**MHDO Dashboard Reports > Methodology Notes**

*Produced by the Maine Health Data Organization*

January 5, 2021

**Top 25 Cost Drivers for Inpatient and Outpatient Procedures**

This report includes data on the top 25 inpatient and outpatient procedures and services, ranked by total payments cumulated in a year, for 2016 through 2019 calendar years.

**Data Source and Reporting Period**

The data source used for this report is the Maine Health Data Organization (MHDO) All-Payer Claims Data (APCD). For more information about this data source, please consult [this page](https://mhdo.maine.gov/claims.htm).

This analysis includes claims from commercial insurance submitters incurred during 12 consecutive months for 2019, 2018, 2017 and 2016 calendar years. Claims are included if the admission date (for inpatient claims) or the service start date (for outpatient claims) fall during the reporting period. Commercial claims include Medicare Advantage claims submitted by commercial payers.

There are no selection criteria based on patient demographics applied to this report. All patients matching the reporting criteria described above were included in the analysis.

**Inpatient Procedures**

During the course of an inpatient stay, patients can be subject to one or multiple procedures and can be issued one or multiple insurance claims. Each inpatient claim can have one principal procedure and multiple other procedures of secondary importance. Principal procedures are defined as those procedures performed for definitive treatment, rather than for diagnostic or exploratory purposes, or that are necessary to address complications. Only principal procedures were used in this analysis and they are assigned at the inpatient stay level.

A distinct inpatient stay is defined, for the purposes of this analysis, as a distinct combination of MHDO Member ID and Admission Date. The inpatient stay end date (or Discharge Date) was defined as the maximum discharge date value across all institutional claims matching on MHDO Member ID and Admission Date, since there can be more than one claim that matches on this distinct combination.

Not all inpatient claims have procedure information; inpatient care does not always involve specific procedures. Nevertheless, a large share (roughly around 75-80%) of the cost of inpatient stays from institutional claims covers inpatient stays with valid principal procedure codes present, and these records were included in the analysis. In other words, the analysis reflects a large portion but not the entirety of inpatient care.

Nearly the entire cost associated with institutional inpatient claims is for services performed in inpatient hospital settings (type of bill is ‘011x’; 95% of cost), and nearly all the remaining cost is covered by services performed in inpatient skilled nursing facilities. The analysis performed for this report includes *just those inpatient stays associated with hospital settings*, therefore the output portrays *hospital* inpatient procedures.

**Outpatient Procedures and Services**

Outpatient visits can include one or more outpatient procedures and services which are present on claim lines. In contrast with inpatient settings, there are no principal and secondary outpatient procedures or services. Therefore, all available and valid outpatient Healthcare Common Procedure Coding System (HCPCS) codes were included in the analysis. The analysis performed for this report includes procedures and services from *all service settings other than hospital inpatient* present in the data; it is not restricted to hospital outpatient settings.

**Procedure Categories**

The Clinical Classifications Software (CCS) for Services and Procedures tool Versions 2020.1, 2019.2 and 2018 developed as part of the Healthcare Cost and Utilization Project (HCUP) was used to classify outpatient HCPCS codes into categories. Similarly, the CCS for ICD-10-PCS tool Version 2020.1 (beta version) was used to classify inpatient ICD-10-PCS procedure codes into categories. Among the benefits of using these tools, one is that it ensures that codes from the HCPCS and ICD-10-PCS classification systems are displayed using category groupings that are common across the two tables in this report.

**Procedure Volume**

The volume of procedures and services, displayed in the ‘Volume’ column, represents the count of distinct inpatient procedures or outpatient procedures and services that fall in the respective category. The count is rounded upwards to the nearest multiple of 10; for example, 15 and 19 are rounded to 20. Volume values between 1 and 10 are suppressed and the symbol “\*” is displayed instead in the Volume column.

Summary information on the overall volume for the top 25 procedure categories is presented in the ‘Top 25 Overall’ row on the dashboard. The suppressed volume values between 1 and 10 are replaced with 10 before calculating the Top 25 overall sum.

**Procedure Cost**

Amount values in the ‘Total Payments’ column represent the payments for the procedures and services listed in the ‘Procedure Category’ column and reflect the combined *insurance payment* with the *patient* or *out-of-pocket payment*. This combined amount is frequently referred to as the “allowed amount.”

INPATIENT PROCEDURE COST

The cost of a single inpatient procedure includes institutional inpatient, institutional outpatient and professional or physician amounts incurred during the inpatient stay. This means that the inpatient procedure cost is defined as the total amount from the institutional or facility portion of a distinct hospital inpatient stay (which may be from one or multiple institutional claims), plus any additional amounts from institutional outpatient claims and from professional services claims, as long as they are for services that took place at any time during the inpatient stay and do not extend beyond that period.

For the majority of hospitalizations, one inpatient stay has a single principal procedure. In some situations, for example for a small subset of births, two distinct inpatient stays share identifying information in the submitted data, and the current analysis does not separate between newborns’ and their mother’s inpatient stay in terms of additional (professional and institutional outpatient) amounts included in the overall cost. In these situations, the cost for one or both of the inpatient stays is overestimated.

OUTPATIENT PROCEDURE OR SERVICE COST

The cost of a single outpatient procedure or service is defined as the total amount paid on a particular service start date for claim lines having a particular procedure code, with any or no associated, procedure modifier codes.

Payment values are rounded to the nearest multiple of $10; for example, $1,112 is rounded to $1,110, and $1,119 is rounded to $1,120. Total payment values remain displayed even for situations where volume is suppressed.

Procedure and service categories are then sorted in descending order based on the values in the ‘Total Payments’ column and given a rank, with a rank of 1 for those categories with the largest total payments, a rank of 2 for the second largest and so on. Categories with the same total payments receive an identical rank.

The report intends to present the top 25 positions, however fewer or no positions will be listed for geographic areas or market categories—or a combination of the two—that are not as well represented in the APCD data. There is also a possibility of rank ties, in which case more than 25 categories can be listed.

Summary information on total payments for the top 25 categories is presented in the ‘Top 25 Overall’ row on the dashboard. If a market category and geographic area combination has more or fewer positions than 25, as described above, the ‘Top 25 Overall’ row should be understood to represent the sum of the total payments for the respective rows displayed in the report.

**Report Filters**

This report includes three interactive filtering options: Time Period (single calendar years for the time frame described above), Market Category and County.

MARKET CATEGORY

The ‘Market Category’ report filter represents information on the target market in which the insurance policy was sold and issued. This information is available in the member eligibility records in the APCD, which are matched to claim records based on payer, submitter, MHDO Member ID, year and month of the service start date, and insurance product type.

The following market categories are included:

* Employers having 100 or more employees (GLG2)
* Employers having between 51 and 99 employees (GLG1)
* Employers having between 26 and 50 employees (GS4)
* Employers having between 10 and 25 employees (GS3)
* Employers having between two and nine employees (GS2)
* Employers having exactly one employee (GS1)
* Small employers through a qualified association trust (GSA)
* Individuals as group conversion policies (GCV)
* Individuals (non-group) (IND)
* Other types of entities (OTH)

Claims for which a market category code could not be retrieved (i.e., they do not have a match in the eligibility records) are included in the analysis and can be viewed using the “Not available” category in the Market Category filter. The “Overall” category includes data for all the available market categories listed above plus the “Not available.”

COUNTY

The ‘County’ report filter refers to the servicing provider’s location in the state of Maine, as identified based on the most up-to-date ZIP code information available in the National Provider Index (NPI) Registry, and linked based on the NPI identifier present on claims. Data from providers with a business location address outside of the state of Maine and those with unavailable ZIP code information are excluded from the report.

**Contact Us**

For questions about the report content, its technical specifications or other feedback, please refer to the MHDO [Contact page](https://mhdo.maine.gov/contact.htm).