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 Payments in Maine Dashboard*[1], which the Maine Health Data Organization (MHDO) produced in January 2023, and presents aggregated information on payments and utilization for 36 hospitals in the state of Maine. It was most recently updated in December 2025.

Data Source

The data source used for this analysis is MHDO's All-Payer Claims Data (APCD) medical claims and medical eligibility records for the time-period January 1, 2018 – December 31, 2024. 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/CHILDREN'S Health Program [CHIP]) 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 Health Records/Health Information Technology Infrastructure/Other Data Analytics Payments, Global Budget Payments, Patient-Centered Medical Home Payments, Pay-for-Performance

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

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, 2018 – December 31, 2024, using the following criteria:

- **Medical eligibility records** for 2018 through 2024 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 2018 through 2024 are selected based on the *service start date* on the claim line for hospital outpatient encounters and related non-institutional 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,** including 17 acute care hospitals (ACH), 16 critical access hospitals (CAH), two private psychiatric hospitals, and one acute rehabilitation hospital (Table 1). MHDO has excluded the two psychiatric hospitals operated by the state of Maine (Dorothea Dix Psychiatric Center and Riverview Psychiatric Center) from this analysis. Additionally, hospital-affiliated physician practices, clinics, and other providers or entities that were affiliated with the hospital have also 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. In particular, clinician staffing groups and other vendors contracted by hospitals which employ clinicians that work primarily or exclusively with one or more of these hospitals and bill under separate NPIs (i.e., not with the NPIs attributed to one of these hospitals) are not represented in this report.

Table 1. Maine Hospitals Included in the Analysis

Health System	Hospital Type 1/1/2024	Hospital Name as of 2018	2018	2019	2020	2021	2022	2023	2024	Hospital Name as of 2024
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 (a)
MaineHealth	●	MaineHealth Maine Medical Center								MaineHealth Maine Medical Center Portland
MaineHealth	□	Mid Coast Hospital								MaineHealth Mid Coast Hospital (b)
MaineHealth	□	Pen Bay Medical Center								MaineHealth Pen Bay Hospital (c)
MaineHealth	□	Southern Maine Health Care								MaineHealth Maine Medical Center Biddeford (c)(d)
MaineHealth	✱	Franklin Memorial Hospital								MaineHealth Franklin Hospital (e)
MaineHealth	✱	LincolnHealth								MaineHealth Lincoln Hospital (c)
MaineHealth	✱	Stephens Memorial Hospital								MaineHealth Stephens Hospital (c)
MaineHealth	✱	Waldo County General Hospital								MaineHealth Waldo Hospital (c)
MaineHealth	◆	Maine Behavioral HealthCare								MaineHealth Behavioral Health (c)
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								Northern Light Mayo Hospital (f)
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 (e)
	✱	Calais Community Hospital								Calais Community Hospital (g)
	✱	Down East Community Hospital								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
	○	New England Rehabilitation Hospital								New England Rehabilitation Hospital (h)

Legend

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

Table 1 Notes

(a) MaineGeneral Medical Center includes the Alfond Center for Health in Augusta, and Thayer Center for Health, outpatient center, in Waterville.

(b) On January 1, 2021, Mid Coast Hospital became part of MaineHealth and changed its name to MaineHealth Mid Coast Hospital.

(c) On January 1, 2019, several hospitals became part of MaineHealth and changed their name. Pen Bay Medical Center changed to MaineHealth Pen Bay Hospital. LincolnHealth Hospital changed to MaineHealth Lincoln Hospital. Waldo County General Hospital changed to MaineHealth Waldo Hospital. Maine Behavioral HealthCare (Spring Harbor Hospital) changed to MaineHealth Behavioral Health. Southern Maine Health Care also became part of MaineHealth on that date without changing its name.
(d) On June 1, 2024, Southern Maine Health Care changed its name to MaineHealth Maine Medical Center Biddeford.
(e) MaineHealth Franklin Hospital changed from being an Acute Care Hospital to a Critical Access Hospital on October 1, 2023. Northern Maine Medical Center changed from being an Acute Care Hospital to a Critical Access Hospital on November 21, 2024.
(f) Mayo Regional Hospital became part of the Northern Light Health system and changed its name to Northern Light Mayo Hospital as of March 1st, 2020.
(g) On March 24, 2021, Calais Community Hospital became a subsidiary of Down East Community Hospital.
(h) 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.

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, shown in Appendix C), 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 as of 2025 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. Note: This step also includes three additional NPIs that are not present in the MHDO Chapter 300 organization data that were discovered and validated in the claims data, which cover a small number of medical claims in the earliest years of the reporting time range, then were no longer actively used for billing in the later years.

- **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 3).

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

Service Category Assignment

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

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 payor 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 "institutional 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-institutional 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:

- **Institutional Inpatient Services** – Institutional (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

  Institutional 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 institutional claims (claim lines with revenue codes in the 0960-0989 range).

- **Institutional Outpatient Services** – Institutional (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)

  Institutional 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 institutional claims (claim lines with revenue codes in the 0960-0989 range).

- **Non-Institutional Services** – Non-institutional (non-facility; or professional) 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

  Non-Institutional 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 institutional bill.

Payments aggregated in the Institutional Inpatient and Institutional Outpatient categories include professional fees billed on institutional claims (revenue codes 0960 through 0989), and payments aggregated in the Level 1 Non-Institutional 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 may reflect changes in hospital billing practices.

Services – 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 institutional inpatient services; refer to the *Roll-Up of Inpatient Claims into 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'.

Institutional Outpatient and **Non-Institutional** 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)

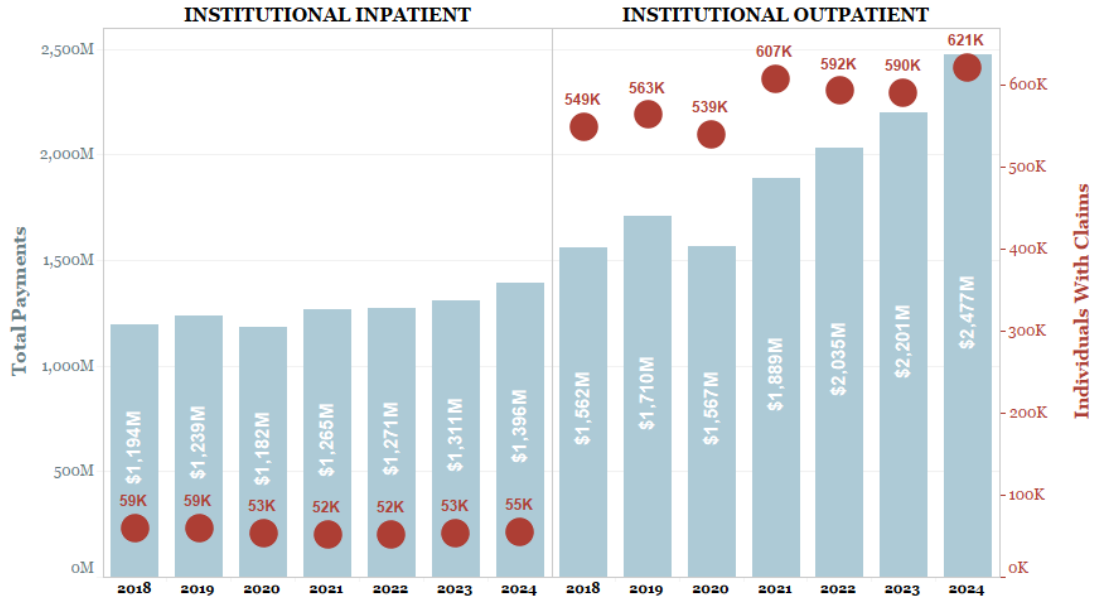
The HCPCS codes that are not grouped into a BETOS category[2] are included in this analysis in their own category, labeled as 'Unassigned'. The 'All Services Combined' is an available option to select

[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

on the *Trends by Services* tab, in the 'Services' 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 Institutional Inpatient or Institutional Outpatient in the Level 1 service categories. As Chart 1 shows, institutional inpatient services have comparatively large values for total payments in the report, but those services are received by considerably fewer individuals than individuals receiving institutional outpatient services. In 2024, the number of individuals with hospital inpatient claims represents 9% of the total number of individuals with institutional and non-institutional claims included in this analysis. However, payments from institutional inpatient claims represent a much larger share, at 36% of the combined hospital institutional inpatient and outpatient payments in 2024.

CHART 1. TOTAL PAYMENTS AND NUMBER OF INDIVIDUALS WITH INSTITUTIONAL 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)). 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 (0.4% 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 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-MaineCare); exclusive of commercial=Medicare coverage
    3b. **Medicare Advantage** – individuals with only Medicare Advantage insurance during the month; exclusive of Dual Eligible (Medicare-MaineCare); 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 2018 through 2024, as shown 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	**29,027,935**	**35.0%**
MaineCare (Medicaid)	**21,899,776**	**26.4%**
Medicare	**20,083,623**	**24.2%**
Original Medicare	9,208,410	11.1%
Medicare Advantage	10,875,213	13.1%
Dual Eligible (Medicare-MaineCare)	**6,601,910**	**8.0%**
Commercial and Medicare	**2,955,095**	**3.6%**
Other	**2,339,405**	**2.8%**
Commercial and MaineCare (Medicaid), under 65	2,200,533	2.7%
Medicare, MaineCare (Medicaid), Commercial	129,724	0.2%
Remainder of other	9,148	0.0%
Total	**82,907,744**	**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 2024, displayed only for members with eligibilty information during that month.

CHART 2. INSURED INDIVIDUALS BY PAYOR TYPE AND ELIGIBILITY YEAR

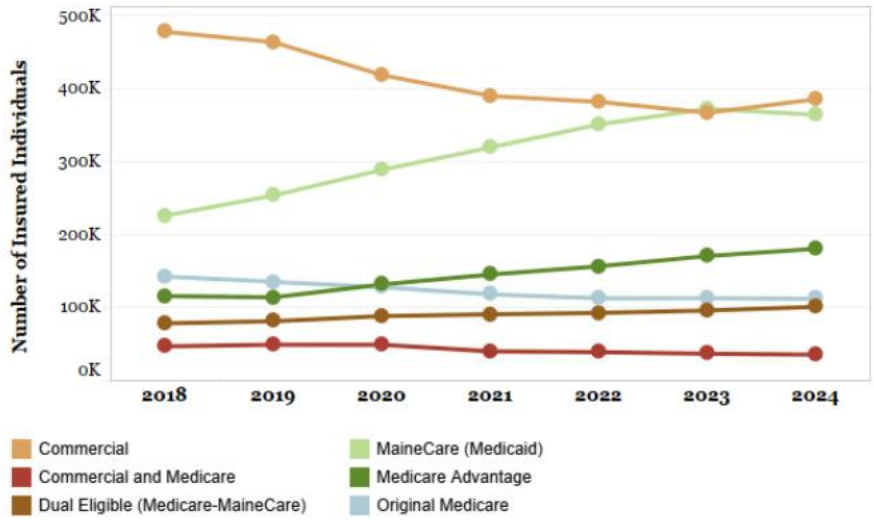
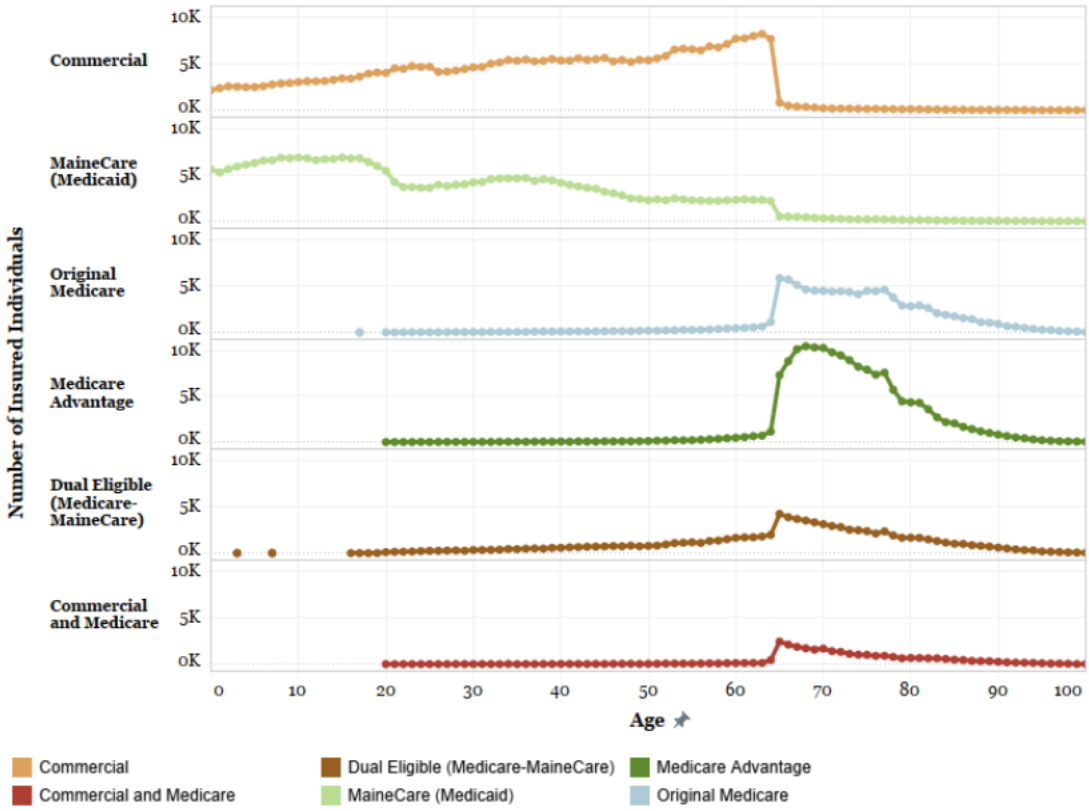


Chart 3 allows for a comparison of age groups covered by the payor types used in this report. For example, it is evident that there are individuals under 65 with Medicare coverage. Most individuals with MaineCare (Medicaid) coverage are under age 40, and there are few that are ages 65 or older.

CHART 3. INSURED INDIVIDUALS BY PAYOR TYPE AND AGE AS OF DECEMBER 2024



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, institutional 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 services, MHDO uses the MS-DRG grouping as defined by CMS. That logic assigns DRGs and Major Diagnosis Categories (MDCs) to institutional inpatient claims. MDCs are used for the assignment of Level 2 services. MS-DRGs are defined in terms of an entire hospital stay. 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 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 four years of this analysis' time-period (2018 – 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 medical claim records that provide an indication of a payment arrangement other than FFS. These scenarios are described below.

Scenario 1: Approximately 4.1 million claims in the time-period have zero dollars reported in the standard payment fields on the claim (payor and member liability); the payments and utilization from these claims are *excluded* from the analysis. See Table 3. Approximately 92% of these claims are MaineCare (Medicaid) claims (representing approximately 28% 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; 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, 7% are Medicare (Original or Advantage), and the remaining 1% are commercial (representing approximately 1-2% of claims).

Scenario 2: Additionally, approximately 18% 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 institutional outpatient claims (see Table 3). This pattern is likely indicative of a "bundled payment" arrangement for institutional outpatient services and a DRG-based payment arrangement for institutional inpatient claims. This set of claims is included in the analysis.

Lastly, excluded from this analysis are approximately 10.2 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 institutional outpatient or non-institutional Level 2 services. Table 3 displays the most important analytic selections applied to claims.

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), 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 2018-2024 service dates		**165,426,661**	**100.0%**
EXCLUSIONS APPLIED			
Claims not having NPIs for one of the 36 Maine hospitals		-114,478,637	69.2%
Claims with NPIs for one of the 36 Maine hospitals that are also referencing out-of-state hospital NPIs		-88,419	0.1%
Claims referencing more than one of the 36 Maine hospitals		-75,046	0.0%
Medical claims attributed to one of 36 Maine hospitals		**= 50,784,559**	**30.7%**
Claims for services outside of a hospital setting, or unassigned claim type		-9,268,428	5.6%
Medical claims for services within the hospital setting only		**= 41,516,131**	**25.1%**
All-zero payment claims		-4,132,743	2.5%
Medical claims with non-zero payments on at least one claim line		**= 37,383,388**	**22.6%**
Claims with Payor Type = “Other” or “Unassigned”		-889,848	0.5%
Medical claims having one of the payor types selected for reporting		**= 36,493,540**	**22.1%**
Institutional Inpatient claims that were not assigned to an inpatient stay		-20,603	0.0%
Institutional Outpatient/ Non-Institutional claims with no HCPCS/CPT code populated		-27,823	0.0%
Final set of medical claims selected for reporting		**= 36,445,114**	**22.0%**
TOTAL NUMBER OF EACH TYPE OF CLAIM USED IN THIS ANALYSIS			
Institutional Inpatient claims included		617,143	0.4%
Institutional Outpatient claims included		27,000,813	16.3%
Non- Institutional claims included		8,827,158	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";
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

[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.

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.

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.

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.
- **Institutional 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.
- **Non-Institutional 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 institutional outpatient services, or the number of non-institutional 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 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* change indicates that the 2019 value has *decreased* compared to 2018. A *positive* 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 2018 and another reporting year, for example, 2020, calculated as the 2020 value minus the 2018 value, divided by the 2018 value, then multiplying the result by 100. A *negative* percent change indicates that the 2020 value has *decreased* compared to 2018. A *positive* percent change indicates that the 2020 value has *increased* compared to 2018. If the value was *the same* in both 2018 and 2020, the cumulative percent change is *zero*. If the value in 2018 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	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
		1477691467
Calais Community Hospital	2	1376546143
		1922001049
Cary Medical Center	1	1780615492
Central Maine Medical Center	2	1073651576
		1689653487
Down East Community Hospital	3	1336587542
		1528087004
		1689670242
Houlton Regional Hospital	5	1013355254
		1386601524
		1386804268
		1508823741
		1639147101
MaineGeneral Medical Center	5	1083949184
		1285672436
		1447289996
		1548204480
		1669423380
MaineHealth Behavioral Health	1	1598798787
MaineHealth Franklin Hospital	2	1558305847
		1861184509
MaineHealth Lincoln Hospital	3	1316035116
		1548355654
		1912094806
MaineHealth Maine Medical Center Biddeford	1	1659392819
MaineHealth Maine Medical Center Portland	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
		1275646150
		1578677456
Mount Desert Island Hospital	2	1518064047
		1790764512
New England Rehabilitation Hospital	1	1194799023
Northern Light A.R. Gould Hospital	5	1255791026
		1265551212
		1396858999
		1396864336
		1982723037
Northern Light Acadia Hospital	2	1215940523
		1568477297
Northern Light Blue Hill Hospital	2	1023057809
		1023272853

Hospital Name	Total NPIs Per Hospital	NPI
Northern Light Charles A. Dean Hospital	5	1104834977
		1134354228
		1265441323
		1659388213
		1861401820
Northern Light Eastern Maine Medical Center	7	1134492846
		1487781548
		1588654479
		1598755399
		1780674580
		1780674689
		1790789147
Northern Light Inland Hospital	1	1376579557
Northern Light Maine Coast Hospital	3	1053731026
		1447204763
		1740249739
Northern Light Mayo Hospital	2	1548463623
		1558319103
Northern Light Mercy Hospital	1	1629078712
Northern Light Sebasticook Valley Hospital	2	1013176544
		1457461477
Northern Maine Medical Center	4	1568465144
		1790830503
		1801872759
		1891184172
Penobscot Valley Hospital	2	1093716086
		1700805868
Redington-Fairview General Hospital	2	1174549133
		1982029468
Rumford Hospital	2	1205991122
		1982742482
St. Joseph Hospital	2	1154321545
		1881092765
St. Mary's Regional Medical Center	4	1245292788
		1407242522
		1447226584
		1952306524
York Hospital	2	1376528398
		1538144662