International Journal of Population Data Science

Journal Website: www.ijpds.org

Describing hospital utilisation and associated factors following stroke using linked clinical registry and hospital administrative data.

Andrew, A¹, Kilkenny, M², Sundararajan, V³, Kim, J², Thrift, A², Johnston, T⁴, Grimley, R¹, Gattellari, M⁶, Katzenellenbogen, J⁷, Lannin, N⁸, Boyd, J⁹, Flack, F¹⁰, Chen, Y¹¹, and Cadilhac, D²

¹Peninsula Clinical School, Central Clinical School, Monash University

²Stroke and Ageing Research, Department of Medicine, School of Clinical Sciences at Monash Health, Monash University

³University of Melbourne

⁴Statistical Services Branch, Queensland Department of Health

⁵University of Queensland

⁶Ingham Institute for Applied Medical Research

⁷Cardiovascular Disease Research Group, School of Population and Global Health, The University of Western Australia

⁸Faculty of Health Sciences, La Trobe University

⁹Curtin University

¹⁰Population Health Research Network

¹¹Victorian Agency for Health Information

Introduction

Survivors of stroke have complex needs from ongoing disabilities and have increased risk of cardiovascular diseases. The societal costs are therefore substantial. Person-level longitudinal data on the longer-term hospital utilizations of patients with stroke in Australia, and the factors that may influence usage in this setting, are rarely reported.

Objectives and Approach

We used person-level linkages between the Australian Stroke Clinical Registry (AuSCR: 2009-2013) and hospital admission and Emergency Department (ED) data from four states to examine determinants of hospital utilisation following stroke. The index event was the first event recorded in AuSCR. The rate of hospital contacts/person/year was calculated from contacts 30-365 days post-discharge. Disability was determined from responses to EQ-5D-3L data collected at 90-180 days post-stroke. Comorbidities were identified using ICD-10 discharge diagnosis codes (5 year look back including the index event). Negative binomial regression was used adjusting for patient clustering by hospital and pre-stroke contacts and stratified by disability.

Results

Among 10,082 adults with acute stroke (55% male, median age 74 years, 81% ischaemic, 14% hemorrhagic, 5% undetermined, 44% with disability) from 39 hospitals, 57% had a hospital admission or ED contact in the first 30-365 days post-

hospital discharge, with median contacts/person/year post-stroke of 1.09 (Q1, Q3: 0, 3.27) compared to a pre-contact rate of 0 (Q1, Q3: 0, 2.18). The strongest associations with subsequent hospital contacts were prior contacts (IRR:1.10, 95%CI:1.07, 1.13), not able to walk on admission (stroke severity) (IRR:1.19, 95%CI 1.07, 1.31) and having a higher comorbidity index score (IRR:1.18, 95%CI:1.14, 1.22). Within stratified cohorts younger age was associated with increased contacts in those with disability (

Conclusion/Implications

In a large linked cohort of patients we have demonstrated the substantial ongoing burden that stroke imposes on hospital systems, particularly regarding survivors with other comorbidities and younger survivors with disability. Knowledge of disability and comorbidity burden may assist with targeting community and hospital interventions to reduce post-stroke hospital usage.