Medicare COVID-19 Hospitalization Trends Report Methodology

Overview

The Medicare COVID-19 Hospitalization Trends Report presents information about Medicare beneficiaries who were hospitalized with a COVID-19 diagnosis.

All data presented in this update are preliminary and may change as the Centers for Medicare & Medicaid Services (CMS) processes additional claims and encounters for the reporting period.

Methodology

Data Source: Data are sourced from CMS's Integrated Data Repository (IDR) using final action Medicare Fee-for-Service claims data and Medicare Advantage encounter data. Medicare enrollment data and beneficiary characteristics are sourced from CMS's Chronic Conditions Warehouse (CCW).

Medicare Population: Beneficiaries enrolled in Medicare Fee-for-Service (i.e., Original Medicare) or Medicare Advantage at any time since January 1, 2020. The population is restricted to beneficiaries covered by hospital insurance (i.e., Part A).

Medicare COVID-19 Hospitalizations: A count of hospitalizations with a diagnosis of COVID-19 on an **inpatient hospital** fee-for-service claim or encounter record. Inpatient hospital claims or encounter records that had overlapping service dates are considered a single hospitalization. For fee-for-service claims, we also considered any claims that began the day after another claim ended and also had the same provider type as a single hospitalization. Encounter records do not have complete information on provider type. Hospitalizations are counted in each month in which the hospitalization began.

These hospitalizations include data for the following hospital settings: Inpatient Prospective Payment System (IPPS), Critical Access Hospitals (CAH), inpatient rehabilitation facilities, long term care facilities and inpatient psychiatric facilities[1].

The following International Classification of Diseases (ICD), Tenth Revision (ICD-10), principal or secondary diagnosis codes are used to identify COVID-19 cases on claims and encounters:

- From January 1 to March 31, 2020: B97.29 (other coronavirus as the cause of diseases classified elsewhere) and
- From April 1, 2020 to current: U07.1 (2019 Novel Coronavirus, COVID-19).

Note: The Centers for Disease Control and Prevention (CDC) has published guidance for ICD-10 coding of COVID-19: https://www.cdc.gov/nchs/data/icd/COVID-19-guidelines-final.pdf. However, the accuracy of diagnosis codes may be influenced by the information recorded by the clinician (e.g., omitting information or using synonyms or abbreviations to describe a patient's condition), as well as the medical coder (e.g., experience and training can influence precision of coding). As a result, diagnosis information from claims/encounters is considered less reliable than clinical information collected through other

[1] Inpatient settings include Original Medicare (fee-for-service) claims with claim type '60' and Medicare Advantage encounters with claim types '4011' and '4012'.

methods (e.g., chart reviews). This type of clinical information is generally not necessary for CMS to run its programs, so it is only collected in limited circumstances (e.g., for program integrity purposes).

Medicare COVID-19 Hospitalizations per 100,000: The rate of Medicare COVID-19 hospitalizations per 100,000 is calculated by taking **Medicare COVID-19 Hospitalizations** divided by the **Medicare Population** with Part A insurance in a given month for monthly rates. Yearly rates are calculated with the monthly average Medicare Population with Part A insurance during that year.

State: The state of the beneficiary is based on mailing address and comprises of the 50 States, the District of Columbia, Puerto Rico, US Virgin Islands, and all other outlying areas of the US aggregated into a "Territories" category. If a beneficiary's state of residence is unknown, the beneficiary is assigned to the "Missing Data" category.

Rural/ Urban: Rural/ Urban status is defined using the Rural Urban Commuting Area Crosswalk (RUCA). The RUCA crosswalk relies on commuting data from the US Census, as well as ZIP Codes. A beneficiary's mailing ZIP code is used to define rural and urban locations. Due to the changing nature of ZIP Code data, there is a small subset of beneficiaries that cannot be classified into a rural area or urban area.

Medicare Entitlement: Medicare entitlement is available to three basic groups of "insured individuals" - the *Aged*, the *Disabled*, and those with *end stage renal disease (ESRD)*. Medicare entitlement can change over time for beneficiaries that were initially entitled to Medicare because of disability or ESRD before the age of 65. For purposes of this reporting, beneficiaries who have ESRD, are Aged with ESRD or are Disabled with ESRD are classified as ESRD; otherwise beneficiaries are classified as Disabled or Aged.

Medicare Eligibility Status: A beneficiary can be eligible for Medicare and/or Medicaid. Beneficiaries enrolled in both Medicare and Medicaid simultaneously are considered *Dual Medicare and Medicaid*. A beneficiary enrolled in Medicare alone is *Medicare Only*. Please note that for beneficiaries enrolled in both Medicare and Medicaid, only claims and encounters covered by Medicare are included in this reporting.

Age: A beneficiary's age is measured at the end of the year during which they had a hospitalization, or at the time when the beneficiary died.

Race/ Ethnicity: A beneficiary's race/ ethnicity is created by taking the beneficiary race code that has historically been used by the Social Security Administration (and is in turn used in CMS's enrollment database) and applying an algorithm that improves the race/ethnicity classification, particularly for those who are Hispanic or Asian/Pacific Islander. This algorithm, developed by the Research Triangle Institute (RTI) and is thus often referred to as the "RTI race code", uses Census surname lists for Hispanic and Asian/Pacific Islander origin as well as geography[2]. The race/ethnicity classifications are: American Indian/Alaska Native (AI/AN), White, Black/African American, Asian/ Pacific Islander, Hispanic, and Other/Unknown. For more information on the RTI race algorithm, see https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4195038/.

[2] Eicheldinger, C and Bonito, A. Health Care Financing Review/Spring 2008/Volume 29, Number 3

Beneficiary Sex: A beneficiary's sex is available from the CMS enrollment database and is classified as Male/Female.

Length of Stay: the number of days between the service begin date and the service through date for the entire stay, using the earliest start date and the latest end date if the stay comprised of more than one claim.

Discharge Status: Discharge status groups are defined using Beneficiary Patient Status Codes as below. The proportion of hospitalizations ending in each discharge status group is calculated by dividing the total number of hospitalizations ending in each discharge status group by the total number of hospitalizations.

- Home or Assisted Living/Nursing Home: 1, 4, 64, 81, 92, 84
- Skilled Nursing Facility: 3, 61, 83, 89
- Home Health: 6, 86
- Expired: 20
- Hospice: 50, 51
- Other: all other Beneficiary Patient Status Codes