

Comparison of Observed Rates of All Indicators between ICD-10-CM/PCS v2023 and v2024

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Contract No. 47QRAA18D00BQ

Last Updated June 2025

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Introduction

The data presented in this document are comparisons of nationwide observed rates for all Quality Indicators (QIs) by module, comparing Agency for Healthcare Research and Quality (AHRQ) QI SAS® Software Version 2023 to Version 2024 for ICD-10-CM/PCS. The rates for v2023 and v2024 of the software are based on analysis States from AHRQ’s 2019, 2020, and 2021 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID).¹

In June 2025, AHRQ released a minor update Version 2024.0.2 to Version 2024 of the software.² Throughout this document, we use v2024 to refer specifically to Version 2024.0.2. Note that the reference population has been updated to align with v2024.0.2. As a result, both the v2023 and v2024.0.2 software was rerun using the same reference population to update the tables in this document. For both software runs, we used the default population file associated with each specific software version for Area QIs (e.g., 2000–2023_Population_Files_v2024.txt for v2024.0.2). This population file was constructed using census data to generate the denominator counts for the Area QIs.

HCUP is a family of powerful health care databases, software tools, and products for advancing research. Sponsored by AHRQ, HCUP includes the largest all-payer encounter-level collection of longitudinal health care data (inpatient, ambulatory surgery, and emergency department) in the United States, beginning in 1988. HCUP is a Federal-State-Industry Partnership that brings together the data collection efforts of many organizations-such as State data organizations, hospital associations, private data organizations, and the Federal government-to create a national information resource.

The analytic dataset used to generate the tables in this document consists of the same hospital discharge records that comprise the reference population for v2024 of the AHRQ QI software. This reference population file was limited to community hospitals and also excludes rehabilitation and long-term acute care (LTAC) hospitals. Information on the type of hospital was obtained by the American Hospital Association (AHA) Annual Survey of Hospitals. The AHA defines community hospitals as “all non-Federal, short-term, general, and other specialty hospitals, excluding hospital units of institutions.” Included among community hospitals are specialty hospitals such as obstetrics-gynecology, ear-nose-throat, orthopedic, and pediatric institutions. Also included are public hospitals and academic medical centers.

The 2019, 2020, and 2021 HCUP SID include information on all inpatient discharges from hospitals in 48 participating states in 2019, 2020 and 2021.^{3,4} There are indicators of the diagnoses being present on admission (POA) in the SID for 45 states in 2019, 46 states in 2020, and 45 states in 2021, while 3 additional states are excluded due to incomplete information in the POA data element in 2019 and 2021 and 2 states are excluded in 2021.⁵

¹Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 2019, 2020, and 2021.

²Version 2024.0.2 corrects the PQE reference population for v2024, resulting in minor corrections to the benchmark and parameter estimates for the PQE module only. See SAS QI software v2024.0.2 release notes at: https://qualityindicators.ahrq.gov/Downloads/Software/SAS/V2024/AHRQ_SASQI_v2024.0.2_Software_Rel_Notes.pdf

³48 states were available for the 2021 SID at the time of the development of v2024. The area-level indicators reference population includes data from 2021. The hospital-level indicators reference population includes data from 2019, 2020, and 2021.

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Edit checks on POA were developed during an HCUP evaluation of POA coding in the 2011 SID at hospitals that were required to report POA to CMS. The edits identify general patterns of suspect reporting of POA. The edits do not evaluate whether a valid POA value (e.g., Y or N) is appropriate for the specific diagnosis. There are three hospital-level edit checks:

1. Indication that a hospital has POA reported as Y on all diagnoses on all discharges
2. Indication that a hospital has POA reported as missing on all non-Medicare discharges
3. Indication that a hospital reported POA as missing on all nonexempt diagnoses for 15 percent or more of discharges. The cut-point of 15 percent was determined by 2 times the standard deviation plus the mean of the percentage for hospitals that are required to report POA to CMS.

Additional information on the reference population and the risk adjustment process may be found in Quality Indicator Empirical Methods, available on the AHRQ QI website (https://qualityindicators.ahrq.gov/measures/qi_resources).

The QI observed rates for hospital-level indicators are scaled to the rate per 1,000 persons at risk (discharges) and the area-level indicators are per 100,000 population. Observed rates are rounded to two significant digits. Ratios of observed rates are calculated prior to rounding and therefore are not always equal to the quotient of observed rates displayed. Volume and count indicator results are listed as simple counts with no scaling at all. Cell sizes less than 11 are suppressed due to confidentiality; and are designated by an asterisk (*). When only one datapoint in a series must be suppressed due to cell sizes, another datapoint is provided as a range to disallow calculation of the masked variable. In some cases, numerators, denominators, or rates are not applicable for the category due to the exclusion criteria in the specification of the indicator and are designated by dashes (--).

⁴States with data from the 2021 SID included in the area-level reference populations include: AK, AR, AZ, CA, CO, CT, DC, DE, FL, GA, HI, IA, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, and WY. States with data from 2021 SEDD included in the area-level reference populations include: AK, AR, AZ, CA, CO, CT, DC, FL, GA, HI, IA, IL, IN, KS, KY, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NY, OH, OR, RI, SC, SD, TN, TX, UT, VT, WI, WY. The PQE reference population only uses states that are available for both SID and SEDD. Therefore, in v2024 PQE reference population, SID data from DE, LA, NM, OK, PA, VA, WA, and WV are not included. For area-level quality indicators, data from Colorado and Hawaii are also not used in the development of PDI 16, and PDI 18 due to missing age in days (AGEDAY data element).

⁵States with data from 2019 included in the reference population for the hospital-level indicators are AK, AR, AZ, CA, CO, DC, FL, GA, HI, IA, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, and WV. States with data from 2020 included in the reference population are the states with 2019 data plus WY. States with data from 2021 included in the reference population are AK, AR, AZ, CA, CO, DC, FL, GA, HI, IA, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, and WV. Note that data from Wisconsin, Oklahoma, and New Hampshire were not included in the reference population (used to develop PSI 04, PSI 09, PSI 10, PSI 11, PSI 12, PSI 14, PSI 15, PDI 08, and PDI 09) due to incomplete procedure dates (PRDAY data element). For hospital-level quality indicators, data from Colorado and Hawaii were not used in the development of PSI 17, PDI 01, PDI 05, PDI 08, PDI 09, PDI 10, PDI 12, and NQI 03 due to missing age in days (AGEDAY data element).

AHRQ Quality Indicators
Comparison of Observed Rates ICD-10-CM/PCS v2023 and v2024

Table 1. Prevention Quality Indicators (PQI) Comparison of Observed Rates: v2023 and v2024 for ICD-10-CM/PCS

INDICATOR	LABEL	RATIO OF OBSERVED RATES (v2024/v2023)	v2024 OBSERVED RATE PER 100,000	v2023 OBSERVED RATE PER 100,000
PQI 01	Diabetes Short-Term Complications Admission Rate	1.00	82.00	81.88
PQI 03	Diabetes Long-Term Complications Admission Rate	1.00	109.71	109.45
PQI 05	Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate	1.00	195.80	196.04
PQI 07	Hypertension Admission Rate	1.00	55.48	55.38
PQI 08	Heart Failure Admission Rate	1.00	401.18	399.89
PQI 11	Community-Acquired Pneumonia Admission Rate	1.00	107.86	107.85
PQI 12	Urinary Tract Infection Admission Rate	1.00	103.53	103.25
PQI 14	Uncontrolled Diabetes Admission Rate	1.00	36.76	36.67
PQI 15	Asthma in Younger Adults Admission Rate	1.01	18.49	18.24
PQI 16	Lower-Extremity Amputation Among Patients with Diabetes Rate	1.00	34.75	34.72
PQI 90	Prevention Quality Overall Composite	1.00	1,040.12	1,037.61
PQI 91	Prevention Quality Acute Composite	1.00	211.38	211.10
PQI 92	Prevention Quality Chronic Composite	1.00	828.79	826.56
PQI 93	Prevention Quality Diabetes Composite	1.00	243.74	243.28

Source: v2023 results for area level indicators are calculated from the 2021 HCUP reference population using AHRQ QI software v2023. v2024 results for area level indicators are calculated from the 2021 HCUP reference population using AHRQ QI software v2024.0.2.

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Comparison of Observed Rates ICD-10-CM/PCS v2023 and v2024

Table 2. Patient Safety Indicators (PSI) Comparison of Observed Rates: v2023 and v2024 for ICD-10-CM/PCS

INDICATOR	LABEL	RATIO OF OBSERVED RATES (v2024/v2023)	v2024 OBSERVED RATE PER 1,000	v2023 OBSERVED RATE PER 1,000
PSI 02	Death Rate in Low-Mortality Diagnosis Related Groups (DRGs)	1.13	0.55	0.49
PSI 03	Pressure Ulcer Rate	1.00	0.70	0.70
PSI 04	Death Rate among Surgical Inpatients with Serious Treatable Complications	1.00	151.17	151.32
PSI 04_DVT_PE	Death Rate among Surgical Inpatients with Serious Treatable Complications Stratum: Deep Vein Thrombosis/Pulmonary Embolism (DVT/PE)	1.00	45.54	45.52
PSI 04_GIHEMORRHAGE	Death Rate among Surgical Inpatients with Serious Treatable Complications Stratum: Gastrointestinal (GI) Hemorrhage/Acute Ulcer	1.00	86.78	86.93
PSI 04_PNEUMONIA	Death Rate among Surgical Inpatients with Serious Treatable Complications Stratum: Pneumonia	1.00	95.95	96.01
PSI 04_SEPSIS	Death Rate among Surgical Inpatients with Serious Treatable Complications Stratum: Sepsis	1.00	228.13	228.16
PSI 04_SHOCK	Death Rate among Surgical Inpatients with Serious Treatable Complications Stratum: Shock/Cardiac Arrest	1.00	292.04	292.60
PSI 05	Retained Surgical Item or Unretrieved Device Fragment Count	1.00	1,571.00	1,571.00
PSI 06	Iatrogenic Pneumothorax Rate	1.00	0.19	0.19
PSI 07	Central Venous Catheter-Related Blood Stream Infection Rate	1.00	0.13	0.13
PSI 08	In Hospital Fall-Associated Fracture Rate	0.98	0.27	0.27
PSI 09	Postoperative Hemorrhage or Hematoma Rate	1.04	2.33	2.25
PSI 10	Postoperative Acute Kidney Injury Requiring Dialysis Rate	1.00	0.97	0.97
PSI 11	Postoperative Respiratory Failure Rate	1.00	7.32	7.33
PSI 12	Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate	0.90	3.13	3.50
PSI 13	Postoperative Sepsis Rate	0.97	4.18	4.31

Table 2. Patient Safety Indicators (PSI) Comparison of Observed Rates: v2023 and v2024 for ICD-10-CM/PCS

INDICATOR	LABEL	RATIO OF OBSERVED RATES (v2024/v2023)	v2024 OBSERVED RATE PER 1,000	v2023 OBSERVED RATE PER 1,000
PSI 14	Postoperative Wound Dehiscence Rate	1.00	1.58	1.58
PSI 14_NONOPEN	Postoperative Wound Dehiscence Rate Stratum: Non-Open Approach	1.00	0.18	0.18
PSI 14_OPEN	Postoperative Wound Dehiscence Rate Stratum: Open Approach	1.00	2.58	2.58
PSI 15	Abdominopelvic Accidental Puncture or Laceration Rate	0.99	0.69	0.70
PSI 18	Obstetric Trauma Rate - Vaginal Delivery With Instrument	1.00	116.75	116.75
PSI 19	Obstetric Trauma Rate - Vaginal Delivery Without Instrument	1.00	17.31	17.31

Source: v2023 results for hospital level indicators are calculated from the 2019, 2020, 2021 HCUP reference population using AHRQ QI software v2023.

v2024 results for hospital level indicators are calculated from the 2019, 2020, 2021 HCUP reference population using AHRQ QI software v2024.0.2.

Note: PSI 05 Retained Surgical Item or Unretrieved Device Fragment Count is a count, not a rate. Therefore, the observed values for PSI 05 are counts.

Table 3. Inpatient Quality Indicators (IQI) Comparison of Observed Rates: v2023 and v2024 for ICD-10-CM/PCS

INDICATOR	LABEL	RATIO OF OBSERVED RATES (v2024/v2023)	v2024 OBSERVED RATE PER 1,000	v2023 OBSERVED RATE PER 1,000
IQI 08	Esophageal Resection Mortality Rate	1.00	35.58	35.58
IQI 09	Pancreatic Resection Mortality Rate	1.00	25.47	25.47
IQI 09_WITHOUT_CANCER	Pancreatic Resection Mortality Rate Stratum: Absence of Pancreatic Cancer	1.00	29.63	29.63
IQI 09_WITH_CANCER	Pancreatic Resection Mortality Rate Stratum: Presence of Pancreatic Cancer	1.00	21.89	21.89
IQI 11	Abdominal Aortic Aneurysm (AAA) Repair Mortality Rate	1.00	36.38	36.38
IQI 11_ENDO_RUPTURED	Abdominal Aortic Aneurysm (AAA) Repair Mortality Rate Stratum_ENDO_RUPTURED: Endovascular Repair of Ruptured AAA	1.00	190.44	190.44
IQI 11_ENDO_UNRUPTURED	Abdominal Aortic Aneurysm (AAA) Repair Mortality Rate Stratum_ENDO_UNRUPTURED: Endovascular Repair of Unruptured AAA	1.00	7.88	7.88
IQI 11_OPEN_RUPTURED	Abdominal Aortic Aneurysm (AAA) Repair Mortality Rate Stratum_OPEN_RUPTURED: Open Repair of Ruptured AAA	1.00	363.92	363.92
IQI 11_OPEN_UNRUPTURED	Abdominal Aortic Aneurysm (AAA) Repair Mortality Rate Stratum_OPEN_UNRUPTURED: Open Repair of Unruptured AAA	1.00	56.08	56.08
IQI 12	Coronary Artery Bypass Graft (CABG) Mortality Rate	1.00	24.83	24.83
IQI 15	Acute Myocardial Infarction (AMI) Mortality Rate	1.00	51.87	51.87
IQI 16	Heart Failure Mortality Rate	1.00	27.16	27.16
IQI 17	Acute Stroke Mortality Rate	1.00	68.29	68.29

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Table 3. Inpatient Quality Indicators (IQI) Comparison of Observed Rates: v2023 and v2024 for ICD-10-CM/PCS

INDICATOR	LABEL	RATIO OF OBSERVED RATES (v2024/v2023)	v2024 OBSERVED RATE PER 1,000	v2023 OBSERVED RATE PER 1,000
IQI 17_HEMSTROKE_INTRACER	Acute Stroke Mortality Rate Stratum_HEMSTROKE_INTRACER: Intracerebral Hemorrhage	1.00	185.79	185.79
IQI 17_HEMSTROKE_SUBARACH	Acute Stroke Mortality Rate Stratum_HEMSTROKE_SUBARACH: Subarachnoid Hemorrhage	1.00	194.28	194.28
IQI 17_ISCHEMSTROKE	Acute Stroke Mortality Rate Stratum_ISCHEMSTROKE: Ischemic Stroke	1.00	40.15	40.15
IQI 18	Gastrointestinal Hemorrhage Mortality Rate	1.00	25.40	25.40
IQI 19	Hip Fracture Mortality Rate	1.00	19.52	19.52
IQI 20	Pneumonia Mortality Rate	1.00	68.19	68.19
IQI 21	Cesarean Delivery Rate, Uncomplicated	1.00	280.12	280.11
IQI 22	Vaginal Birth After Cesarean (VBAC) Delivery Rate, Uncomplicated	1.00	141.42	141.42
IQI 30	Percutaneous Coronary Intervention (PCI) Mortality Rate	1.01	33.13	32.91
IQI 31	Carotid Endarterectomy Mortality Rate	1.00	4.33	4.33
IQI 33	Primary Cesarean Delivery Rate, Uncomplicated	1.00	157.19	157.19

Source: v2023 results for hospital level indicators are calculated from the 2019, 2020, 2021 HCUP reference population using AHRQ QI software v2023. v2024 results for hospital level indicators are calculated from the 2019, 2020, 2021 HCUP reference population using AHRQ QI software v2024.0.2.

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Table 4. Pediatric Quality Indicators (PDI) Comparison of Hospital-Level Observed Rates: v2023 and v2024 for ICD-10-CM/PCS

INDICATOR	LABEL	RATIO OF OBSERVED RATES (v2024/v2023)	v2024 OBSERVED RATE PER 1,000	v2023 OBSERVED RATE PER 1,000
NQI 03	Neonatal Blood Stream Infection Rate	1.00	21.59	21.56
PDI 01	Accidental Puncture or Laceration Rate	1.00	0.32	0.32
PDI 05	Iatrogenic Pneumothorax Rate	1.00	0.06	0.06
PDI 08	Postoperative Hemorrhage or Hematoma Rate	1.00	2.65	2.65
PDI 09	Postoperative Respiratory Failure Rate	1.00	28.16	28.19
PDI 10	Postoperative Sepsis Rate	0.71	6.64	9.33
PDI 12	Central Venous Catheter-Related Blood Stream Infection Rate	1.00	0.45	0.45
PSI 17	Birth Trauma Rate - Injury to Neonate	1.00	4.68	4.68

Source: v2023 results for hospital level indicators are calculated from the 2019, 2020, 2021 HCUP reference population using AHRQ QI software
v2024 results for hospital level indicators are calculated from the 2019, 2020, 2021 HCUP reference population using AHRQ QI software v2024.0.2.

Table 5. Pediatric Quality Indicators (PDI) Comparison of Area-Level Observed Rates: v2023 and v2024 for ICD-10-CM/PCS

INDICATOR	LABEL	RATIO OF OBSERVED RATES (v2024/v2023)	v2024 OBSERVED RATE PER 100,000	v2023 OBSERVED RATE PER 100,000
PDI 14	Asthma Admission Rate	0.99	48.53	48.91
PDI 15	Diabetes Short-Term Complications Admission Rate	0.99	27.41	27.81
PDI 16	Gastroenteritis Admission Rate	0.99	21.76	21.99
PDI 18	Urinary Tract Infection Admission Rate	0.99	14.12	14.30
PDI 90	Pediatric Quality Overall Composite	0.99	75.67	76.58
PDI 91	Pediatric Quality Acute Composite	0.99	17.25	17.46
PDI 92	Pediatric Quality Chronic Composite	0.99	58.42	59.12

Source: v2023 results for area level indicators are calculated from the 2021 HCUP reference population using AHRQ QI software v2023. v2024 results for area level indicators are calculated from the 2021 HCUP reference population using AHRQ QI software v2024.0.2.

Table 6. Prevention Quality Indicators in Emergency Department (PQE) Comparison of Observed Rates: v2023 and v2024 for ICD-10-CM/PCS

INDICATOR	LABEL	RATIO OF OBSERVED RATES (v2024/v2023)	v2024 OBSERVED RATE PER 100,000	v2023 OBSERVED RATE PER 100,000
PQE 01	Visits for Non-Traumatic Dental Conditions in ED	1.00	333.27	333.96
PQE 02	Visits for Chronic Ambulatory Care Sensitive Conditions in ED	1.00	2,192.20	2,196.68
PQE 03	Visits for Acute Ambulatory Care Sensitive Conditions in ED	1.00	2,171.70	2,180.23
PQE 04	Visits for Asthma in ED	1.00	381.19	379.45
PQE 05	Visits for Back Pain in ED	1.00	82.70	82.76

Source: v2023 results for PQE module are calculated from the 2021 HCUP reference population using AHRQ QI software v2023.
v2024 results for PQE module are calculated from the 2021 HCUP reference population using AHRQ QI software v2024.0.2.