

Pennsylvania Hospital Admissions for Diabetes



Examining hospital admissions for diabetes is one way to observe the quality of care provided to Pennsylvania residents with diabetes, especially as it relates to primary care access or outpatient services. Timely diagnosis, effective primary care and appropriate disease management can potentially prevent the need for diabetes hospitalizations. This research brief focuses on hospital admissions for patients whose principal reason for admission was diabetes.*



Overall, the number of hospital admissions for diabetes increased 13% between 2000 and 2016, from 21,528 admissions to

24,283. However, the number has been fairly steady in recent years.



There was a 38% increase in the rate of hospital admissions for residents under age 45 and a 12% decrease for residents aged 45 and older, although this age group still had higher overall rates.

Age	Rate per 10,000 Population		Rate Change
	2000	2016	
Under 45	7.9	10.9	↑ 38%
45 and older	32.6	28.8	↓ 12%



In 2016, diabetes admissions amounted to an estimated \$205 million in hospital payments.

Calculated by applying the average Medicaid payment (2013 data) to Medicaid cases and the average Medicare fee-for-service payment (2015 data) to Medicare, other insurers and uninsured, by case mix (MS-DRG).



In 2016, about 86% of the diabetes hospital admissions for patients aged 18 and older were considered potentially preventable based on a set of Prevention Quality Indicators developed by the Agency for Healthcare Research and Quality (AHRQ).

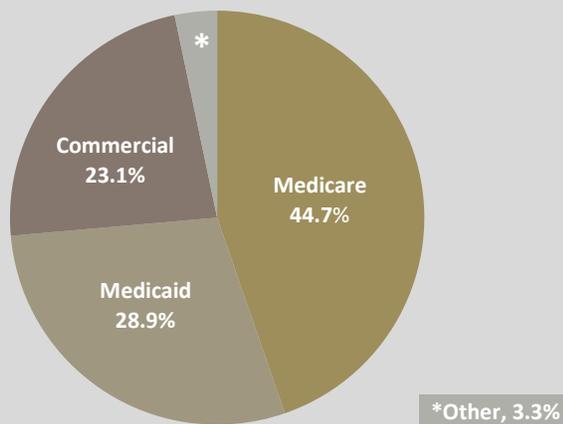
* This analysis includes Pennsylvania residents (all ages) who were discharged from a Pennsylvania acute care hospital in 2016 with comparisons to 2000. Included are hospitalizations for type 1, type 2 and other types of diabetes (e.g., drug induced diabetes, diabetes due to genetic defects, etc.).

In-hospital mortality for patients hospitalized for diabetes was 0.5% in 2016—down from 1.5% in 2000.

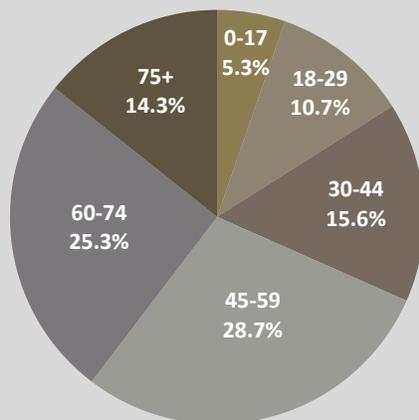
Adults (18 years and older) admitted for diabetes often had multiple hospitalizations for diabetes in 2016:

- Overall, 5.4% of the patients were admitted three or more times for diabetes in 2016, comprising 4,345 of the adult diabetes hospitalizations that year.
- Medicaid was the anticipated payer for 46% of these multiple admissions; Medicare 38%; commercial insurers 14%.

Total Diabetes Admissions by Payer, 2016



Total Diabetes Admissions by Age, 2016



Diabetes as a Secondary

Diagnosis. While this brief focuses on hospitalizations where diabetes was the principal reason for the hospital admission, diabetes was a secondary diagnosis in a much higher number of hospitalizations (333,580 admissions); that is, the patient had diabetes, but diabetes was not the primary reason the patient was hospitalized.

Diabetes Admissions Over

Time. In the 17-years covering 2000 through 2016, hospital admissions for diabetes amounted to 401,441 hospitalizations and over 2 million hospital days.

Pennsylvania and National

Comparison.* In 2014 (the most recent US data available), the hospitalization rate for diabetes was higher for Pennsylvania at 18.7 per 10,000 residents than for the nation at 17.4 per 10,000 residents.

* Rates for Pennsylvania and the US include residents of all ages and were calculated using hospital admission data from PHC4 and AHRQ’s Healthcare Cost and Utilization Project, respectively, and US Census Bureau population estimates.

In 2016, there were 1,297 diabetes hospitalizations for patients less than 18 years of age—down from 1,364 in 2000.

People with diabetes are more likely to experience lower extremity ulcers and infections that may lead to amputation. Between 2000 and 2016, there were 39,168 Pennsylvania residents with diabetes who underwent a lower extremity amputation—an average of 2,304 per year. In 2016, the rate of amputation was 2.9 per 10,000 residents—the same as it was in 2000.

Not included in these figures are toe amputations or amputations that might have been the result of trauma. Persons less than 18 years of age were also excluded. Calculations were based on the Prevention Quality Indicator developed by AHRQ.

29%

Type 1 diabetes. About 29% of the diabetes hospitalizations in 2016 were for type 1 diabetes.

58%

Type 2 diabetes. About 58% of the diabetes hospitalizations in 2016 were for type 2 diabetes.

13%

Other diabetes. About 13% of the diabetes hospitalizations in 2016 were for other types of diabetes.

Type 1 diabetes develops in children and young adults who are unable to produce insulin, an important hormone for glucose (blood sugar) regulation. Type 2 diabetes occurs when the body does not use insulin properly (insulin resistance). Type 2 diabetes typically affects adults and is more common than type 1 diabetes, accounting for about 90 to 95 percent of all diagnosed cases of diabetes. Included in the "Other diabetes" category is diabetes caused by drugs (e.g., long-term steroid use), other diseases and genetic defects. Not included in this analysis is prediabetes, a condition of higher-than-normal levels of blood sugar that are not yet high enough for a diagnosis of type 2 diabetes.

About PHC4

Created by the PA General Assembly in 1986, the PA Health Care Cost Containment Council (PHC4) is an independent state agency charged with collecting, analyzing and reporting information that can be used to improve the quality and restrain the cost of health care in the state. Today, PHC4 is a recognized national leader in public health care reporting. More than 840,000 public reports on patient treatment results are downloaded from the PHC4 website each year, and nearly 100 organizations and individuals annually utilize PHC4's special requests process to access and use data. PHC4 is governed by a 25-member board of directors, representing business, labor, consumers, health care providers, insurers and state government.

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Hospitalizations for Diabetes by County, 2000 and 2016

	2000		2016	
	Total Number of Hospitalizations for Diabetes	Hospitalization Rate per 10,000 Residents	Total Number of Hospitalizations for Diabetes	Hospitalization Rate per 10,000 Residents
Statewide	21,528	17.5	24,283	19.0
Adams	80	8.7	110	10.8
Allegheny	2,671	20.9	2,525	20.6
Armstrong	88	12.2	108	16.2
Beaver	346	19.1	315	18.8
Bedford	58	11.6	57	11.8
Berks	538	14.4	721	17.4
Blair	189	14.6	195	15.6
Bradford	101	16.1	151	24.8
Bucks	747	12.5	1,014	16.2
Butler	220	12.6	293	15.7
Cambria	337	22.1	258	19.1
Cameron	NR	NR	13	27.8
Carbon	145	24.6	129	20.3
Centre	105	7.7	165	10.2
Chester	479	11.0	534	10.3
Clarion	79	18.9	49	12.7
Clearfield	170	20.4	124	15.4
Clinton	39	10.3	52	13.3
Columbia	98	15.3	148	22.3
Crawford	156	17.3	99	11.5
Cumberland	273	12.8	348	14.0
Dauphin	456	18.1	585	21.4
Delaware	951	17.2	1,094	19.4
Elk	59	16.8	81	26.6
Erie	416	14.8	491	17.8
Fayette	396	26.7	285	21.5
Forest	14	28.3	NR	NR
Franklin	182	14.0	223	14.5
Fulton	39	27.4	24	16.4
Greene	64	15.7	52	14.0
Huntingdon	50	11.0	58	12.7
Indiana	107	12.0	155	17.9

	2000		2016	
	Total Number of Hospitalizations for Diabetes	Hospitalization Rate per 10,000 Residents	Total Number of Hospitalizations for Diabetes	Hospitalization Rate per 10,000 Residents
Jefferson	94	20.5	56	12.7
Juniata	18	7.9	35	14.1
Lackawanna	385	18.1	386	18.3
Lancaster	589	12.5	724	13.4
Lawrence	198	20.9	164	18.8
Lebanon	144	12.0	209	15.1
Lehigh	416	13.3	603	16.6
Luzerne	629	19.7	623	19.7
Lycoming	123	10.3	167	14.5
McKean	83	18.1	50	11.9
Mercer	301	25.0	264	23.4
Mifflin	49	10.5	93	20.1
Monroe	188	13.5	334	20.1
Montgomery	907	12.1	1,128	13.7
Montour	23	12.6	25	13.6
Northampton	572	21.4	641	21.2
Northumberland	152	16.1	200	21.6
Perry	71	16.3	61	13.3
Philadelphia	4,363	28.8	5,220	33.3
Pike	18	3.9	58	10.4
Potter	23	12.7	12	7.1
Schuylkill	370	24.7	295	20.5
Snyder	49	13.1	56	13.8
Somerset	159	19.9	106	14.1
Sullivan	NR	NR	10	16.3
Susquehanna	41	9.7	63	15.4
Tioga	66	16.0	50	12.1
Union	40	9.6	52	11.4
Venango	94	16.4	108	20.5
Warren	44	10.0	81	20.2
Washington	352	17.3	366	17.6
Wayne	93	19.4	82	16.2
Westmoreland	691	18.7	716	20.1
Wyoming	62	22.1	89	32.3
York	453	11.8	693	15.6

NR: Not Reported. Fewer than 10 hospitalizations.

