

Chief Complaint and Geriatric Depression: Assessing Risk for 30- and 90-Day Readmission

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Background

- Depression in older adults is rising, including risk for self harm (in men 75 years of age and older, 39.9 per 100,000).¹
- Older adults frequently utilize emergency resources, with 38% of older adults utilizing emergency medical services resulting in transfer to an emergency department (ED).²
- Geriatric depression screening in the ED is illustrated to be valuable, with positive results in 16.5%, 80% of whom had no prior history of depression, and depressive symptoms correlating prognostically with poorer outcomes.^{3,4}
- The vast majority of patients with suicidal ideation or self-harm were admitted to the hospital.⁵ The strongest predictor of admission was the severity of other medical comorbidities.⁵
- Multiple Studies have attempted to identify prognostic factors for readmission, but have not achieved a consensus.^{4,6,7}
- Reimbursement is directly related to the quality of care, including rates of readmission.⁸
- An analysis of one-year Medicare spending was \$35,465 per patient, a 30-day readmission led to an average yearly cost of \$56,856 per patient.⁹
- Given the physical manifestations of depression, including gastrointestinal symptoms, pain, and sleep disturbances, there may be a relationship between those physical manifestations, chief complaint, and a positive depression screening.^{7,10}

Aims & Objectives

- Identify if the chief complaints of patients with positive depression screening are associated with 30- and 90-day readmission rates.
- If there is no association found specific to the chief complaint, examine if a combination of social and medical factors, such as marital status, race, history of cognitive impairment and level of independence are predictive for 30- and 90-day readmission.

Methods

- **Type of Study:** Retrospective Cohort Study
- **Exposure:** Admission and Final ICD-10 Diagnostic Codes
- **Outcome:** Readmission within 30- or 90-days
- **Demographic Variables:** Age, Race, Marital Status, Level of Independence, Orientation-Memory-Concentration Test Results
- **Statistical Analysis:** Descriptive Statistics (Frequency and Counts), Odds Ratios, (SAS 9.4)

| | |
|---------------------------|-------------------------|
| Number of Patients | n = 329 |
| Date Range | 02/01/2020 – 01/31/2021 |



53-Bed Emergency Department
Annual Volume: 57,000

| | |
|---------------------------|---|
| Inclusion Criteria | <ul style="list-style-type: none"> • Age Greater than 65 years • GDS-5 Assessment ≥ 2 • Deficit in Primary Survey (ESI 1) • ED Visit < 1 hour • Positive Delirium Screening • Chief Complaint of Suicidal Ideation |
| Exclusion Criteria | <ul style="list-style-type: none"> • History of cognitive impairment • Alcohol Intoxication |



Conclusions

- In an analysis of 3387 hospitals, 30-day readmission rates for targeted conditions from 2013-2014 was 17.8%, and for non-targeted conditions 13.1%.¹¹
- The study site was found to have no difference in all-cause 30-day readmission rates compared to the national average.¹²
- In our study, patients who screened positive for depression had a 42.6% 30-day readmission rate, significantly higher than the general population.
- Several diagnostic code groups were found to have either an increased or decreased association with readmission (see below).
- Study limitations included inclusion of single-site readmissions, absence of a negative screening control group, and limited diversity in the patient population.

| Increased Risk | | Decreased Risk | |
|--|---------------------------------|--|--|
| Endocrine, Nutritional, and Metabolic Diseases | 90-Day (OR: 1.72, p=0.03) | Mental, Behavioral, & Neurodevelopmental disorders | 30-Day (OR: 0.43, p=0.01) 90-Day (OR: 0.49, p=0.02) |
| Diseases of the Circulatory System | 30- & 90-Day (OR: 2.45, p=0.02) | Factors Influencing Health Status & Contact with Health Services | 90-Day (OR: 0.12, p=0.02) |

Results

Readmitted within 30-days: **42.6%** (n=140)

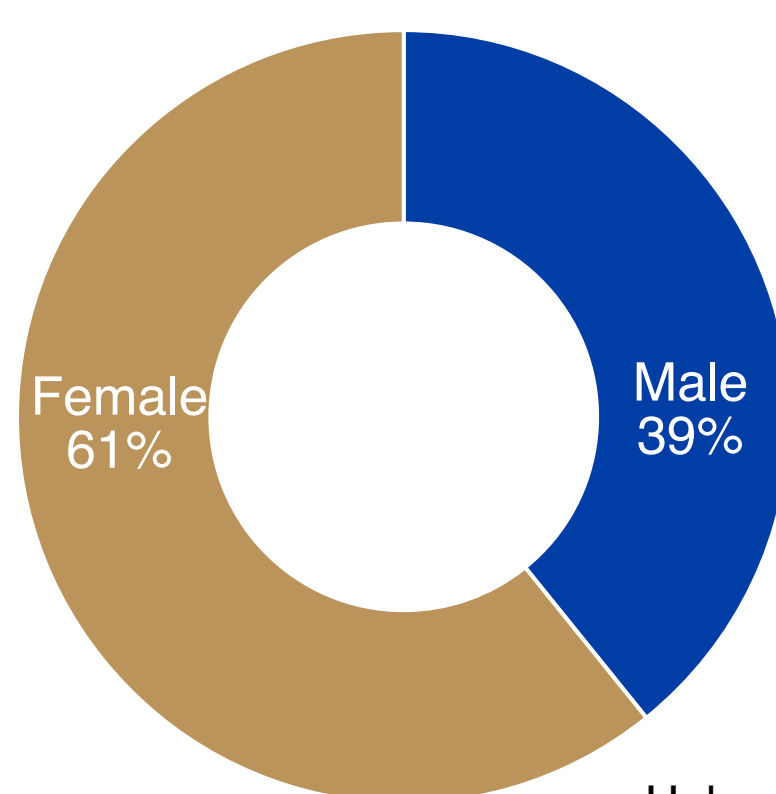
Readmitted within 90-days: **61.7%** (n=203)

Readmitted within both 30- and 90-days: **22.2%** (n=73)

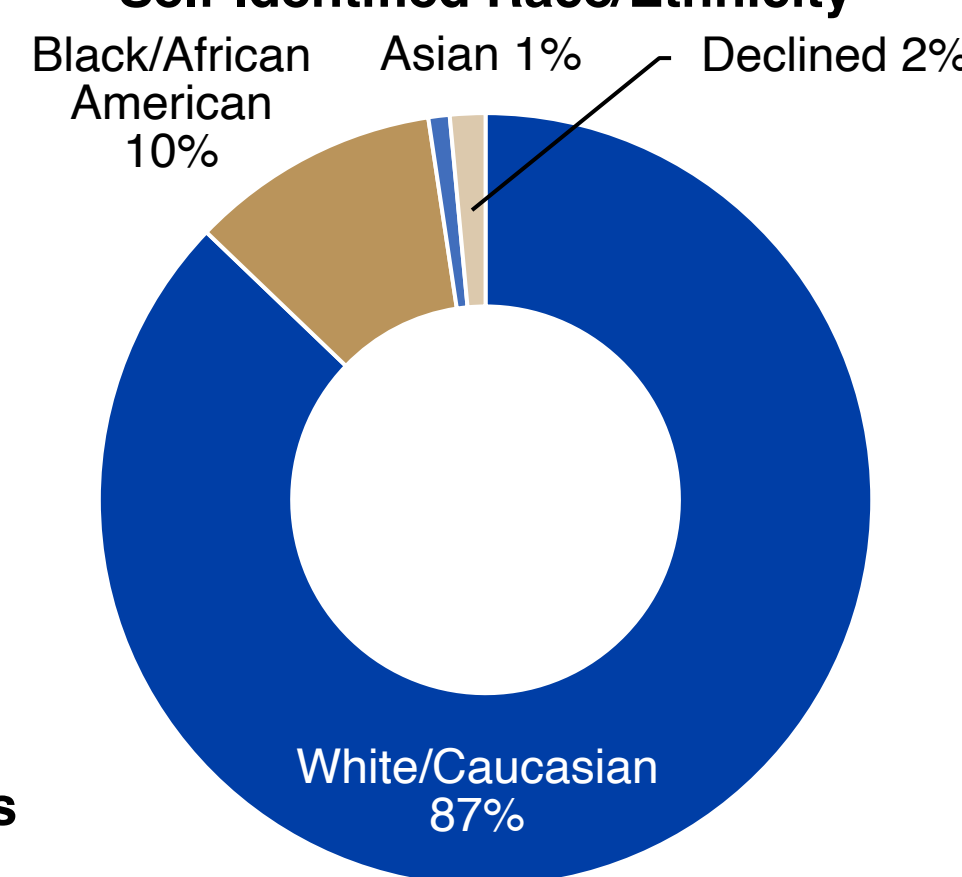
Demographic Information

Average Age: 77.2 years

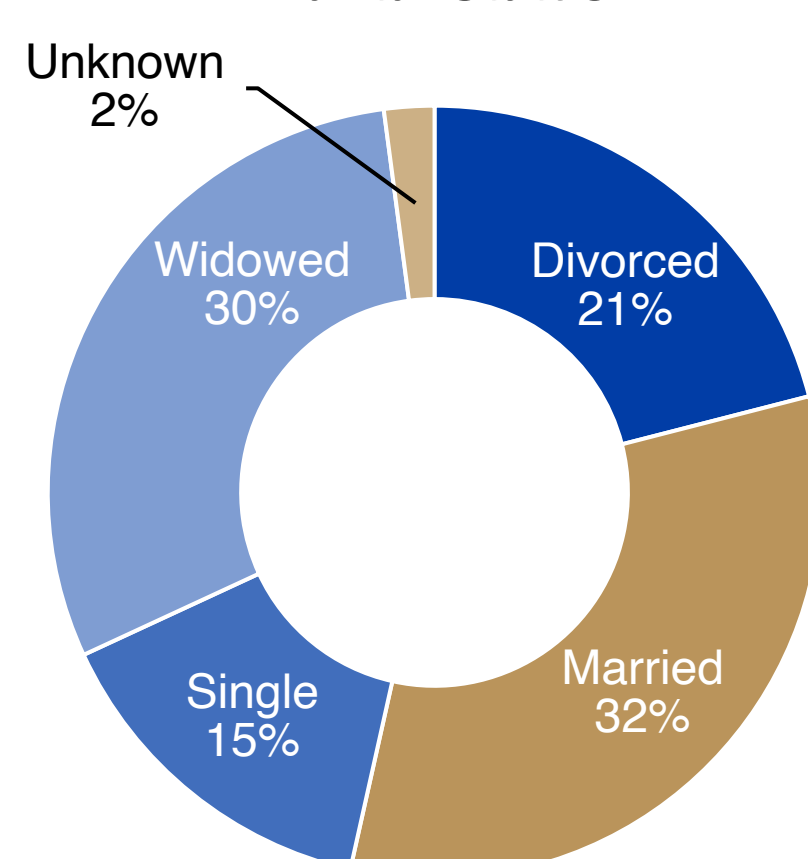
Gender



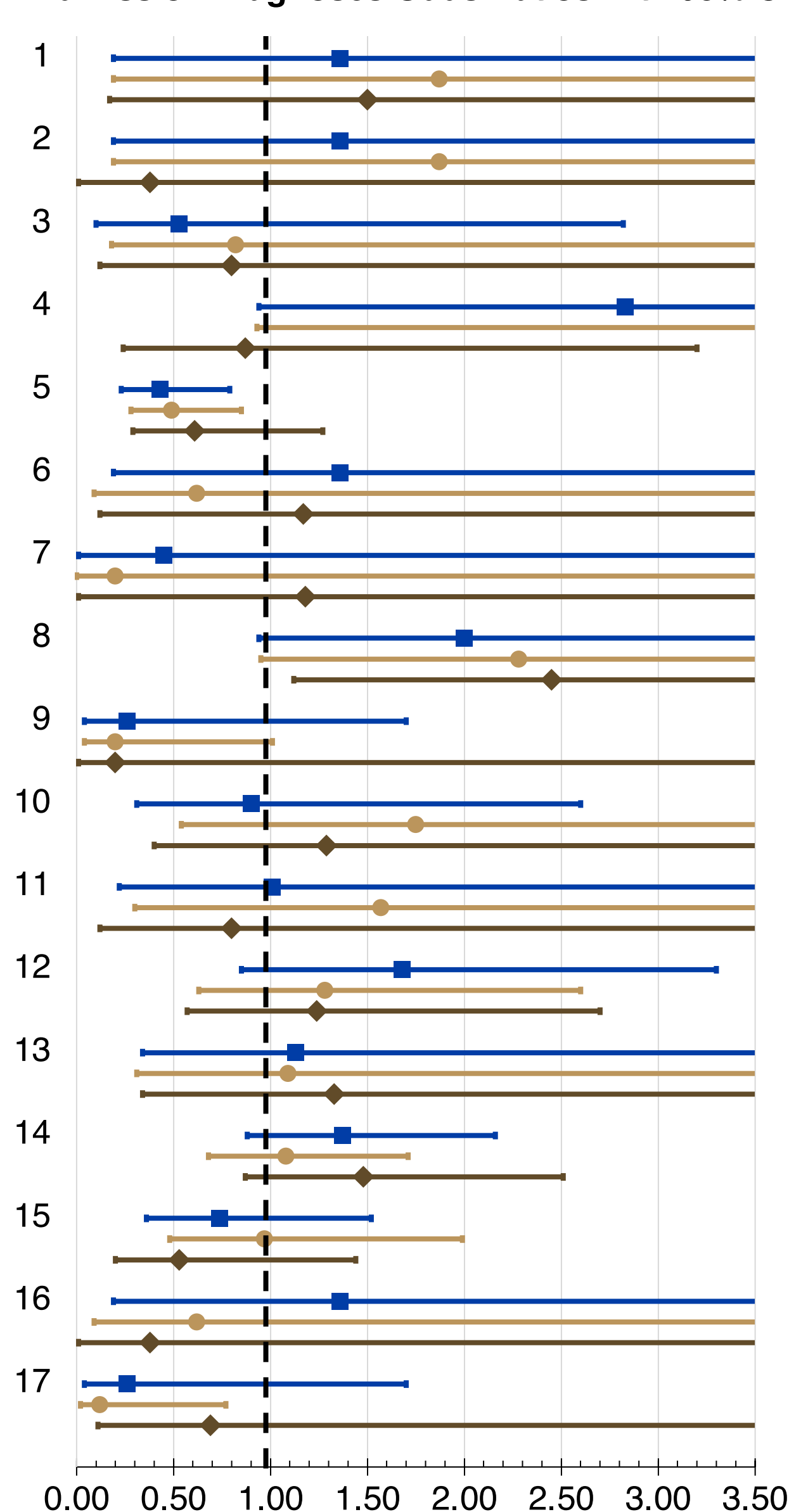
Self-Identified Race/Ethnicity



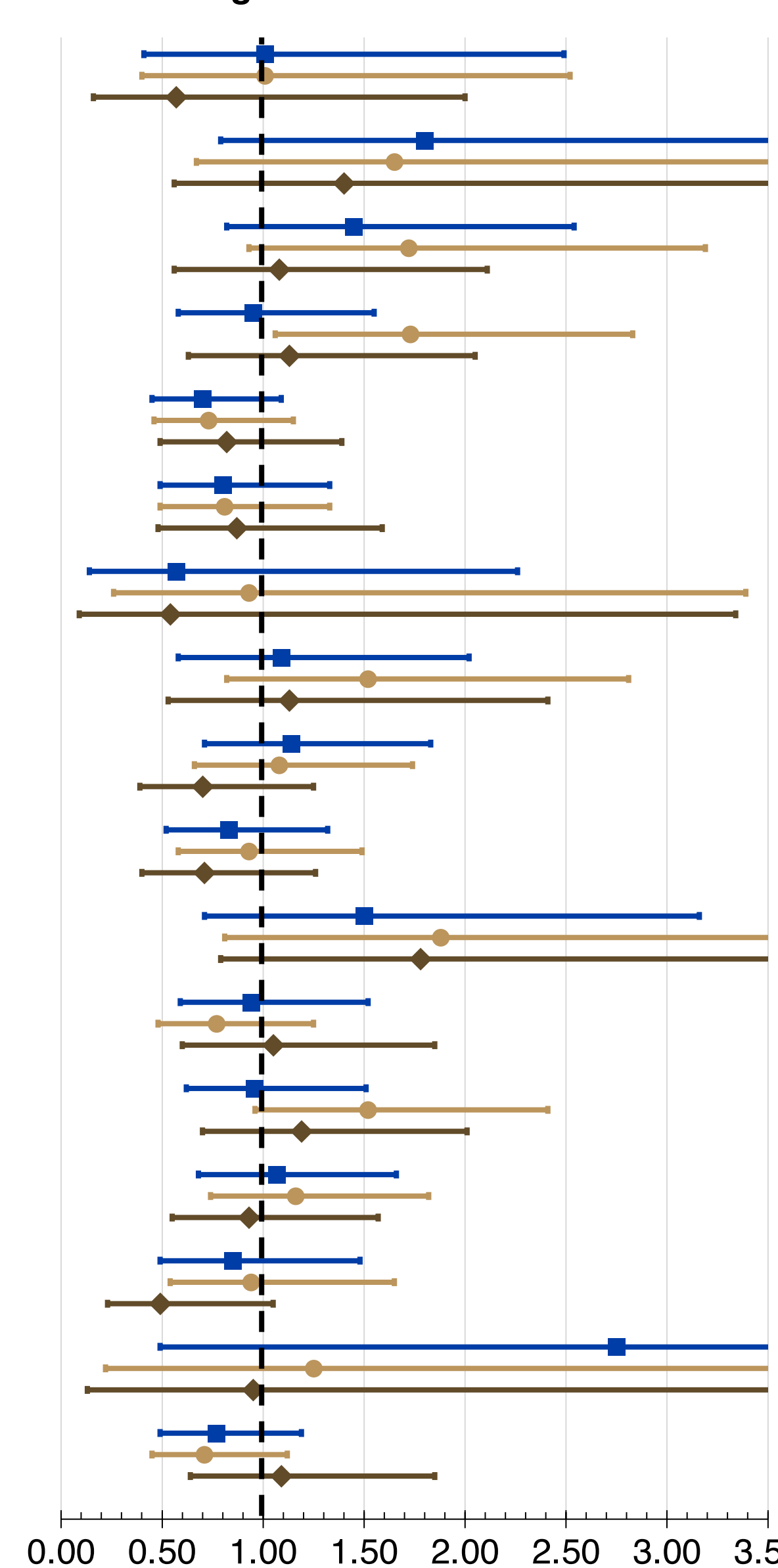
Marital Status



Admission Diagnoses Odds Ratios with 95% CI



Final Diagnoses Odds Ratios with 95% CI



| Symbol | Readmission Category |
|--------|------------------------|
| ■ | Within 30-days |
| ● | Within 90-days |
| ◆ | Within 30- AND 90-days |

| No. | ICD-10 Diagnostic Group |
|-----|---|
| 1 | Infectious and Parasitic Diseases |
| 2 | Neoplasms |
| 3 | Diseases of the Blood and Blood Forming Organs and Certain disorders involving the immune mechanism |
| 4 | Endocrine, Nutritional, and Metabolic Diseases |
| 5 | Mental, Behavioral, and Neurodevelopmental disorders |
| 6 | Diseases of the Nervous System |
| 7 | Diseases of the Eye and Adnexa |
| 8 | Diseases of the Circulatory System |
| 9 | Diseases of the Respiratory System |
| 10 | Diseases of the Digestive System |
| 11 | Diseases of the Skin and Subcutaneous Tissue |
| 12 | Diseases of the Musculoskeletal System and Connective Tissue |
| 13 | Diseases of the Genitourinary System |
| 14 | Symptoms, Signs, and abnormal clinical and laboratory findings, not elsewhere classified |
| 15 | Injury, Poisoning, and certain other consequences of external causes |
| 16 | Codes for Special Purposes |
| 17 | Factors influencing health status and contact with health services |

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References

