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Characteristics of 30-Day All-Cause Hospital Readmissions, 2010–2016

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Introduction

Hospital readmissions serve as a key measure for the quality of patient care in U.S. hospitals. National initiatives such as the Centers for Medicare & Medicaid Services Hospital Readmissions Reduction Program (HRRP) and the Partnership for Patients (PfP) are focused on decreasing preventable readmissions. HRRP incentivizes hospitals to reduce readmissions by linking payment with readmission measures. PfP has built a collaborative network of health care stakeholders that is focused on improving practices related to transitions of care and lowering readmissions.[1]

In a previous Healthcare Cost and Utilization Project (HCUP) Statistical Brief, statistics on 30-day all-cause readmissions among patients aged 1 year and older by expected payer and patient age group were presented from 2009 through 2013.[2] To understand how readmission rates have changed since the implementation of such national initiatives as HRRP and PfP, it is important to continue to track changes in readmissions over time.

This HCUP Statistical Brief presents statistics on 30-day all-cause readmissions among patients aged 1 year and older using the 2010–2016 Nationwide Readmissions Database (NRD). Trends in readmissions by expected payer are provided from 2010 through 2016. Changes in readmission rates between 2010 and 2016 are presented by expected payer. The rate of readmissions and a comparison of costs for the index admission (the initial inpatient stay) and the readmission in 2016 is provided by the type of principal diagnosis. Both the expected payer and the principal diagnosis are determined based on the index admission.

Highlights

- From 2010 to 2016, the readmission rate decreased 7 percent for Medicare patients (from 18.3 to 17.1 per 100 index admissions) and increased 14 percent for uninsured patients (from 10.4 to 11.8 per 100 index admissions). Medicaid and privately insured patients had relatively stable readmission rates.
- In 2016, the highest readmission rates were among Medicare patients aged 21–64 years and nonmaternal Medicaid patients aged 45-64 years (21.2 and 20.4 per 100 index admissions, respectively).
- The largest increase in readmission rates from 2010 to 2016 across payers was for patients aged 1–20 years.
- From 2010 to 2016, the readmission rate for maternal patients of any age decreased by 20.5 percent for uninsured patients, by 17.7 percent for privately insured patients, and by 14.1 percent for Medicaid patients.
- In 2016, blood diseases had the highest readmission rate (25.3 percent), followed by neoplasms (17.9 percent). Pregnancy/childbirth had the lowest readmission rate (3.6 percent).
- The average cost of readmission was higher than the average cost of the index admission for two-thirds of the types of principal diagnoses.

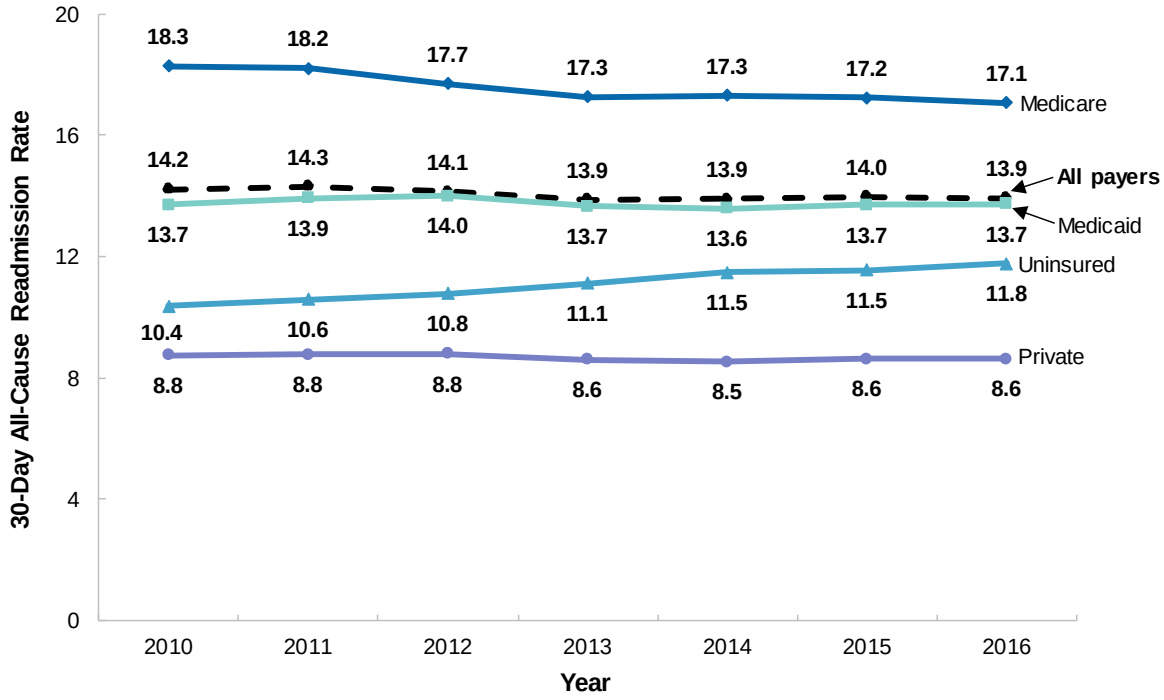
[1] Centers for Medicare and Medicaid Innovation. Project Evaluation Activity in Support of Partnership for Patients: Interim Evaluation Report, Final. September 2015, Updated December 2015. https://downloads.cms.gov/files/cmmi/pfp-interimevalrpt.pdf. Accessed September 18, 2018.

[2] Barrett ML, Wier LM, Jiang HJ, Steiner CA. All-Cause Readmissions by Payer and Age, 2009–2013. HCUP Statistical Brief #199. December 2015. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/reports/statbriefs/sb199-Readmissions-Payer-Age.pdf. Accessed September 24, 2018.

Findings

Trends in hospital readmissions by expected payer, 2010–2016
Figure 1 presents trends in the 30-day all-cause readmission rate by expected payer from 2010 to 2016.

Figure 1. Rate of 30-day all-cause readmissions by expected payer, 2010–2016



Notes: The expected payer is determined by the index admission, not the readmission. Rates by expected payer include all patients aged 1 year and older. Uninsured includes no insurance, self-pay, no charge, charity, Hill Burton free care, research (e.g., clinical trial or donor), refusal to pay, and no payment. The readmission rates for 2010–2012 differ slightly from those presented in HCUP Statistical Brief #199.[3] These differences are the result of revised versions of the 2010–2012 Nationwide Readmissions Database (NRD) that were released to correct an identified error. Additional information is available at www.hcup-us.ahrq.gov/db/nation/nrd/NRD2010-2012.pdf.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), 2010–2016 Nationwide Readmissions Database (NRD)

- **From 2010 to 2016, the readmission rate decreased 7 percent among patients with stays billed to Medicare and increased 14 percent among uninsured patients.**

  The 30-day all-cause readmission rate among patients with stays billed to Medicare decreased 7 percent between 2010 and 2016, from 18.3 per 100 index admissions in 2010 to 17.1 per 100 index admissions in 2016. Among patients whose stays were not expected to be covered by insurance (defined as "uninsured" in this Brief), the readmission rate increased by 14 percent, from 10.4 to 11.8 per 100 index admissions. The readmission rate among patients with stays billed to Medicaid or private insurance remained relatively stable over this 7-year time period.

- **Readmission rates were highest for patients with Medicare.**

  The 30-day all-cause readmission rate was consistently highest among patients with stays billed to Medicare, followed by those with Medicaid, uninsured patients, and those with private insurance. The 30-day all-cause readmission rate was almost twice as high among those with Medicare (17.1 per 100 index admissions in 2016) compared with those who had private insurance (8.6 per 100 index admissions in 2016).

[3] Barrett ML, Wier LM, Jiang HJ, Steiner CA. All-Cause Readmissions by Payer and Age, 2009–2013. HCUP Statistical Brief #199. December 2015. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/reports/statbriefs/sb199-Readmissions-Payer-Age.pdf. Accessed September 24, 2018.

Readmission rates by payer and patient age, 2010 and 2016

Table 1 presents the readmission rate and the number of readmissions by expected payer and patient age group in 2010 and 2016. Separate breakouts are included for maternal and non-maternal patients. The percent change in the readmission rate and number of readmissions from 2010 to 2016 also is shown.

Table 1. Rate and number of 30-day all-cause readmissions by expected payer and patient age group, 2010 and 2016

Expected payer and age group[a]	Readmission rate			Number of readmissions[b] (thousands)		
	2010	2016	Percent change, 2010–2016	2010	2016	Percent change, 2010–2016
Medicare						
Total[c]	18.3	17.1	–6.7	2,615	2,447	–6.4
21–64 years	21.8	21.2	–2.7	627	626	–0.2
65 years and above	17.4	16.0	–8.1	1,985	1,818	–8.4
Medicaid						
Total	13.7	13.7	0.1	804	862	7.2
1–20 years, non-maternal	11.4	12.3	7.8	111	105	–4.9
21–44 years, non-maternal	19.0	17.8	–6.6	241	276	14.5
45–64 years, non-maternal	21.9	20.4	–6.9	347	395	14.0
Maternal	5.1	4.4	–14.1	104	84	–18.9
Private insurance						
Total	8.8	8.6	–1.3	735	641	–12.8
1–20 years, non-maternal	9.4	10.8	15.7	62	58	–6.6
21–44 years, non-maternal	9.6	10.2	6.2	173	153	–11.9
45–64 years, non-maternal	11.0	11.0	0.2	434	378	–13.0
Maternal	3.4	2.8	–17.7	67	54	–18.3
Uninsured[d]						
Total	10.4	11.8	13.7	169	137	–18.7
1–20 years, non-maternal	6.1	7.9	28.7	5	4	–30.8
21–44 years, non-maternal	9.9	11.8	18.7	75	64	–14.3
45–64 years, non-maternal	11.9	13.0	9.4	85	67	–21.2
Maternal	4.8	3.8	–20.5	3	2	–35.2

Note: Percent change was calculated from data values that were not rounded.

[a] The expected payer is determined by the index admission, not the readmission. Information is not presented for three types of patients: (1) patients aged 0 years, (2) patients aged 1 year and above with other types of expected payer (e.g., local government programs, TRICARE, worker's compensation), and (3) patients aged 65 years and above with an expected payer of Medicaid, private insurance, or uninsured.

[b] The number of readmissions are 12-month counts calculated by multiplying the readmission rate by the 12-month index admission counts.

[c] Medicare patients under age 21 years are included in the Medicare total for all ages but are not reported separately because of the small number of cases. There is no maternal breakout for Medicare because of the small number of maternal stays in this group.

[d] Uninsured includes no insurance, self-pay, no charge, charity, Hill Burton free care, research (e.g., clinical trial or donor), refusal to pay, and no payment.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), 2010 and 2016 Nationwide Readmissions Database (NRD)

- **Among Medicare patients aged 65 years and older, the number and rate of readmissions decreased from 2010 to 2016.**

  From 2010 to 2016, the readmission rate among Medicare patients aged 65 years and older decreased 8.1 percent, from 17.4 to 16.0 per 100 index admissions. The number of readmissions among this group also decreased by 8.4 percent during this time, from nearly 2 million readmissions in 2010 to 1.8 million readmissions in 2016.

- **Among maternal patients across payers, the number and rate of readmissions decreased.**

  Among maternal patients of any age, the readmission rate from 2010 to 2016 decreased by 20.5 percent for uninsured patients, by 17.7 percent for privately insured patients, and by 14.1 percent for patients with Medicaid. The readmission rate among maternal patients was lower in 2016 for privately insured patients (2.8 per 100 index admissions) compared with those with Medicaid or who were uninsured (4.4 and 3.8 per 100 index admissions, respectively).

  The number of readmissions among maternal patients also decreased from 2010 to 2016, by 35.2 percent for uninsured patients, by 18.9 percent for patients with Medicaid, and by 18.3 percent for privately insured patients.

- **Across payers, the readmission rate increased the most among non-maternal patients aged 1–20 years.**

  Compared with either maternal patients of any age or non-maternal patients aged 21–44 and 45–64 years, non-maternal patients aged 1–20 years had the largest increase in readmission rate regardless of payer (uninsured: 28.7 percent increase; private insurance: 15.7 percent increase; Medicaid: 7.8 percent increase).

- **Among uninsured, non-maternal patients, the number of readmissions decreased but the rate of readmissions increased.**

  The readmission rate among all patients who were uninsured increased by 13.7 percent between 2010 and 2016. At the same time, the total number of readmissions among all uninsured patients decreased by 18.7 percent. The readmission rate increased the most for non-maternal uninsured patients aged 1–20 years (28.7 percent increase) and 21–44 years (18.7 percent increase) but decreased for maternal uninsured patients of any age (20.5 percent decrease). The number of readmissions decreased for all subgroups of uninsured patients.

- **The only increases in the number of readmissions occurred among Medicaid, non-maternal patients aged 21–44 and 45–64 years.**

  Across payers, the number of readmissions increased only among Medicaid, non-maternal patients aged 21–44 and 45–64 years (14.5 and 14.0 percent increases, respectively). However, the rate of readmissions for these same patient groups decreased by 6.6 and 6.9 percent, respectively.

Readmission rates and costs by type of principal diagnosis, 2016

Table 2 presents the readmission rate and the number of readmissions by type of principal diagnosis at index admission. Principal diagnoses are ranked by the rate of readmission and grouped using the International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) classification for diseases and injuries.

Table 2. Rate and number of 30-day all-cause readmissions by principal diagnosis category at index admission, ranked by readmission rate, 2016

Rank	Principal diagnosis at index admission[a]	Readmission rate	Number of all-cause readmissions[b]
1	Blood diseases	25.3	104,800
2	Neoplasms	17.9	226,900
3	Infectious/parasitic diseases	17.7	359,900
4	Endocrine/metabolic diseases	17.5	214,700
5	Respiratory system diseases	16.9	434,700
6	Mental/behavioral disorders	16.8	329,400
7	Circulatory system diseases	16.4	754,900
8	Genitourinary system diseases	15.6	227,800
9	Digestive system diseases	15.6	495,000
10	Conditions not elsewhere classified	14.5	155,700
11	Nervous system diseases	14.0	115,400
12	Injury, poisoning, external causes	13.2	340,000
13	Skin diseases	12.7	85,000
14	Congenital malformations	9.6	7,100
15	Eye/adnexa diseases	9.3	2,400
16	Musculoskeletal system diseases	6.8	160,700
17	Ear/mastoid process diseases	6.7	2,600
18	Pregnancy/childbirth	3.6	147,700
N/A	**Overall (any diagnosis)**	**13.9**	**4,280,500**

Note: Counts are rounded to the nearest hundred.

[a] Principal diagnosis at index admission is grouped using the International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) classification for diseases and injuries (i.e., chapters). The ranges for the chapters are documented in Table 3. Three ICD-10-CM diagnosis chapters were excluded: (1) certain conditions originating in the perinatal period (there were fewer than 50 total readmissions in 2016), (2) external causes of morbidity (these diagnosis codes are never sequenced as the principal diagnosis in inpatient data or the first-listed diagnosis in outpatient data), and (3) factors influencing health status and contact with health services (many of these diagnoses involve planned aftercare following surgery, such as antineoplastic chemotherapy, aftercare following joint replacement, and fitting and adjustment of external prosthetic devices). It is important to note that some of the readmissions included in the other diagnosis chapters reported in this table may still be planned. The overall readmission rate does include readmissions based on any principal diagnosis, including those from these excluded ICD-10-CM diagnosis chapters.

[b] The numbers of readmissions are 12-month counts calculated by multiplying the readmission rate by the 12-month index admission counts.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), 2016 Nationwide Readmissions Database (NRD)

- **Compared with the overall 2016 readmission rate of 13.9, half of the types of principal diagnoses had a higher rate.**

  Nine of the 18 principal diagnosis types had a readmission rate that was at least 10 percent higher than the overall readmission rate of 13.9 in 2016. The highest readmission rate was for blood diseases (25.3 readmissions per 100 index admissions), which was 81 percent higher than the overall rate, followed by neoplasms (17.9 per 100 index admissions), which was 28 percent higher.

- **Two of the principal diagnoses with higher-than-average readmission rates accounted for more than one-fourth of the total number of readmissions in 2016.**

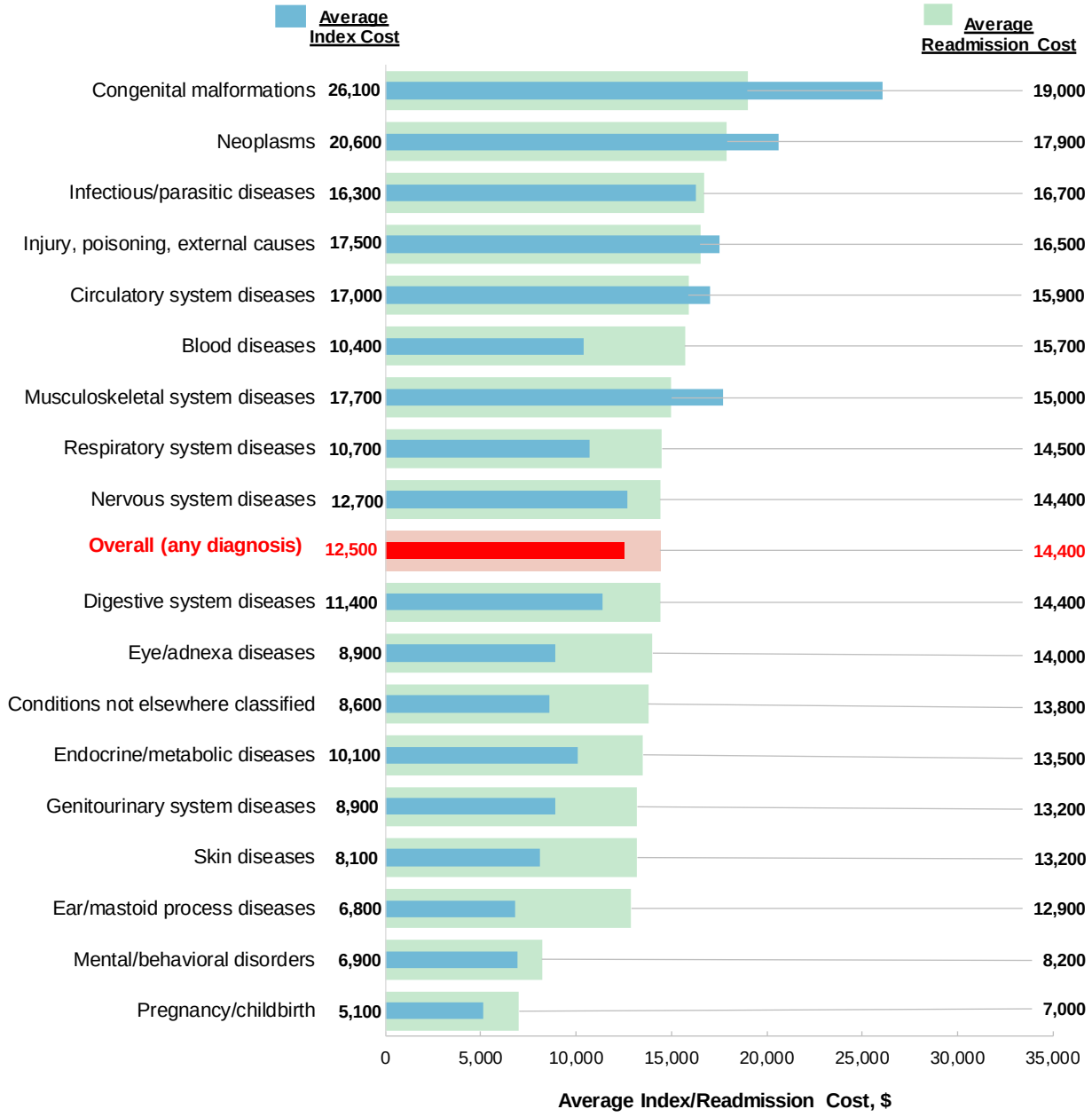
  Circulatory system and digestive system diseases had higher-than-average readmission rates (16.4 percent and 15.6 percent, respectively), and these diagnoses had the most readmissions of any of the 18 principal diagnosis types, accounting for over one-fourth of the total number of readmissions in 2016 (754,900 and 495,000 readmissions, respectively).

- **One-fourth of the types of principal diagnoses had a lower rate than the overall 2016 readmission rate of 13.9.**

  Five of the 18 principal diagnosis types had a readmission rate that was at least 10 percent lower than the overall readmission rate. The lowest readmission rate was for pregnancy/childbirth (3.6 readmissions per 100 index admission), which was 74 percent lower than the overall readmission rate, followed by ear/mastoid process diseases (52 percent lower at 6.7 readmissions per 100 index admissions) and musculoskeletal system diseases (51 percent lower at 6.8 readmissions per 100 index admissions).

Figure 2 presents the average cost of index admissions and the average cost of readmissions by type of principal diagnosis in 2016. Principal diagnoses are ranked based on the average cost of the readmission.

Figure 2. Average cost of index admissions and 30-day all-cause readmissions by principal diagnosis[a] at index admission, ranked by average readmission cost, 2016



Note: Costs are rounded to the nearest hundred.

[a] Principal diagnosis at index admission is defined using International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) diagnosis chapters. Three ICD-10-CM diagnosis chapters were excluded: (1) certain conditions originating in the perinatal period (there were fewer than 50 total readmissions in 2016), (2) external causes of morbidity (these diagnosis codes are never sequenced as the principal diagnosis in inpatient data or the first-listed diagnosis in outpatient data), and (3) factors influencing health status and contact with health services (many of these diagnoses involve planned aftercare following surgery, such as antineoplastic chemotherapy, aftercare following joint replacement, and fitting and adjustment of external prosthetic devices). However, the overall readmission rate does include readmission based on any principal diagnosis, including those from these excluded ICD-10-CM diagnosis chapters.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), 2016 Nationwide Readmissions Database (NRD)

- **The average cost of readmissions was highest for congenital malformations ($19,000) and lowest for pregnancy/childbirth ($7,000).**

  In 2016, the average readmission cost across any type of principal diagnosis at index admission was $14,400. The highest average readmission cost was for congenital malformations ($19,000), followed by neoplasms ($17,900) and infectious/parasitic diseases ($16,700). The lowest average readmission cost was for pregnancy/childbirth ($7,000), followed by mental/behavioral disorders ($8,200).

- **Compared with the average cost of the index admission, two-thirds of the principal diagnoses had a higher cost of readmission.**

  A total of 12 of the 18 principal diagnosis types had an average readmission cost that was at least 10 percent higher than the average cost of the index admission in 2016. Ear/mastoid process diseases had 90 percent higher readmission costs ($12,900 vs. $6,800 for the index admission), and skin diseases had 63 percent higher readmission costs ($13,200 vs. $8,100 for the index admission).

  In contrast, only three principal diagnosis types had an average readmission cost that was at least 10 percent lower than the average cost of the index admission. Congenital malformations had 27 percent lower readmission costs ($19,000 vs. $26,100 for the index admission), musculoskeletal system diseases had 15 percent lower readmission costs ($15,000 vs. $17,700 for the index admission), and neoplasms had 13 percent lower readmission costs ($17,900 vs. $20,600 for the index admission).

About Statistical Briefs

Healthcare Cost and Utilization Project (HCUP) Statistical Briefs provide basic descriptive statistics on a variety of topics using HCUP administrative health care data. Topics include hospital inpatient, ambulatory surgery, and emergency department use and costs, quality of care, access to care, medical conditions, procedures, and patient populations, among other topics. The reports are intended to generate hypotheses that can be further explored in other research; the reports are not designed to answer in-depth research questions using multivariate methods.

Data Source

The estimates in this Statistical Brief are based upon data from the Healthcare Cost and Utilization Project (HCUP) 2010–2016 Nationwide Readmissions Database (NRD).

Definitions

Diagnoses, ICD-10-CM, and major diagnostic categories (MDCs)
The *principal diagnosis* is that condition established after study to be chiefly responsible for the patient's admission to the hospital.

ICD-10-CM is the International Classification of Diseases, Tenth Revision, Clinical Modification. In October 2015, ICD-10-CM replaced the ICD-9-CM diagnosis coding system with the ICD-10-CM diagnosis coding system for most inpatient and outpatient medical encounters. There are over 70,000 ICD-10-CM diagnosis codes.

MDCs assign ICD-10-CM principal diagnosis codes to 1 of 25 general diagnosis categories.

Case definition
The ICD-10-CM diagnosis coding system includes 21 diagnosis chapters. A total of 18 of these chapters were presented in this Statistical Brief to define the type of principal diagnosis. Three ICD-10-CM diagnosis chapters were not presented: (1) certain conditions originating in the perinatal period (there were fewer than 50 total readmissions in 2016), (2) external causes of morbidity (these diagnosis codes are never sequenced as the principal diagnosis in inpatient data or the first-listed diagnosis in outpatient data), and (3) factors influencing health status and contact with health services (many of these diagnoses involve planned aftercare following surgery, such as antineoplastic chemotherapy, aftercare following joint replacement, and fitting and adjustment of external prosthetic devices). However, the overall readmission rate does include readmissions based on any principal diagnosis, including those from these excluded ICD-10-CM diagnosis chapters. The 18 included ICD-10-CM diagnosis chapters and corresponding diagnosis codes are presented in Table 3.

Table 3. ICD-10-CM diagnosis chapter and code range

Principal diagnosis type	ICD-10-CM diagnosis chapter title	ICD-10-CM diagnosis code range
Infectious/parasitic diseases	Certain infectious and parasitic diseases	A00–B99
Neoplasms	Neoplasms	C00–D49
Blood diseases	Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	D50–D89
Endocrine/metabolic diseases	Endocrine, nutritional and metabolic diseases	E00–E89
Mental/behavioral disorders	Mental, behavioral and neurodevelopmental disorders	F01–F99
Nervous system diseases	Diseases of the nervous system	G00–G99
Eye/adnexa diseases	Diseases of the eye and adnexa	H00–H59
Ear/mastoid diseases	Diseases of the ear and mastoid process	H60–H95
Circulatory system diseases	Diseases of the circulatory system	I00–I99
Respiratory system diseases	Diseases of the respiratory system	J00–J99
Digestive system diseases	Diseases of the digestive system	K00–K95
Skin diseases	Diseases of the skin and subcutaneous tissue	L00–L99
Musculoskeletal system diseases	Diseases of the musculoskeletal system and connective tissue	M00–M99
Genitourinary system diseases	Diseases of the genitourinary system	N00–N99
Pregnancy/childbirth	Pregnancy, childbirth and the puerperium	O00–O9A
Congenital malformations	Congenital malformations, deformations and chromosomal abnormalities	Q00–Q99
Conditions not elsewhere classified	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	R00–R99
Injury, poisoning, external causes	Injury, poisoning and certain other consequences of external causes	S00–T88

Abbreviation: ICD-10-CM, International Classification of Diseases, Tenth Revision, Clinical Modification

Maternal and non-maternal stays were identified by MDC 14 (Pregnancy, Childbirth, and the Puerperium).

Unit of analysis
The unit of analysis is the index stay, not a person or patient.

Every qualifying hospital stay is counted as a separate initial (starting point) admission. Thus, a single patient can be counted multiple times during the course of the January through December observation period. In addition, initial admissions do not require a prior *clean period* with no hospitalizations; that is, a hospital stay may be a readmission for a prior stay and the initial admission for a subsequent readmission. Admissions were disqualified from the analysis as initial admissions if they could not be followed for 30 days for one of the following reasons: (1) the patient died in the hospital, (2) information on length of stay was missing, or (3) the patient was discharged in December.

Readmissions
The 30-day readmission rate is defined as the number of admissions for each condition for which there was at least one subsequent hospital admission within 30 days, divided by the total number of admissions from January through November of the same year. That is, when patients are discharged from the hospital, they are followed for 30 days in the data. If any readmission to the same or different hospital occurs during this time period, the admission is counted as having a readmission. No more than one readmission is counted within the 30-day period, because the outcome measure assessed is "percentage of admissions that are readmitted." If a patient was transferred to a different hospital on the same day or was transferred within the same hospital, the two events were combined as a single stay and the second event was not counted as a readmission; that is, transfers were not considered a readmission. In the case of admissions for which there was more than one readmission in the 30-day period, the data presented in this Statistical Brief reflect the characteristics and costs of the first readmission.

The number of all-cause readmissions reported in this Statistical Brief are 12-month counts calculated by multiplying the 30-day readmission rate by the 12-month index admission counts.

Types of hospitals included in the HCUP Nationwide Readmissions Database
The Nationwide Readmissions Database (NRD) is based on data from community hospitals, which are defined as short-term, non-Federal, general, and other hospitals, excluding hospital units of other institutions (e.g., prisons). The NRD includes obstetrics and gynecology, otolaryngology, orthopedic, cancer, pediatric, public, and academic medical hospitals. Excluded are long-term care facilities such as rehabilitation, long-term acute care, psychiatric, and alcoholism and chemical dependency hospitals. However, if a patient received long-term care, rehabilitation, or treatment for a psychiatric or chemical dependency condition in a community hospital, the discharge record for that stay will be included in the NRD.

Costs and charges
Total hospital charges were converted to costs using HCUP Cost-to-Charge Ratios based on hospital accounting reports from the Centers for Medicare & Medicaid Services (CMS).[4] *Costs* reflect the actual expenses incurred in the production of hospital services, such as wages, supplies, and utility costs; *charges* represent the amount a hospital billed for the case. For each hospital, a hospital-wide cost-to-charge ratio is used. Hospital charges reflect the amount the hospital billed for the entire hospital stay and do not include professional (physician) fees. For the purposes of this Statistical Brief, costs are reported to the nearest hundred.

Payer
Payer is the expected payer for the hospital stay. To make coding uniform across all HCUP data sources, payer combines detailed categories into general groups:

- Medicare: includes patients covered by fee-for-service and managed care Medicare
- Medicaid: includes patients covered by fee-for-service and managed care Medicaid
- Private Insurance: includes Blue Cross, commercial carriers, and private health maintenance organizations (HMOs) and preferred provider organizations (PPOs)
- Uninsured: includes no insurance, self-pay, no charge, charity, Hill Burton free care, research (e.g., clinical trial or donor), refusal to pay, and no payment
- Other: includes Workers' Compensation, TRICARE/CHAMPUS, CHAMPVA, Title V, and other government programs

Hospital stays billed to the State Children's Health Insurance Program (SCHIP) may be classified as Medicaid, Private Insurance, or Other, depending on the structure of the State program. Because most State data do not identify patients in SCHIP specifically, it is not possible to present this information separately.

For this Statistical Brief, a hierarchy was used to assign the payer category based on the primary and secondary expected payer to give precedence to public payers (Medicare and then Medicaid) over commercial insurance. In addition, an indication of any insurance was checked before assigning the payer category to uninsured:[5]

- If the primary or secondary expected payer indicates Medicare, then the payer category is assigned to Medicare. This categorization includes patients who are dually eligible for Medicare and Medicaid under Medicare.
- If not Medicare and the primary or secondary expected payer indicates Medicaid, then the payer category is Medicaid.
- If not Medicare or Medicaid and the primary or secondary expected payer indicates private insurance, then the payer category is private.

[4] Agency for Healthcare Research and Quality. HCUP Cost-to-Charge Ratio (CCR) Files. Healthcare Cost and Utilization Project (HCUP). 2001–2015. Agency for Healthcare Research and Quality. Updated December 2017. www.hcup-us.ahrq.gov/db/state/costtocharge.jsp. Accessed January 18, 2018.
[5] The NRD available for purchase through the HCUP Central Distributor includes the data element for the primary expected payer but not the data element for the secondary expected payer.

- If not Medicare, Medicaid, or private and the primary expected payer indicates self-pay, no charge, or other categories such as charity, then the payer category is uninsured.
- Stays for other types of payers are not reported in this Statistical Brief because this is a small group of mixed payers such as State and local programs.

Categorization of readmission counts and costs by expected payer was based on the index stay. The concordance between the expected payer coded at the index stay and the expected payer coded at readmission varies by payer: 98 percent for Medicare, 95 percent for Medicaid, 93 percent for private, and 80 percent for uninsured (percentages based on the 2013 NRD).

About HCUP

The Healthcare Cost and Utilization Project (HCUP, pronounced "H-Cup") is a family of health care databases and related software tools and products developed through a Federal-State-Industry partnership and sponsored by the Agency for Healthcare Research and Quality (AHRQ). HCUP databases bring together the data collection efforts of State data organizations, hospital associations, and private data organizations (HCUP Partners) and the Federal government to create a national information resource of encounter-level health care data. HCUP includes the largest collection of longitudinal hospital care data in the United States, with all-payer, encounter-level information beginning in 1988. These databases enable research on a broad range of health policy issues, including cost and quality of health services, medical practice patterns, access to health care programs, and outcomes of treatments at the national, State, and local market levels.

HCUP would not be possible without the contributions of the following data collection Partners from across the United States:

Alaska Department of Health and Social Services
Alaska State Hospital and Nursing Home Association
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 Health Information Corporation
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
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 Department of Health
West Virginia Department of Health and Human Resources, West Virginia Health Care Authority
Wisconsin Department of Health Services
Wyoming Hospital Association

About the NRD

The HCUP Nationwide Readmissions Database (NRD) is a calendar-year, discharge-level database constructed from the HCUP State Inpatient Databases (SID) with verified patient linkage numbers that can be used to track a person across hospitals within a State. The 2010–2016 NRD are available for purchase through the HCUP Central Distributor. The NRD is designed to support various types of analyses of national readmission rates. The database includes discharges for patients with and without repeat hospital visits in a year and those who have died in the hospital. Repeat stays may or may not be related. The criteria to determine the relationship between hospital admissions are left to the analyst using the NRD. The NRD was constructed as a sample of convenience consisting of 100 percent of the eligible discharges. Discharge weights for national estimates are developed using the target universe of community hospitals (excluding rehabilitation and long-term acute care hospitals) in the United States. Over time, the sampling frame for the NRD will change; thus, the number of States contributing to the NRD will vary from year to year. The NRD is intended for national estimates only; no regional, State-, or hospital-specific estimates can be produced. The unweighted sample size for the 2010 NRD is 13,907,610 (weighted, this represents 37,284,093 inpatient stays). The unweighted sample size for the 2016 NRD is 17,197,683 (weighted, this represents 35,660,906 inpatient stays).

For More Information

For other information on readmissions and revisits refer to the HCUP Statistical Briefs located at https://www.hcup-us.ahrq.gov/reports/statbriefs/sb_readmission.jsp.

For additional HCUP statistics, visit:

- HCUP Fast Stats at www.hcup-us.ahrq.gov/faststats/landing.jsp for easy access to the latest HCUP-based statistics for health care information topics
- HCUPnet, HCUP's interactive query system, at www.hcupnet.ahrq.gov/

For more information about HCUP, visit www.hcup-us.ahrq.gov/.

For a detailed description of HCUP and more information on the design of the Nationwide Readmissions Database (NRD) please refer to the following database documentation:

Agency for Healthcare Research and Quality. Overview of the Nationwide Readmissions Database (NRD). Healthcare Cost and Utilization Project (HCUP). Rockville, MD: Agency for Healthcare Research

and Quality. Updated November 2017. www.hcup-us.ahrq.gov/nrdoverview.jsp. Accessed January 18, 2018.

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AHRQ welcomes questions and comments from readers of this publication who are interested in obtaining more information about access, cost, use, financing, and quality of health care in the United States. We also invite you to tell us how you are using this Statistical Brief and other HCUP data and tools, and to share suggestions on how HCUP products might be enhanced to further meet your needs. Please e-mail us at hcup@ahrq.gov or send a letter to the address below:

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