

Healthcare Utilization and Costs Among Acutely Hospitalized Older Adults

Robinson EG*¹, Gyllensten H², Granas AG¹, Havnes K³, Bergmo TS⁴, Halvorsen KH³, Garcia BH^{3,5}

¹ Department of Pharmacy, University of Oslo, Oslo, Norway,

² Institute of Health and Care Sciences, University of Gothenburg, Gothenburg, Sweden

³ Department of Pharmacy, UiT the Arctic University of Norway, Tromsø, Norway,

⁴ Center for E-health Research, University Hospital of North Norway

⁵ Hospital Pharmacy of North Norway Trust



UiT The Arctic
University of Norway

Contact information: e.g.robinson@farmasi.uio.no



UiO : Universitetet i Oslo

Background

Adverse drug events and inappropriate prescribing among older adults may lead to disproportionately large healthcare use and costs (1). Health-economic research on preventing adverse outcomes and associated resource use among older adults is needed. Real world healthcare use and costs of older adults may guide the planning of cost-effectiveness analyses alongside clinical trials and inform decision analytic models.

Objectives:

To describe quantities and costs of healthcare use for acutely hospitalized older adults and identify the main cost driver in the subsequent 12 months.

Methods

Population: Real world data was obtained from two cost registers for 480 patients aged ≥ 70 years included in the IMMENSE study at the University Hospital of North Norway (2).

Data sources and linkage: Costs and quantities for all healthcare use were extracted from the hospital's cost-per-patient register and from the Norwegian Health Economics Administration Database. Register linkage used the Norwegian national identity numbers.

Analyses: Mean unit cost per healthcare category were calculated using linear regression. Bias corrected confidence intervals were bootstrapped. All costs were translated to 2021 value Euro by applying the Norwegian inflation index and the 2021 exchange rate (1 Euro=NOK 10.16).

Results

Highest unit costs: 1) Hospitalization, including the index hospitalization and readmissions (mean cost per visit: EUR 11,669 [95% CI: 10,946-12,602]; n=1,024). 2) Hospital outpatient clinic visits (mean cost per visit: EUR 346 [95% CI: 326-368]; n=2,563).

Most frequent healthcare use: GP visits (mean cost per visit: EUR 46 [95% CI: 45-47]; n=3,519).

Main cost driver: Hospitalizations, with a total population cost of EUR 11,949,000 or mean cost per patient of EUR 24,900 per year. (Table 1)

Table 1 Quantities and mean unit costs per cost component for healthcare use in the 12-months follow-up period.

Cost component	Intervention group quantity	Control group quantity	Cost mean (95% CI) ^a , EUR
Hospitalizations	531	493	11,669 (10,946-12,602)
Mean days per stay (range)	6.9 (1-88)	6.3 (1-57)	1,626
Hospital outpatient clinic visits	1,427	1,136	346 (326-368)
Emergency room care visits	420	425	78 (75-82)
Emergency room, other costs ^b	224	201	9.0 (8.7-9.4)
GP visits	1,795	1,724	46 (45-47)
GP, other costs	3,304	3,138	11 (10-11)
Specialist physician visits	83	89	121 (110-134)
Specialist physician, other costs ^b	40	34	18 (14-23)
Primary care clinic visits	917	776	45 (43-49)
Primary care clinic, other costs ^b	1,637	1,501	19 (18-21)
Lab	78	78	31 (27-36)

^a CIs were bias corrected using bootstrap

^b Use of materials and equipment, lab work, phone call

Strengths and Limitations

The main strength is the use of register data for the costs of all healthcare use of the study patients, which can consequently be considered complete. A limitation is that drug costs were not included in the analysis as register data were not yet available. However, drug costs are likely to be negligible compared to hospitalization costs (1).

Conclusion:

Hospitalization was the cost component with the highest unit cost and was the main cost driver, even if other costs were more frequent.

Interventions targeting subsequent hospitalizations may have the potential to reduce healthcare costs for older adults after an acute hospitalization.



Photo: Colourbox.com

Funding statement

The IMMENSE study was supported by the Northern Norway Regional Health Authority grant number HST1314-16. The current work has received no additional funding.

Conflicts of interest

The authors report there are no conflicts of interest.

References

- Robinson EG, Hedna K, Hakkarainen KM, Gyllensten H. Healthcare costs of adverse drug reactions and potentially inappropriate prescribing in older adults: a population-based study. *BMJ Open*. 2022 Sep 1;12(9):e062589.
- Johansen JS, Havnes K, Halvorsen KH, Haustreis S, Skaue LW, Kamycheva E, mfl. Interdisciplinary collaboration across secondary and primary care to improve medication safety in the elderly (IMMENSE study): study protocol for a randomised controlled trial. *BMJ Open*. 1. januar 2018;8(1):e020106.

