

# Socio-economic Disparities in Infection-related Hospitalizations among the U.S. Home Health Care Population: Insights from a National Study

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## Abstract

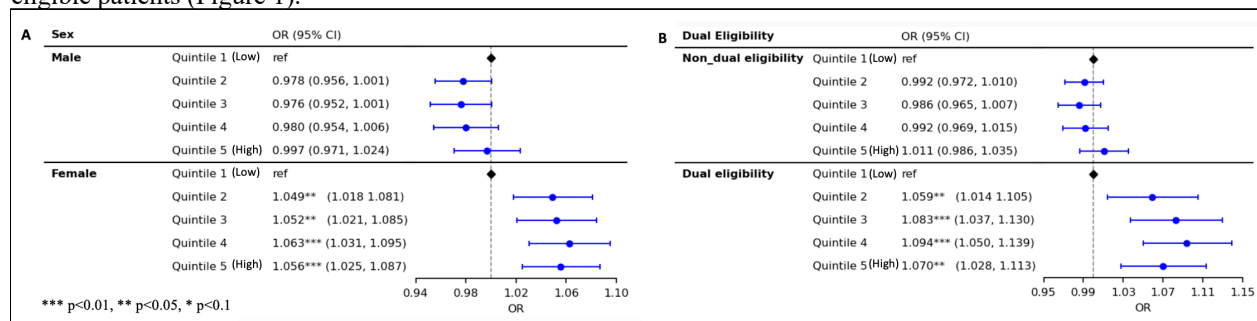
*This study aims to understand the association between socioeconomic status (SES) of home health care (HHC) patients and infection risk. SES is quantified by the Area Deprivation Index (ADI) using multiple national datasets. The study sample includes 3,656,734 Medicare beneficiaries receiving HHC during 2019 from 8,133 HHC agencies. We used logistic regression models to investigate the association between ADI and infection risk and found significant associations for female and dual-eligible patients.*

## Introduction

Home health care (HHC) plays a vital role in delivering skilled nursing care and therapy services to elderly and acutely ill patients within the comfort of their homes. Prior research has indicated specific demographic factors are associated with increased healthcare-associated infection risk among HHC patients. However, to date, the relationship between the socioeconomic status (SES) of HHC patients and their risk of infection has received limited research attention.

## Method and Results

**Methods:** This cross-sectional study of 3,656,734 Medicare beneficiaries receiving HHC in 2019 from 8,133 HHC agencies used multiple national datasets linked with the 2019 Area Deprivation Index (ADI). 60-day HHC episodes were defined from the Outcome Assessment and Information Set (OASIS) and linked with Medicare Provider Analysis and Review (MedPAR) within 60 days of care initiation. Hospitalization due to infection was defined using MedPAR present on admission ICD-10 principal or admitting diagnosis codes. The independent variable of interest was neighborhood SES measured by ADI and categorized into quintiles (quintile 1 = lowest deprived, quintile 5 = highest deprived). Multivariable logistic regression was used to estimate the association between SES and infection risk, adjusting for patient and agency characteristics and county-level health resources (from the Area Health Resources File [AHRF]). Neighborhood SES interactions with patient sex and dual eligibility were tested for their associations with infection-related hospitalizations. **Results:** After adjusting for covariates, HHC patients in neighborhoods with the highest deprivation were 2% more likely to have infection-related hospitalization than those living in lowest deprivation neighborhoods. (OR =1.02; 95% Confidence Interval [CI] = 1.005–1.049; p = 0.015). Significant associations between neighborhood SES and infection outcomes were observed only for female and dual-eligible patients (Figure 1).



**Figure 1.** Odd Ratio (OR) of infection-related hospitalization for deprivation by (A) Sex; (B) Dual Eligibility.

## Conclusion

Infection-related disparities are evident among HHC patients, particularly for females and those living in higher-deprivation neighborhoods. Lower SES, coupled with the caregiving responsibilities often shouldered by women, can impede self-care, thus elevating infection risk for these patients. Dual-eligible patients with intricate health needs and fragmented care also face compounded challenges.