



Aging, Community
and Health
RESEARCH UNIT



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Health Services Utilization and Costs Associated with Co-Morbidity in Older Adults with Stroke

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- PIs: M. Markle-Reid and J. Ploeg
- Based at McMaster University with collaborators across the country
- 8 inter-related projects on managing multimorbidity
- Focus on: dementia, diabetes, and stroke
- Funding: CIHR and Ontario MOHLTC

Background

- Multimorbidity (MM) associated with increased health service use
- MM is most common in older adults, the demographic at highest risk of stroke
- High rates of co-morbid chronic conditions in older adults with stroke
 - Mainly focused on “concordant” conditions
 - Little population-based research



Background

- Co-morbid conditions associated with worse stroke-related outcomes
 - Higher short- and long-term mortality
 - Less benefit from stroke rehabilitation
 - Lower use of secondary stroke prevention



Background

- Little data characterizing co-morbidity or its effects in people with stroke
- Complicates planning and evaluation of patient-centered stroke care programs
 - Unable to anticipate non-stroke needs
 - Little knowledge of full scope of health services use
 - Limits our understanding of MM in the context of conditions like stroke



Study Objectives

- To characterize co-morbidity in a cohort of community-dwelling older adults with chronic stroke;
- To describe their health services use patterns over 5 years;
- To estimate associated health system costs.

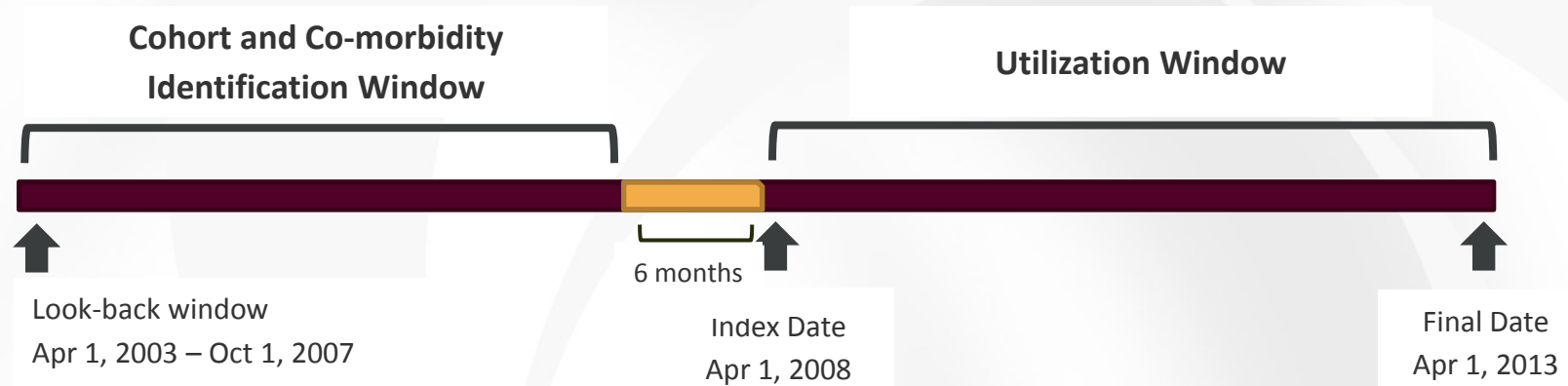


Methods

- Linked administrative data
- Baseline: April 1, 2008
- All community-dwelling individuals >65 years with prior stroke
- 5-year follow-up for health service use and costs



Methods



14 Co-morbid Conditions:

Anxiety/Depression	Arthritis
Cancer	COPD
Diabetes	Upper GI Bleed
Hypertension	IHD
Liver Disease	Osteoporosis
IBD	Renal Disease
CVD (excl. Stroke)	Stroke

Utilization:

- Physician Visits (GP and Specialist)
- ED Visits
- Hospital Admissions
- Home Care Visits



Methods: Stroke Definition

- Any DAD diagnostic code for ischaemic or hemorrhagic stroke
- 5 years prior to baseline (Apr. 1, 2008)
- Excluded individuals with first stroke within the 6 months prior to baseline



Methods: Analysis

- Stratified cohort by baseline co-morbidity
- Estimated annual use of each health services type (index vs. non-index use)
- Estimated annual total and per service type costs (adjusted to 2012 dollars)

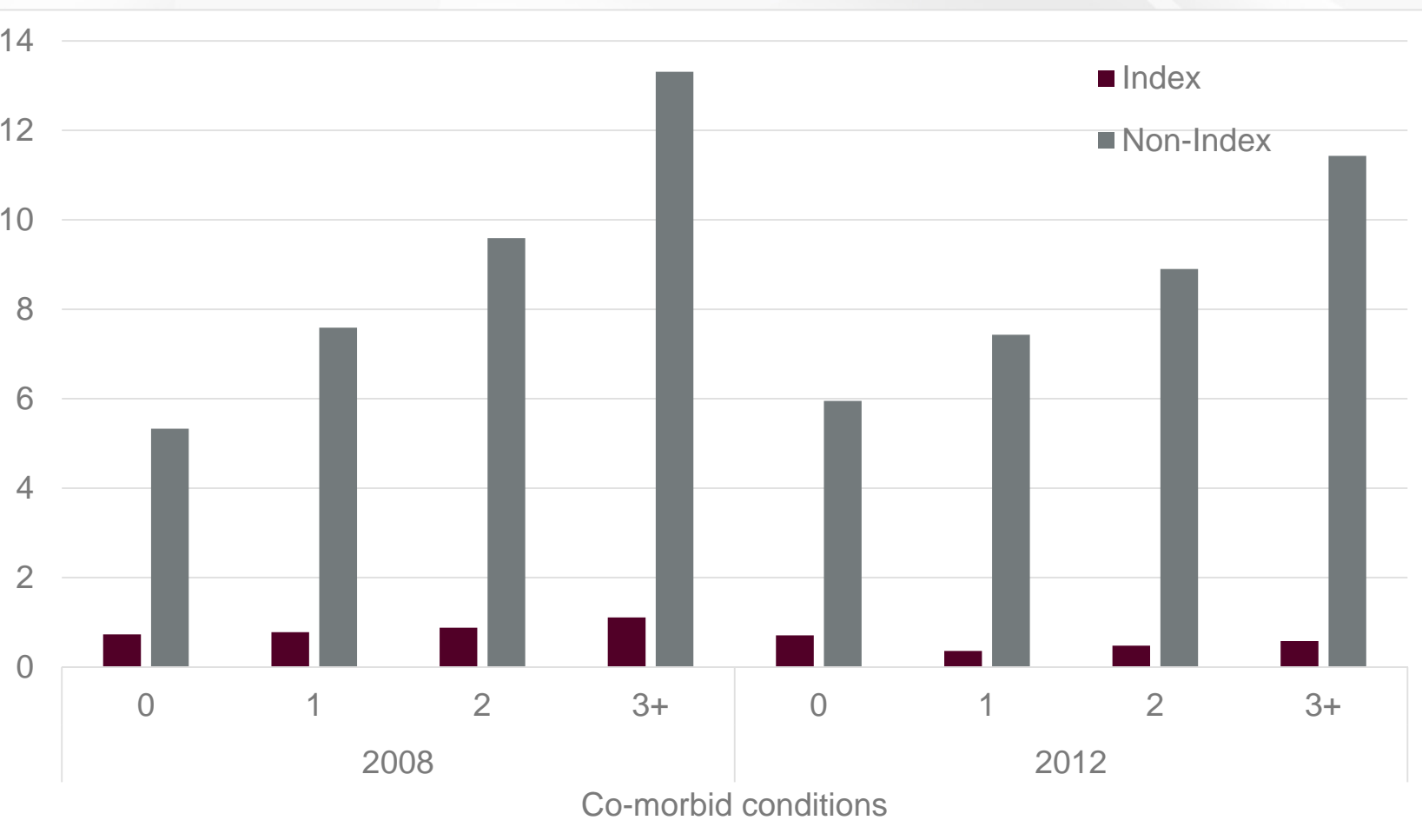
Cohort Description (N=29,673)

- Mean Age: 78 years
- Female: 49.9%
- 3+ co-morbid conditions: 74.9%
 - 5+: 30.5%
- 9,158 (30.9%) lost due to death or LTC admission over 5 years

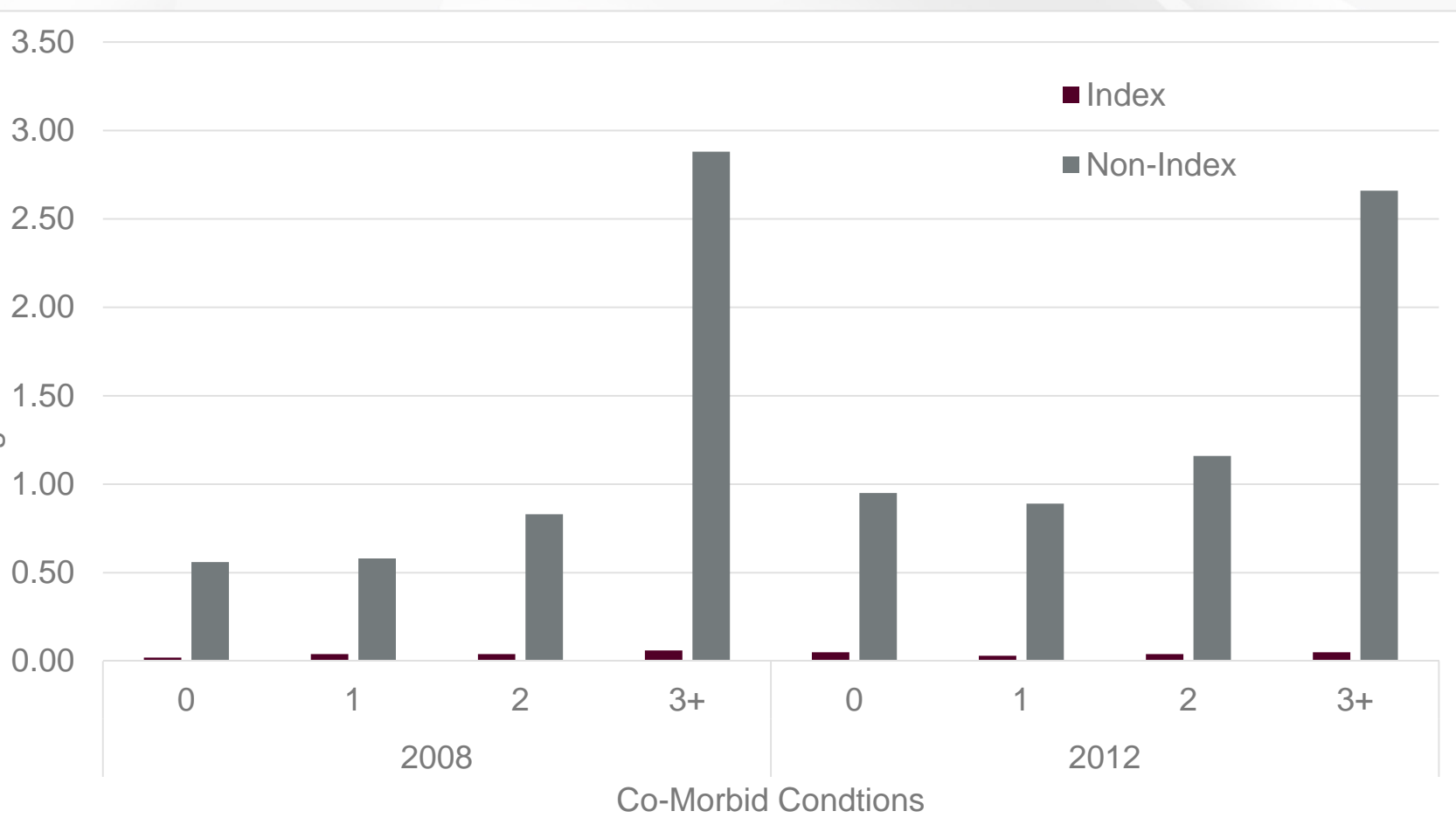
Most Common Diagnoses

- Hypertension (89.8%)
- Arthritis (65.8%)
- Ischaemic heart disease (38.1%)
- Diabetes (35.6%)
- COPD (30.1%)
- Inflammatory bowel disease (21.4%)
- Dementia (21.2%)

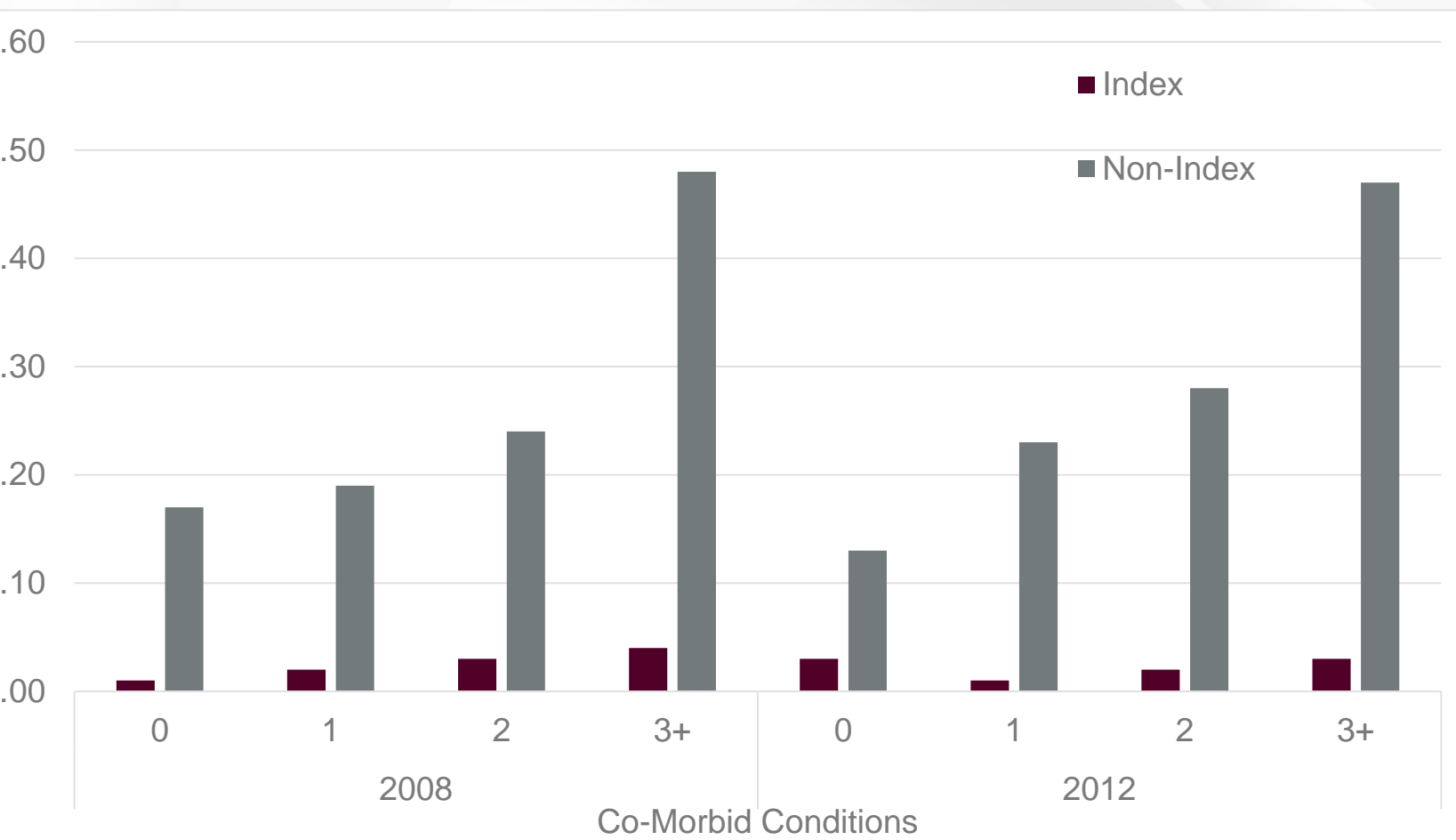
Primary Care Visits



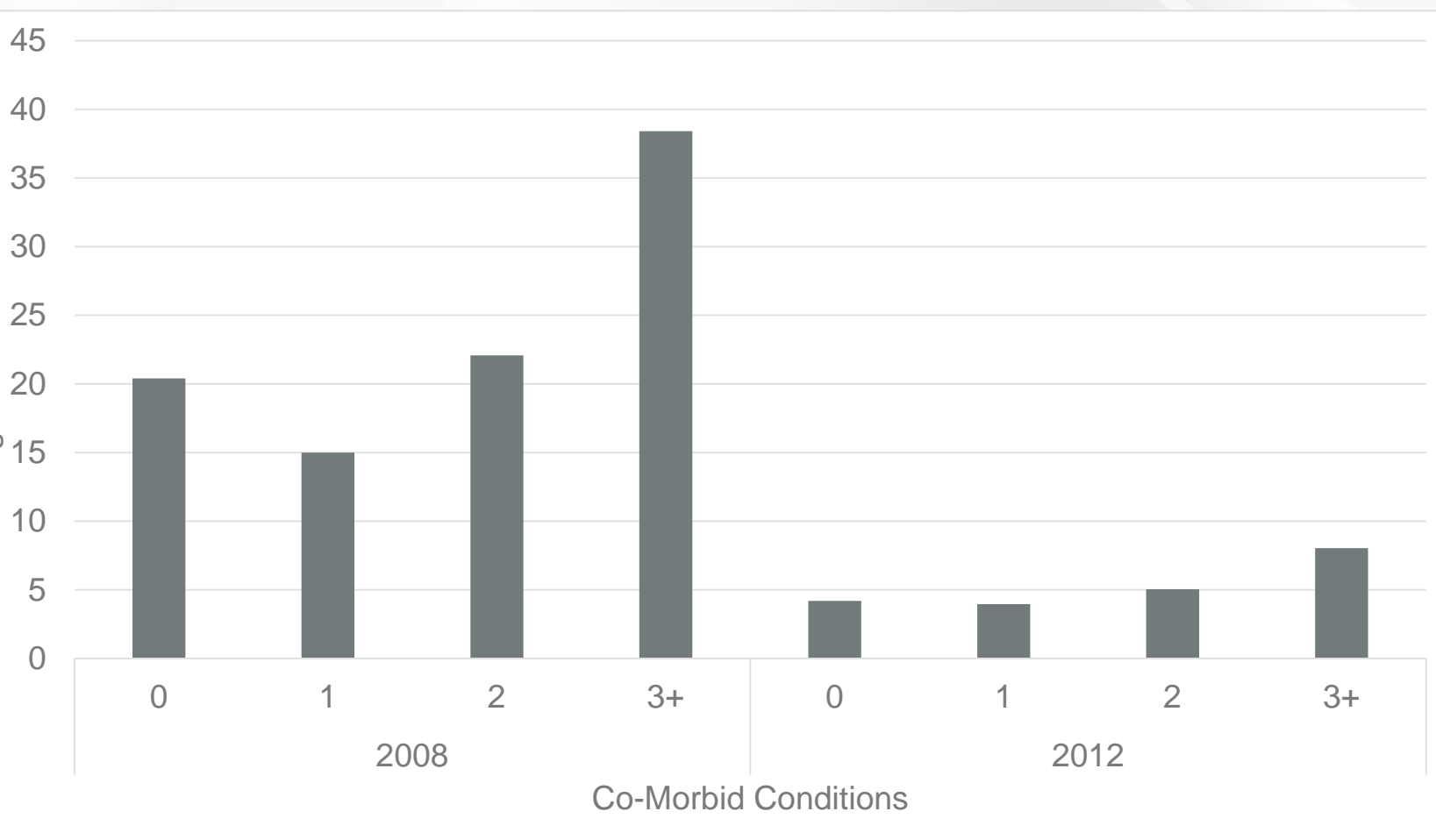
Emergency Department Visits



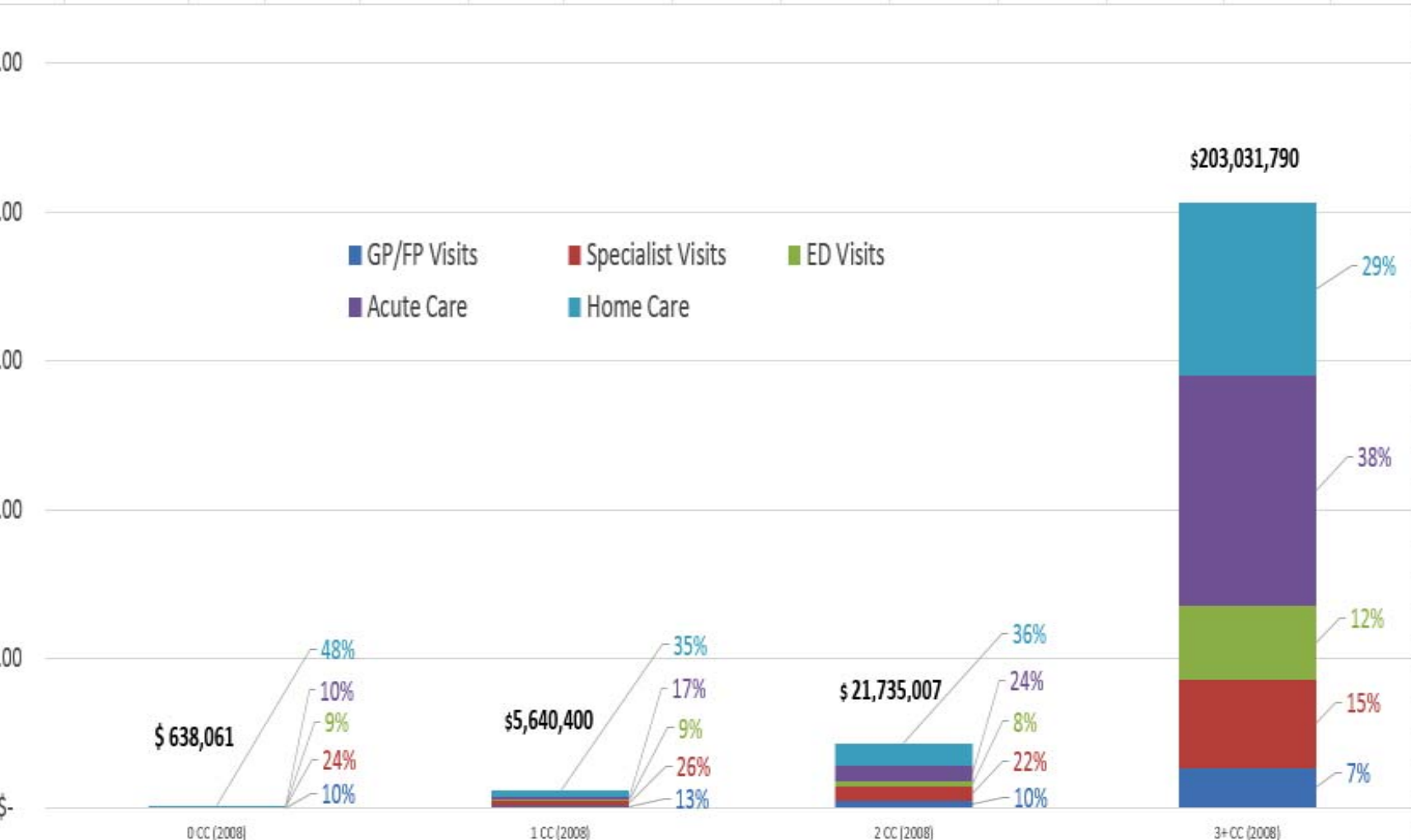
Hospital Admissions



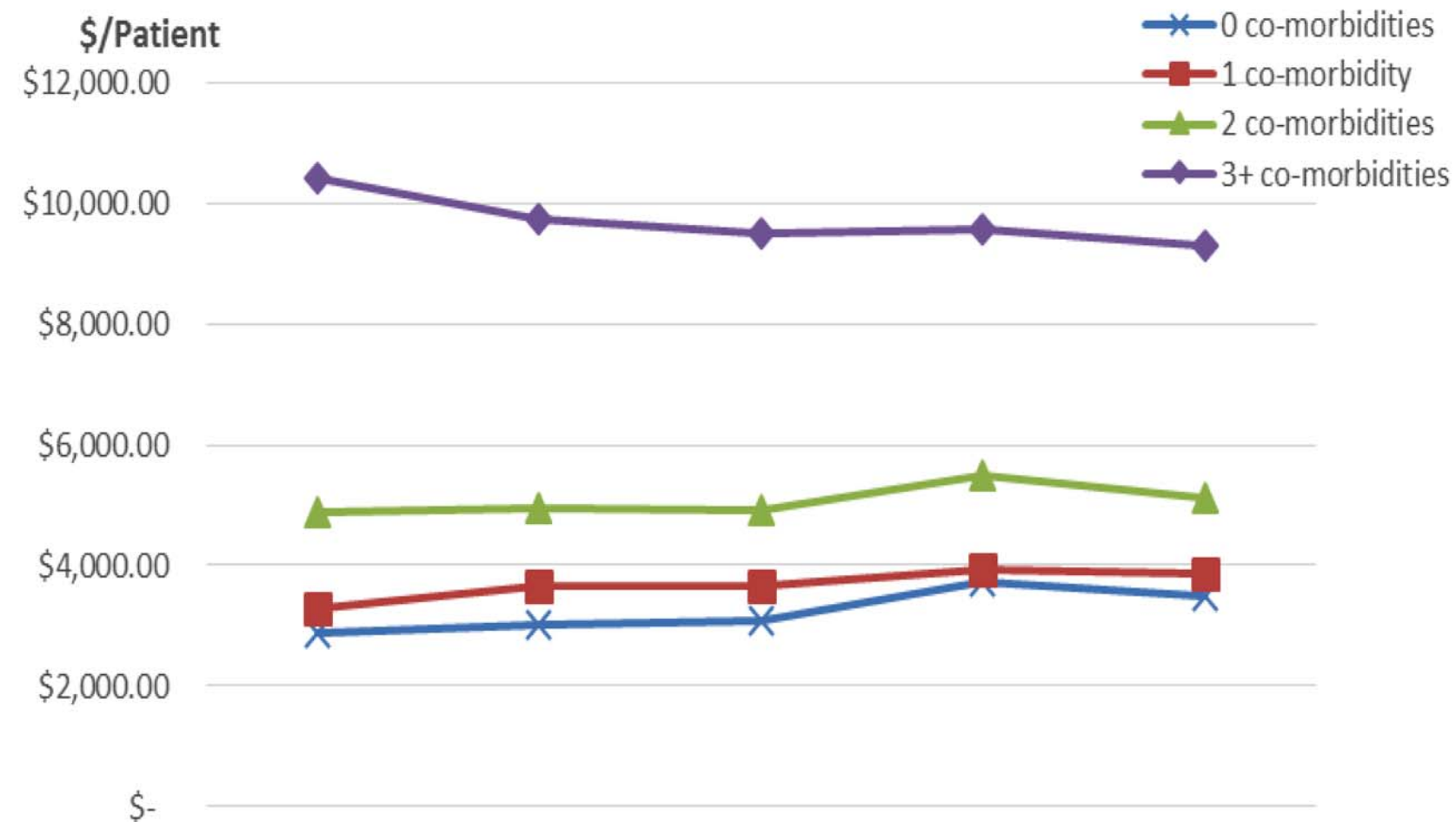
Home Care Visits



Total Health Services Costs (2008)



Average Per Patient Costs



Summary

High prevalence of co-morbid conditions

Use of all health services increased with co-morbidity

- Persisted over time
- Observed for stroke and non-stroke care

Main cost drivers differed by co-morbidity

- Physician and home care use when few co-morbidities
- Acute care use when 3+ co-morbidities

Limitations

Included baseline diagnoses only

Limited to 14 co-morbid conditions

- To be consistent with other ACHRU studies
- All common diagnoses

Co-morbidity count misses potential impact of specific clusters

Conclusions

Long-term stroke management programs should consider co-morbidity

- Their impact on stroke-specific outcomes
- The impact of stroke on management of other chronic conditions

Importance of a holistic approach to managing the range of health conditions in older adults, even in specific disease cohorts

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