



Hospital Admissions for Influenza and Associated Costs

This financial brief examines hospitalizations for influenza (the “flu”) among Pennsylvania residents, with specific focus on older residents and children—two segments of the population at high risk of developing influenza-related complications that can result in hospitalization. Included are residents who were admitted to a Pennsylvania general acute care hospital in fiscal year (FY) 2018 (July 1, 2017 through June 30, 2018). Costs were estimated using hospital payment data received from the Centers for Medicare and Medicaid Services and the Pennsylvania Department of Human Services.



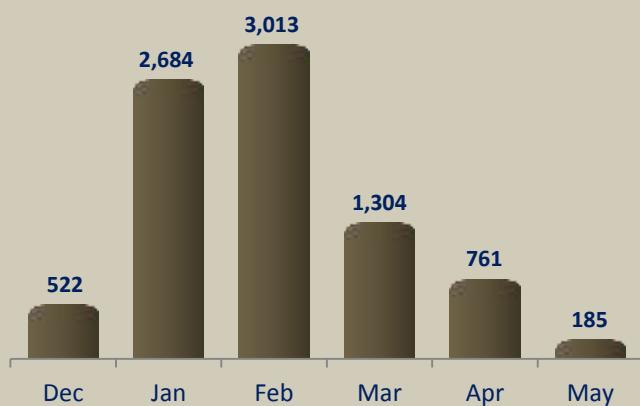
There were 8,647 hospital admissions for influenza among Pennsylvania residents of all ages in FY 2018—a 62% increase from FY 2017. There was substantial variation in the number of influenza hospital admissions in recent years—similar to national trends.¹

Number of Influenza Hospitalizations



Number of Influenza Hospitalizations by Month

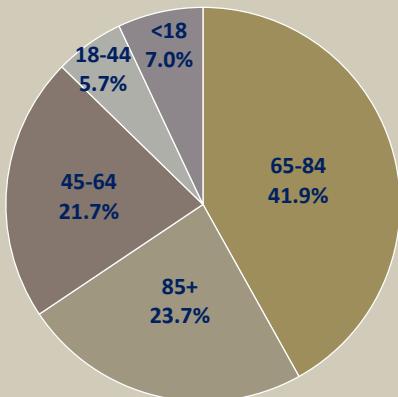
FY 2018



The majority of influenza hospitalizations in FY 2018 (8,469 cases or 98%) occurred during the 6-month period December 2017 to May 2018.

Percent of Influenza Hospitalizations by Age

FY 2018

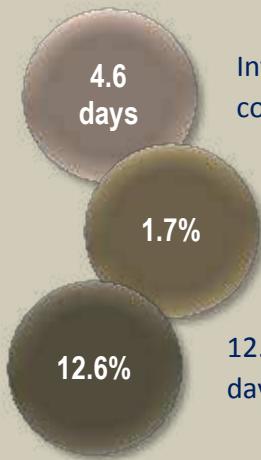


Most influenza hospitalizations were for patients aged 65 and older (5,671 cases or 65.6% of all cases).

¹Centers for Disease Control and Prevention. Website. www.cdc.gov/flu/about/burden/ Accessed February 28, 2019.

Influenza Patients Aged 65 and Older

People aged 65 and older are at high risk of developing influenza-related complications that can result in hospitalization.² On average, influenza patients aged 65 and older stayed in the hospital longer and had higher in-hospital mortality and readmission rates.



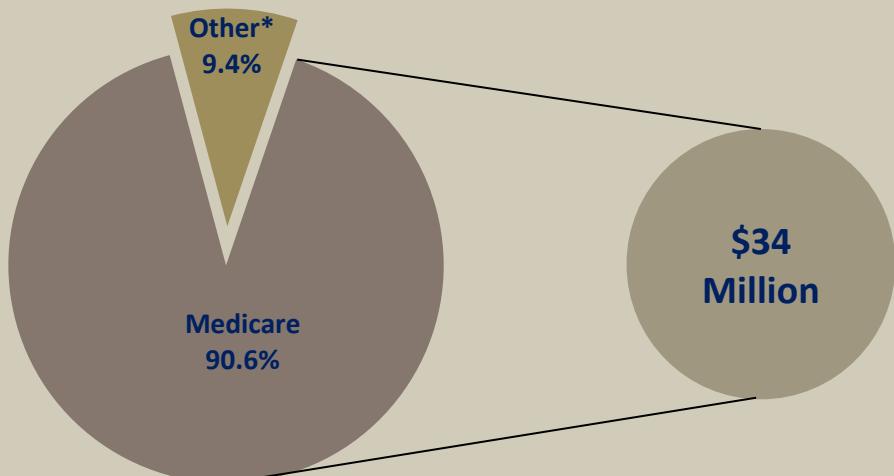
Influenza patients aged 65 and older stayed in the hospital an average of 4.6 days, compared to 3.6 days for younger patients.

1.7% of influenza patients aged 65 and older died in the hospital, compared to 0.4% of younger patients.

12.6% of influenza patients aged 65 and older were readmitted to the hospital within 30-days, compared to 10.4% of younger patients.

Medicare was the primary payer for 90.6% of influenza hospitalizations for patients aged 65 and older, amounting to an estimated \$34 million in hospital payments.

Influenza Patients Aged 65 & Older



*Other insurance or no insurance

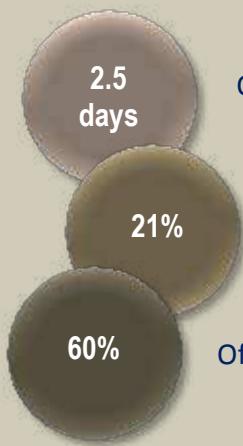
Calculated by applying the average Medicare fee-for-service payment for influenza patients aged 65 and older (FY 2017 data) to Medicare influenza patients aged 65 and older in FY 2018, and adjusting for case mix.

²Centers for Disease Control and Prevention. Website. www.cdc.gov/flu/about/disease/high_risk.htm Accessed February 28, 2019.

Influenza Patients Under Age 18

Children are also at high risk of developing influenza-related complications that can result in hospitalization, especially those under age 5 and those under age 18 with chronic health problems such as asthma or diabetes.²

In FY 2018, there were 604 Pennsylvania children under age 18 hospitalized for influenza, representing 7.0% of all influenza hospitalizations.

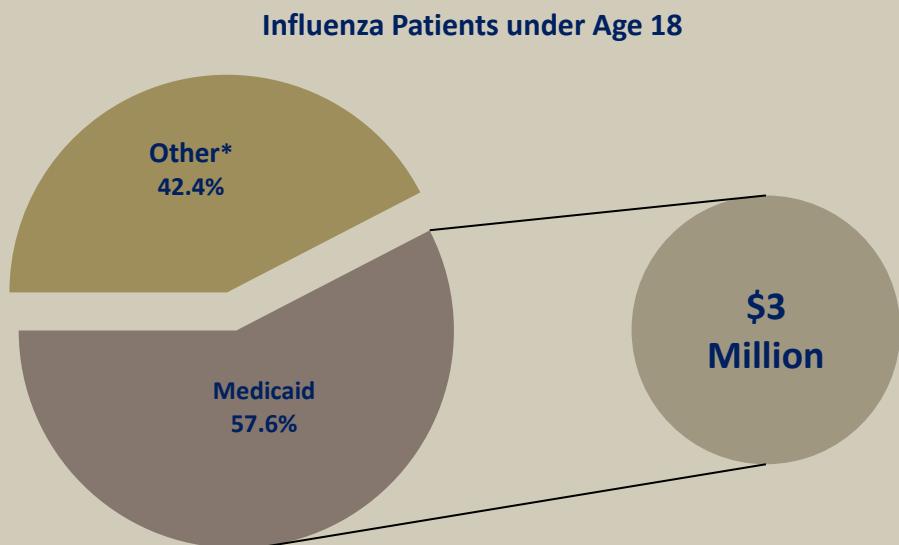


On average, influenza patients under age 18 stayed in the hospital 2.5 days.

About 21% of influenza patients under age 18 live in high poverty areas (areas where 30% or more of the population lives in poverty).

Of the 604 children hospitalized for influenza, 362 (60%) were under age 5.

Medicaid was the primary payer for 57.6% of influenza hospitalizations for patients under age 18, amounting to an estimated \$3 million in hospital payments.

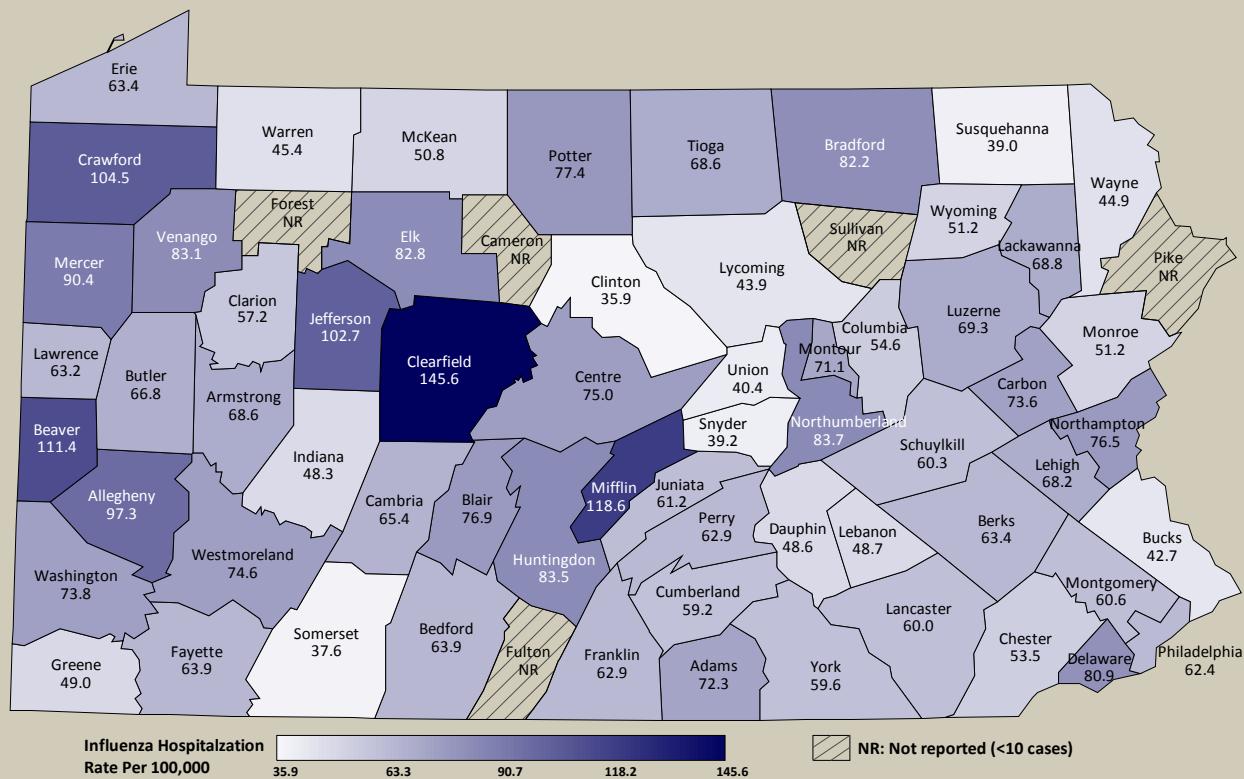


*Other insurance or no insurance

Calculated by applying the average Medicaid payment for influenza patients under age 18 (calendar year 2016 data) to Medicaid influenza patients under age 18 in FY 2018.

²Centers for Disease Control and Prevention. Website. www.cdc.gov/flu/about/disease/high_risk.htm Accessed February 28, 2019.

Influenza Hospitalization Rate per 100,000 County Residents, FY 2018



Statewide Rate: 67.5 Influenza Hospitalizations per 100,000 Residents

Note that higher rates for some counties might be dependent on larger numbers of residents with high risk characteristics (e.g., factors related to age). County rates were not adjusted for these population differences so that important effects of these patient characteristics were not masked by such adjustment.

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. 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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Table 1. Influenza Hospitalizations – Rate per 100,000 County Residents (All Ages), FY 2018

	Number of Influenza Hospitalizations	Hospitalization Rate per 100,000 Residents
Statewide	8,647	67.5
Adams	74	72.3
Allegheny	1,190	97.3
Armstrong	45	68.6
Beaver	185	111.4
Bedford	31	63.9
Berks	265	63.4
Blair	95	76.9
Bradford	50	82.2
Bucks	268	42.7
Butler	125	66.8
Cambria	87	65.4
Cameron	NR	NR
Carbon	47	73.6
Centre	122	75.0
Chester	278	53.5
Clarion	22	57.2
Clearfield	116	145.6
Clinton	14	35.9
Columbia	36	54.6
Crawford	90	104.5
Cumberland	148	59.2
Dauphin	134	48.6
Delaware	457	80.9
Elk	25	82.8
Erie	174	63.4
Fayette	84	63.9
Forest	NR	NR
Franklin	97	62.9
Fulton	NR	NR
Greene	18	49.0
Huntingdon	38	83.5
Indiana	41	48.3
Jefferson	45	102.7

NR: Not reported due to low volume.

	Number of Influenza Hospitalizations	Hospitalization Rate per 100,000 Residents
Juniata	15	61.2
Lackawanna	145	68.8
Lancaster	326	60.0
Lawrence	55	63.2
Lebanon	68	48.7
Lehigh	250	68.2
Luzerne	220	69.3
Lycoming	50	43.9
McKean	21	50.8
Mercer	101	90.4
Mifflin	55	118.6
Monroe	86	51.2
Montgomery	501	60.6
Montour	13	71.1
Northampton	232	76.5
Northumberland	77	83.7
Perry	29	62.9
Philadelphia	986	62.4
Pike	NR	NR
Potter	13	77.4
Schuylkill	86	60.3
Snyder	16	39.2
Somerset	28	37.6
Sullivan	NR	NR
Susquehanna	16	39.0
Tioga	28	68.6
Union	18	40.4
Venango	43	83.1
Warren	18	45.4
Washington	153	73.8
Wayne	23	44.9
Westmoreland	263	74.6
Wyoming	14	51.2
York	266	59.6

Table 2. Medicare Fee-for-Service Payments for County Residents Hospitalized for Influenza, FY 2017 Data

	Medicare Fee-for-Service Beneficiaries Only		
	Number of Hospitalizations	Average Payment	Total Payments
Statewide	2,075	\$6,422	\$13,325,319
Adams	22	\$4,706	\$103,543
Allegheny	190	\$6,727	\$1,278,141
Armstrong	11	\$5,808	\$63,890
Beaver	26	\$6,482	\$168,525
Bedford	NR	NR	NR
Berks	92	\$7,346	\$675,794
Blair	16	\$8,917	\$142,664
Bradford	17	\$5,308	\$90,229
Bucks	77	\$5,343	\$411,410
Butler	16	\$4,035	\$64,559
Cambria	13	\$6,695	\$87,033
Cameron	NR	NR	NR
Carbon	24	\$6,842	\$164,202
Centre	16	\$4,902	\$78,424
Chester	98	\$6,632	\$649,903
Clarion	12	\$5,712	\$68,545
Clearfield	13	\$6,081	\$79,057
Clinton	NR	NR	NR
Columbia	NR	NR	NR
Crawford	13	\$6,233	\$81,026
Cumberland	33	\$5,588	\$184,403
Dauphin	24	\$7,604	\$182,484
Delaware	124	\$7,269	\$901,376
Elk	NR	NR	NR
Erie	35	\$6,694	\$234,285
Fayette	12	\$5,406	\$64,872
Forest	NR	NR	NR
Franklin	33	\$6,010	\$198,317
Fulton	NR	NR	NR
Greene	NR	NR	NR
Huntingdon	11	\$5,481	\$60,287
Indiana	NR	NR	NR
Jefferson	NR	NR	NR

NR: Not reported due to low volume.

	Medicare Fee-for-Service Beneficiaries Only		
	Number of Hospitalizations	Average Payment	Total Payments
Juniata	NR	NR	NR
Lackawanna	34	\$4,795	\$163,047
Lancaster	110	\$5,864	\$644,989
Lawrence	20	\$5,988	\$119,764
Lebanon	NR	NR	NR
Lehigh	82	\$6,118	\$501,698
Luzerne	48	\$5,942	\$285,222
Lycoming	NR	NR	NR
McKean	NR	NR	NR
Mercer	18	\$4,954	\$89,175
Mifflin	17	\$6,491	\$110,345
Monroe	48	\$5,222	\$250,648
Montgomery	162	\$5,887	\$953,717
Montour	NR	NR	NR
Northampton	100	\$5,651	\$565,109
Northumberland	14	\$6,449	\$90,289
Perry	NR	NR	NR
Philadelphia	190	\$9,806	\$1,863,095
Pike	NR	NR	NR
Potter	NR	NR	NR
Schuylkill	29	\$7,315	\$212,144
Snyder	NR	NR	NR
Somerset	13	\$5,073	\$65,955
Sullivan	NR	NR	NR
Susquehanna	NR	NR	NR
Tioga	NR	NR	NR
Union	NR	NR	NR
Venango	23	\$4,708	\$108,291
Warren	NR	NR	NR
Washington	35	\$4,690	\$164,161
Wayne	NR	NR	NR
Westmoreland	40	\$5,033	\$201,323
Wyoming	NR	NR	NR
York	62	\$5,656	\$350,685

Other costs associated with influenza include physician services and visits to the emergency department. Data from the Centers for Medicare and Medicaid Services shows that payments for Medicare fee-for-service enrollees (about 59% of Medicare enrollees), amounted to an estimated **\$1.4 million** for physician services and **\$1.1 million** for emergency department visits (based on FY 2017 data, July 1, 2016-June 30, 2017).