

**THE ASSOCIATION BETWEEN MULTIMORBIDITY AND HOSPITALIZATION
IS MODIFIED BY INDIVIDUAL DEMOGRAPHICS AND
PHYSICIAN CONTINUITY OF CARE:
A RETROSPECTIVE COHORT STUDY (PUBLICATION)**



**ANDREA GRUNEIR, SUSAN E. BRONSKILL, COLLEEN J. MAXWELL, YU QING BAI,
ANNA J. KONE, KEDNAPA THAVORN, YELENA PETROSYAN, ANDREW CALZAVARA, WALTER P. WODCHIS**

CONTEXT

Multimorbidity poses a significant clinical challenge and has been linked to greater health services use, including hospitalization. Important gaps persist in our understanding of how patient and health system context influence service utilization and outcomes for people with multimorbidity. Context encompasses a range of biological, social, environmental, and health system factors that impact on health; often these factors are “adjusted” away so we have limited knowledge on how they influence the effects of multimorbidity on outcomes.

OBJECTIVES

The study aims to describe hospitalizations and related outcomes among a population-based cohort of adults by their degree of multimorbidity; and to test whether age, gender, primary care practice model, or continuity of care (COC) modify the association between multimorbidity and hospitalization.

METHODS

This is a retrospective cohort study with linked population-based administrative data, including Registered Persons Database, Discharge Abstract Database, Ontario Health Insurance Plan, and Client Agency Program Enrolment database. All Ontario residents over the age of 18 years with one of 16 priority conditions as of April 1, 2009 (baseline) were included: acute myocardial infarction, asthma, cancer, cardiac arrhythmia, chronic obstructive pulmonary disease, congestive heart failure, coronary syndrome, dementia, diabetes, hypertension, mood disorders, osteoarthritis, osteoporosis, renal failure, rheumatoid arthritis, or stroke. The cohort was categorized by the number of conditions at baseline, and followed up for up to 1 year to capture all unplanned hospital episodes. The cohort was further stratified by age (18-64 and 65-105 years). The primary care practice type for each cohort member was defined as one of: non-capitated; capitated; and capitated with additional payments for interdisciplinary care. Continuity of care (COC) was measured by looking at the concentration of all physician visits over a one-year period. Logistic regression models were used to test whether any of our contextual factors of interest (age, gender, primary care practice type, and COC) modified the association between the degree of multimorbidity and hospitalization.

FINDINGS

Of 5,958,514 individuals with at least one of 16 conditions, nearly 52% had two or more conditions and 5.8% had five or more. The most prevalent priority conditions were osteoarthritis, hypertension, and mood disorders. The majority were enrolled in a non-capitated primary care practice model. COC was relatively stable by degree of multimorbidity. The frequency of hospitalization and related outcomes increased markedly with multimorbidity. The proportion with at least one hospitalization increased from 4.6% among those with one condition to 26.9% among those with five or more conditions. Approximately 5.6% of those under 65 were hospitalized at least once relative to 14.8% of those over 65 years. In younger adults, the odds of hospitalization increased 5.4-fold from one condition to five or more conditions, whereas for older adults, the odds increased 4.8-fold with multimorbidity. Among those with a single condition, men had 40% lower odds of hospitalization than women; however, the association reversed with greater multimorbidity. There was no difference in the relative odds of hospitalization or related outcomes with increasing multimorbidity across primary care practice models. The modifying effect of COC was inconsistent across outcomes.

CONCLUSIONS

The study found that demographic and modifiable health system factors influenced the impact of multimorbidity on the risk of hospitalization and related outcomes. While primary care is the obvious setting for coordinated and integrated care, the study was unable to determine differences across practice model types.

FOR A COPY OF THE FULL REPORT [CLICK HERE](#) OR VISIT OUR WEBSITE <http://hsprn.ca>