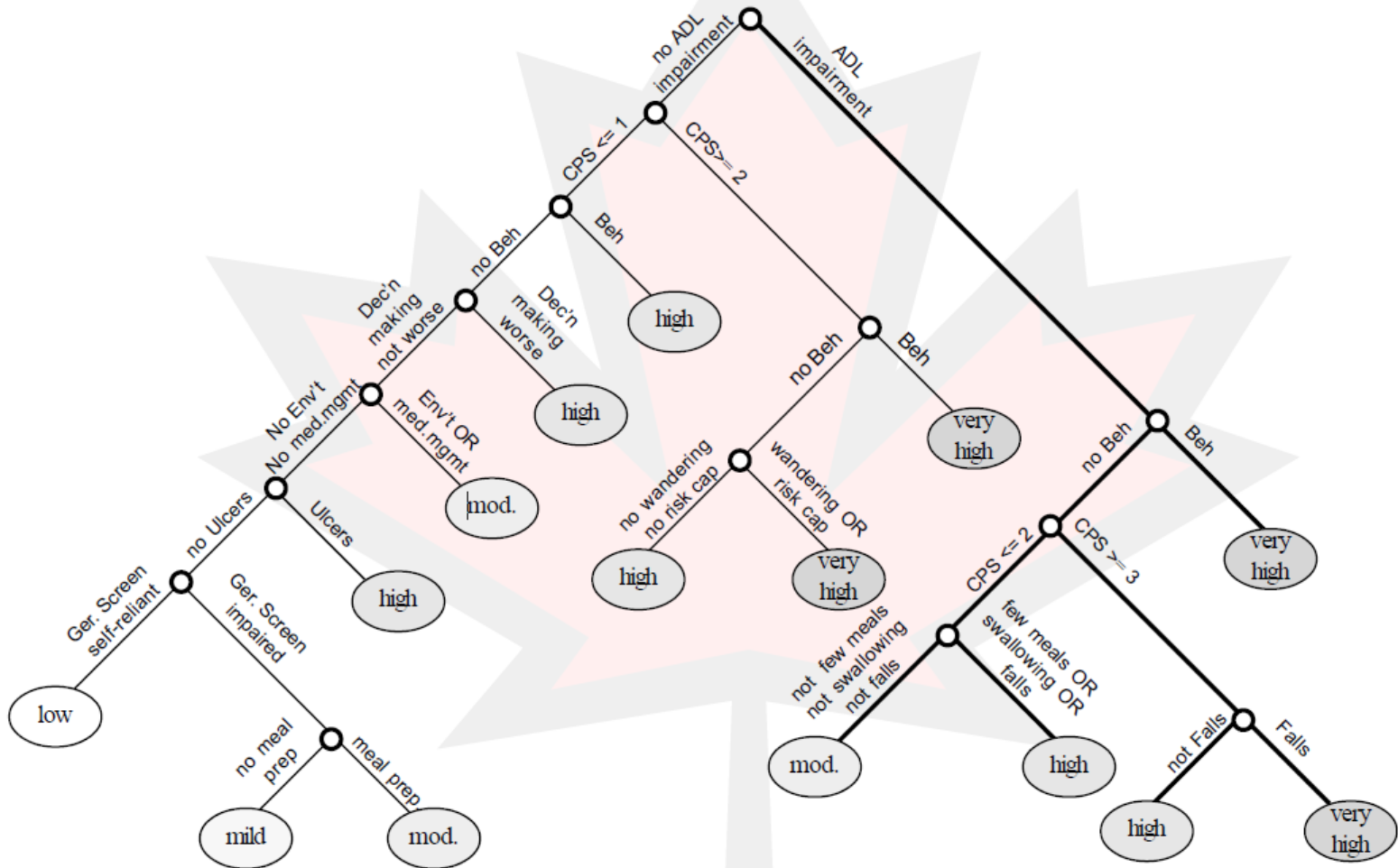
Distribution of the Method for Assigning Priority Levels (MAPLe), home care client prevalence samples (YT, Northern BC, WRHA, ON, NS) 2007 & 2010

Association of caregiver distress with MAPLe level, home care client prevalence samples (YT, Northern BC, WRHA, ON, NS) 2007 & 2010

Y-axis: %Clients with Distressed Caregiver (0 to 60)

X-axis: MAPLe Level (Low, Mild, Moderate, High, Very High)

Legend: Non PHAC neuro/non stroke, MS, Stroke, Parkinsons, Head Trauma, ADRD

Survival Analysis of Nursing Home Admissions by MAPLe Level among Home Care Clients with Parkinson's Disease, ON&WRHA
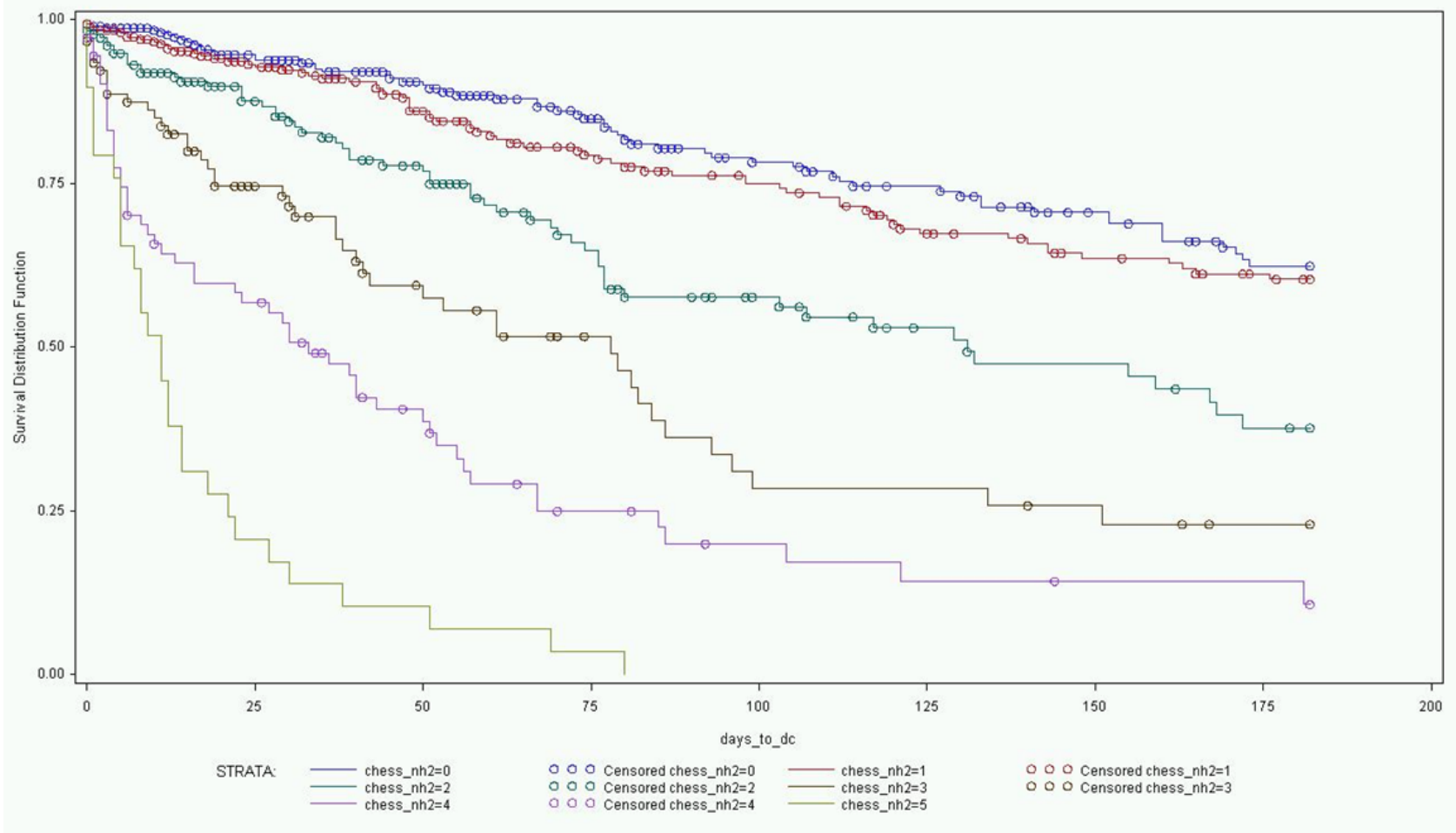

RAI-HC assessed (ON, WRHA) - Placed to LTC Home, Parkinsons
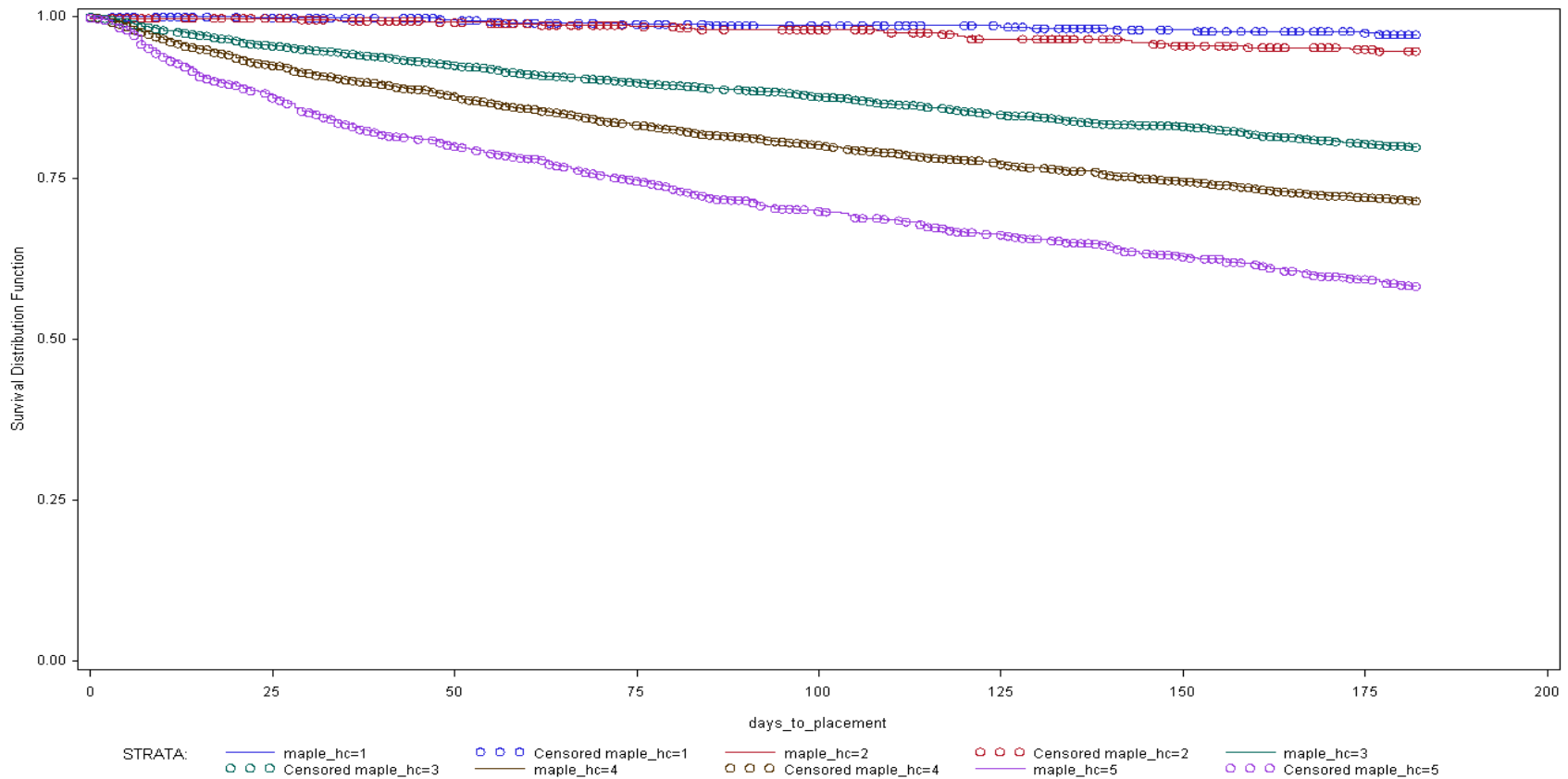
CHESS Scale

- Considers
  - Changes in ADL and cognition
  - Signs and symptoms (e.g., shortness of breath, weight loss)
  - End-stage disease

- 0 – stable to 5 – highly unstable health

6-month Survival among CCC Hospital Patients with MS, by CHESS Score

Resource Use Among Persons with Neurological Conditions

Formal and Informal Care Costs per Week by Neurological Condition, Ontario 2009
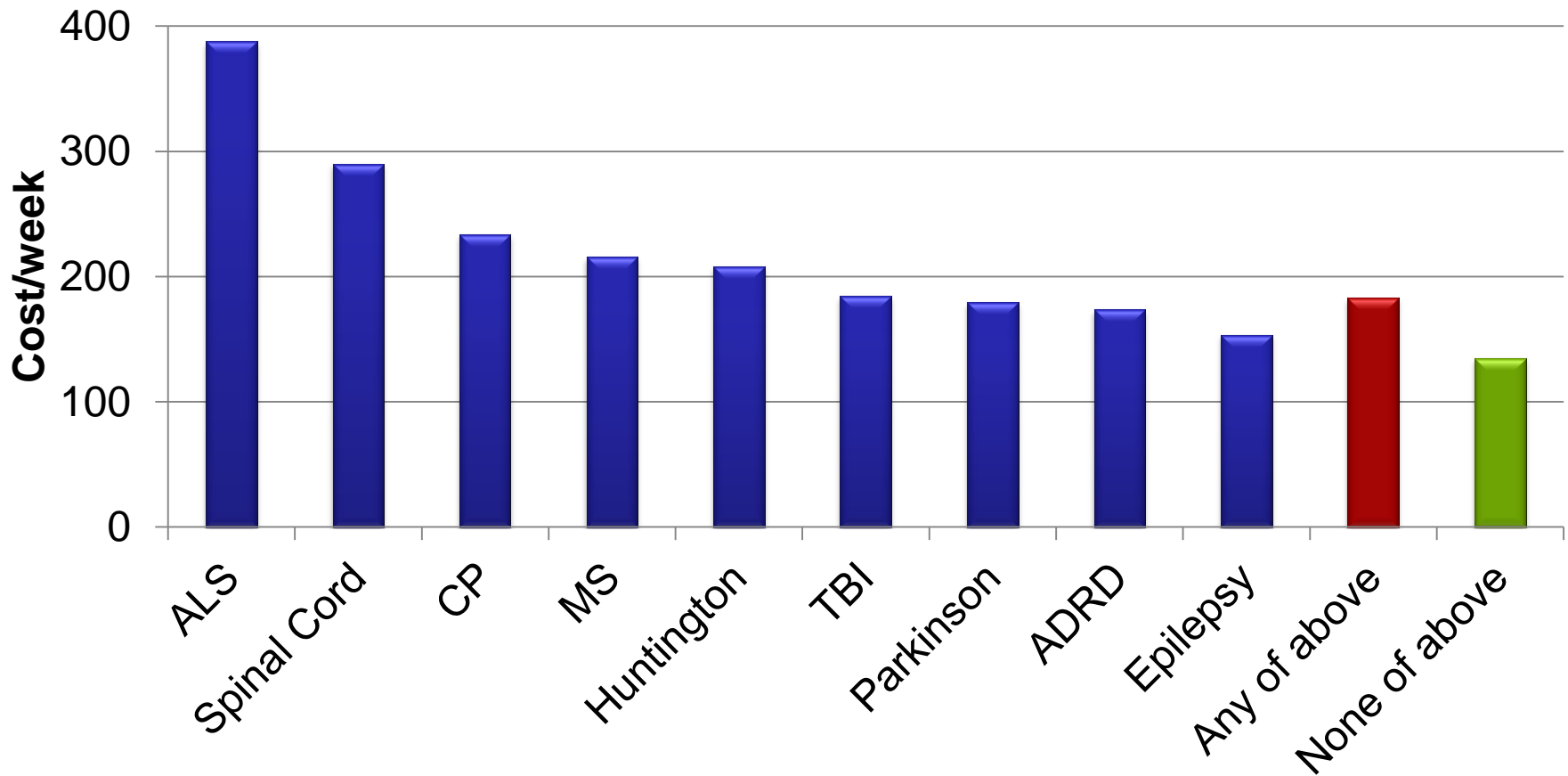
Concluding Comments

- Data from interRAI assessments in Canada provide a unique opportunity to understand the experience of special populations across the continuum of care

- Getting diagnostic information complete and correct is important

- interRAI instruments ***WORK*** as clinical tools for
  - General population
  - Special populations

Where can you get more info?

- Sign up for interRAI newlsetter

- Visit interRAI Canada website
    - interRAICanada.uwaterloo.ca

Thank you!

Questions? Comments?