Hospital Services Payments and Utilization Dashboard Report: Methodology Notes

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Introduction

The State of Maine's Office of Affordable Health Care (OAHC) *Hospital Services Payments and Utilization Dashboard* builds off the *Health Care Expenditures in Maine Dashboard,* which the Maine Health Data Organization produced in January 2023, and presents aggregated information on payments and utilization for 36 hospitals in the state of Maine.

Data Source

The data source used for this analysis is the Maine Health Data Organization's (MHDO) All-Payer Claims Data (APCD) medical claims and medical eligibility records for the time-period January 1, 2017 – December 31, 2022. MHDO has been collecting APCD data for over two decades. This data is the most comprehensive statewide claims data available and has been used to understand health care costs, utilization, and outcomes.

Over 50 commercial payors and MaineCare (the State's Medicaid/CHIP program) submit their claims data (referred to as raw data) to the MHDO as prescribed in 90-590 Chapter 243, *Uniform Reporting System for Health Care Claims Data Sets*. The data elements submitted by payors align closely with the information that is populated in the standardized claims forms (UB-04 and the CMS-1500) used by hospitals and other health care providers.

Chapter 243 provides the provisions for the filing of standardized health care claims data sets, including the identification of the organizations required to report; establishment of requirements for the content, format, method, and time frame for filing health care claims data; and the establishment of standards for the data reported.

The claims reported to the MHDO include all MaineCare and Medicare (both Original Medicare and Medicare Advantage) members and approximately 73% of commercially insured members. Self-funded Employee Retirement Income Security Act of 1974 (ERISA) plans are exempt from submitting data to state APCDs due to a United States Supreme Court decision released in March 2016 in Gobeille v. Liberty Mutual Insurance Company, although some of the largest self-funded ERISA plans submit data to MHDO on a voluntary basis. Health plans with less than $2,000,000 in annual premiums are exempt from submitting data to MHDO. MHDO's claims data does not include data for the uninsured.

Non-claims-based payments are not included in this analysis as payors were not required to submit these types of payments to MHDO during the time period of this analysis. Non-claims-based payments include, but are not limited to: Capitation Payments, Care Management/ Care Coordination/ Population Health Payments, COVID-19-Related Supplemental Payments, Electronic Health Records/Health Information Technology Infrastructure/Other Data Analytics Payments, Global Budget Payments, Patient-Centered Medical Home Payments, Pay-for-Performance Payments, Pay-for-reporting Payments, Primary Care and Behavioral Health Integration Payments, Prospective Case Rate Payments, Prospective Episode-Based Payments, Provider Salary Payments, Retrospective/Prospective Incentive Payments, Risk-Based Payments, Shared-Risk Recoupments, and Shared-Savings Distributions.

Beginning in March 2017, payors began to redact substance use disorder claims from their submissions to MHDO based on their interpretation of the Department of Health and Human Services, federal rule 42 CFR Part 2.

Time Period

The analysis uses MHDO's APCD medical claims and medical eligibility records for the period January 1, 2017 – December 31, 2022, using the following criteria:

- **Medical eligibility records** for 2017 through 2022 are selected based on the *insurance-month* records (i.e. records that provide information on the insurance coverage for a specific payor and plan at the month level) available in the APCD.
- **Medical claims** for 2017 through 2022 are selected based on the *service start date* on the claim line for hospital outpatient encounters and related professional claims and based on the *admission date* for hospital inpatient claims.

Data Scrubbing and Preparing Data Structures for Analyses

The claims data that is submitted to MHDO undergoes data scrubbing which is the process of fixing errors in a database by identifying and removing fully reversed claims, incomplete, incorrect, or duplicate data. It also involves standardizing formats, updating outdated information and creating a de-identified person ID that consolidates data across payors for distinct individuals. This process is designed to improve the accuracy and reliability of the data. The impact of the data scrubbing and application of methodologies of the submitted data is summarized in Appendix A.

Appendix B is the list of the medical claims and eligibility data elements that were used in this analysis.

Provider Selection and Attribution

This analysis is limited to MHDO APCD claims for 36 Maine hospitals (Table 1), excluding psychiatric hospitals operated by the state of Maine (Dorothea Dix Psychiatric Center and Riverview Psychiatric Center). Additionally, hospital-affiliated physician practices have been excluded, by selecting specific Type of Bill and Place of Service codes on the claims, as detailed in the Service Categories – Level 1 section.

TABLE 1. MAINE HOSPITALS INCLUDED IN THE ANALYSIS

n	Hospital Name	Hospital Type	Health System
1	Bridgton Hospital	Critical Access Hospital	Central Maine Healthcare
2	Calais Regional Hospital	Critical Access Hospital	
3	Cary Medical Center	Smaller Acute Care Hospital	
4	Central Maine Medical Center	Large Acute Care Hospital	Central Maine Healthcare
5	Down East Community Hospital	Critical Access Hospital	
6	Franklin Memorial Hospital	Smaller Acute Care Hospital	MaineHealth
7	Houlton Regional Hospital	Critical Access Hospital	
8	LincolnHealth	Critical Access Hospital	MaineHealth
9	Maine Behavioral Health	Private Psychiatric Hospital	MaineHealth
10	Maine Medical Center	Large Acute Care Hospital	MaineHealth
11	MaineGeneral Medical Genter	Large Acute Care Hospital	MaineGeneral Health

n	Hospital Name	Hospital Type	Health System
12	Mid Coast Hospital	Medium-Size Acute Care Hospital	MaineHealth
13	Millinocket Regional Hospital	Critical Access Hospital	
14	Mount Desert Island Hospital	Critical Access Hospital	
15	New England Rehabilitation Hospital	Rehabilitation Hospital	MaineHealth
16	Northern Light AR Gould Hospital	Medium-Size Acute Care Hospital	Northern Light Health
17	Northern Light Acadia Hospital	Private Psychiatric Hospital	Northern Light Health
18	Northern Light Blue Hill Hospital	Critical Access Hospital	Northern Light Health
19	Northern Light C.A. Dean Hospital	Critical Access Hospital	Northern Light Health
20	Northern Light Eastern Maine Medical Center	Large Acute Care Hospital	Northern Light Health
21	Northern Light Inland Hospital	Smaller Acute Care Hospital	Northern Light Health
22	Northern Light Maine Coast Hospital	Smaller Acute Care Hospital	Northern Light Health
23	Northern Light Mayo Hospital	Critical Access Hospital	Northern Light Health
24	Northern Light Mercy Hospital	Medium-Size Acute Care Hospital	Northern Light Health
25	Northern Light Sebasticook Valley Hospital	Critical Access Hospital	Northern Light Health
26	Northern Maine Medical Center	Smaller Acute Care Hospital	
27	Pen Bay Medical Center	Medium-Size Acute Care Hospital	MaineHealth
28	Penobscot Valley Hospital	Critical Access Hospital	
29	Redington-Fairview General Hospital	Critical Access Hospital	
30	Rumford Hospital	Critical Access Hospital	Central Maine Healthcare
31	Southern Maine Health Care	Medium-Size Acute Care Hospital	MaineHealth
32	St. Joseph Hospital	Medium-Size Acute Care Hospital	St. Joseph Healthcare
33	St. Mary's Regional Medical Center	Medium-Size Acute Care Hospital	St. Mary's Health System
34	Stephens Memorial Hospital	Critical Access Hospital	MaineHealth
35	Waldo County General Hospital	Critical Access Hospital	MaineHealth
36	York Hospital	Medium-Size Acute Care Hospital	

Hospitals are identified in the MHDO APCD based on the *first available* criteria:

1. The National Provider Identifier (NPI) present in the billing provider NPI field on claim records – represents 99.9% of the paid amounts for medical services between 2017 and 2022.
2. The servicing provider NPI field on claim records – represents 0.1% of the paid amounts for medical services between 2017 and 2022.
3. Service facility NPI on claim records – represents less than 0.01% of the paid amounts for medical services between 2017 and 2022.

Using the hospital organizational data that is submitted to MHDO per the requirements of 90-590 Chapter 300 (which requires health systems and hospitals to validate their organization's information annually), the linkage between hospital provider entities and the NPIs associated with each hospital was used to attribute claims to providers as follows:

- **Step 1** – Claims are attributed to hospitals based on the NPIs indicated in Chapter 300 organization data to be used for hospital entity billing, matched with the NPI field for the billing provider in the APCD. If the billing provider NPI is blank or null, the servicing provider NPI field or the service facility provider NPI field is used for selection, as described above.

- **Step 2** – Exclude claims that are not incurred in a hospital setting, using the Type of Bill and Place of Service fields (as detailed in the Service Categories – Level 1 section). For hospitals

which use the hospital entity NPIs for their affiliated practices as well, this step is to ensure that practice-based claims are removed from the analysis.

- **Step 3** – Exclude claims with NPIs related to any out-of-state hospital associated with any claim line.

Service Category Assignment

The service categorization used in this analysis is primarily dependent on whether the claim uses a facility or non-facility billing standard (Level 1, below). The subcategories in Level 2 represent commonly used groupings of hospital inpatient and outpatient services.

Service Categories – Level 1

The intention of this analysis was to include ***all hospital-related APCD claims*** that are attributable directly to a Maine hospital, excluding their affiliated practices. The report includes only claims that fall into one of the following broad Level 1 categories of hospital-related services:

- **Inpatient Services** – Facility claims with one of the following Type of Bill codes:
  - 11 – Hospital inpatient, including Medicare Part A
  - 12 – Hospital inpatient, only Medicare Part B
  - 18 – Hospital swing beds

  Inpatient services primarily reflect room and board, intensive care unit, coronary care unit, labor room/delivery, nursery, inpatient renal dialysis, inpatient pharmacy and other services.

  Note: If a Critical Access Hospital bills with one of the codes above, they are included in the Inpatient Services category.

- **Outpatient Services** – Facility claims with one of the following Type of Bill codes:
  - 13 – Hospital outpatient
  - 14 – Laboratory services provided to non-hospital patients
  - 85 – Critical access hospital (outpatient claims only)

  Outpatient services primarily reflect outpatient operating room services, oncology, dialysis and other therapeutic services, radiology and other imaging and diagnostic services, emergency room (when not followed by inpatient admission), durable medical equipment, home health, outpatient pharmacy and other services.

- **Professional Services** – Non-facility claims related to professional services by clinicians in a hospital setting (hospital inpatient, outpatient, or Emergency Room) with one of the following Place of Service codes:
  - 21 – Inpatient Hospital
  - 22 – On Campus, Outpatient Hospital
  - 23 – Hospital Emergency Room

Professional services represent payments made to physicians and other individual health care providers during an inpatient stay or outpatient visit, and which were billed separately from the facility bill.

Note that there can be variation in the billing practices across hospitals and service types, and across time.

Service Categories – Level 2

Within Service Categories – Level 1 described above, the following groupings are available and displayed only on the *Trends by Services* tab of the dashboard, using the 'Services' drop-down menu:

Inpatient stays (aggregated across claims for inpatient services; refer to Inpatient Stays section for details) are grouped using the Major Diagnosis Categories (MDCs), which are groupings of the Medicare Severity Diagnosis Related Groups (MS-DRGs) by organ system or etiology, as follows:

- MDC 01 Diseases and disorders of the nervous system
- MDC 02 Diseases and disorders of the eye
- MDC 03 Diseases and disorders of the ear, nose, mouth and throat
- MDC 04 Diseases and disorders of the respiratory system
- MDC 05 Diseases and disorders of the circulatory system
- MDC 06 Diseases and disorders of the digestive system
- MDC 07 Diseases and disorders of the hepatobiliary system and pancreas
- MDC 08 Diseases and disorders of the musculoskeletal system and connective tissue
- MDC 09 Diseases and disorders of the skin, subcutaneous tissue and breast
- MDC 10 Endocrine, nutritional and metabolic diseases and disorders
- MDC 11 Diseases and disorders of the kidney and urinary tract
- MDC 12 Diseases and disorders of the male reproductive system
- MDC 13 Diseases and disorders of the female reproductive system
- MDC 14 Pregnancy, childbirth and the puerperium
- MDC 15 Newborns and other neonates with conditions originating in perinatal period
- MDC 16 Diseases and disorders of blood, blood forming organs and immunologic disorders
- MDC 17 Myeloproliferative diseases and disorders, poorly differentiated neoplasms
- MDC 18 Infectious and parasitic diseases, systemic or unspecified sites
- MDC 19 Mental diseases and disorders
- MDC 20 Alcohol or drug use or induced organic mental disorders
- MDC 21 Injuries, poisonings and toxic effects of drugs
- MDC 22 Burns
- MDC 23 Factors influencing health status and other contacts with health services
- MDC 24 Multiple significant trauma
- MDC 25 Human immunodeficiency virus infections

Some inpatient stays have an MS-DRG indicating that the claim was not groupable into a DRG, for which we labeled these as 'Not Groupable into a DRG'. In very few instances, inpatient stays have no DRG assigned, for which we labeled these as 'Unavailable'.

Outpatient and **Professional** hospital services are grouped based on the Restructured Berenson-Eggers Type of Service (BETOS) Classification System, which categorizes the Healthcare Common Procedure Coding System (HCPCS) codes (inclusive of the Current Procedural Terminology (CPT) codes) on claims. We used custom created categories available as a crosswalk developed by Freedman HealthCare which reassigns the BETOS categories into one of the following categories:

- Administered Drugs
- Administration of Drugs
- Ambulance
- Durable Medical Equipment (DME)
- Emergency Room
- Home Health
- Lab/Pathology
- Observation Stays
- Outpatient Surgery
- Radiology
- Miscellaneous Outpatient Services

Per the recommendation from external reviewers advising this project, the HCPCS codes that are part of the original BETOS category Evaluation and Management category and were included in the Miscellaneous Outpatient Service in the Freedman Healthcare crosswalk are presented as a standalone "Evaluation & Management" service category on the dashboard, in addition to the categories listed above.

Note that not all HCPCS codes are grouped into a BETOS category in the first place. "The RBCS only categorizes HCPCS codes with an allowed amount greater than zero paid through Medicare Part B funds or covered by one of the Medicare fee schedules, excluding HCPCS codes only paid through Medicaid or commercial payers."[1] In those instances, the services are included in the analysis into their own category, which we labeled as 'Unassigned'.

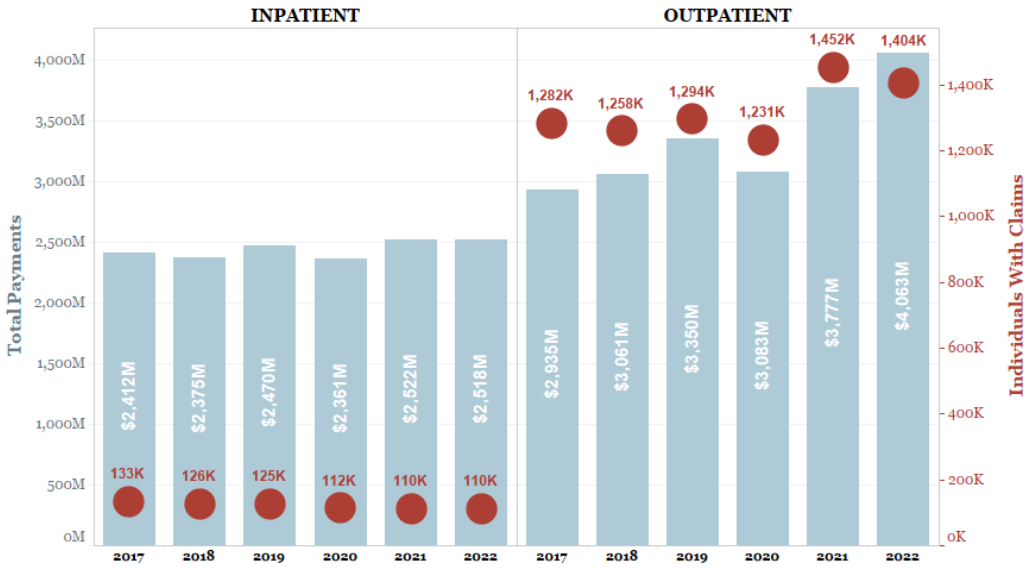
The 'All Services Combined' is an available option to select on the *Trends by Services* tab, in the 'Services' drop-down menu, and provides a calculation of all the listed Level 2 categories *combined*. Note that the 'All Services Combined' includes the ungroupable, unavailable or unassigned.

Most payments analyzed for this report are classified as either Inpatient or Outpatient in the Level 1 service categories. As Chart 1 below shows, inpatient payments reflect a much smaller number of distinct individuals with claims than outpatient claims (the number of individuals with inpatient

[1] Restructured BETOS Classification System RBCS Final Report (October 2023). Retrieved from https://data.cms.gov/sites/default/files/2023-10/RBCS%202023%20Final%20Report_2023%20V01%2010.03.2023_508.pdf

claims is about 10% or less of the number of individuals with outpatient claims), while the MHDO APCD payments associated with inpatient claims represent 60% to 80% of the total outpatient payments, depending on the year.

CHART 1. TOTAL PAYMENTS AND NUMBER OF INDIVIDUALS WITH INPATIENT AND OUTPATIENT CLAIMS, BY YEAR



Circles represent total number of distinct individuals associated with each claim type by year. Bars represent total payments associated with each claim type by year.

Payor Type Development and Assignment

The payor type used in this analysis represents mutually exclusive categories, so that in any given month, an individual and the claims for services during that month are assigned to a single payor type. The payor types are based on the payor code and medical plan information in the MHDO APCD eligibility files for individuals with ***medical insurance***, whether or not the payor represents the primary or the secondary or tertiary payor for medical services. The payor types are assigned based on all available MHDO APCD medical plan information across payors within a given month of the reporting period. Member-months for individuals with medical insurance from more than one type of payor (for example, having both MaineCare (Medicaid) and Medicare insurance) during the respective month are therefore classified in a payor type indicative of the multiple payors (i.e., dual eligible Medicare-MaineCare). As mentioned, APCD records for vision and dental payors are excluded from the analysis.

As a second step, the newly created eligibility-based payor types are then assigned to claims, which initially have their own claim-based payor type (assigned based on the payor code and medical plan information on the claim). The goal is for the dashboard to display a payor type developed based on the integration of the eligibility-developed payor type with the payor types observed on claims for the respective service start dates. If the eligibility and claim-based payor types match, the analytic payor type on the claim becomes the eligibility-developed payor type. For

example, if services occurred during months with Medicare-MaineCare coverage, claims paid by MaineCare (Medicaid) and claims paid by Medicare will both have the 'Dual Eligible (Medicare-MaineCare)' analytic payor type. A small share of claims with claim-level payor type diverging from the expected type based on eligibility records are classified as 'Unassigned' in the analytic payor type and excluded from analyses (0.5% of the initial set of claims; refer to the Analytic Selection Criteria and Limitations section and Table 3 for further details about exclusion criteria for claims).

The member-months not allocated to one of the payor types of interest (as detailed below) and the associated claims were excluded from analyses (2.8% of total member months, Table 2).

The payor types developed for this analysis are as follows:

1. **Commercial** – individuals with only commercial insurance during the month
2. **MaineCare (Medicaid)** – individuals with only MaineCare (Medicaid) insurance during the month; excludes dual eligible Medicare-MaineCare member-months
3. **Medicare** – combines Original Medicare and Medicare Advantage, defined as follows:
    3a. **Original Medicare** – individuals with only Original Medicare insurance during the month; exclusive of dual eligible Medicare-Medicaid; excludes member months with both Commercial and Medicare insurance
    3b. **Medicare Advantage** – individuals with only Medicare Advantage insurance during the month; exclusive of dual eligible Medicare-MaineCare (Medicaid); exclusive of commercial-Medicare coverage
4. **Dual Eligible Medicare-MaineCare** – individuals with insurance for medical services from both Medicare *and* MaineCare (Medicaid) during the month
5. **Commercial and Medicare** – individuals with commercial insurance *and* with either Original Medicare or Medicare Advantage during the month

Given the definitions applied, these payor types represent mutually exclusive categories. Original Medicare and Medicare Advantage represent mutually exclusive subcategories of Medicare.

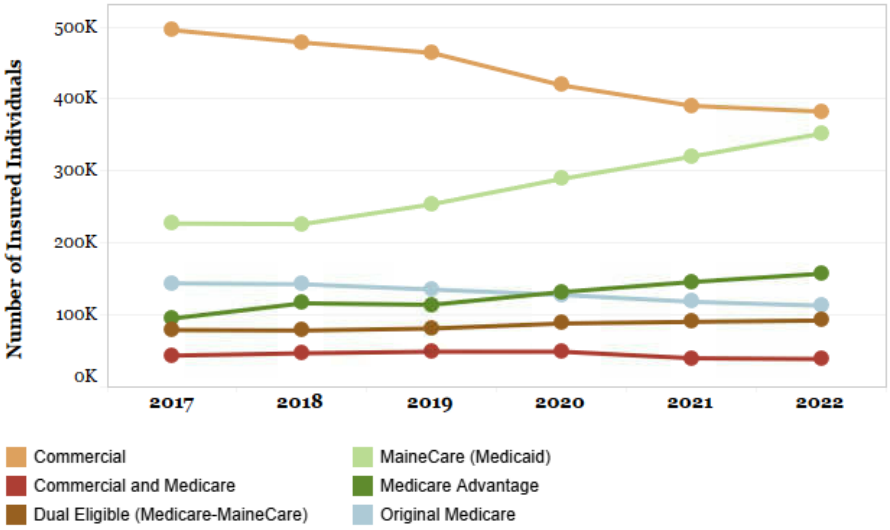
The member-months **not** allocated to one of the payor types listed above (2.8% of all member months for 2017 through 2022, as shown in Table 2 below) primarily represent individuals with Commercial and MaineCare (Medicaid) coverage, or another combination of Commercial, MaineCare (Medicaid) and Medicare coverage. For the purposes of this analysis, their eligibility records and associated claims were excluded.

TABLE 2. MEMBER MONTHS BY PAYOR TYPE

Payor Type	Member Months	Percent of Member Months
Commercial	**26,326,087**	**38.1%**
MaineCare (Medicaid)	**16,656,886**	**24.1%**
Medicare	**16,455,201**	**23.8%**
Original Medicare	8,381,963	12.1%
Medicare Advantage	8,073,238	11.7%
Dual Eligible (Medicare-MaineCare)	**5,408,055**	**7.8%**
Commercial and Medicare	**2,696,608**	**3.9%**
Other	**1,957,342**	**2.8%**
Commercial and MaineCare (Medicaid), under 65	1,511,961	2.2%
Medicare, MaineCare (Medicaid), Commercial	113,791	0.2%
Remainder of other	6,437	0.0%
Total	**69,175,026**	**100.0%**

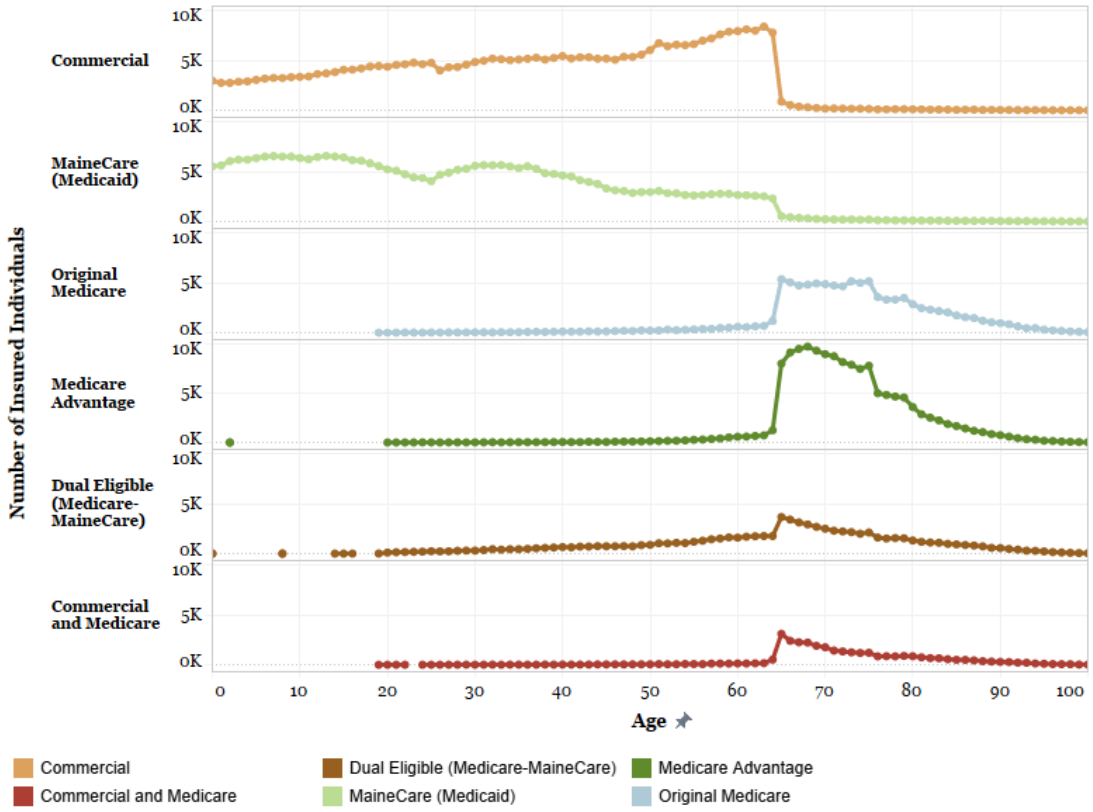
Charts 2 and 3 below show the number of unique insured individuals that were allocated to each payor type, by eligibilty year and separately by detailed age. The number of insured individuals is calculated as the number of distinct MHDO deidentified Person IDs which allow for the consolidation of data across submitters for a single individual. Age represents the age of the member as of December 2022, displayed only for members with eligibilty information during that month.

CHART 2. INSURED INDIVIDUALS BY PAYOR TYPE AND ELIGIBILITY YEAR



The following chart allows for a comparison of age groups covered by the payor types used in this report. For example, it is evident that there are individuals under 65 with Medicare coverage, likely eligible due to disability. Most individuals with MaineCare (Medicaid) coverage are under age 40, and there are few that are ages 65 or older.

CHART 3. INSURED INDIVIDUALS BY PAYOR TYPE AND AGE AS OF DECEMBER 2022



Inpatient Stays

After the initial assignment of service categories, claims that are classified as hospital inpatient are further aggregated to construct an inpatient stay-level data structure, also referred to as admission/discharge or hospitalization data structure. In this analytic data structure, each record represents a single inpatient stay and all the payment information associated with the stay, aggregated from one or multiple claims. Claims are grouped into a single inpatient stay for each distinct individual, distinct admission date and hospital available in the data. Inpatient stays within the same hospital and with overlapping or contiguous dates of service were grouped into a single inpatient stay, having the initial admission date and most recent discharge date available in the data.

Services that occur prior to the admission date and are billed on the same claim as services provided during the inpatient stay are rolled up into the inpatient stay payments (e.g., Emergency Room services, observation hours). The length of stay for the inpatient stay is calculated based on the number of days between the admission date and discharge date as described in the Utilization Count section, including services provided at the hospital before being admitted.

For the grouping into Level 2 service categories, MHDO used the output of the MS-DRGs grouping software applied in the MHDO Data Warehouse. The output from the MS-DRG software assigns DRGs and Major Diagnosis Categories (MDCs) to inpatient claims. MDCs are used for the assignment of Level 2 service categories. In situations where multiple overlapping or contiguous

hospitalization segments in a single inpatient stay have different MDC values, then the MDC value corresponding to the most recent hospitalization segment is used as the overall inpatient stay MDC. If the most recent hospitalization segment has multiple claims with different MDC values, the MDC associated with the largest total payment amount is picked to represent the assigned MDC for the respective inpatient stay.

Analytic Selection Criteria and Limitations

This analysis is based on MHDO APCD medical claims data only. Vision, dental, retail pharmacy claims and eligibility records were excluded from this analysis.

For the first four years of this analysis' time-period (2017 – 2021), payment information submitted to MHDO by the payors does not include a data element that identifies the payment arrangement type (examples include: Capitation, DRG, Fee-For-Service (FFS), Global Payments etc.) on medical claims. The MHDO's APCD data collection rule, 90-590 Chapter 243, *Uniform Reporting System for Health Care Claims Data Sets*, was amended in 2021 to include a payment arrangement type indicator beginning with 2022 claims data submissions. There are, however, two distinct scenarios present among the 2017-2022 medical claim records that provide an indication of a payment arrangement other than FFS. These scenarios are described below.

Scenario 1: Approximately 2.3 million claims in the time-period have zero dollars in all payment fields on the claim (payor and member liability); these claims are excluded from the analysis. See Table 3. Approximately 88% of these claims are MaineCare (Medicaid) claims, as prospective interim payments paid to Critical Access Hospitals (CAH) on behalf of MaineCare members (where MaineCare is the primary payor) are not included in the MHDO APCD. Note that, during this reporting period, in addition to the 16 CAH hospitals in the state (Table 1), MaineCare reimbursed Cary Medical Center and York Hospital in the same manner as CAH. Beginning with fourth quarter of 2022 MaineCare began to submit estimated payments to MHDO for CAHs; since these estimated payments are not available for the entire reporting period, they have not been included in the analysis. For the other all-zero payment claims, 11% are Medicare (Original or Advantage), and the remaining nearly 2% are commercial. Both the costs and utilization related to these claims are excluded, therefore the payments and utilization measures are underestimated. Note that 18% of MaineCare (Medicaid) claims are excluded based on this scenario, meaning that the MaineCare (Medicaid) measure values displayed in the report reflect at most 82% of the total MaineCare (Medicaid) services provided in the state. For Medicare and commercial claims, approximately 1-2% of claims are excluded based on this scenario.

Scenario 2: Additionally, approximately 17% of the medical claims selected for the analysis, and primarily representing MaineCare (Medicaid) and Medicare outpatient claims, present a pattern where one service (procedure code) on the claim appears to be populated with the overall amount paid for all services reported on the claim, and the rest of the services have zero payments. This pattern is likely indicative of a "bundled payment" arrangement for outpatient services and a DRG-based payment arrangement for inpatient claims. This set of claims is included in the analysis and impact the output by underestimating the payments for services that have a payment of $0 and overestimating the payments for services that have the multi-service payment allocated to a single

service or procedure; the extent to which this affects specific service categories displayed in the report was not estimated.

Last, excluded from this analysis are approximately 9.3 million claims that were not assigned to one of the Level 1 service categories and payor types developed for this analysis, or which were not tied to a specific inpatient stay or outpatient or professional Level 2 service categories. See Table 3, below.

Table 3 showcases the most important analytic selections applied to claims, referenced above and in previous report sections. The final set of claims used in the analysis represents 22.6% of the initial set of medical claims with 2017 – 2022 service dates, which is the approximate expected volume of claims that represent hospital-related services in the MHDO APCD.

TABLE 3. ANALYTIC SELECTION CRITERIA APPLIED TO MEDICAL CLAIMS

MHDO APCD			
Data Submitted to MHDO under Chapter 243, Uniform Reporting System for Health Care Claims Data Sets	Includes medical, vision, dental, retail pharmacy claims and member eligibility data from Medicare (CMS), MaineCare (Medicaid), and approximately 73% of commercially insured members.		
MHDO data scrubbing and validations applied to submitted claims	This process involves several steps, detailed in Appendix A, such as the claim consolidation (removal of fully reversed claims) and the assignment of a deidentified person ID that consolidates data across submitters for distinct individuals.		
DATA USED IN THIS ANALYSIS			
Releasable MHDO APCD medical claims, with 2017-2022 service dates		**140,203,845**	**100.0%**
EXCLUSIONS APPLIED			
Claims not having NPIs for one of the 36 Maine hospitals		-96,818,042	69.1%
Claims with NPIs for one of the 36 Maine hospitals that are also referencing out-of-state hospital NPIs		-108,295	0.1%
Claims referencing more than one of the 36 Maine hospitals		-34,835	0.0%
Medical claims attributed to one of 36 Maine hospitals		**43,242,673**	**30.8%**
Claims for services outside of a hospital setting, or unassigned claim type		-8,531,684	6.1%
Medical claims for services within the hospital setting only		**34,710,989**	**24.8%**
All-zero payment claims		-2,315,396	1.7%
Medical claims with non-zero payments on at least one claim line		**32,395,593**	**23.1%**
Claims with Payor Type = “Other” or “Unassigned”		-731,625	0.5%
Medical claims having one of the payor types selected for reporting		**31,663,968**	**22.6%**
Inpatient claims that were not assigned to an inpatient stay		-17,522	0.0%
Outpatient/ professional claims with no HCPCS/CPT code populated		-28,874	0.0%
Final set of medical claims selected for reporting		**31,617,572**	**22.6%**
Inpatient claims		575,784	0.4%
Outpatient claims		23,147,780	16.5%
Professional claims		7,894,008	5.6%

Report Measures

This section displays the list of measures created for this report. All measures are created *without* adjustments for inflation or the changing demographics and comorbidities of the patient population.

Total Payments

Total payments are calculated as the sum of payor and member liability (inclusive of copay, coinsurance, and deductible amounts and calculated as described below, for cost sharing) payments for medical services and procedures.

Cost Sharing Payments (Member Liability)

Cost sharing payment amounts represent the out-of-pocket amount to be paid by the insured member to the hospital (inclusive of copay, coinsurance, and deductible amounts). These are also referred to as member liability amounts.

The member cost sharing amounts are submitted in MHDO's claims data and have not been adjusted to account for instances when the hospital cannot obtain reimbursement from the individual (bad debt) for care provided.

In response to the COVID-19 public health emergency, declared in March 2020 and ending in May 2023, temporary changes were made to MaineCare (Medicaid) eligibility and member cost sharing requirements[2]. As a result, MaineCare enrollees were able to maintain benefits under the continuous coverage requirement, and copayments were waived for several services, including but not limited to: Clinical Visits (includes hospital inpatient, outpatient and physician services), Medical Imaging Services, Laboratory Services, Behavioral Health Services, Medical Supplies and Durable Medical Equipment, and COVID-19 specific treatments and/or vaccines.

Among the other claim details used for this analysis, the claim status (codes indicating how the claim was processed, for example processed as primary, processed as secondary, denied, reversal of previous payment, etc.) on the claim plays an important role in the calculation of cost sharing or member liability payments. The submitted claim status is used to categorize claims as follows:

a) Claims paid as a primary payor – referred to as the "primary claims";
b) Claims paid as a secondary or tertiary payor – referred to as the "secondary/tertiary claims";
c) Reversals – claims which reverse prior payments; these claims were attributed to either the primary or secondary/tertiary payors through matching to the forward claim using payor codes, individual and service characteristics on the claim line; after this attribution step, the claim records with the reversal status are included in calculations as either "primary claims" or "secondary/tertiary claims", respectively.

[2] Maine Department of Health and Human Services, MaineCare Services (May 28, 2024). *MaineCare Member Copayments*. Retrieved from https://www.maine.gov/dhhs/sites/maine.gov.dhhs/files/inline-files/May%202024%20Member%20Copayments.pdf on September 16, 2024.

The majority of payment situations have a single payor, in which case the cost sharing amount is simply the amount to be paid by the *member* on the claims incurred for the respective services, as a sum of the copay, coinsurance, and deductible amounts. If there is a secondary payor, or a secondary and a tertiary payor, the cost sharing amount is calculated as the amount to be paid by the *member* on primary claims (sum of the copay, coinsurance, and deductible amounts), subtracting the amount paid by the *payor* on secondary/tertiary claims, as exemplified in Chart 4. This calculation typically would yield the amount that the last payor (either the secondary payor or tertiary payor, respectively) has indicated as the final amount to be paid by the member.

CHART 4. SAMPLE CALCULATION OF MEMBER COST SHARING

		Payor	Member*
Payor X	*Primary Claim*	$350	$200
Payor Y	*Secondary Claim*	$150	$50
Cost Sharing Calculation			**Result**
$200	MINUS	$150	**$50**

* Member amount is sum of copay, coinsurance, deductible.

This analysis brought to light some questions regarding the payments submitted to the MHDO by MaineCare (Medicaid) for dual eligible individuals (having Medicare-MaineCare coverage). As such, it is likely that the cost sharing payments and subsequent measures calculated based on them (i.e., total payments, payments per capita, payments per unit) for dual eligible individuals may be overestimated.

For the cost sharing payments of dual eligible individuals in this analysis, we applied additional calculation steps to account for situations where the primary (typically Medicare) claim indicated a member liability of $0 was matched to a secondary (typically MaineCare) claim with a positive payor payment, which yielded negative cost sharing payments through the calculation method described above. Cost sharing is then calculated either as $0, if the member liability on the secondary (MaineCare) claim appears to be equal to the payor paid amount, or it is calculated as the member liability on the secondary claim.

For individuals with MaineCare (Medicaid) only coverage, for instances of services paid by MaineCare both as primary and secondary, we applied the same calculations steps described above for dual eligible individuals.

Payments Per Capita

Payments per capita is calculated as the total payments divided by the sum of member months, then multiplied by 12 – showing the annual per capita values across individuals assigned to the respective payor type.

Note that the member months are summed regardless of whether the member had any claims during the reporting year in the MHDO APCD. In other words, non-users are included in the denominator for this measure.

Utilization Count

The utilization units are defined as follows, by service category:

- **Inpatient days** are calculated as the number of days of hospitalization at one of the 36 Maine hospitals, based on the admission and discharge dates that are submitted by the payor for each inpatient stay. Inpatient stays with same day discharges are counted as one inpatient day. Note that transfers from one Maine hospital to another Maine hospital are counted as distinct inpatient stays, therefore the number of days at Hospital A is attributed to Hospital A, and then the number of days of hospitalization post transfer to Hospital B are attributed to Hospital B.
- **Outpatient services** are defined as distinct combinations of HCPCS/CPT codes, date of service and MHDO deidentified Person ID, across multiple claim lines or even multiple claims. Quantity information or number of units of service recorded on the claim are not considered.
- **Professional services** are defined as distinct combinations of HCPCS/CPT codes, date of service and MHDO deidentified Person ID, across multiple claim lines or even multiple claims. Quantity information or number of units of service recorded on the claim are not considered.

The utilization count represents the total count of services, calculated by summing the number of days of hospitalization (or inpatient days), the number of outpatient services, or the number of professional services, respectively.

Utilization Per 1,000 Insureds

The utilization rate is calculated as the total utilization counts as described above (Utilization Count), divided by the number of insured years (representing the sum of member months divided by 12), then the result is multiplied by 1,000.

Note that the member months are summed regardless of whether the member had any claims during the reporting year in the MHDO APCD. In other words, non-users are included in the denominator for this measure.

Payments Per Unit

The payments per unit represents an average payment for services and is calculated as the total payments (combining payor payments and member liability amounts to be paid, as described above) divided by the number of inpatient days or number of services and procedures (i.e. total utilization), respectively, during the specified reporting year.

Year-Over-Year (YOY) Percent Change

The YOY percent change represents the relative difference in values between two consecutive years, for example, 2018 and 2019, calculated as the 2019 value minus the 2018 value, divided by the 2018 value, then multiplying the result by 100. A *negative* percent change indicates that the 2019 value has *decreased* compared to 2018. A *positive* percent change indicates that the 2019 value has *increased* compared to 2018. If the value was *the same* in both 2018 and 2019, the YOY percent change is *zero*. If the value in 2018 is zero, the YOY percent change is not calculated.

Cumulative Percent Change

The cumulative percent change represents the relative difference in values between 2017 and another reporting year, for example, 2020, calculated as the 2020 value minus the 2017 value, divided by the 2017 value, then multiplying the result by 100. A *negative* percent change indicates that the 2020 value has *decreased* compared to 2017. A *positive* percent change indicates that the 2020 value has *increased* compared to 2017. If the value was *the same* in both 2017 and 2020, the cumulative percent change is *zero*. If the value in 2017 is zero, the cumulative percent change is not calculated.

Average Number of Insureds

The average number of insureds is the same as the number of insured years, calculated as the sum of member months divided by 12. The average number of insureds is available in the dashboard's tooltip (hover text) information for selected charts.

Appendices

Appendix A: MHDO Data Intake and Processing

The MHDO All-Payer-Clams Data is submitted to MHDO per the requirements in 90-590 Chapter 243, *Uniform Reporting System for Health Care Claims Data Sets*. The claims data that is submitted to MHDO undergoes data scrubbing which is the process of fixing errors in a database by identifying and removing incomplete, incorrect, or duplicate data. It also involves standardizing formats and updating outdated information. This process is designed to improve the accuracy and reliability of the data.

After passing the data intake validations, data are ingested in the MHDO Data Warehouse, processed and enhanced with value-add fields and then undergo another set of internal quality checks. The table below outlines the steps in this process.

TABLE A.1. MHDO APCD DATA PROCESSING STEPS IN THE DATA WAREHOUSE

Step	Task	Description
1	**Receive Raw Data Files**	Once the raw data are received from the source, the data are loaded into the MHDO Data Warehouse.
2	**Enhance Data**	Process the data files by running queries and batch jobs to load the data into the appropriate file formats and bring the files into output tables. Specifications for enhancements are documented in the Business Rules.
3	**Conduct Internal Quality Control (QC)**	Execute QC based on data set. This may include: Running variable checks to ensure key variables are used in analysis; checking output tables to ensure the correct relationships are established and information is appearing correctly; comparing current estimates to previous estimates; performing outlier analysis; reviewing data for new procedure or methodological changes; reviewing any open issues identified in past processing iterations. Document progress and results as needed.
4	**Investigate and Resolve Issues**	Investigate and resolve critical issues identified during the internal QC process.
5	**Rerun Data (if necessary)**	If data issues are identified, rerun the data and conduct internal QC.
7	**Investigate and Resolve Issues**	Investigate and resolve critical issues identified during the external QC process, as discussed with the MHDO Compliance Officer and Executive Director.
8	**Accept or Reject Data**	MHDO accepts or rejects the data deliverable based on the testing results. When accepted, the data is released.
9	**Metadata and Release Documentation**	Metadata and associated release documentation is updated with changes or data quality concerns and released with data.

Appendix B: MHDO APCD Data Elements Used in the Analysis

This appendix includes two lists of MHDO APCD data elements used for this analysis, one for medical eligibility (Table B.1) and the second for medical claims (Table B.2).

TABLE B.1. MHDO APCD MEDICAL ELIGIBILITY

Data Element	Data Element Name - MHDO APCD Medical Eligibility	Fixed Width	Data Type	MHDO Release Level	Transformation Type
ME001_SUBMITTER	MHDO Submitter ID	30	text	Level 1	As Submitted
ME002_PAYER	MHDO Payer ID	30	text	Level 1	As Submitted
ME004_YEAR	Year	8	numeric	Level 1	As Submitted
ME005_MONTH	Month	8	numeric	Level 1	As Submitted
ME014_DOB	Member Date of Birth	8	date	Level 2	Derived
ME018_MEDICAL	Medical Coverage	1	text	Level 1	As Submitted
ME028_PRIMARY	Primary Insurance Indicator	1	text	Level 1	As Submitted
ME912_MHDO_PRODUCT	Standardized Insurance Type/Product Code	2	text	Level 1	Derived
ME976_Person_ID	Deidentified MHDO-assigned replacement Person ID	8	numeric	Level 2	Derived

TABLE B.2. MHDO APCD MEDICAL CLAIMS

Data Element	Data Element Name - MHDO APCD Medical Claims	Fixed Width	Data Type	MHDO Release Level	Transformation Type
MC001_SUBMITTER	MHDO Submitter ID	30	text	Level 1	As Submitted
MC002_PAYER	MHDO Payer ID	30	text	Level 1	As Submitted
MC018_ADMDAT	Admission Date	8	date	Level 2	As Submitted
MC036_BILLTYPE	Type of Bill - Institutional	20	text	Level 1	As Submitted
MC037_FACTYPE	Place of Service - Professional	2	text	Level 1	As Submitted
MC038_STATUS	Claim Status	2	text	Level 1	As Submitted
MC054_REV	Revenue Code	10	text	Level 1	As Submitted
MC055_CPT	Procedure Code	10	text	Level 1	As Submitted
MC059_FDATE	Date of Service From	8	date	Level 2	As Submitted
MC060_LDATE	Date of Service through	8	date	Level 2	As Submitted
MC063_TPAY	Paid Amount	17	text	Level 1	As Submitted
MC065_COPAY	Copay Amount	17	text	Level 1	As Submitted
MC066_COINS	Coinsurance Amount	17	text	Level 1	As Submitted

Data Element	Data Element Name - MHDO APCD Medical Claims	Fixed Width	Data Type	MHDO Release Level	Transformation Type
MC067_DED	Deductible Amount	17	text	Level 1	As Submitted
MC069_DISDAT	Discharge Date	8	date	Level 2	As Submitted
MC077_NPI	National Provider ID - Billing Provider	20	text	Provider Identifiable	As Submitted
MC902_IDN	Record ID#	8	numeric	Level 1	Derived
MC907_MHDO_CLAIM	MHDO assigned replacement for payor's claim ID	8	numeric	Level 2	Derived
MC913_MHDO_PRODUCT	Standardized Insurance Type/Product Code	2	text	Level 1	Derived
MC950_SERVICING_NPI	National Provider Identifier	20	text	Provider Identifiable	Derived
MC968_ServiceFacility_NPI	National Service Facility ID	20	text	Provider Identifiable	Derived
MC976_Person_ID	Deidentified MHDO-assigned replacement Person ID	8	numeric	Level 2	Derived