Hospital Services Payments and Utilization by Health System and Hospital: Methodology Notes

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Introduction

The State of Maine's Office of Affordable Health Care (OAHC) *Hospital Services Payments and Utilization by Health System and Hospital* builds off the *Hospital Services Payments and Utilization Dashboard*, produced in 2024, and on the initial precursor, *Health Care Expenditures in Maine Dashboard*[1], which the Maine Health Data Organization produced in January 2023. This dashboard report presents aggregated information on payments and utilization by service categories and specific services and procedures for 36 hospitals in the state of Maine. The aggregated data can also be viewed by health system and by each hospital within the health system.

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, 2023. 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.

MaineCare (the State's Medicaid/CHIP program) and commercial payors 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, approximately 84% of the fully insured individual and employer-sponsored plans and approximately 26% of the self-funded employer-sponsored plans (referred to as Commercial). A portion of the self-funded employer-sponsored plans are Employee Retirement Income Security Act of 1974 (ERISA) plans, and they 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. However, 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 until 2022, for CY 2021 data. 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

[1] Current version of the report is available on MHDO's website, here: https://mhdo.maine.gov/tableau/healthCarePayments.cshtml

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, 2023, using the following criteria:

- **Medical eligibility records** for 2017 through 2023 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 2023 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** (listed in 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 is sorted by health system in alphabetical order, within health system by hospital type (large, medium-size, smaller acute care hospitals, then critical access hospitals, private psychiatric hospitals, and rehabilitation hospital), and within hospital type by hospital name in alphabetical order, using the label displayed in the report.

The analysis presents measures aggregated **by hospital** and **by health system**. Table 1 shows the attribution of hospitals to a health system at the year level, indicating which hospitals are included

in a health system aggregation for each year. For example, measure values for the MaineHealth health system aggregate data from two hospitals in 2018, from eight hospitals in 2019, and from nine hospitals in 2021. Note that Central Maine Healthcare, MaineGeneral Health, MaineHealth and Northern Light Health are health systems within the state of Maine, while Covenant Health is a multi-state entity.

TABLE 1. MAINE HOSPITALS INCLUDED IN THE ANALYSIS

Health System	Hospital Type	Hospital Name as of 2017	2017	2018	2019	2020	2021	2022	2023	Hospital Name Displayed in the Report
Central Maine Healthcare	●	Central Maine Medical Center								Central Maine Medical Center
Central Maine Healthcare	✱	Bridgton Hospital								Bridgton Hospital
Central Maine Healthcare	✱	Rumford Hospital								Rumford Hospital
Covenant Health	□	St. Joseph Hospital								St. Joseph Hospital
Covenant Health	□	St. Mary's Regional Medical Center								St. Mary's Regional Medical Center
MaineGeneral Health	●	MaineGeneral Medical Center								MaineGeneral Medical Center
MaineHealth	●	MaineHealth Maine Medical Center								MaineHealth Maine Medical Center
MaineHealth	□	Mid Coast Hospital								MaineHealth Mid Coast Hospital
MaineHealth	□	Pen Bay Medical Center								MaineHealth Pen Bay Hospital
MaineHealth	□	Southern Maine Health Care								Southern Maine Health Care
MaineHealth	■	Franklin Memorial Hospital								MaineHealth Franklin Hospital
MaineHealth	✱	LincolnHealth								MaineHealth Lincoln Hospital
MaineHealth	✱	Stephens Memorial Hospital								MaineHealth Stephens Hospital
MaineHealth	✱	Waldo County General Hospital								MaineHealth Waldo Hospital
MaineHealth	◆	Maine Behavioral HealthCare								MaineHealth Behavioral Health
Northern Light Health	●	Northern Light Eastern Maine Medical Center								Northern Light Eastern Maine Medical Center
Northern Light Health	□	Northern Light A.R. Gould Hospital								Northern Light A.R. Gould Hospital
Northern Light Health	□	Northern Light Mercy Hospital								Northern Light Mercy Hospital
Northern Light Health	■	Northern Light Inland Hospital								Northern Light Inland Hospital
Northern Light Health	■	Northern Light Maine Coast Hospital								Northern Light Maine Coast Hospital
Northern Light Health	✱	Northern Light Blue Hill Hospital								Northern Light Blue Hill Hospital
Northern Light Health	✱	Northern Light Charles A. Dean Hospital								Northern Light Charles A. Dean Hospital
Northern Light Health	✱	Mayo Regional Hospital				(a)				Northern Light Mayo Hospital
Northern Light Health	✱	Northern Light Sebasticook Valley Hospital								Northern Light Sebasticook Valley Hospital
Northern Light Health	◆	Northern Light Acadia Hospital								Northern Light Acadia Hospital
	□	York Hospital								York Hospital
	■	Cary Medical Center								Cary Medical Center
	■	Northern Maine Medical Center								Northern Maine Medical Center
	✱	Calais Community Hospital					(b)			Calais Community Hospital
	✱	Down East Community Hospital					(b)			Down East Community Hospital
	✱	Houlton Regional Hospital								Houlton Regional Hospital
	✱	Millinocket Regional Hospital								Millinocket Regional Hospital
	✱	Mount Desert Island Hospital								Mount Desert Island Hospital
	✱	Penobscot Valley Hospital								Penobscot Valley Hospital
	✱	Redington-Fairview General Hospital								Redington-Fairview General Hospital
	O	New England Rehabilitation Hospital	(c)	(c)	(c)	(c)	(c)	(c)	(c)	New England Rehabilitation Hospital

Legend

- ● Large Acute Care Hospital
- □ Medium-Size Acute Care Hospital
- ■ Smaller Acute Care Hospital
- ✱ Critical Access Hospital
- ◆ Private Psychiatric Hospital
- O Rehabilitation Hospital

Table 1 Notes

(a) Mayo Regional Hospital became part of the Northern Light Health system as of March 1st, 2020. However, note that the hospital's data from January 1st, 2020 onwards is included in the Northern Light Health calculations in the report.
(b) On March 24, 2021, Calais Community Hospital became a subsidiary of Down East Community Hospital. They are displayed as separate entities in the report for the entire time frame of the analysis.
(c) Maine Medical Center and Encompass Health Corporation (a multi-state entity) each have a 50% membership interest in the New England Rehabilitation Hospital, per the hospital's audited financial statement. In the context of this analysis, New England Rehabilitation Hospital is considered an independent hospital. The New England Rehabilitation Hospital is the only rehabilitation hospital in the state of Maine at the time of the analysis.

In this report, health system-level measures do not include any data beyond the hospitals attributed to the health system for the respective year (i.e., excluding data from hospital-affiliated practices, clinics, other providers or entities that were part of the health system during the reporting time frame). Hospitals that were not part of a health system in a given reporting year are not represented on the Health System pages of the report ('Health System Payments', 'Health System Utilization'), but they are present on all the other report pages.

Table 1 shows the hospital names and health system names applicable to the time frame used for this analysis, noting that some hospital names have changed between 2017 (see the 'Hospital Name as of 2017' column) and 2023, and some hospitals have changed their names after 2023. For the purposes of this analysis, we are using the hospital names that were applicable as of 2023 (see the 'Hospital Name Displayed in the Report' column) for the entire time frame of the report, even if they had name changes.

Hospitals are identified in the MHDO APCD based on the National Provider Identifier (NPI) present in the billing provider NPI field on claim records. 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 MHDO Chapter 300 organization data to be used for hospital entity billing, matched with the NPI field for the billing provider in the MHDO APCD. The list of NPIs associated with each hospital is available in Appendix C.
- **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 (Table 4).
- **Step 3** – Exclude claims with NPIs related to any out-of-state hospital associated with any claim line (Table 4).

Service Category Assignment

The service categorization used in this analysis is primarily dependent on whether the claim uses a facility billing standard (UB-04 form) or non-facility billing standard (CMS-1500 form) (Level 1, below). The subcategories in Level 2 represent commonly used groupings of hospital inpatient and outpatient services and are further detailed in the Level 3 subcategories.

The medical billing process is an intricate and complex system. Although there are national standards and guidelines from the Centers for Medicare and Medicaid Services (CMS), there are differences in how these standards and guidelines are applied in the private sector (commercial insurance companies) primarily based on differences in commercial payer policies.

The UB-04 standardized claim form is used by institutional providers for the billing of claims generated for work performed in hospitals, skilled nursing facilities, and other institutions for outpatient and inpatient services, including physicians' fees, the use of equipment and supplies, laboratory services, radiology services, and other charges. (Note: this is the claim form CMS requires for the submission of charges under Medicare Part A, often referred to as hospital insurance.) This report refers to claims billed using UB-04 as "facility claims."

The CMS-1500 standardized claim form is used by non-institutional providers for the billing of claims generated for work performed by physicians, suppliers, and other non-institutional providers for both outpatient and inpatient services. (Note: this is the claim form CMS requires for the submission of charges under Medicare Part B, often referred to as medical insurance.) A CMS-1500 may also include a technical component, indicated as a specific Procedure Modifier, to account for the cost of equipment, supplies, and/or technical personnel associated with a service. This report refers to claims billed using CMS-1500 as non-facility claims.

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 physician practices. The report includes only claims that fall into one of the following 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, and inpatient pharmacy. This category also includes payments for professional fees billed on facility claims (claim lines with revenue codes in the 0960-0989 range).

- **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, durable medical equipment, home health, and outpatient pharmacy. This category also includes payments for professional fees billed on facility claims (claim lines with revenue codes in the 0960-0989 range).

- **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 Level 1 categories reflect the claim typology described above (UB-04 versus CMS-1500 claims) rather than the distinction between the payments for facility usage, such as patient accommodations and emergency or operating room use, versus the payments for services by individual providers. Payments aggregated in the Inpatient and Outpatient categories include Professional Fees billed on institutional claims (revenue codes 0960 through 0989), and payments aggregated in the Level 1 Professional category could include technical components, such as when procedure codes are associated with the 'TC' or technical component modifier. The extent to which these situations are present in Level 1 categories depends on the hospital's type, billing practices and other factors. Fluctuations across time between Level 1 measure values may, at times, reflect changes in hospital billing practices.

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 'Service Subcategories' 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 the custom-created categories available as a crosswalk developed by Freedman HealthCare (April 2025 version) 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
- Evaluation & Management (new standalone category for this report, originally part of Miscellaneous Outpatient Services)

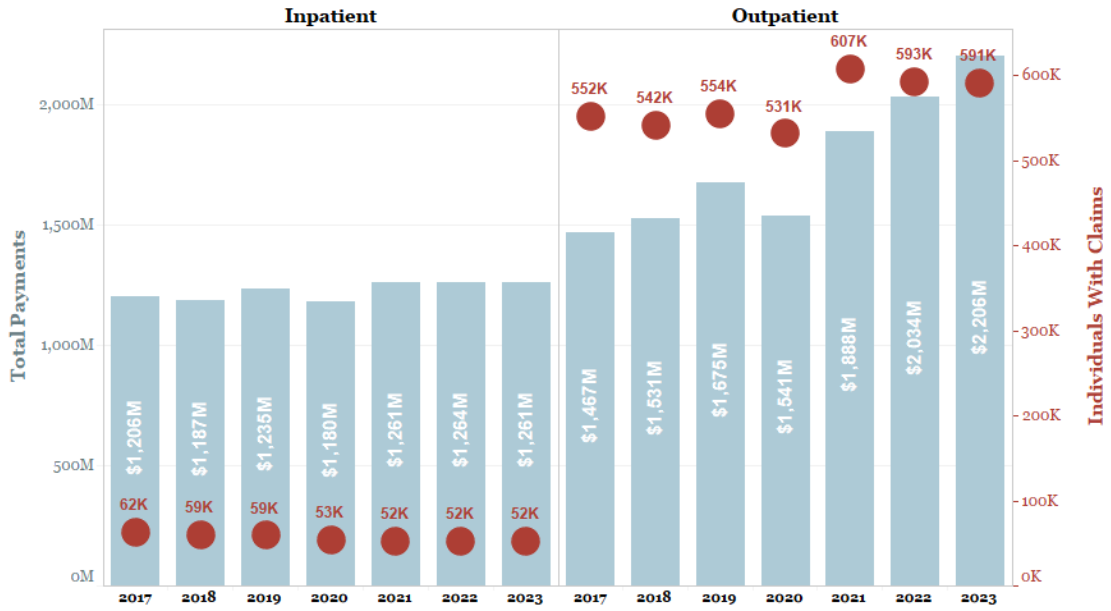
The HCPCS codes that are not grouped into a BETOS category[2] are included in this analysis in their own category, labeled as 'Unassigned'.

[2] 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

The 'All Services Combined' is an available option to select on the *Trends by Services* tab, in the 'Service Categories' drop-down menu, and provides a calculation of all the analyzed 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 shows, inpatient services have comparatively large values for total payments in the report, but those services are received by considerably fewer individuals than individuals receiving outpatient services. In 2023, the number of individuals with hospital inpatient claims represents only 9% of the total number of individuals with hospital outpatient claims. However, payments from inpatient claims represent a much larger share, at 36% of the combined hospital inpatient and outpatient payments in 2023.

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.

Service Categories – Level 3

For Inpatient services, Level 3 uses groupings of DRGs that combine the DRGs with or without complication or comorbidity (CC) and with or without major complication or comorbidity (MCC). For example, the following three DRGs are grouped into Service Category Level 3 "Chronic obstructive pulmonary disease":

- 190 Chronic obstructive pulmonary disease with MCC
- 191 Chronic obstructive pulmonary disease with CC
- 192 Chronic obstructive pulmonary disease without CC/MCC

For Outpatient and Professional services, Level 3 uses BETOS subcategories.

Level 3 categories are available and displayed within Service Categories – Level 2 described above only on the *Trends by Services* tab of the dashboard, using the 'Service Types' drop-down menu.

The 'All Services Combined' is an available option to select and provides a calculation of all the analyzed Level 3 categories *combined*, and includes the ungroupable, unavailable or unassigned.

Detailed Services

The *Trends by Services* tab displays detailed DRG codes for inpatient services and HCPCS or CPT codes (referenced as "CPT" codes) for outpatient and professional services, and can be accessed in the 'DRG or CPT Code' drop-down menu.

The detailed services selected for display represent 98% of the total payments for the respective hospital, year and Level 1 service category (inpatient, outpatient or professional) across all payors combined, and must have had at least one available data point calculated for the respective hospital, year, and payor type combination during the most recent three years of the reporting time frame (i.e., in either 2021, 2022 or 2023). Services with payments totaling less than 2% are available in spreadsheet format upon request, by hospital, year and service categories Levels 1 and 2. However, 100% of total payments are included in measure calculations for Levels 1 through 3 and in the "All Services Combined." Similarly, while services that have available data prior to 2021 but no data point available in 2021 through 2023 are not displayed in the report, they are included in measure calculations for Levels 1 through 3 and in the "All Services Combined." In the applicable situations, summing measures across DRGs or CPTs displayed in the report is expected to show a smaller value than the one displayed in the rollup Level 3 service category.

The 'All Services Combined' provides a calculation of all the detailed services analyzed *combined*, and includes the ungroupable, unavailable or unassigned.

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). 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 4 for further details about exclusion criteria for claims).

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; exclusive of 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; exclusive of commercial-Medicare coverage
    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 (shaded gray 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	**29,984,495**	**36.8%**
MaineCare (Medicaid)	**20,505,711**	**25.1%**
Medicare	**19,489,801**	**23.9%**
Original Medicare	9,572,872	11.7%
Medicare Advantage	9,916,929	12.2%
Dual Eligible (Medicare-MaineCare)	**6,420,049**	**7.9%**
Commercial and Medicare	**3,060,184**	**3.8%**
Other - Not Included	**2,119,255**	**2.6%**
Commercial and MaineCare (Medicaid), under 65	1,977,053	2.4%
Medicare, MaineCare (Medicaid), Commercial	132,663	0.2%
Remainder of other	9,539	0.0%
Total	**81,579,495**	**100.0%**

Charts 2 and 3 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 2023, displayed only for members with eligibilty information during that month.

CHART 2. INSURED INDIVIDUALS BY PAYOR TYPE AND ELIGIBILITY YEAR

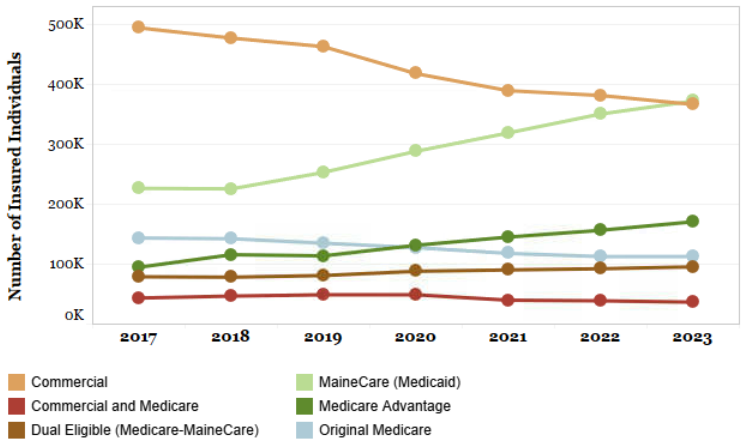
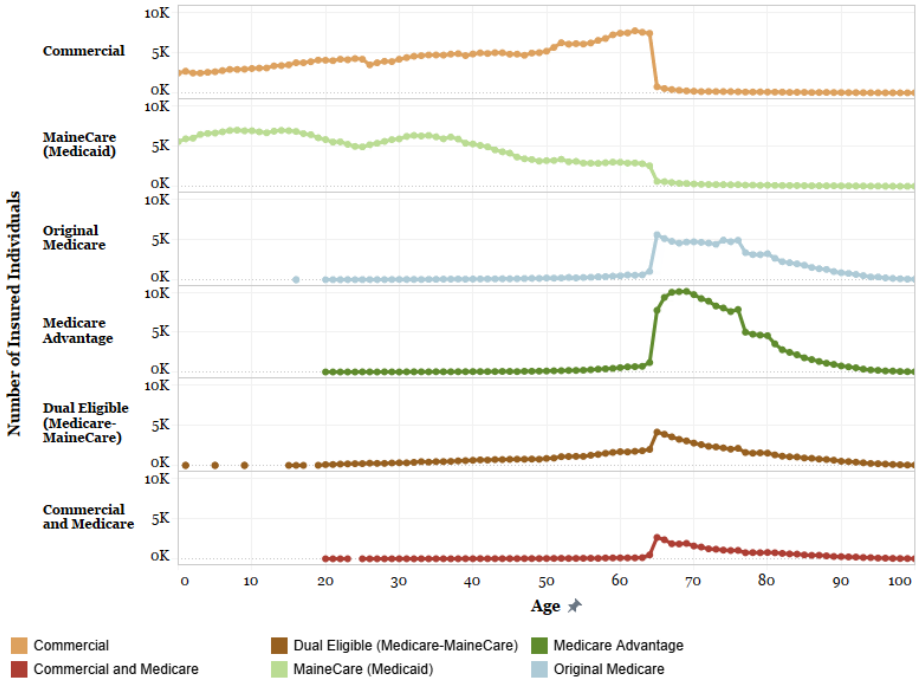


Chart 3 allows for a comparison of age groups covered by the payor types used in this report. For example, it is evident that there are individuals under 65 with Medicare coverage. Most individuals with MaineCare (Medicaid) coverage are under age 40, and there are few that are ages 65 or older.

CHART 3. INSURED INDIVIDUALS BY PAYOR TYPE AND AGE AS OF DECEMBER 2023



Roll-Up of Inpatient Claims into Inpatient Stays

Inpatient stays, also referred to as hospitalizations in some contexts, or more simply as admissions or discharges, reflect the totality of the services received from the date of admission to the hospital through the date of discharge. 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. 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 service categories, MHDO uses the MS-DRG grouping as defined by CMS. That logic assigns DRGs and Major Diagnosis Categories (MDCs) to inpatient claims. MDCs are used for the assignment of Level 2 service categories.

MS-DRGs are conceptually defined in terms of an entire hospital stay. Therefore, in situations where multiple overlapping or contiguous hospitalization segments in a single inpatient stay have different MDC or DRG values, this report selects a single value that best represents the full stay. First, the overall inpatient stay is assigned to the MDC and DRG value corresponding to the most recent hospitalization segment. In a situation where, for example, medical complications arise during a stay, earlier claims might reflect a DRG value without complications that is revised to a value with complications on subsequent claims, and that latter value is a more accurate representation of the overall stay. If that most recent hospitalization segment has multiple claims with different MDC or DRG values, the MDC and DRG associated with the largest total payment amount is picked to represent the assignments 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 five 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 2017-2023 medical claim records that provide an indication of a payment arrangement other than FFS. These scenarios are described below.

Scenario 1: Approximately 4.2 million claims in the time-period have zero dollars in all payment fields on the claim (payor and member liability); the payments and utilization from these claims are *excluded* from the analysis. See Table 4. Approximately 92% of these claims are MaineCare (Medicaid) claims (representing approximately 29% of total MaineCare 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 17 CAH hospitals in the state (Table 1), MaineCare reimbursed Cary Medical Center and York Hospital in the same manner as CAHs. Beginning with the fourth quarter of 2022, MaineCare began to submit estimated payments to MHDO for CAHs. For the other all-zero payment claims, 7% are Medicare (Original or Advantage), and the remaining 1% are commercial (representing approximately 1-2% of claims).

Scenario 2: Additionally, approximately 19% of the medical claims selected for the analysis 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. The claims where we see this pattern are primarily MaineCare (Medicaid) and Medicare outpatient claims (see Table 3). This pattern is likely indicative of a "bundled payment" arrangement for outpatient services and a DRG-based payment arrangement for inpatient claims.

TABLE 3. SCENARIO 2 CLAIMS AND ASSOCIATED TOTAL PAYMENTS BY PAYOR TYPE, 2017-2023

2017 - 2023	Commercial	MaineCare (Medicaid)	Original Medicare	Medicare Advantage
Outpatient Services (Level 1)				
Claim Count -- All claims	3,910K	9,591K	9,095K	6,967K
Claim Count -- Scenario 2 claims	124K	1,276K	4,975K	745K
Claim Count -- PERCENT of Scenario 2 claims out of all	**3%**	**13%**	**55%**	**11%**
Total Payments -- All claims	$5,285M	$1,385M	$3,756M	$3,005M
Total Payments -- Scenario 2 claims	$351M	$410M	$1,271M	$487M
Total Payments -- PERCENT of Scenario 2 claims out of all	**7%**	**30%**	**34%**	**16%**
Professional Services (Level 1)				
Claim Count -- All claims	945K	3,365K	3,051K	2,068K
Claim Count -- Scenario 2 claims	10K	19K	66K	4K
Claim Count -- PERCENT of Scenario 2 claims out of all	**1%**	**1%**	**2%**	**0%**
Total Payments -- All claims	$260M	$203M	$367M	$254M
Total Payments -- Scenario 2 claims	$3M	$0M	$7M	$0M
Total Payments -- PERCENT of Scenario 2 claims out of all	**1%**	**0%**	**2%**	**0%**

The Scenario 2 set of claims is *included* in the analysis for all Inpatient Services breakdown combinations for all payment and utilization measures, and for utilization measures across all service categories and subcategories, since none of these calculations are affected by this scenario. Scenario 2 claims are also *included* for some but not all payment measures. Specifically, Scenario 2 claims are *excluded* in the detailed CPT level calculations for Outpatient and Professional services, as well as in their Level 3 and Level 2 aggregations. In other words, Scenario 2 claims are present in all calculations displayed in the leftmost four pages of the report, 'Health System Payments', 'Health System Utilization', 'Hospital Payments', and 'Hospital Utilization'. On the 'Trends by Services' page, Scenario 2 claims are present (a) in all data points available for Utilization Count, (b) in all payments-related data points for Inpatient services and (c) in all

payments-related data points for Outpatient or Professional services where the Service Subcategories breakdown shows the 'All Services Combined' totals. All other data points on this report page exclude Scenario 2 claims.

The Scenario 2 claims were excluded from the calculations most at risk for either underestimating the payments for services that have a payment of $0 or overestimating the payments for services that have the multi-service payment allocated to a single service or procedure. Given their differential inclusion into report calculations (i.e., they are included in some but not in all calculations), Scenario 2 claims are not listed among the universal exclusions in Table 4.

Lastly, excluded from this analysis are approximately 10.6 million claims that were (a) not assigned to a hospital setting and Level 1 service categories, (b) did not have one of the payor types developed for this analysis, or which (c) were not tied to a specific inpatient stay or hospital outpatient or professional Level 2 service categories.

Table 4 displays the most important analytic selections applied to claims.

TABLE 4. 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), approximately 84% of the fully insured individual and employer-sponsored plans and approximately 26% of the self-funded employer-sponsored plans (referred to as Commercial).	
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 2017-2023 service dates	**164,214,568**	**100.0%**
EXCLUSIONS APPLIED		
Claims not having NPIs for one of the 36 Maine hospitals	-113,615,643	69.2%
Claims with NPIs for one of the 36 Maine hospitals that are also referencing out-of-state hospital NPIs	-113,928	0.1%
Claims referencing more than one of the 36 Maine hospitals	-38,518	0.0%
Medical claims attributed to one of 36 Maine hospitals	**= 50,446,479**	**30.7%**
Claims for services outside of a hospital setting, or unassigned claim type	-9,749,218	5.9%
Medical claims for services within the hospital setting only	**= 40,697,261**	**24.8%**
All-zero payment claims	-4,242,592	2.6%
Medical claims with non-zero payments on at least one claim line	**= 36,454,669**	**22.2%**
Claims with Payor Type = "Other" or "Unassigned"	-824,755	0.5%
Medical claims having one of the payor types selected for reporting	**= 35,629,914**	**21.7%**
Inpatient claims that were not assigned to an inpatient stay	-20,902	0.0%
Outpatient/ professional claims with no HCPCS/CPT code populated	-31,892	0.0%

Final set of medical claims selected for reporting	= 35,577,120	21.7%
TOTAL NUMBER OF EACH TYPE OF CLAIM USED IN THIS ANALYSIS		
Inpatient claims included	628,065	0.4%
Outpatient claims included	26,296,832	16.0%
Professional claims included	8,652,223	5.3%

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

Cost sharing payment amounts, or the out-of-pocket amount to be paid by the insured member to the hospital, are 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 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[3]. 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";

[3] 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.

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.

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.

Units and 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.

Payments Per Unit

The payments per unit represent 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.

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	Transformation Type
ME001_SUBMITTER	MHDO Submitter ID	As Submitted
ME002_PAYER	MHDO Payer ID	As Submitted
ME004_YEAR	Year	As Submitted
ME005_MONTH	Month	As Submitted
ME014_DOB	Member Date of Birth	Derived
ME018_MEDICAL	Medical Coverage	As Submitted
ME028_PRIMARY	Primary Insurance Indicator	As Submitted
ME912_MHDO_PRODUCT	Standardized Insurance Type/Product Code	Derived
ME976_Person_ID	Deidentified MHDO-assigned replacement Person ID	Derived

TABLE B.2. MHDO APCD MEDICAL CLAIMS

Data Element	Data Element Name - MHDO APCD Medical Claims	Transformation Type
MC001_SUBMITTER	MHDO Submitter ID	As Submitted
MC002_PAYER	MHDO Payer ID	As Submitted
MC018_ADMDAT	Admission Date	As Submitted
MC036_BILLTYPE	Type of Bill - Institutional	As Submitted
MC037_FACTYPE	Place of Service - Professional	As Submitted
MC038_STATUS	Claim Status	As Submitted
MC054_REV	Revenue Code	As Submitted
MC055_CPT	Procedure Code	As Submitted
MC059_FDATE	Date of Service From	As Submitted
MC060_LDATE	Date of Service through	As Submitted
MC063_TPAY	Paid Amount	As Submitted
MC065_COPAY	Copay Amount	As Submitted
MC066_COINS	Coinsurance Amount	As Submitted
MC067_DED	Deductible Amount	As Submitted
MC069_DISDAT	Discharge Date	As Submitted
MC077_NPI	National Provider ID - Billing Provider	As Submitted
MC902_IDN	Record ID#	Derived
MC907_MHDO_CLAIM	MHDO assigned replacement for payor's claim ID	Derived
MC913_MHDO_PRODUCT	Standardized Insurance Type/Product Code	Derived
MC950_SERVICING_NPI	National Provider Identifier	Derived
MC968_ServiceFacility_NPI	National Service Facility ID	Derived
MC976_Person_ID	Deidentified MHDO-assigned replacement Person ID	Derived

Appendix C: National Provider Identifiers (NPIs) Used in the Analysis

Hospital Name	Total NPIs Per Hospital	NPI
Bridgton Hospital	2	1154370153
Bridgton Hospital	2	1477691467
Calais Community Hospital	2	1376546143
Calais Community Hospital	2	1922001049
Cary Medical Center	1	1780615492
Central Maine Medical Center	2	1073651576
Central Maine Medical Center	2	1689653487
Down East Community Hospital	3	1336587542
Down East Community Hospital	3	1528087004
Down East Community Hospital	3	1689670242
Houlton Regional Hospital	5	1013355254
Houlton Regional Hospital	5	1386601524
Houlton Regional Hospital	5	1386804268
Houlton Regional Hospital	5	1508823741
Houlton Regional Hospital	5	1639147101
MaineGeneral Medical Center	5	1083949184
MaineGeneral Medical Center	5	1285672436
MaineGeneral Medical Center	5	1447289996
MaineGeneral Medical Center	5	1548204480
MaineGeneral Medical Center	5	1669423380
MaineHealth Behavioral Health	1	1598798787
MaineHealth Franklin Hospital	1	1558305847
MaineHealth Lincoln Hospital	1	1912094806
MaineHealth Maine Medical Center	1	1760436216
MaineHealth Mid Coast Hospital	1	1932164795
MaineHealth Pen Bay Hospital	1	1982645305
MaineHealth Stephens Hospital	1	1346299815
MaineHealth Waldo Hospital	1	1841397932
Millinocket Regional Hospital	3	1265443196
Millinocket Regional Hospital	3	1275646150
Millinocket Regional Hospital	3	1578677456
Mount Desert Island Hospital	2	1518064047
Mount Desert Island Hospital	2	1790764512
New England Rehabilitation Hospital	1	1194799023
Northern Light A.R. Gould Hospital	5	1255791026
Northern Light A.R. Gould Hospital	5	1265551212
Northern Light A.R. Gould Hospital	5	1396858999
Northern Light A.R. Gould Hospital	5	1396864336
Northern Light A.R. Gould Hospital	5	1982723037
Northern Light Acadia Hospital	2	1215940523
Northern Light Acadia Hospital	2	1568477297
Northern Light Blue Hill Hospital	2	1023057809
Northern Light Blue Hill Hospital	2	1023272853
Northern Light Charles A. Dean Hospital	5	1104834977
Northern Light Charles A. Dean Hospital	5	1134354228
Northern Light Charles A. Dean Hospital	5	1265441323
Northern Light Charles A. Dean Hospital	5	1659388213
Northern Light Charles A. Dean Hospital	5	1861401820
Northern Light Eastern Maine Medical Center	7	1134492846
Northern Light Eastern Maine Medical Center	7	1487781548
Northern Light Eastern Maine Medical Center	7	1588654479

Hospital Name	Total NPIs Per Hospital	NPI
Northern Light Eastern Maine Medical Center	7	1598755399
Northern Light Eastern Maine Medical Center	7	1780674580
Northern Light Eastern Maine Medical Center	7	1780674689
Northern Light Eastern Maine Medical Center	7	1790789147
Northern Light Inland Hospital	1	1376579557
Northern Light Maine Coast Hospital	3	1053731026
Northern Light Maine Coast Hospital	3	1447204763
Northern Light Maine Coast Hospital	3	1740249739
Northern Light Mayo Hospital	2	1548463623
Northern Light Mayo Hospital	2	1558319103
Northern Light Mercy Hospital	1	1629078712
Northern Light Sebasticook Valley Hospital	2	1013176544
Northern Light Sebasticook Valley Hospital	2	1457461477
Northern Maine Medical Center	4	1568465144
Northern Maine Medical Center	4	1790830503
Northern Maine Medical Center	4	1801872759
Northern Maine Medical Center	4	1891184172
Penobscot Valley Hospital	2	1093716086
Penobscot Valley Hospital	2	1700805868
Redington-Fairview General Hospital	2	1174549133
Redington-Fairview General Hospital	2	1982029468
Rumford Hospital	2	1205991122
Rumford Hospital	2	1982742482
Southern Maine Health Care	1	1659392819
St. Joseph Hospital	2	1154321545
St. Joseph Hospital	2	1881092765
St. Mary's Regional Medical Center	4	1245292788
St. Mary's Regional Medical Center	4	1407242522
St. Mary's Regional Medical Center	4	1447226584
St. Mary's Regional Medical Center	4	1952306524
York Hospital	2	1376528398
York Hospital	2	1538144662