**Medicare Money in the United States**

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What are costs for Medicare-eligible inpatient hospital services and how do they vary by state?

1. What were the yearly changes in Highest Average Charges by state 2011 – 2016?

2. When averaged per provider, which states are charging the most for Medicare-eligible services?

1. The first question was not answered to our satisfaction. We discovered that the source data only covered one-hundred diagnoses 2011-2013 and were faced with the decision to limit the most recent three years to one-hundred diagnoses or to only analyze data from 2014-2016 and have numbers from the additional 464 diagnoses added those years. The trade-off was fewer years to establish trends. We decided to focus accept that trade-off and focus on 2014-2016. After producing the results, it was realized that the outcomes were entirely expected and probably positively correlated to total population per state and number of providers.
2. The states who charge the Highest Totals for Medicare-eligible services are not exactly the same as the states at the top of the list for average charges per provider. New Jersey and Washington D.C. charge the most per provider and yet are, respectively, 11th and < 20th in number of discharges.

Figures discussion:

Fig 1 = Five states that charge the highest totals for Medicare-covered services over three years, 2014-2016. Consistent with states that have highest total populations and highest number of providers.

Fig 2 = Over three years, these states charged the most averaged per provider. Same five states take the top spots all three years, but, surprisingly, New Jersey and Washington D.C. rank first and second. This merits more investigation to determine possible factors.

Fig 3 = Over three years, these states charged the least averaged per provider. Some states repeat and others drop out of running.

Various challenges arose with unknowingly using different data sources, clearly understanding column title definitions, and familiarizing ourselves with exactly what data we had. We thought of several questions that we realized could not be answered upon examination of the data.

Significant time was spent formatting columns into floats and finding single errors to correct. It turned out some provided csvs had inconsistent formatting and some did not.

First interpretations of data and suggested questions leaned to wanting answers from a patient’s perspective. Which hospitals will charge the least? Which states provide the best care for Medicare patients?

If we had more time, perhaps we could examine data by smaller region than states, like zip codes and draw on other CSVs or APIs to determine factors about those zip codes and find correlations with charges from hospital providers for Medicare patients.

Important facts about dataset:

MS-DRGs included represent more than 7 million discharges or 75 percent of total Medicare discharges in 2016.

Average Covered Charges = The provider's average charge for services covered by Medicare for all discharges in the MS-DRG. These will vary from hospital to hospital because of differences in hospital charge structures.

Average Total Payments = The average total payments to all providers for the MS-DRG including the MS-DRG amount, teaching, disproportionate share, capital, and outlier payments for all cases. Also included in average total payments are co-payment and deductible amounts that the patient is responsible for and any additional payments by third parties for coordination of benefits.

Average Medicare Payments = The average amount that Medicare pays to the provider for Medicare's share of the MS-DRG. Average Medicare payment amounts include the MS-DRG amount, teaching, disproportionate share, capital, and outlier payments for all cases. Medicare payments DO NOT include beneficiary co-payments and deductible amounts nor any additional payments from third parties for coordination of benefits.