



Pediatric Quality Indicators (PDI) Benchmark Data Tables, v2022

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Introduction

The data presented in this document are nationwide comparative rates for Version 2022 of Agency for Healthcare Research and Quality (AHRQ) Quality Indicators™ (QI) Pediatric Quality Indicators (PDI) software. The numerators, denominators and observed rates shown in this document are based on an analysis of discharge data from the 2019 AHRQ Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID).

HCUP is a family of healthcare databases and related software tools and products developed through a Federal-State-Industry partnership. HCUP includes the largest collection of longitudinal hospital care data in the United States, with all-payer, encounter-level information beginning in 1988. The SID contains all-payer, encounter-level information on inpatient discharges, including clinical and resource information typically found on a billing record, such as patient demographics, up to 30 *International Classification of Diseases, Tenth Revision, Clinical Modification/Procedural Classification System (ICD-10-CM/PCS)* diagnoses and procedures, length of stay, expected payer, admission and discharge dates, and discharge disposition. In 2019, the HCUP databases represented more than 97 percent of all annual discharges in the United States.

The analytic dataset used to generate the tables in this document consists of the same hospital discharge records that comprise the reference population for Version 2022 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. 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.

Hospital-Level Indicators

In 2019, 46 of the SID include indicators of the diagnoses being present on admission (POA) and 43 included the procedure day (PRDAY) data element. Discharges from these 46 participating States are used to develop hospital-level indicators.¹ 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 the Centers for Medicare & Medicaid Services (CMS, <http://www.hcup-us.ahrq.gov/reports/methods/2015-06.pdf>). 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

¹ States in the 2019 reference population for the hospital-level indicators include: 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, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, and WV. Note that Wisconsin, Oklahoma, and New Hampshire were not included in the reference population used to develop PDI 08 and PDI 09 due to incomplete procedure dates (PRDAY data element). Colorado and Hawaii were also not used in the development of PDI 01, PDI 05, PDI 08, PDI 09, PDI 10, PDI 12, PDI 16, PDI 18 and NQI 03 due to missing age in days (AGEDAY data element).

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.

Area-Level Indicators

The 2019 HCUP SID includes information on all inpatient discharges from hospitals in participating States. Discharges from all 48 participating States are used to develop area-level indicators.² 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 (<http://www.qualityindicators.ahrq.gov/modules/Default.aspx>).

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. Cell sizes less than 11 are suppressed due to confidentiality; and are designated by an asterisk (*). When only one data point in a series must be suppressed due to cell sizes, another data point is provided as a range to disallow calculation of the masked variable.

Acknowledgments

The AHRQ QI program would like to acknowledge the HCUP Partner organizations that participated in the HCUP SID: **Alaska** State Hospital and Nursing Home Association, **Alaska** Department of Health and Social Services, **Arizona** Department of Health Services, **Arkansas** Department of Health, **California** Department of Health Care Access and Information, **Colorado** Hospital Association, **Connecticut** Hospital Association, **Delaware** Division of Public Health, **District of Columbia** Hospital Association, **Florida** Agency for Health Care Administration, **Georgia** Hospital Association, **Hawaii** Lauilima Data Alliance, a non-profit subsidiary of the Healthcare Association of Hawaii, **Hawaii** University of Hawaii at Hilo, **Illinois** Department of Public Health, **Indiana** Hospital Association, **Iowa** Hospital Association, **Kansas** Hospital Association, **Kentucky** Cabinet for Health and Family Services, **Louisiana** Department of Health, **Maine** Health Data Organization, **Maryland** Health Services Cost Review Commission, **Massachusetts** Center for Health Information and Analysis, **Michigan** Health & Hospital Association, **Minnesota** Hospital Association (provides data for Minnesota and North Dakota), **Mississippi** State Department of Health, **Missouri** Hospital Industry Data Institute, **Montana** Hospital Association, **Nebraska** Hospital Association, **Nevada** Department of Health and Human Services, **New Hampshire** Department of Health & Human Services, **New Jersey** Department of Health, **New Mexico** Department of Health, **New York** State Department of Health, **North Carolina** Department of Health and Human Services, **North Dakota** (data provided by the Minnesota Hospital Association), **Ohio** Hospital Association, **Oklahoma** State Department of Health, **Oregon** Association of Hospitals and Health Systems, **Oregon** Office of Health Analytics, **Pennsylvania** Health Care Cost Containment Council, **Rhode Island** Department of Health, **South Carolina** Revenue and Fiscal Affairs Office, **South Dakota** Association of Healthcare Organizations, **Tennessee** Hospital Association, **Texas** Department of State Health Services, **Utah** Department of Health, **Vermont** Association of Hospitals and Health Systems, **Virginia** Health Information, **Washington** State

² States in the 2019 reference population for the area-level indicators include: AK, AR, AZ, CA, CO, CT, DE, DC, FL, GA, HI, IA, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, and WY. Note that Wisconsin, Oklahoma, and New Hampshire were not included in the reference population used to develop PDI 08 and PDI 09. Colorado and Hawaii were also not used in the development of PDI 01, PDI 05, PDI 10, PDI 12, PDI 16, PDI 18, and NQI 03.

Department of Health, **West Virginia** Department of Health and Human Resources, **Wisconsin**
Department of Health Services, **Wyoming** Hospital Association.

PDI Benchmark Tables

Table 1. Pediatric Quality Indicators (PDI) for Overall Population: Hospital-Level Indicators

| INDICATOR | LABEL | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 1,000 DISCHARGES |
|-----------|---|-----------|-------------|------------------------------------|
| NQI 03 | Neonatal Blood Stream Infection Rate | 1,518 | 75,049 | 20.23 |
| PDI 01 | Accidental Puncture or Laceration Rate | 881 | 2,852,588 | 0.31 |
| PDI 05 | Iatrogenic Pneumothorax Rate | 141 | 2,588,391 | 0.05 |
| PDI 08 | Perioperative Hemorrhage or Hematoma Rate | 280 | 99,663 | 2.81 |
| PDI 09 | Postoperative Respiratory Failure Rate | 2,287 | 86,367 | 26.48 |
| PDI 10 | Postoperative Sepsis Rate | 1,574 | 178,799 | 8.80 |
| PDI 12 | Central Venous Catheter-Related Blood Stream Infection Rate | 981 | 2,300,480 | 0.43 |
| PSI 17 | Birth Trauma Rate – Injury to Neonate | 15,053 | 3,268,942 | 4.60 |

Table 2. Pediatric Quality Indicators (PDI) for Overall Population: Area-Level Indicators

| INDICATOR | LABEL | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 100,000 POPULATION |
|-----------|--|-----------|-------------|--------------------------------------|
| PDI 14 | Asthma Admission Rate | 43,558 | 63,887,072 | 68.18 |
| PDI 15 | Diabetes Short-Term Complications Admission Rate | 12,831 | 48,430,017 | 26.49 |
| PDI 16 | Gastroenteritis Admission Rate | 23,157 | 69,058,379 | 33.53 |
| PDI 18 | Urinary Tract Infection Admission Rate | 12,209 | 69,058,382 | 17.68 |
| PDI 90 | Pediatric Quality Overall Composite | 47,927 | 48,430,027 | 98.96 |
| PDI 91 | Pediatric Quality Acute Composite | 12,195 | 48,430,019 | 25.18 |
| PDI 92 | Pediatric Quality Chronic Composite | 35,732 | 48,430,020 | 73.78 |

Hospital-Level Indicators

Table 3. NQI 03 – Neonatal Blood Stream Infection Rate

| GROUP | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 1,000 DISCHARGES |
|--------------------------------|------------|-------------|------------------------------------|
| Overall | 1,518 | 75,049 | 20.23 |
| Females | 658 | 33,932 | 19.39 |
| Males | 860 | 41,117 | 20.92 |
| <1 year | 1,518 | 75,049 | 20.23 |
| Private | 556 -- 565 | 29,856 | 18.62 -- 18.92 |
| Medicare | ***** | 153 | ***** |
| Medicaid | 865 | 40,386 | 21.42 |
| Other | 68 | 2,996 | 22.70 |
| Uninsured (self-pay/no charge) | 22 | 1,658 | 13.27 |

**** Obscured due to small sample size

Table 4. PDI 01 – Accidental Puncture or Laceration Rate

| GROUP | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 1,000 DISCHARGES |
|--------------------------------|------------|-------------|------------------------------------|
| Overall | 881 | 2,852,588 | 0.31 |
| Females | 349 | 1,330,553 | 0.26 |
| Males | 532 | 1,522,035 | 0.35 |
| <1 year | 387 | 1,786,669 | 0.22 |
| 1 to 2 years | 72 | 210,419 | 0.34 |
| 3 to 5 years | 68 | 164,879 | 0.41 |
| 6 to 12 years | 178 | 312,362 | 0.57 |
| 13 to 17 years | 176 | 378,259 | 0.47 |
| Private | 379 -- 388 | 1,189,001 | 0.32 -- 0.33 |
| Medicare | ***** | 8,154 | ***** |
| Medicaid | 436 | 1,446,011 | 0.30 |
| Other | 42 | 93,614 | 0.45 |
| Uninsured (self-pay/no charge) | 20 | 115,808 | 0.17 |

**** Obscured due to small sample size

Table 5. PDI 05 – Iatrogenic Pneumothorax Rate

| GROUP | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 1,000 DISCHARGES |
|--------------------------------|-----------|-------------|------------------------------------|
| Overall | 141 | 2,588,391 | 0.05 |
| Females | 73 | 1,203,494 | 0.06 |
| Males | 68 | 1,384,897 | 0.05 |
| <1 year | 30 | 1,550,928 | 0.02 |
| 1 to 2 years | 11 | 204,377 | 0.05 |
| 3 to 5 years | 20 | 158,248 | 0.13 |
| 6 to 12 years | 32 | 304,762 | 0.10 |
| 13 to 17 years | 48 | 370,076 | 0.13 |
| Private | 64 | 1,086,807 | 0.06 |
| Medicare | ***** | 7,450 | ***** |
| Medicaid | 63 | 1,304,073 | 0.05 |
| Other | ***** | 83,896 | ***** |
| Uninsured (self-pay/no charge) | ***** | 106,165 | ***** |

***** Obscured due to small sample size

Table 6. PDI 08 – Perioperative Hemorrhage or Hematoma Rate

| GROUP | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 1,000 DISCHARGES |
|--------------------------------|-----------|-------------|------------------------------------|
| Overall | 280 | 99,663 | 2.81 |
| Females | 114 | 47,801 | 2.38 |
| Males | 166 | 51,862 | 3.20 |
| <1 year | 61 | 16,862 | 3.62 |
| 1 to 2 years | 52 | 13,175 | 3.95 |
| 3 to 5 years | 43 | 12,526 | 3.43 |
| 6 to 12 years | 58 | 25,716 | 2.26 |
| 13 to 17 years | 66 | 31,384 | 2.10 |
| Private | 101 | 46,962 | 2.15 |
| Medicare | ***** | 319 | ***** |
| Medicaid | 148 | 44,210 | 3.35 |
| Other | 22 | 6,003 | 3.66 |
| Uninsured (self-pay/no charge) | ***** | 2,169 | ***** |

***** Obscured due to small sample size

Table 7. PDI 09 – Postoperative Respiratory Failure Rate

| GROUP | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 1,000 DISCHARGES |
|--------------------------------|------------|-------------|------------------------------------|
| Overall | 2,287 | 86,367 | 26.48 |
| Females | 1,067 | 42,475 | 25.12 |
| Males | 1,220 | 43,892 | 27.80 |
| <1 year | 1,000 | 12,449 | 80.33 |
| 1 to 2 years | 310 | 10,280 | 30.16 |
| 3 to 5 years | 311 | 10,961 | 28.37 |
| 6 to 12 years | 382 | 23,426 | 16.31 |
| 13 to 17 years | 284 | 29,251 | 9.71 |
| Private | 935 -- 944 | 41,234 | 22.68 -- 22.89 |
| Medicare | ***** | 308 | ***** |
| Medicaid | 1,152 | 37,748 | 30.52 |
| Other | 152 | 5,203 | 29.21 |
| Uninsured (self-pay/no charge) | 34 | 1,874 | 18.14 |

**** Obscured due to small sample size

Table 8. PDI 10 – Postoperative Sepsis Rate

| GROUP | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 1,000 DISCHARGES |
|--------------------------------|------------|-------------|------------------------------------|
| Overall | 1,574 | 178,799 | 8.80 |
| Females | 693 | 79,079 | 8.76 |
| Males | 881 | 99,720 | 8.83 |
| <1 year | 516 | 30,229 | 17.07 |
| 1 to 2 years | 258 | 21,206 | 12.17 |
| 3 to 5 years | 141 | 22,125 | 6.37 |
| 6 to 12 years | 305 | 46,535 | 6.55 |
| 13 to 17 years | 354 | 58,704 | 6.03 |
| Private | 501 -- 510 | 79,887 | 6.27 -- 6.38 |
| Medicare | ***** | 617 | ***** |
| Medicaid | 919 | 83,626 | 10.99 |
| Other | 99 | 9,788 | 10.11 |
| Uninsured (self-pay/no charge) | 47 | 4,881 | 9.63 |

Table 9. PDI 12 – Central Venous Catheter-Related Blood Stream Infection Rate

| GROUP | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 1,000 DISCHARGES |
|--------------------------------|------------|-------------|------------------------------------|
| Overall | 981 | 2,300,480 | 0.43 |
| Females | 452 | 1,082,417 | 0.42 |
| Males | 529 | 1,218,063 | 0.43 |
| <1 year | 466 | 1,508,521 | 0.31 |
| 1 to 2 years | 156 | 141,992 | 1.10 |
| 3 to 5 years | 98 | 111,457 | 0.88 |
| 6 to 12 years | 137 | 231,246 | 0.59 |
| 13 to 17 years | 124 | 307,264 | 0.40 |
| Private | 306 -- 315 | 958,288 | 0.32 -- 0.33 |
| Medicare | ***** | 6,842 | ***** |
| Medicaid | 577 | 1,173,444 | 0.49 |
| Other | 50 | 73,807 | 0.68 |
| Uninsured (self-pay/no charge) | 35 | 88,099 | 0.40 |

**** Obscured due to small sample size

Table 10. PSI 17 – Birth Trauma Rate – Injury to Neonate

| GROUP | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 1,000 DISCHARGES |
|--------------------------------|-----------|-------------|------------------------------------|
| Overall | 15,053 | 3,268,942 | 4.60 |
| Females | 6,533 | 1,595,431 | 4.09 |
| Males | 8,520 | 1,673,511 | 5.09 |
| <1 year | 15,053 | 3,268,942 | 4.60 |
| Private | 7,132 | 1,545,115 | 4,624.39 |
| Medicare | 41 | 8,827 | 4.64 |
| Medicaid | 6,655 | 1,446,280 | 4.60 |
| Other | 390 | 87,191 | 4.47 |
| Uninsured (self-pay/no charge) | 835 | 181,529 | 4.60 |

Area-Level Indicators

Table 11. PDI 14 – Asthma Admission Rate

| GROUP | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 100,000 POPULATION |
|----------------|-----------|-------------|--------------------------------------|
| Overall | 43,558 | 63,887,072 | 68.18 |
| Females | 17,790 | 31,259,151 | 56.91 |
| Males | 25,768 | 32,627,921 | 78.98 |
| 0 to 4 years | 16,265 | 11,497,074 | 141.47 |
| 5 to 9 years | 16,340 | 19,799,904 | 82.53 |
| 10 to 14 years | 8,190 | 20,377,498 | 40.19 |
| 15 to 17 years | 2,763 | 12,212,596 | 22.62 |

Table 12. PDI 15 – Diabetes Short-Term Complications Admission Rate

| GROUP | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 100,000 POPULATION |
|----------------|-----------|-------------|--------------------------------------|
| Overall | 12,831 | 48,430,017 | 26.49 |
| Females | 6,653 | 23,701,411 | 28.07 |
| Males | 6,178 | 24,728,605 | 24.98 |
| 5 to 9 years | 1,997 | 15,839,922 | 12.61 |
| 10 to 14 years | 6,309 | 20,377,498 | 30.96 |
| 15 to 17 years | 4,525 | 12,212,597 | 37.05 |

Table 13. PDI 16 – Gastroenteritis Admission Rate

| GROUP | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 100,000 POPULATION |
|----------------|-----------|-------------|--------------------------------------|
| Overall | 23,157 | 69,058,379 | 33.53 |
| Females | 10,659 | 33,788,801 | 31.55 |
| Males | 12,498 | 35,269,578 | 35.44 |
| 0 to 4 years | 15,653 | 17,809,030 | 87.89 |
| 5 to 9 years | 3,933 | 19,364,904 | 20.31 |
| 10 to 14 years | 2,115 | 19,934,867 | 10.61 |
| 15 to 17 years | 1,456 | 11,949,578 | 12.18 |

Table 14. PDI 18 – Urinary Tract Infection Admission Rate

| GROUP | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 100,000 POPULATION |
|----------------|-----------|-------------|--------------------------------------|
| Overall | 12,209 | 69,058,382 | 17.68 |
| Females | 10,011 | 33,788,808 | 29.63 |
| Males | 2,198 | 35,269,574 | 6.23 |
| 0 to 4 years | 5,937 | 17,809,030 | 33.34 |
| 5 to 9 years | 2,634 | 19,364,905 | 13.60 |
| 10 to 14 years | 1,480 | 19,934,867 | 7.42 |
| 15 to 17 years | 2,158 | 11,949,580 | 18.06 |

Table 15. PDI 90 – Pediatric Quality Overall Composite

| GROUP | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 100,000 POPULATION |
|----------------|-----------|-------------|--------------------------------------|
| Overall | 47,927 | 48,430,027 | 98.96 |
| Females | 24,720 | 23,701,417 | 104.30 |
| Males | 23,207 | 24,728,610 | 93.85 |
| 5 to 9 years | 18,822 | 15,839,925 | 118.83 |
| 10 to 14 years | 18,146 | 20,377,499 | 89.05 |
| 15 to 17 years | 10,959 | 12,212,603 | 89.74 |

^a Composite includes PDI 14, 15, 16, and 18

Table 16. PDI 91 – Pediatric Quality Acute Composite

| GROUP | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 100,000 POPULATION |
|----------------|-----------|-------------|--------------------------------------|
| Overall | 12,195 | 48,430,019 | 25.18 |
| Females | 8,051 | 23,701,414 | 33.97 |
| Males | 4,144 | 24,728,605 | 16.76 |
| 5 to 9 years | 4,877 | 15,839,922 | 30.79 |
| 10 to 14 years | 3,647 | 20,377,498 | 17.90 |
| 15 to 17 years | 3,671 | 12,212,599 | 30.06 |

^a Composite includes PDI 16 and 18

Table 17. PDI 92 – Pediatric Quality Chronic Composite

| GROUP | NUMERATOR | DENOMINATOR | OBSERVED RATE PER 100,000 POPULATION |
|----------------|------------------|--------------------|---|
| Overall | 35,732 | 48,430,020 | 73.78 |
| Females | 16,669 | 23,701,412 | 70.33 |
| Males | 19,063 | 24,728,608 | 77.09 |
| 5 to 9 years | 13,945 | 15,839,924 | 88.04 |
| 10 to 14 years | 14,499 | 20,377,498 | 71.15 |
| 15 to 17 years | 7,288 | 12,212,598 | 59.68 |

^a Composite includes PDI 14 and 15