PA Health Care Cost Containment Council

PHC4

Research Briefs

Pennsylvania's "Super-Utilizers" of Hospital Care

"Super-utilizer" has been used to describe patients who have repeated inpatient hospital stays or who make frequent trips to hospital emergency rooms—often across different hospitals or health systems. The result is high health care costs that might have been prevented through early intervention and collaborative care. For this analysis, super-utilizers were identified as patients with five or more admissions to a Pennsylvania general acute care hospital. This brief looks at trends in hospital admissions across several federal fiscal years (FFY) of data.[1]
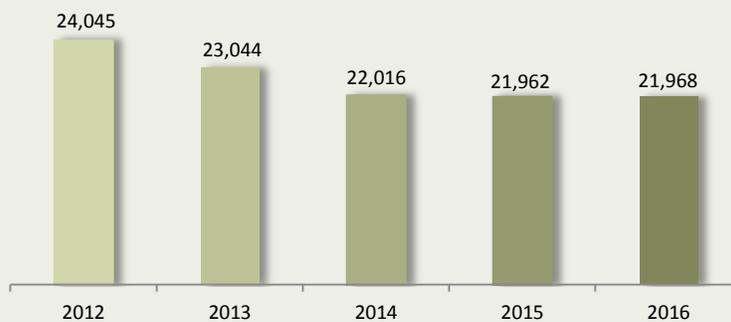
While relatively small in number, super-utilizers consume a larger proportion of health care resources. In 2016, super-utilizers represented:

- **3% of hospitalized patients (21,968 individual patients)**
- **10% of hospital payments (estimated $1.25 billion in payments)[2]**
- **12% of hospital admissions (141,808 admissions)**
- **15% of hospital days (844,806 days)**

Of the 21,968 super-utilizers:
- 69% had 5-6 admissions
- 19% had 7-8 admissions
- 12% had 9 or more admissions

The number of super-utilizers dropped between 2012 and 2016:

Year	Number
2012	24,045
2013	23,044
2014	22,016
2015	21,962
2016	21,968

Population-based data from 2016 show higher rates of super-utilizers among black and lower income residents:
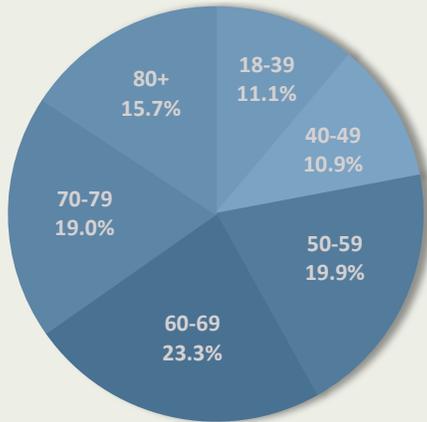
- **Statewide, there were 21.7 super-utilizers per 10,000 Pennsylvania residents.**
- **For black residents (Hispanic and non-Hispanic), the rate was 39.3 per 10,000.**
- **For lower income residents of all races, the rate was 38.8 per 10,000.**

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[1] *Each Federal Fiscal Year (FFY) spans the period from October 1 through September 30. Data is for Pennsylvania residents (age 18 and older) and does not include maternity or rehabilitation cases.*
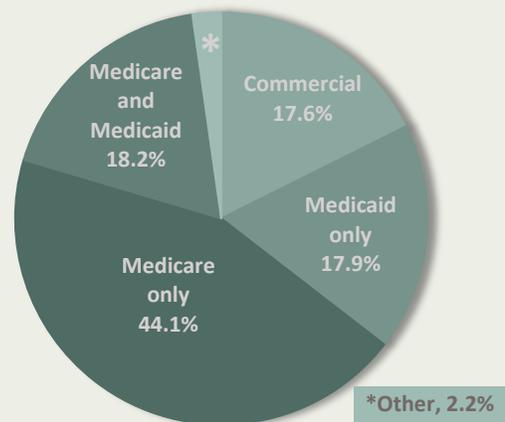[2] *Using the most recent data available, the estimated payment figure was derived by applying the average Medicaid payment (2013 data) to Medicaid cases and the average Medicare fee-for-service payment (2015 data) to Medicare, other insurers and uninsured patients.*

2016

Super-Utilizers by Age

- 18-39: 11.1%
- 40-49: 10.9%
- 50-59: 19.9%
- 60-69: 23.3%
- 70-79: 19.0%
- 80+: 15.7%

Super-Utilizers by Payer

- Commercial: 17.6%
- Medicaid only: 17.9%
- Medicare only: 44.1%
- Medicare and Medicaid: 18.2%
- *Other, 2.2%

Statewide, the top reasons for hospital admission among super-utilizers in 2016 were sepsis, heart failure and mental health disorders. The top reasons by payer were:

Medicare only:
- Heart failure
- Sepsis
- Mental health disorders

Medicare and Medicaid (patients covered by both):
- Sepsis
- Heart failure
- Chronic obstructive pulmonary disease (COPD)

Medicaid only:
- Mental health disorders
- Diabetes
- Alcohol/substance abuse disorders

Commercial:
- Mental health disorders
- Maintenance chemotherapy
- Sepsis

Of the 21,968 individual patients who were super-utilizers in 2016:

- 26% were also super-utilizers in at least one of the previous four years (2012-2015).
- 2% were super-utilizers in each year from 2012 to 2016.

In addition to five or more inpatient hospitalizations, super-utilizers also experience frequent emergency department visits. Of the super-utilizers covered by Medicare fee-for-service: [3]

- 70% had at least one emergency department visit.
- 49% had five or more emergency department visits.

Emergency department visits for Medicare fee-for-service super-utilizers added an extra $28 million.

[3] *Based on 2015 Medicare fee-for-service data (the only emergency department data available for this analysis). These emergency department visits represent those that did not result in an inpatient admission; that is, they were in addition to the five or more inpatient hospitalizations experienced by Medicare fee-for-service super-utilizers in 2015.*

Number of Super-Utilizers per 10,000 Residents, 2016

Erie
21.2

Crawford
19.4

Warren
24.0

McKean
16.0

Potter
21.4

Tioga
14.4

Bradford
29.7

Susquehanna
23.8

Wayne
16.7

Forest
18.7

Venango
30.3

Elk
24.5

Cameron
33.1

Sullivan
25.3

Wyoming
21.6

Lackawanna
20.9

Pike
6.0

Mercer
26.9

Clarion
23.1

Jefferson
25.1

Clinton
14.9

Lycoming
17.1

Columbia
21.7

Luzerne
19.0

Monroe
20.1

Lawrence
28.6

Butler
16.9

Clearfield
26.1

Centre
13.7

Union
14.1

Montour
18.2

Carbon
31.8

Armstrong
24.0

Northumberland
27.4

Northampton
28.2

Beaver
21.7

Indiana
29.1

Snyder
16.6

Schuylkill
26.5

Lehigh
21.7

Allegheny
23.8

Cambria
28.1

Blair
24.1

Mifflin
29.3

Juniata
17.1

Washington
27.0

Westmoreland
27.7

Perry
13.9

Dauphin
16.8

Lebanon
12.3

Berks
18.4

Bucks
19.9

Huntingdon
15.2

Cumberland
12.9

Montgomery
16.0

Greene
19.5

Fayette
26.3

Somerset
23.4

Bedford
17.2

Fulton
23.3

Franklin
17.6

Adams
13.9

York
16.6

Lancaster
11.0

Chester
14.1

Delaware
21.0

Philadelphia
33.4

Rate per 10,000

| 6.0 | 12.8 | 19.7 | 26.5 | 33.4 |

Statewide, there were 21.7 super-utilizers per 10,000 Pennsylvania residents. Higher rates for some counties might reflect larger numbers of residents with high risk characteristics such as age of 75 years or older (rate of 55.0), black (Hispanic and non-Hispanic) residents (rate of 39.3), and residents living in lower income areas (rate of 38.8). 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. 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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Top Reasons for Admission among Super-Utilizers by PA County (2012 and 2016)

Reasons are categorized according to patients' primary reasons for admission and are based on a modification of the Agency for Healthcare Research and Quality's Clinical Classifications Software (CCS) using International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM) diagnosis codes for 2012 and 2016 (federal fiscal years October 1 through September 30), respectively. The top three categories are displayed for each county and are sorted by the number of admissions. More than three categories are shown when ties (displayed alphabetically) occur.

		2012			2016	
	Rate per 10,000 Residents	Top Reasons for Hospital Admission Among Super-Utilizers	Number of Admissions	Rate per 10,000 Residents	Top Reasons for Hospital Admission Among Super-Utilizers	Number of Admissions
Adams	14.2	Heart failure	45	13.9	Sepsis	85
		Sepsis	41		Heart failure	54
		Abnormal heartbeat	34		Abnormal heartbeat	43
Allegheny	26.6	Mental health disorders	1,091	23.8	Heart failure	949
		Heart failure	1,030		Alcohol/substance abuse disorders	833
		Alcohol/substance abuse disorders	933		Mental health disorders	832
Armstrong	29.7	Mental health disorders	87	24.0	Sepsis	61
		Sepsis	63		Mental health disorders	51
		Heart failure	49		Pneumonia	38
Beaver	21.7	Mental health disorders	155	21.7	Mental health disorders	241
		Heart failure	143		Sepsis	178
		Sepsis	96		Heart failure	137
Bedford	13.3	Heart failure	28	17.2	Complication of device, implant or graft	37
		Sepsis	25		Sepsis	30
		Abnormal heartbeat	17		Mental health disorders	27
Berks	19.1	Heart failure	352	18.4	Sepsis	369
		Sepsis	306		Heart failure	257
		Chronic obstructive pulmonary disease (COPD)	193		Mental health disorders	186
Blair	22.4	Mental health disorders	146	24.1	Mental health disorders	142
		Heart failure	106		Chronic obstructive pulmonary disease (COPD)	102
		Sepsis	76		Heart failure	81
Bradford	34.1	Mental health disorders	76	29.7	Heart failure	70
		Abnormal heartbeat	65		Sepsis	52
		Heart failure	61		Diabetes	51
Bucks	21.9	Heart failure	371	19.9	Sepsis	580
		Abnormal heartbeat	296		Heart failure	346
		Complication of device, implant or graft	271		Complication of device, implant or graft	255
Butler	22.0	Mental health disorders	165	16.9	Mental health disorders	97
		Heart failure	108		Heart failure	94
		Chronic obstructive pulmonary disease (COPD)	102		Sepsis	71

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	2012			2016		
	Rate per 10,000 Residents	Top Reasons for Hospital Admission Among Super-Utilizers	Number of Admissions	Rate per 10,000 Residents	Top Reasons for Hospital Admission Among Super-Utilizers	Number of Admissions
Cambria	30.4	Mental health disorders	246	28.1	Mental health disorders	198
		Heart failure	132		Sepsis	195
		Sepsis	108		Heart failure	134
Cameron	29.5	Sepsis	7	33.1	Heart failure	12
		Diabetes	5		Sepsis	10
		Not reported due to volume limitations (NR)	NR		Acute kidney failure	8
Carbon	32.7	Mental health disorders	132	31.8	Mental health disorders	138
		Heart failure	104		Heart failure	75
		Chronic obstructive pulmonary disease (COPD)	61		Chronic obstructive pulmonary disease (COPD)	68
Centre	11.1	Sepsis	65	13.7	Mental health disorders	100
		Mental health disorders	49		Sepsis	94
		Heart failure	42		Heart failure	61
Chester	16.6	Mental health disorders	275	14.1	Sepsis	283
		Heart failure	242		Heart failure	245
		Sepsis	163		Mental health disorders	222
Clarion	22.9	Heart failure	34	23.1	Heart failure	46
		Sepsis	34		Sepsis	41
		Abnormal heartbeat	21		Acute kidney failure	23
Clearfield	17.4	Mental health disorders	52	26.1	Mental health disorders	106
		Sepsis	49		Heart failure	84
		Heart failure	45		Sepsis	79
Clinton	11.0	Heart failure	19	14.9	Sepsis	33
		Sepsis	11		Heart failure	26
		Chronic obstructive pulmonary disease (COPD)	9		Acute kidney failure	14
					Chronic obstructive pulmonary disease (COPD)	14
					Pneumonia	14
Columbia	26.6	Heart failure	87	21.7	Mental health disorders	72
		Mental health disorders	76		Sepsis	72
		Sepsis	63		Heart failure	45
Crawford	18.2	Mental health disorders	61	19.4	Sepsis	73
		Chronic obstructive pulmonary disease (COPD)	49		Heart failure	67
		Sepsis	44		Mental health disorders	54
Cumberland	17.1	Sepsis	165	12.9	Sepsis	197
		Heart failure	128		Heart failure	101
		Chronic obstructive pulmonary disease (COPD)	100		Mental health disorders	91
Dauphin	18.0	Heart failure	174	16.8	Sepsis	294
		Sepsis	159		Heart failure	173
		Diabetes	133		Diabetes	121
Delaware	28.8	Heart failure	546	21.0	Mental health disorders	481
		Mental health disorders	498		Sepsis	435
		Chronic obstructive pulmonary disease (COPD)	424		Heart failure	323

	2012			2016		
	Rate per 10,000 Residents	Top Reasons for Hospital Admission Among Super-Utilizers	Number of Admissions	Rate per 10,000 Residents	Top Reasons for Hospital Admission Among Super-Utilizers	Number of Admissions
Elk	28.9	Sepsis	41	24.5	Mental health disorders	46
		Heart failure	33		Sepsis	32
		Mental health disorders	30		Diabetes	26
Erie	17.7	Mental health disorders	477	21.2	Mental health disorders	428
		Alcohol/substance abuse disorders	165		Sepsis	210
		Sepsis	115		Heart failure	198
Fayette	32.7	Mental health disorders	248	26.3	Mental health disorders	218
		Heart failure	173		Sepsis	161
		Chronic obstructive pulmonary disease (COPD)	114		Heart failure	130
Forest	34.4	Chronic obstructive pulmonary disease (COPD)	17	18.7	Urinary tract infection	8
		Mental health disorders	15		Chronic obstructive pulmonary disease (COPD)	6
		Sepsis	11		Sepsis	6
Franklin	18.3	Heart failure	114	17.6	Sepsis	181
		Sepsis	96		Complication of device, implant or graft	65
		Mental health disorders	91		Mental health disorders	63
Fulton	19.9	Chronic obstructive pulmonary disease (COPD)	23	23.3	Sepsis	13
		Heart failure	13		Diabetes	9
		Maintenance chemotherapy	13		Pneumonia	8
Greene	24.2	Mental health disorders	59	19.5	Sepsis	40
		Heart failure	41		Heart failure	32
		Chronic obstructive pulmonary disease (COPD)	37		Mental health disorders	30
Huntingdon	18.9	Heart failure	34	15.2	Chronic obstructive pulmonary disease (COPD)	27
		Pneumonia	25		Sepsis	22
		Complication of surgery or medical care	21		Mental health disorders	21
Indiana	31.8	Heart failure	111	29.1	Sepsis	114
		Mental health disorders	106		Mental health disorders	97
		Sepsis	80		Heart failure	69
Jefferson	31.1	Mental health disorders	66	25.1	Mental health disorders	44
		Heart failure	52		Heart failure	39
		Pneumonia	47		Sepsis	37
Juniata	15.0	Diabetes	17	17.1	Sepsis	20
		Heart failure	16		Fluid and electrolyte disorders	12
		Pneumonia	16		Respiratory failure	11
Lackawanna	25.2	Heart failure	198	20.9	Sepsis	220
		Chronic obstructive pulmonary disease (COPD)	141		Heart failure	130
		Mental health disorders	141		Mental health disorders	118
Lancaster	12.9	Heart failure	234	11.0	Mental health disorders	254
		Mental health disorders	219		Sepsis	186
		Diabetes	178		Heart failure	152
Lawrence	38.8	Mental health disorders	159	28.6	Sepsis	121
		Heart failure	158		Heart failure	100
		Sepsis	111		Mental health disorders	82

	2012			2016		
	Rate per 10,000 Residents	Top Reasons for Hospital Admission Among Super-Utilizers	Number of Admissions	Rate per 10,000 Residents	Top Reasons for Hospital Admission Among Super-Utilizers	Number of Admissions
Lebanon	13.0	Diabetes	57	12.3	Sepsis	89
		Heart failure	48		Heart failure	62
		Complication of device, implant or graft	39		Diabetes	39
Lehigh	22.7	Mental health disorders	473	21.7	Mental health disorders	364
		Heart failure	279		Heart failure	283
		Sepsis	155		Sepsis	222
Luzerne	20.3	Sepsis	219	19.0	Heart failure	222
		Chronic obstructive pulmonary disease (COPD)	212		Sepsis	203
		Heart failure	202		Chronic obstructive pulmonary disease (COPD)	168
Lycoming	14.6	Sepsis	57	17.1	Sepsis	95
		Heart failure	55		Complication of device, implant or graft	42
		Diabetes	50		Respiratory failure	37
McKean	19.6	Mental health disorders	69	16.0	Mental health disorders	48
		Sepsis	44		Chronic obstructive pulmonary disease (COPD)	32
		Heart failure	37		Sepsis	27
Mercer	26.9	Heart failure	101	26.9	Sepsis	120
		Mental health disorders	88		Heart failure	90
		Sepsis	82		Mental health disorders	84
Mifflin	27.3	Mental health disorders	71	29.3	Mental health disorders	90
		Heart failure	48		Heart failure	38
		Chronic obstructive pulmonary disease (COPD)	32		Sepsis	36
Monroe	16.5	Chronic obstructive pulmonary disease (COPD)	127	20.1	Heart failure	127
		Heart failure	102		Sepsis	109
		Diabetes	98		Mental health disorders	84
Montgomery	19.4	Heart failure	482	16.0	Sepsis	600
		Complication of device, implant or graft	405		Heart failure	409
		Sepsis	365		Mental health disorders	324
Montour	21.2	Sepsis	18	18.2	Mental health disorders	23
		Mental health disorders	17		Sepsis	21
		Heart failure	16		Heart failure	12
Northampton	31.0	Heart failure	298	28.2	Sepsis	358
		Mental health disorders	291		Mental health disorders	325
		Sepsis	270		Heart failure	235
Northumberland	21.4	Heart failure	84	27.4	Mental health disorders	125
		Mental health disorders	77		Heart failure	94
		Sepsis	54		Sepsis	90
Perry	17.1	Heart failure	31	13.9	Sepsis	28
		Complication of device, implant or graft	26		Heart failure	27
		Sepsis	22		Maintenance chemotherapy	20
Philadelphia	39.7	Heart failure	2,069	33.4	Heart failure	1,829
		Coronary (heart) artery disease and chest pain	1,565		Sepsis	1,781
		Diabetes	1,467		Mental health disorders	1,517

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	2012			2016		
	Rate per 10,000 Residents	Top Reasons for Hospital Admission Among Super-Utilizers	Number of Admissions	Rate per 10,000 Residents	Top Reasons for Hospital Admission Among Super-Utilizers	Number of Admissions
Pike	6.7	Heart failure	11	6.0	Sepsis	16
		Mental health disorders	11		Mental health disorders	13
		Acute kidney failure	10		Heart failure	12
		Complication of surgery or medical care	10			
		Pneumonia	10			
Potter	11.6	Chronic obstructive pulmonary disease (COPD)	10	21.4	Heart failure	25
		Heart failure	10		Chronic obstructive pulmonary disease (COPD)	17
		Sepsis	10		Respiratory failure	14
Schuylkill	24.4	Heart failure	167	26.5	Sepsis	166
		Mental health disorders	153		Heart failure	136
		Sepsis	90		Mental health disorders	121
Snyder	12.7	Sepsis	26	16.6	Sepsis	43
		Intestinal obstruction	16		Respiratory failure	24
		Other liver diseases	16		Mental health disorders	20
Somerset	25.8	Mental health disorders	86	23.4	Sepsis	99
		Sepsis	81		Mental health disorders	64
		Heart failure	62		Complication of surgery or medical care	46
Sullivan	30.9	Mental health disorders	17	25.3	Heart failure	13
		Heart failure	8		Sepsis	10
		Sepsis	8		Abnormal heartbeat	6
					Mental health disorders	6
					Respiratory failure	6
Susquehanna	20.2	Chronic obstructive pulmonary disease (COPD)	32	23.8	Heart failure	43
		Heart failure	22		Chronic obstructive pulmonary disease (COPD)	34
		Pneumonia	20		Pneumonia	32
Tioga	14.8	Mental health disorders	50	14.4	Chronic obstructive pulmonary disease (COPD)	44
		Heart failure	28		Mental health disorders	16
		Pneumonia	22		Heart failure	15
					Intestinal inflammation	15
Union	8.3	Mental health disorders	17	14.1	Sepsis	37
		Sepsis	17		Maintenance chemotherapy	17
		Acute kidney failure	8		Diabetes	14
Venango	31.5	Chronic obstructive pulmonary disease (COPD)	54	30.3	Heart failure	64
		Heart failure	54		Chronic obstructive pulmonary disease (COPD)	48
		Sepsis	42		Mental health disorders	48
Warren	14.8	Mental health disorders	33	24.0	Mental health disorders	57
		Sepsis	27		Heart failure	41
		Heart failure	25		Respiratory failure	35
Washington	29.1	Mental health disorders	276	27.0	Mental health disorders	231
		Heart failure	227		Heart failure	208
		Chronic obstructive pulmonary disease (COPD)	223		Sepsis	161

	2012			2016		
	Rate per 10,000 Residents	Top Reasons for Hospital Admission Among Super-Utilizers	Number of Admissions	Rate per 10,000 Residents	Top Reasons for Hospital Admission Among Super-Utilizers	Number of Admissions
Wayne	17.3	Heart failure	37	16.7	Sepsis	32
		Coronary (heart) artery disease and chest pain	22		Heart failure	29
		Diabetes	21		Chronic obstructive pulmonary disease (COPD)	22
Westmoreland	31.3	Heart failure	448	27.7	Mental health disorders	387
		Chronic obstructive pulmonary disease (COPD)	341		Sepsis	371
		Sepsis	339		Heart failure	366
Wyoming	25.5	Chronic obstructive pulmonary disease (COPD)	36	21.6	Diabetes	46
		Sepsis	32		Sepsis	30
		Heart failure	21		Chronic obstructive pulmonary disease (COPD)	29
York	13.6	Mental health disorders	208	16.6	Sepsis	319
		Heart failure	204		Mental health disorders	254
		Sepsis	172		Heart failure	228

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