Medicare Part B Spending by Drug Methodology

Background

The Medicare Part B Spending by Drug dataset presents spending information for Medicare Part B drugs – drugs administered in doctors' offices and other outpatient settings and paid through the Medicare Part B program. Analyses of Medicare Part B drugs are possible for all Part B fee-for-service Medicare beneficiaries, but exclude any beneficiaries in the Medicare Advantage program (which represents over 35% of the Medicare population). The Medicare Part B Spending by Drug dataset focuses on average spending per dosage unit and change in average spending per dosage unit over time. The tool also includes consumer-friendly descriptions of the drug uses, clinical indications, and manufacturer(s).

Medicare Part B claims (e.g. claims from physicians, durable medical equipment and other suppliers, outpatient hospitals, etc.) contain information on drugs administered and billed directly to Medicare by providers. Part B claims were summarized by Healthcare Common Procedure Coding System (HCPCS) codes and limited to HCPCS codes listed in in the publicly available Medicare Average Sales Price (ASP) quarterly files for the most recent year[1].

The following Medicare Part B claims were excluded: claims billed using "Not Otherwise Classified" (NOC) codes (e.g. J3490, J3590, or J9999), claims where Medicare was not the primary payer, claims submitted by critical access hospitals (CAHs) and Maryland hospitals as well as claims with total spending amounts of zero associated with the drug, which is due to bundling in Ambulatory Payment Classification groups. Drugs with fewer than 11 Part B claims in the most recent year were excluded entirely and since 5-year trend information is presented, any drug information in years prior to the most recent year with fewer than 11 claims has been redacted.

Claims data were averaged across any applicable modifiers or place of service indicators associated with a single HCPCS. Drugs with multiple strengths (e.g. 20mg, 40mg, and 80mg) were not combined when individual HCPCS codes exist for different strengths.

Drug Metrics

Drug spending metrics for Medicare Part B drugs are based on total spending, which is derived from summing the three revenue center payment fields on the claim referring to Medicare payment, deductible, and coinsurance. This represents the full value of the product, including the Medicare payment and beneficiary liability. All Part B drug spending metrics are calculated at the HCPCS level.

[1] Medicare Part B drug pricing on the quarterly files may not be available for a variety of reasons; for example, because the drug that is described by the HCPCS code is no longer available, the HCPCS code has been updated or replaced, etc.

The Medicare Part B Spending by Drug dataset focuses on average spending per dosage unit and change in average spending per dosage unit over time. For Part B, the quantity of a drug in a dosage unit is the same as the quantity of the drug in one HCPCS billing unit, that is, the amount of drug in the HCPCS code descriptor.

The Medicare Part B Spending by Drug dataset also includes information on the payment amounts for many HCPCS codes that are paid under Medicare Part B. The ASP-based payment amounts that appear in the data include the statutory 6 percent add on and are obtained from the ASP Drug Pricing files, which are updated quarterly with sales data that is submitted by drug manufacturers. Although most Part B drug payments are based on the ASP, the Part B data's ASP may reflect other applicable Part B payment amounts that are authorized by law. For example, the statute requires that payments for some Part B drugs, such as influenza vaccines, be based on the Average Wholesale Price (AWP).

Outlier Flags

Average Spending per Dosage Unit is a key measure in the Medicare Part B Spending by Drug dataset. Incorrect dosage unit values reported on a small percentage of records may result in a misrepresentation of the overall "Average Spending per Dosage Unit" and "Change in Average Spending per Dosage Unit". To address this concern, potentially anomalous drugs are identified as outliers so that users can exercise caution when interpreting results.

In the full underlying data file, potentially anomalous drugs are identified using a yearly outlier flag variable, which is set to "1" when a drug's Average Spending per Dosage Unit is substantially impacted by outlier records in a given year.

There are three methods by which drugs are identified as outliers within the Medicare Part B Spending by Drug dataset:

1. 1.5 IQR Outlier Identification
    a. For each Medicare Part B Drug (HCPCS), lower and upper bounds for average cost per dosage unit are defined as:
        i. Lower Bound: 25th percentile – 1.5*Interquartile Range
        ii. Upper Bound: 75th percentile + 1.5*Interquartile range
    b. Claim lines that fall outside of these bounds are flagged. Additionally, claim lines associated with HCPCSs for which there are fewer than 30 claim lines in total are flagged.
    c. Average Spend per dosage unit are calculated with and without flagged claim lines; if these values differ by over 10% and $1, the drug is identified as an outlier.

2. Physician vs. Outpatient Outlier Identification
    a. Medicare Part B Drugs are comprised of both physician and outpatient claims. In some cases, billing units may differ between settings.

b. If both the average physician spend per dosage unit and average outpatient spend per dosage unit differ from the overall average spend per dosage unit by > 10% and $1, the drug is identified as an outlier.

3. Low Record Count Identification
    a. Methods 1 and 2 require robust distributions of data to identify outliers (i.e. observations outside of an established norm). In cases where a drug has fewer than 30 observations, it is flagged since there is not enough data to identify outliers.

CMS is obligated by the federal Privacy Act, 5 U.S.C. Section. 552a and the HIPAA Privacy Rule, 45 C.F.R Parts 160 and 164, to protect the privacy of individual beneficiaries and other persons. All direct identifiers have been removed from this data file.