



# **Pediatric Quality Indicators (PDI) Benchmark Data Tables, v2021**

**Prepared for:**

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## Introduction

The data presented in this document are nationwide comparative rates for Version 2021 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 2018 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 2018, 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 2021 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 2018, 46 of the SID include indicators of the diagnoses being present on admission (POA) and 42 included the procedure day (PRDAY) data element. Discharges from these 46 participating States are used to develop hospital-level indicators.<sup>1</sup> 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

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<sup>1</sup> States in the 2018 reference population for the hospital-level indicators include: AK, AR, AZ, CA, CO, DC, DE, 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, and WV. Note that Wisconsin, Oklahoma, West Virginia, and Delaware were not included in the reference population used to develop PDI 08 and PDI 09 due to incomplete procedure dates (PRDAY data element). Colorado, Hawaii, and New York 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 2018 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.<sup>2</sup> 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** Office of Statewide Health Planning and Development, **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** Laulima 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,

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<sup>2</sup> States in the 2018 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, West Virginia, and Delaware were not included in the reference population used to develop PDI 08 and PDI 09. Colorado, Hawaii, and New York were also not used in the development of PDI 01, PDI 05, PDI 10, PDI 12, PDI 16, PDI 18, and NQI 03.

**Utah** Department of Health, **Vermont** Association of Hospitals and Health Systems, **Virginia** Health Information, **Washington** State 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	1,369	69,806	19.61
PDI 01	Accidental Puncture or Laceration Rate	863	2,641,427	0.33
PDI 05	Iatrogenic Pneumothorax Rate	160	2,389,706	0.07
PDI 08	Perioperative Hemorrhage or Hematoma Rate	305	95,307	3.20
PDI 09	Postoperative Respiratory Failure Rate	2,212	81,585	27.11
PDI 10	Postoperative Sepsis Rate	1,362	170,285	8.00
PDI 12	Central Venous Catheter-Related Blood Stream Infection Rate	1,001	2,126,638	0.47
PSI 17	Birth Trauma Rate – Injury to Neonate	13,930	3,107,144	4.48

**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	50,476	63,868,245	79.03
PDI 15	Diabetes Short-Term Complications Admission Rate	13,222	48,341,534	27.35
PDI 16	Gastroenteritis Admission Rate	18,917	65,061,213	29.08
PDI 18	Urinary Tract Infection Admission Rate	12,020	65,061,215	18.47
PDI 90	Pediatric Quality Overall Composite	52,076	48,341,544	107.73
PDI 91	Pediatric Quality Acute Composite	12,427	48,341,536	25.71
PDI 92	Pediatric Quality Chronic Composite	39,649	48,341,539	82.02

## Hospital-Level Indicators

**Table 3. NQI 03 – Neonatal Blood Stream Infection Rate**

GROUP	NUMERATOR	DENOMINATOR	OBSERVED RATE PER 1,000 DISCHARGES
Overall	1,369	69,806	19.61
Females	573	31,407	18.24
Males	796	38,399	20.73
<1 year	1,369	69,806	19.61
Private	451 -- 460	27,213	16.57 -- 16.90
Medicare	*****	155	*****
Medicaid	834	37,741	22.10
Other	58	3,121	18.58
Uninsured (self-pay/no charge)	14	1,576	8.88

\*\*\*\*\* 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	863	2,641,427	0.33
Females	343	1,231,678	0.28
Males	520	1,409,749	0.37
<1 year	392	1,639,556	0.24
1 to 2 years	71	194,014	0.37
3 to 5 years	76	154,020	0.49
6 to 12 years	157	295,065	0.53
13 to 17 years	167	358,772	0.47
Private	343 -- 352	1,089,274	0.31 -- 0.32
Medicare	*****	8,890	*****
Medicaid	427	1,348,333	0.32
Other	57	90,223	0.63
Uninsured (self-pay/no charge)	25	104,707	0.24

\*\*\*\*\* Obscured due to small sample size

**Table 5. PDI 05 – Iatrogenic Pneumothorax Rate**

GROUP	NUMERATOR	DENOMINATOR	OBSERVED RATE PER 1,000 DISCHARGES
Overall	160	2,389,706	0.07
Females	88	1,110,749	0.08
Males	72	1,278,957	0.06
<1 year	27	1,413,613	0.02
1 to 2 years	20	188,364	0.11
3 to 5 years	20	147,807	0.14
6 to 12 years	36	288,249	0.12
13 to 17 years	57	351,673	0.16
Private	65	993,345	0.07
Medicare	*****	8,190	*****
Medicaid	75	1,212,721	0.06
Other	15	80,534	0.19
Uninsured (self-pay/no charge)	*****	94,916	*****

\*\*\*\*\* 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	305	95,307	3.20
Females	138	45,729	3.02
Males	167	49,578	3.37
<1 year	63	16,418	3.84
1 to 2 years	49	12,610	3.89
3 to 5 years	59	11,987	4.92
6 to 12 years	66	24,796	2.66
13 to 17 years	68	29,496	2.31
Private	114	44,152	2.58
Medicare	*****	330	*****
Medicaid	158	42,578	3.71
Other	22	6,156	3.57
Uninsured (self-pay/no charge)	*****	2,091	*****

\*\*\*\*\* Obscured due to small sample size



**Table 7. PDI 09 – Postoperative Respiratory Failure Rate**

GROUP	NUMERATOR	DENOMINATOR	OBSERVED RATE PER 1,000 DISCHARGES
Overall	2,212	81,585	27.11
Females	1,018	40,493	25.14
Males	1,194	41,092	29.06
<1 year	960	12,071	79.53
1 to 2 years	327	9,922	32.96
3 to 5 years	328	10,418	31.48
6 to 12 years	334	22,637	14.75
13 to 17 years	263	26,537	9.91
Private	901 -- 910	38,109	23.64 -- 23.88
Medicare	*****	304	*****
Medicaid	1,085	36,119	30.04
Other	186	5,254	35.40
Uninsured (self-pay/no charge)	29	1,799	16.12

\*\*\*\* Obscured due to small sample size

**Table 8. PDI 10 – Postoperative Sepsis Rate**

GROUP	NUMERATOR	DENOMINATOR	OBSERVED RATE PER 1,000 DISCHARGES
Overall	1,362	170,285	8.00
Females	605	75,639	8.00
Males	757	94,646	8.00
<1 year	464	29,432	15.77
1 to 2 years	216	20,366	10.61
3 to 5 years	144	20,846	6.91
6 to 12 years	230	44,628	5.15
13 to 17 years	308	55,013	5.60
Private	445	74,760	5.95
Medicare	11	625	17.6
Medicaid	797	80,510	9.90
Other	73	9,900	7.37
Uninsured (self-pay/no charge)	36	4,490	8.02

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

GROUP	NUMERATOR	DENOMINATOR	OBSERVED RATE PER 1,000 DISCHARGES
Overall	1,001	2,126,638	0.47
Females	474	999,869	0.47
Males	527	1,126,769	0.47
<1 year	449	1,381,865	0.32
1 to 2 years	178	130,662	1.36
3 to 5 years	120	103,901	1.15
6 to 12 years	121	218,333	0.55
13 to 17 years	133	291,877	0.46
Private	359 -- 368	876,428	0.41 -- 0.42
Medicare	*****	7,433	*****
Medicaid	549	1,091,854	0.50
Other	58	71,065	0.82
Uninsured (self-pay/no charge)	21	79,858	0.26

\*\*\*\* 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	13,930	3,107,144	4.48
Females	6,020	1,517,606	3.97
Males	7,910	1,589,538	4.98
<1 year	13,930	3,107,144	4.48
Private	6,384	1,454,295	4.39
Medicare	34	9,804	3.47
Medicaid	6,387	1,389,056	4.60
Other	388	85,545	4.54
Uninsured (self-pay/no charge)	737	168,444	4.38

## Area-Level Indicators

**Table 11. PDI 14 – Asthma Admission Rate**

GROUP	NUMERATOR	DENOMINATOR	OBSERVED RATE PER 100,000 POPULATION
Overall	50,476	63,868,245	79.03
Females	20,233	31,251,332	64.74
Males	30,243	32,616,913	92.72
0 to 4 years	18,894	11,582,236	163.13
5 to 9 years	19,307	19,722,349	97.89
10 to 14 years	9,213	20,370,480	45.23
15 to 17 years	3,062	12,193,180	25.11

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

GROUP	NUMERATOR	DENOMINATOR	OBSERVED RATE PER 100,000 POPULATION
Overall	13,222	48,341,534	27.35
Females	6,842	23,661,608	28.92
Males	6,380	24,679,926	25.85
5 to 9 years	2,043	15,777,877	12.95
10 to 14 years	6,472	20,370,479	31.77
15 to 17 years	4,707	12,193,178	38.60

**Table 13. PDI 16 – Gastroenteritis Admission Rate**

GROUP	NUMERATOR	DENOMINATOR	OBSERVED RATE PER 100,000 POPULATION
Overall	18,917	65,061,213	29.08
Females	8,668	31,834,486	27.23
Males	10,249	33,226,727	30.85
0 to 4 years	12,330	16,849,703	73.18
5 to 9 years	3,329	18,164,589	18.33
10 to 14 years	1,875	18,806,032	9.97
15 to 17 years	1,383	11,240,889	12.30

**Table 14. PDI 18 – Urinary Tract Infection Admission Rate**

GROUP	NUMERATOR	DENOMINATOR	OBSERVED RATE PER 100,000 POPULATION
Overall	12,020	65,061,215	18.47
Females	9,805	31,834,489	30.80
Males	2,215	33,226,726	6.67
0 to 4 years	5,926	16,849,704	35.17
5 to 9 years	2,637	18,164,590	14.52
10 to 14 years	1,417	18,806,033	7.53
15 to 17 years	2,040	11,240,888	18.15

**Table 15. PDI 90 – Pediatric Quality Overall Composite**

GROUP	NUMERATOR	DENOMINATOR	OBSERVED RATE PER 100,000 POPULATION
Overall	52,076	48,341,544	107.73
Females	26,173	23,661,614	110.61
Males	25,903	24,679,930	104.96
5 to 9 years	21,122	15,777,880	133.87
10 to 14 years	19,384	20,370,482	95.16
15 to 17 years	11,570	12,193,182	94.89

<sup>a</sup> 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	12,427	48,341,536	25.71
Females	8,126	23,661,610	34.34
Males	4,301	24,679,927	17.43
5 to 9 years	4,927	15,777,878	31.23
10 to 14 years	3,699	20,370,479	18.16
15 to 17 years	3,801	12,193,179	31.17

<sup>a</sup> Composite includes PDI 16 and 18

**Table 17. PDI 92 – Pediatric Quality Chronic Composite**

<b>GROUP</b>	<b>NUMERATOR</b>	<b>DENOMINATOR</b>	<b>OBSERVED RATE PER 100,000 POPULATION</b>
Overall	39,649	48,341,539	82.02
Females	18,047	23,661,612	76.27
Males	21,602	24,679,928	87.53
5 to 9 years	16,195	15,777,878	102.64
10 to 14 years	15,685	20,370,481	77.00
15 to 17 years	7,769	12,193,180	63.72

<sup>a</sup> Composite includes PDI 14 and 15