



HEALTH CARE
COST INSTITUTE

Respiratory-Related Hospitalizations: Selected Quality Measures

HCCI's Qualified Entity Public
Report

July 2023



The Report

This report presents three measures of respiratory-related hospitalizations using a combined data set of Medicare and Employer-Sponsored Insurance claims. The respiratory-related hospitalization categories include 1) respiratory infections and inflammations 2) bronchitis and asthma, and 3) simple pneumonia and pleurisy. This report provides national hospitalization rates for all respiratory-related hospitalizations.

The Measures

- Respiratory Infections and Inflammations in Adults, Inpatient Admission Rate
- Bronchitis and Asthma in Adults, Inpatient Admission Rate
- Simple Pneumonia and Pleurisy in Adults, Inpatient Admission Rate

The measures report the monthly hospitalization rate per 100,000 enrollees.

Methodology

HCCI constructed a set of alternative measures in order to profile the change in the rates of respiratory-related hospitalizations over time and across populations. Admissions were identified from inpatient claims and placed into the appropriate numerator using Medicare Severity Diagnosis Related Groups (MS-DRGs) v38.1. The denominator includes all enrollees over the age of 17. Detailed eligibility and exclusion criteria are available on each page of the report.

Data

The measures are calculated using an integrated data set containing HCCI's Employer-Sponsored Insurance (ESI) data holdings and the Medicare fee-for-service (FFS) data it receives as a Qualified Entity. The reported measure combines data from all payer types and are not weighted to reflect the distribution of insurance coverage across the U.S. population. All measures in this report are based on national data from all U.S. states and the District of Columbia. The definitions of each payer are as follows:

- Medicare FFS – enrollment and claims data for approximately 37 million individuals covered by Traditional Medicare.
- ESI – enrollment and claims data for approximately 55 million individuals who receive insurance through an employer, including both employees and their dependents (i.e., spouses and children).



Respiratory Infections and Inflammations in Adults, Inpatient Admission Rate

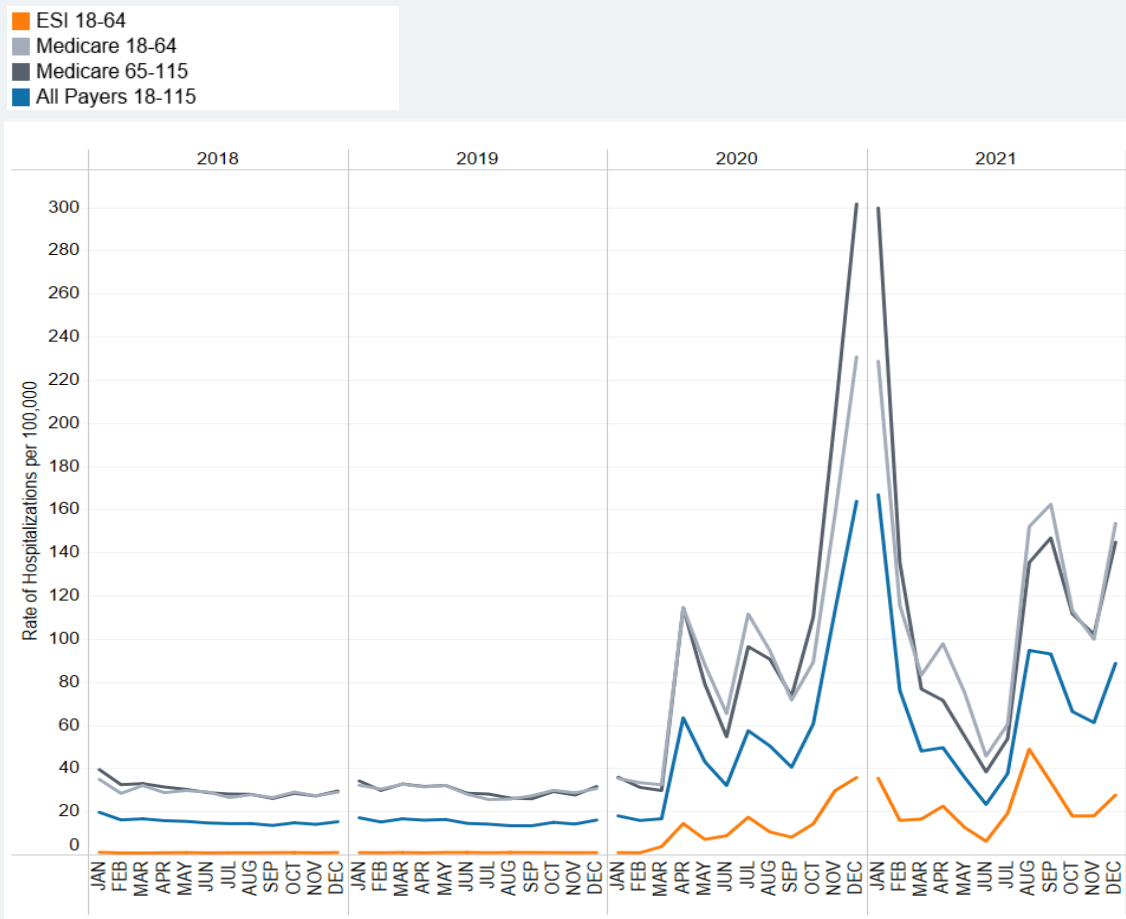
Description: This measure assesses rates of hospitalization due to respiratory infections and inflammations (i.e., Covid-19 related hospitalizations) by month

- Measures are reported at the national level.
- Higher rates indicate more hospitalizations related to Covid-19.
- Lower rates indicate fewer hospitalizations related to Covid-19.

Results: In December 2021, the hospitalization rate among the Medicare population was 153 per 100,000 enrollees compared to nearly 28 hospitalizations per 100,000 ESI enrollees.

Relevance: The higher rates of hospitalization due to respiratory infections and inflammations among Medicare enrollees reflects the fact that older adults are more likely to be hospitalized due to Covid-19 infections.

Respiratory Infections and Inflammations in Adults, Inpatient Admission Rate by Month



| Mnth | All Payers 18-115 | | | | ESI 18-64 | | | | Medicare 18-64 | | | | Medicare 65-115 | | | |
|------|-------------------|------|-------|-------|-----------|------|------|------|----------------|------|-------|-------|-----------------|------|-------|-------|
| | 2018 | 2019 | 2020 | 2021 | 2018 | 2019 | 2020 | 2021 | 2018 | 2019 | 2020 | 2021 | 2018 | 2019 | 2020 | 2021 |
| JAN | 19.8 | 17.2 | 18.1 | 167.0 | 1.2 | 1.1 | 1.1 | 35.5 | 35.0 | 32.3 | 35.5 | 228.9 | 39.6 | 34.3 | 36.0 | 299.9 |
| FEB | 16.2 | 15.3 | 16.0 | 76.3 | 1.0 | 1.0 | 1.0 | 16.0 | 28.5 | 30.5 | 33.5 | 115.7 | 32.6 | 29.9 | 31.3 | 135.6 |
| MAR | 16.7 | 16.7 | 16.8 | 48.2 | 0.9 | 1.1 | 3.9 | 16.6 | 32.2 | 32.8 | 32.6 | 83.4 | 33.1 | 32.9 | 29.9 | 76.9 |
| APR | 15.9 | 16.1 | 63.6 | 49.7 | 1.0 | 1.0 | 14.5 | 22.6 | 28.9 | 31.5 | 114.5 | 97.9 | 31.5 | 31.7 | 114.6 | 71.7 |
| MAY | 15.6 | 16.4 | 43.2 | 36.0 | 1.1 | 1.2 | 7.2 | 12.8 | 29.8 | 32.2 | 88.2 | 75.4 | 30.4 | 32.2 | 79.2 | 55.1 |
| JUN | 14.8 | 14.6 | 32.2 | 23.4 | 1.0 | 1.2 | 8.9 | 6.3 | 29.2 | 28.1 | 65.5 | 45.8 | 28.9 | 28.6 | 54.8 | 38.5 |
| JUL | 14.5 | 14.3 | 57.6 | 37.7 | 1.0 | 1.1 | 17.5 | 19.3 | 26.6 | 25.7 | 111.7 | 60.6 | 28.2 | 28.2 | 96.6 | 53.9 |
| AUG | 14.6 | 13.6 | 50.5 | 94.8 | 1.0 | 1.2 | 10.6 | 49.0 | 27.9 | 25.9 | 94.7 | 152.2 | 28.1 | 26.3 | 90.7 | 135.5 |
| SEP | 13.7 | 13.5 | 40.7 | 93.2 | 1.1 | 1.1 | 8.2 | 33.7 | 26.6 | 27.4 | 71.8 | 162.6 | 26.2 | 26.0 | 73.6 | 146.9 |
| OCT | 14.9 | 15.1 | 60.7 | 66.5 | 1.1 | 1.1 | 14.4 | 18.0 | 29.1 | 30.0 | 89.4 | 113.4 | 28.6 | 29.4 | 110.2 | 111.8 |
| NOV | 14.2 | 14.3 | 113.1 | 61.4 | 1.0 | 1.1 | 29.7 | 18.1 | 27.4 | 28.8 | 157.6 | 100.0 | 27.3 | 27.8 | 202.8 | 102.2 |
| DEC | 15.4 | 16.2 | 164.0 | 88.8 | 1.1 | 1.1 | 35.9 | 27.8 | 29.1 | 30.8 | 230.9 | 153.7 | 29.7 | 31.7 | 301.8 | 145.0 |

Measure specifications for Covid-19 Related Hospitalizations

Denominator eligibility: All demographic information was collected from the respective payer enrollment and eligibility files. For all services, we limited our sample to enrollees with a known age and sex who were fully enrolled and eligible to receive services without restrictions. For the ESI population, the sample is limited to those under the age of 65. The Medicare FFS dataset was restricted to beneficiaries fully enrolled in Medicare FFS Part A and Part B.

Numerator eligibility: The number of hospitalization based on the DRGs 177-179.

Exclusion criteria: Claims with allowed amounts less than and equal to \$0 were excluded. For ESI, the members with plans other than EPO, HMO, POS, or PPO were excluded.



Bronchitis and Asthma in Adults, Inpatient Admission Rate

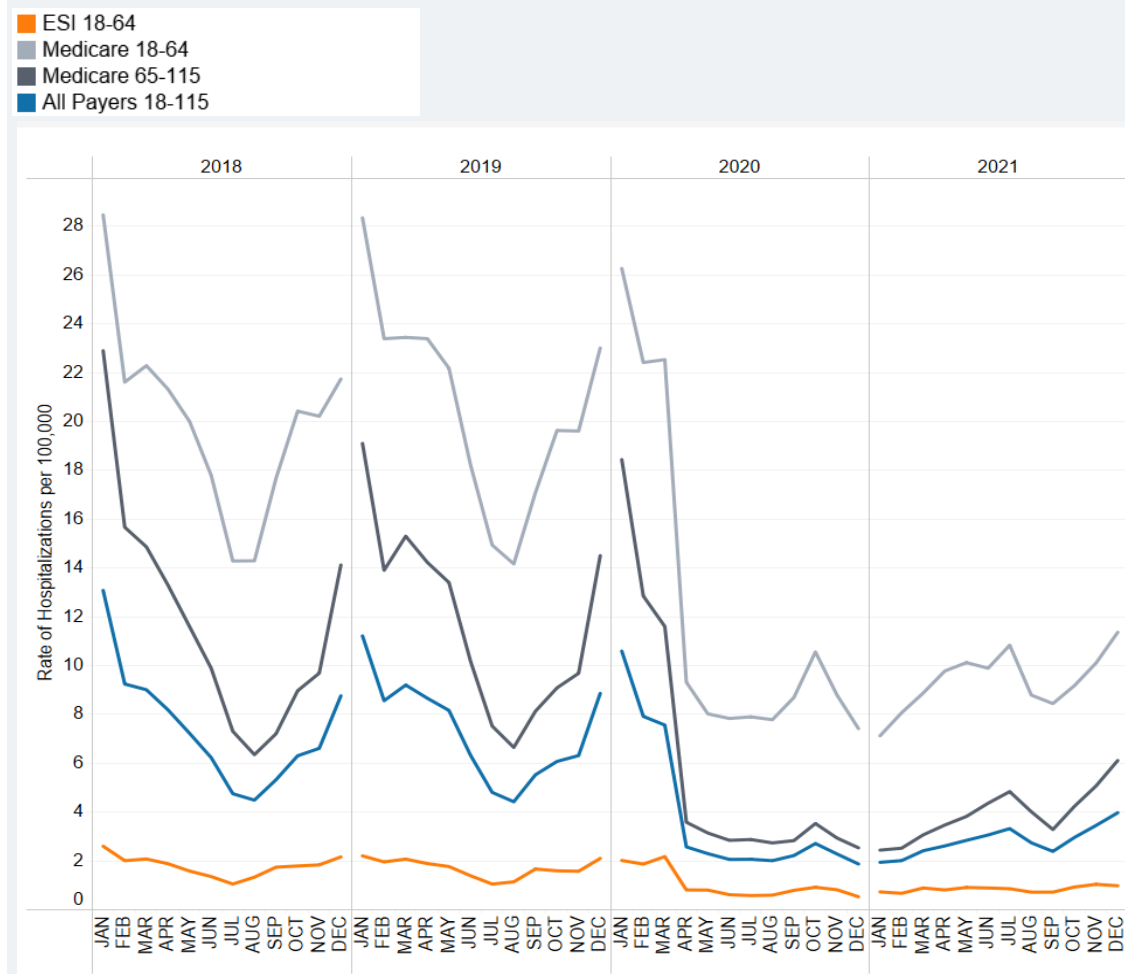
Description: This measure assesses rates of bronchitis and asthma-related hospitalizations by month.

- Measures are reported at the national level.
- Higher rates indicate more hospitalizations related to bronchitis and asthma.
- Lower rates indicate fewer hospitalizations related to bronchitis and asthma.

Results: In January 2021, nearly 1 per 100,000 enrollees with ESI had a hospitalization related to bronchitis or asthma compared to 7 per 100,000 among Medicare enrollees. The rates were higher for both populations in previous years.

Relevance: Prior to the COVID-19 pandemic, there have historically been seasonal patterns in bronchitis and asthma hospitalizations. Hospitalization rates are generally higher over the winter months, especially in December and January. The rates are generally lowest during the summer.

Bronchitis and Asthma in Adults, Inpatient Admission Rate by Month



| Mnth | All Payers 18-115 | | | | ESI 18-64 | | | | Medicare 18-64 | | | | Medicare 65-115 | | | |
|------|-------------------|-------|-------|------|-----------|------|------|------|----------------|-------|-------|-------|-----------------|-------|-------|------|
| | 2018 | 2019 | 2020 | 2021 | 2018 | 2019 | 2020 | 2021 | 2018 | 2019 | 2020 | 2021 | 2018 | 2019 | 2020 | 2021 |
| JAN | 13.08 | 11.22 | 10.60 | 1.94 | 2.60 | 2.21 | 2.02 | 0.73 | 28.47 | 28.35 | 26.27 | 7.12 | 22.90 | 19.10 | 18.44 | 2.44 |
| FEB | 9.25 | 8.56 | 7.92 | 2.01 | 2.01 | 1.96 | 1.87 | 0.67 | 21.61 | 23.39 | 22.42 | 8.07 | 15.67 | 13.91 | 12.85 | 2.52 |
| MAR | 9.01 | 9.21 | 7.56 | 2.42 | 2.08 | 2.07 | 2.18 | 0.89 | 22.29 | 23.45 | 22.54 | 8.88 | 14.87 | 15.30 | 11.60 | 3.07 |
| APR | 8.19 | 8.66 | 2.57 | 2.61 | 1.88 | 1.89 | 0.81 | 0.81 | 21.33 | 23.40 | 9.32 | 9.78 | 13.30 | 14.23 | 3.58 | 3.47 |
| MAY | 7.23 | 8.17 | 2.30 | 2.84 | 1.58 | 1.77 | 0.80 | 0.91 | 20.00 | 22.19 | 8.02 | 10.12 | 11.60 | 13.41 | 3.14 | 3.82 |
| JUN | 6.23 | 6.33 | 2.06 | 3.06 | 1.36 | 1.39 | 0.61 | 0.89 | 17.79 | 18.22 | 7.83 | 9.89 | 9.89 | 10.18 | 2.84 | 4.36 |
| JUL | 4.75 | 4.81 | 2.07 | 3.32 | 1.05 | 1.05 | 0.58 | 0.86 | 14.29 | 14.94 | 7.90 | 10.84 | 7.31 | 7.52 | 2.88 | 4.84 |
| AUG | 4.49 | 4.42 | 2.01 | 2.74 | 1.33 | 1.14 | 0.59 | 0.72 | 14.29 | 14.17 | 7.79 | 8.79 | 6.35 | 6.65 | 2.74 | 4.01 |
| SEP | 5.33 | 5.53 | 2.22 | 2.39 | 1.74 | 1.67 | 0.79 | 0.72 | 17.68 | 17.08 | 8.70 | 8.44 | 7.21 | 8.13 | 2.83 | 3.28 |
| OCT | 6.31 | 6.07 | 2.71 | 2.96 | 1.79 | 1.59 | 0.92 | 0.93 | 20.43 | 19.63 | 10.56 | 9.18 | 8.97 | 9.09 | 3.53 | 4.24 |
| NOV | 6.61 | 6.32 | 2.28 | 3.45 | 1.84 | 1.58 | 0.82 | 1.04 | 20.22 | 19.61 | 8.80 | 10.11 | 9.69 | 9.69 | 2.94 | 5.08 |
| DEC | 8.76 | 8.86 | 1.87 | 3.97 | 2.16 | 2.10 | 0.53 | 0.98 | 21.74 | 23.01 | 7.42 | 11.37 | 14.12 | 14.51 | 2.54 | 6.11 |

Measure specifications for Bronchitis and Asthma Hospitalizations

Denominator eligibility: All demographic information was collected from the respective payer enrollment and eligibility files. For all services, we limited our sample to enrollees with a known age and sex who were fully enrolled and eligible to receive services without restrictions. For the ESI population, the sample is limited to those under the age of 65. The Medicare FFS dataset was restricted to beneficiaries fully enrolled in Medicare FFS Part A and Part B.

Numerator eligibility: The number of hospitalization based on DRGs 202-203.

Exclusion criteria: Claims with allowed amounts less than and equal to \$0 were excluded. For ESI, the members with plans other than EPO, HMO, POS, or PPO were excluded.



Simple Pneumonia and Pleurisy in Adults, Inpatient Admission Rate

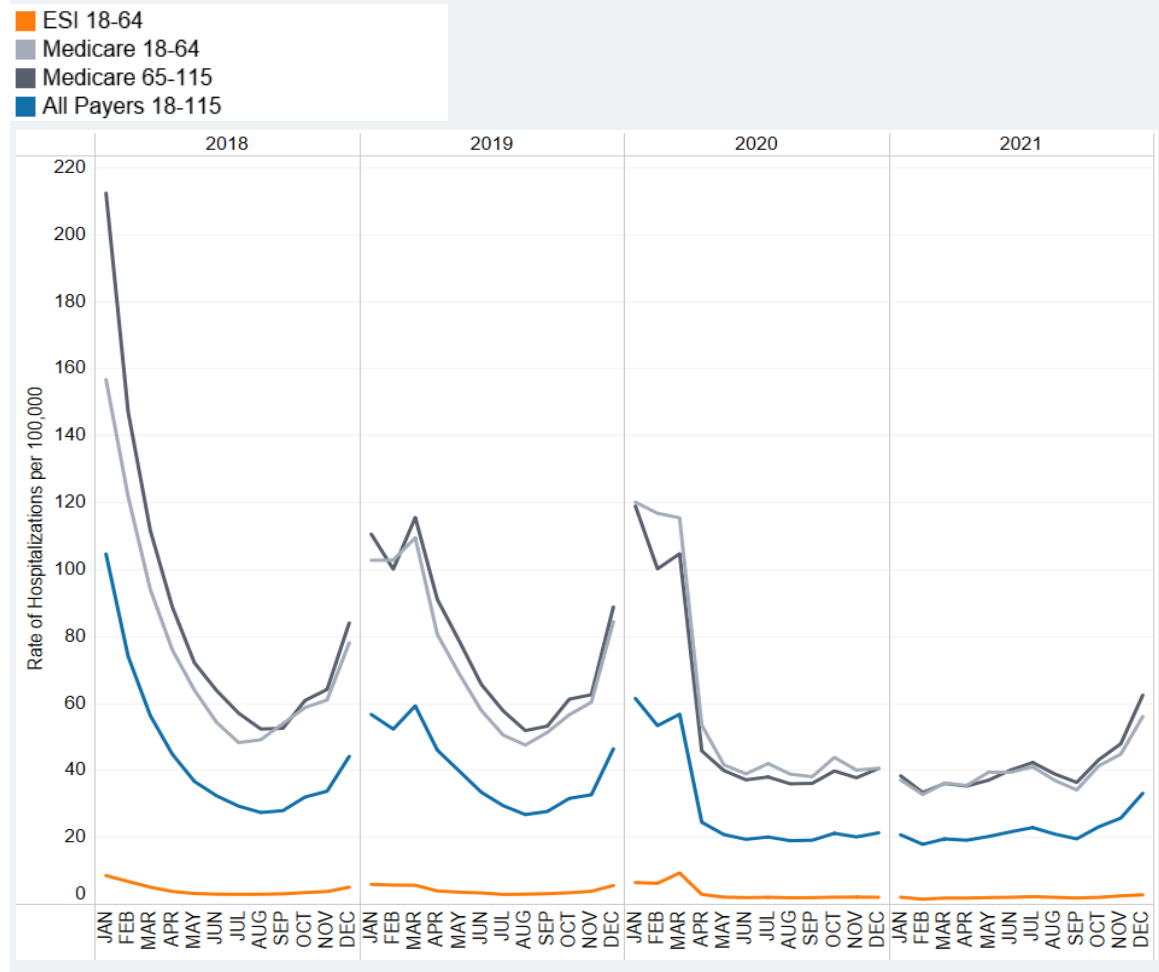
Description: This measure assesses rates of simple pneumonia and pleurisy hospitalizations by month.

- Measures are reported at the national level.
- Higher rates indicate more hospitalizations related to simple pneumonia and pleurisy.
- Lower rates indicate fewer hospitalizations related to simple pneumonia and pleurisy.

Results: In January 2021, approximately 2 per 100,000 enrollees with ESI had a hospitalization related to pneumonia and pleurisy compared to 37.1 per 100,000 among Medicare enrollees aged 18-64.

Relevance: Prior to the COVID-19 pandemic, there have historically been seasonal patterns in simple pneumonia and pleurisy hospitalizations. The hospitalization rates are generally higher over the winter months. The rates are generally lowest during the summer.

Simple Pneumonia and Pleurisy in Adults, Inpatient Admission Rate by Month



| Mnth | All Payers 18-115 | | | | ESI 18-64 | | | | Medicare 18-64 | | | | Medicare 65-115 | | | |
|------|-------------------|------|------|------|-----------|------|------|------|----------------|-------|-------|------|-----------------|-------|-------|------|
| | 2018 | 2019 | 2020 | 2021 | 2018 | 2019 | 2020 | 2021 | 2018 | 2019 | 2020 | 2021 | 2018 | 2019 | 2020 | 2021 |
| JAN | 104.6 | 56.7 | 61.5 | 20.8 | 8.6 | 6.0 | 6.5 | 2.2 | 156.8 | 102.8 | 120.1 | 37.1 | 212.4 | 110.6 | 119.0 | 38.4 |
| FEB | 74.1 | 52.4 | 53.4 | 17.9 | 6.9 | 5.8 | 6.3 | 1.6 | 121.8 | 102.8 | 116.8 | 32.8 | 147.1 | 100.1 | 100.2 | 33.4 |
| MAR | 56.4 | 59.3 | 56.8 | 19.6 | 5.1 | 5.7 | 9.4 | 1.9 | 94.1 | 109.5 | 115.5 | 36.2 | 111.8 | 115.6 | 104.7 | 36.1 |
| APR | 44.9 | 46.1 | 24.5 | 19.2 | 3.9 | 4.0 | 3.0 | 1.9 | 76.0 | 80.6 | 53.6 | 35.5 | 88.8 | 91.1 | 45.9 | 35.3 |
| MAY | 36.7 | 39.8 | 20.9 | 20.3 | 3.3 | 3.6 | 2.2 | 2.0 | 64.0 | 68.8 | 41.7 | 39.5 | 72.2 | 78.6 | 40.0 | 37.1 |
| JUN | 32.4 | 33.5 | 19.4 | 21.7 | 3.0 | 3.4 | 2.0 | 2.1 | 54.4 | 57.9 | 39.0 | 39.5 | 63.9 | 65.7 | 37.2 | 40.1 |
| JUL | 29.3 | 29.5 | 20.1 | 22.9 | 3.0 | 3.0 | 2.1 | 2.3 | 48.3 | 50.5 | 42.1 | 41.1 | 57.1 | 57.8 | 38.1 | 42.4 |
| AUG | 27.4 | 26.8 | 19.0 | 21.0 | 3.0 | 3.0 | 2.0 | 2.1 | 49.2 | 47.6 | 38.9 | 37.0 | 52.4 | 51.9 | 36.0 | 39.0 |
| SEP | 28.0 | 27.8 | 19.2 | 19.6 | 3.2 | 3.2 | 2.0 | 1.9 | 54.0 | 51.4 | 38.1 | 34.2 | 52.6 | 53.2 | 36.2 | 36.4 |
| OCT | 32.1 | 31.7 | 21.2 | 23.2 | 3.5 | 3.5 | 2.2 | 2.1 | 58.8 | 56.7 | 43.9 | 41.4 | 60.9 | 61.3 | 39.8 | 43.2 |
| NOV | 33.8 | 32.7 | 20.1 | 25.8 | 3.8 | 3.9 | 2.2 | 2.6 | 61.1 | 60.4 | 40.1 | 44.9 | 64.2 | 62.6 | 37.8 | 48.0 |
| DEC | 44.2 | 46.4 | 21.4 | 33.2 | 5.1 | 5.6 | 2.1 | 2.9 | 78.1 | 84.4 | 40.7 | 56.1 | 84.1 | 88.8 | 40.6 | 62.5 |

Measure specifications for Pneumonia Hospitalizations

Denominator eligibility: All demographic information was collected from the respective payer enrollment and eligibility files. For all services, we limited our sample to enrollees with a known age and sex who were fully enrolled and eligible to receive services without restrictions. For the ESI population, the sample is limited to those under the age of 65. The Medicare FFS dataset was restricted to beneficiaries fully enrolled in Medicare FFS Part A and Part B.

Numerator eligibility: The number of hospitalizations based on DRGs 193-195.

Exclusion criteria: Claims with allowed amounts less than or equal to \$0 were excluded. For ESI, the members with plans other than EPO, HMO, POS, or PPO were excluded.



Health Care Cost Institute

HCCI's mission is to get to the heart of the key issues impacting the U.S. health care system – by using the best data to get the best answers. HCCI stands for truth and consensus around the most important trends in health care, particularly those economic issues that are critical to a sustainable, high-performing health system.

HCCI is a non-partisan, nonprofit organization that conducts and enables health care research based on its best-in-class datasets. HCCI holds claims data for around 100 million lives each year, including commercially-insured employer-sponsored and 100% of Medicare fee-for-service beneficiaries.

The Qualified Entity Program

The Centers on Medicare and Medicaid Services (CMS) makes 100 percent of Parts A, B, and D Medicare Fee-for-Service data available to approved organizations to facilitate the evaluation of health care quality and provider performance. Approved Qualified Entities are required to produce CMS-approved public reports combining the Medicare data and their own data holdings.

