Hospitalization costs of Parkinson's Disease in the United States: A Retrospective Analysis of the Nationwide Inpatient Sample of the Healthcare Cost and Utilization Project Database in the United States

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Background

- Parkinson's Disease (PD) is a progressive neurodegenerative disorder that is characterized by motor and non-motor features including tremors, walking difficulty, loss of balance and coordination [1].
- The prevalence of PD in the United States (US) is estimated to be one million with a yearly incidence of about 600,000. This prevalence of PD is projected to increase to 1.24 million in the US by 2030 [2].
- PD exacts a high economic burden on the US economy. According to a study by the Michael J. Fox Foundation for Parkinson's Research, the total cost of PD to patients, their families and the US government is $51.9 billion annually, with $25.4 billion attributed to direct medical costs and $26.5 billion to non-medical costs [3]
- The mean age of onset of (PD) is sixty years old [3]. Thus, it is associated with significant economic burden as the median age of the United States (US) population increases

Objective

- To describe the characteristics of patients with PD in 2016
- To assess the 2016 inpatient charge and length of stay (LOS) among patients with Parkinson's Disease (PD) in the US

Materials & Methods

❑ **Study Design**

- Retrospective secondary database study

❑ **Data Source**

- 2016 Nationwide Inpatient Sample (NIS) database of the Health care Cost and Utilization Project (HCUP) [4]

❑ **Inclusion Criteria**

- Patients >= 18 years of age
- Patients with a primary diagnosis of PD were identified using the International Classification of Disease (ICD) 10 Clinical Modification (CM) diagnosis codes (G20)

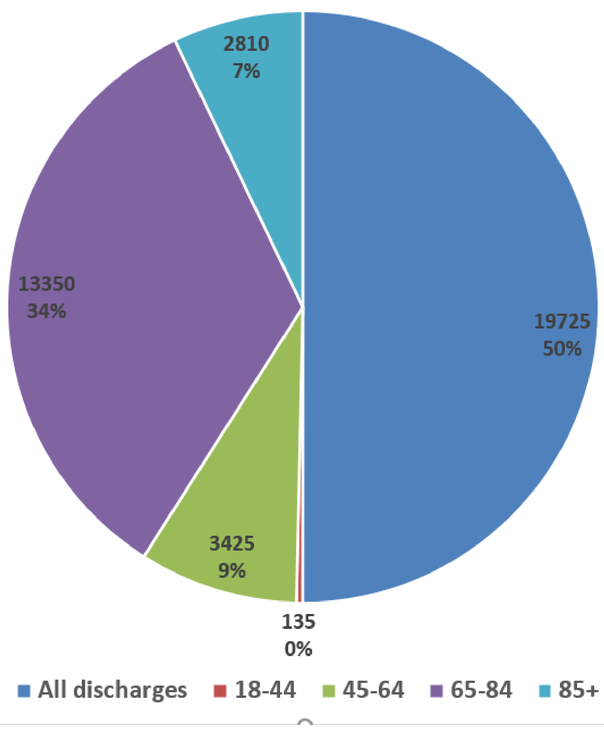
❑ **Data Analysis**

- Survey procedure using SAS 9.4
- Frequencies and percentages were reported for categorical variables
- Means and standard error were reported for continuous variables

Results

- There were 19,725 discharges [standard error (SE): 558] with a principal diagnosis of Parkinson's disease in the US in 2016. The rate of discharges per 100,000 persons is 6.1 (SE: 0.2)
- The mean age was 73.6 years (0.25). The age group: 18-44 years, 45-64 years, 65-84 years, and 85+ years accounted for 0.7%, 17.4%, 67.7%, and 14.2%, discharges, respectively. (Figure 1 below)
- Of the 19,725 discharges, 12,880 (65.3%) were males and 6,825 (34.6%) were females.
- Medicare, Medicaid, Private insurance, uninsured, and the other payer category provided coverage for 16,145 (81.9%), 520 (2.6%), 2,489 (12.6%), 160 (0.8%), and 390 (2.0%) respectively. (Figure 2 below)
- A total of 6,740 (34.2%); 4,725 (24%); 4,770 (24.2%); 3,490 (17.7%) occurred in hospitals located in the south, midwest, northeast, and western United States, respectively. (Figure 3 below)
- The average length of stay for patients with a diagnosis of PD was 6.2 days (SE: 0.2) and the median length of stay was 4.0 days
- Medicaid patients accounted for only 2.6% of total discharges and had the highest average length of stay (11.3 days) compared to other payer status (Medicare= 6.4 days, private= 4.1 days, and uninsured patients 4.4 days). (Figure 4)
- The average hospital costs is $12,108 (SE: 320) with a median costs of $8,880
- For discharge status, 1.1% (SE: 0.2%) died in the hospital, 32.8% (SE: 1.3%) were routinely discharged, 1.8% (SE: 0.2%) were discharged to another short-term hospital, 42.9% (SE: 1.1%) were discharged to another institution like a nursing home or rehab, 20.9% (SE: 0.8%) were discharged to home health, and 0.3% (SE: 0.1%) were discharged against medical advice

Figure 1: Total number of discharges by age group



- A total of 5,350 (27.1% of total discharges) patients were classified as having highest severity of illness. (Figure 5). A total of 4,508 (89.8%) of these patients with the highest severity were covered by Medicaid

Figure 2: Total number of discharges by payer

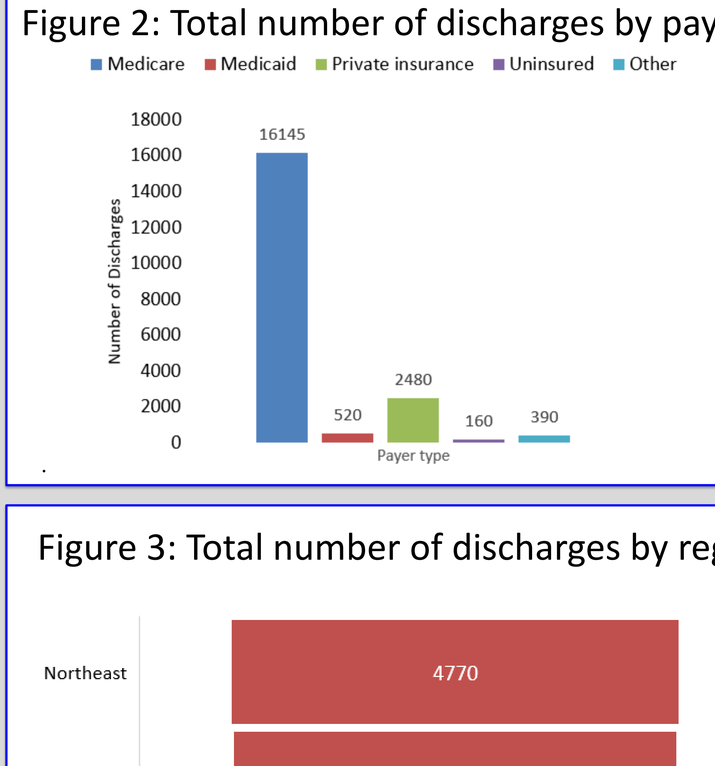


Figure 3: Total number of discharges by region

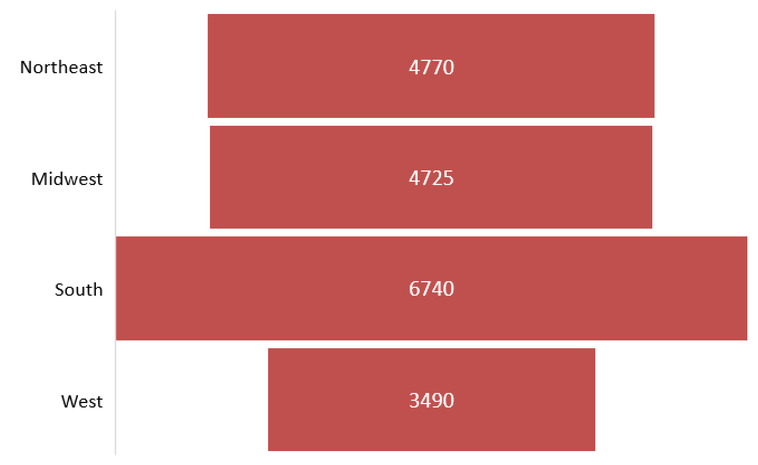


Figure 4: Length of stay by payer

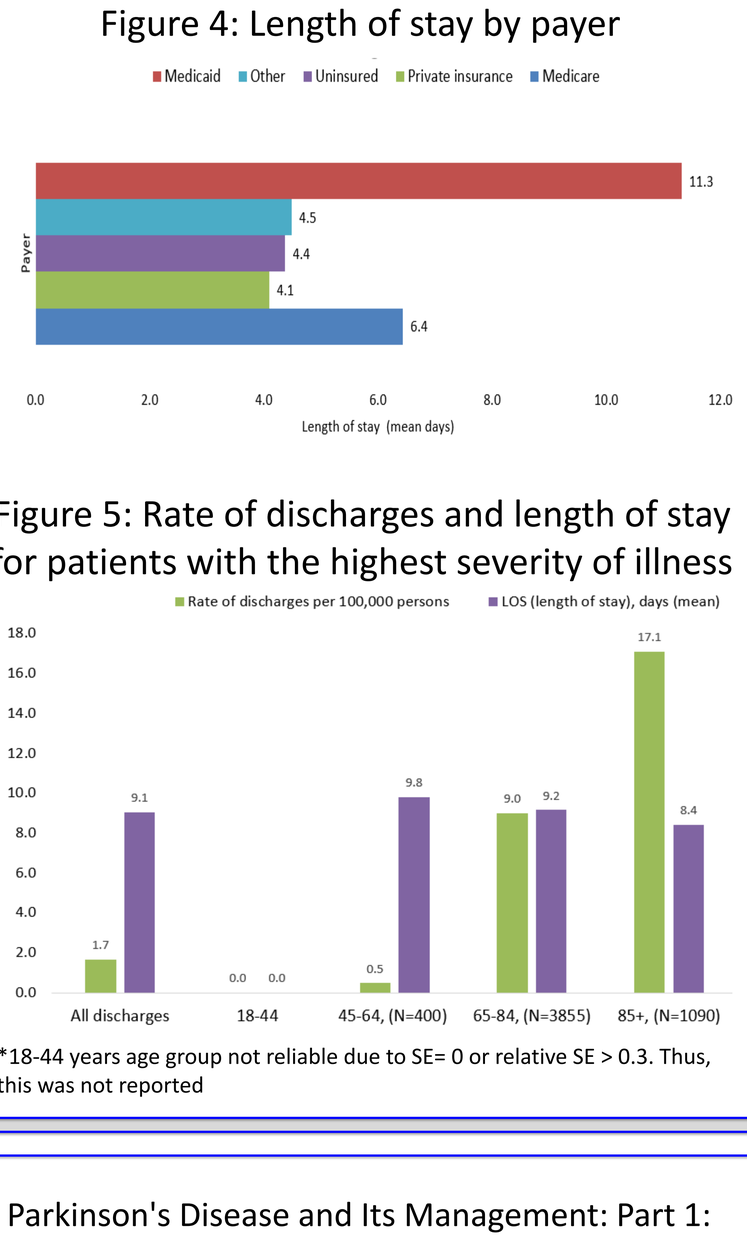


Figure 5: Rate of discharges and length of stay for patients with the highest severity of illness

*18-44 years age group not reliable due to SE= 0 or relative SE > 0.3. Thus, this was not reported

Discussion

- Old age is a strong risk factor for PD; thus, the 65-84-year age group had the highest prevalence of PD [3]
- Rates of hospitalization differs across regions which could be due differences demographics and lifestyle factors [1,2]

Limitations

- The clinical information is limited and hospital types like Veteran Affairs and Department of Defense are not included
- There could be differences in coding across different hospitals

Conclusions

This study characterized hospitalization in PD and as the US population ages, it is important to characterize resource utilization and important predictors for the disease because of its significant economic burden

References

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