Socioeconomic Factors in Traumatic Brain and Spine Neurosurgical Readmissions

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Disclosures - None
Introduction

- 20% of all Medicare admissions are comprised of unplanned hospital readmissions within 30 days of discharge
  - Adds $17.4 billion in annual expenses to Medicare’s hospital payments
- $100 million in readmission penalties in 2016
  - 80% of hospitals are penalized under the readmissions penalty program
Methods

- Variables measured:
  - Race
  - Insurance status
  - Area Deprivation Index (ADI)
    - 9-digit Zip code-linked metric identifying overall socioeconomic status
    - Higher value corresponds with greater disadvantage
  - Discharge disposition
  - Readmission within 30 and 90 days
Results

Private insurance vs. non-private insurance:

- Patients lacking private insurance are 2.47 times as likely to be readmitted within 30 days as compared to privately insured patients (95% CI, 1.07-5.65)
Results

Discharge Disposition:

- Patients discharged home or AMA had *4.92 times more likely* to be readmitted within *30 days* (95% CI, 2.32-10.46, \( p\)-value < .0001) than those discharged to rehab or a medical facility
  - These patients are *1.6 times more likely* to be readmitted within *90 days* (95% CI 1.07-2.39, \( p\)-value = 0.02)
Results

Racial Disparities:

- Racial demographics analyzed:
  - Black non-Hispanic, White non-Hispanic, Hispanic, Other

- Potential Racial Disparities:
  - Black patients are **1.67 times more likely** to be readmitted as compared to all other races
    (95% CI, 1.16-2.41, p-value <0.01)
  - White patients are **0.67 times** as likely to be readmitted as other races
    (95% CI, 0.47-0.96, p-value = 0.03)
Results

Overall socioeconomic status (ADI value):

- Patients with ADI value ≥100 are 1.84 times more likely to readmit within 90 days than patients with ADI <100 (95% CI, 1.05-3.23, p-value = 0.03)
  - These patients are 0.31 times as likely to readmit within 30 days (95% CI, 0.08-1.15, p-value = 0.07)
Discussion

- Identification of socioeconomic risk factors at admission may allow for more effective post-discharge planning
  - Increased outpatient healthcare utilization
  - Home health planning
  - Focused patient education
- Results may serve as a preliminary step for further investigation identifying effective allocation of limited resources for quality improvement in neurosurgical care
Summary Points

- **Insurance status:** Patients lacking private insurance may be at an increased risk for readmission.

- **Discharge disposition:** Patients discharged home or AMA may be more likely to be readmitted than those discharged to a medical care facility.

- **Racial disparities:** Black patients may be at the highest risk of readmission, while white patients may be at the lowest risk.

- **Overall socioeconomic status:** Over a longer (90-day) time period, patients with higher ADI values may be more likely to be readmitted than patients with lower ADI values.