

Severe Maternal Morbidity in Pennsylvania

PA Health Care Cost Containment Council



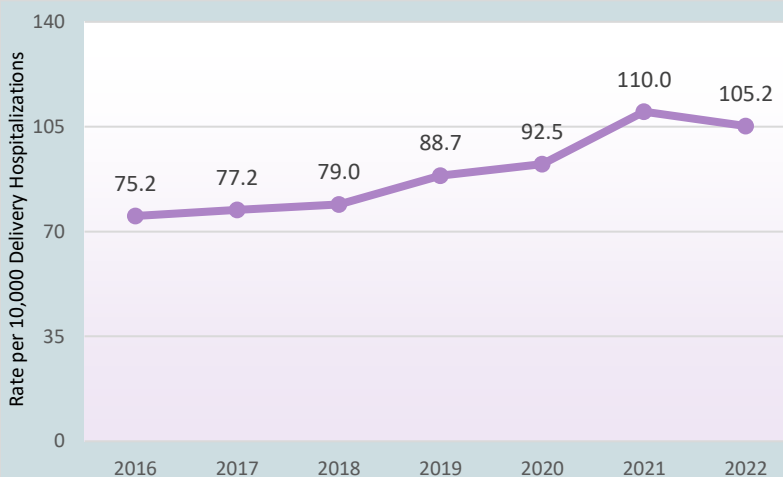
This research brief examines severe maternal morbidity (SMM) among patients hospitalized in Pennsylvania for a delivery. Severe maternal morbidity includes unexpected outcomes of labor and delivery that result in significant short- or long-term consequences to a woman’s health.

Included are Pennsylvania female residents and non-residents ages 12-55 years who were admitted for a delivery stay to a Pennsylvania acute care hospital in calendar years 2016 through 2022, with an emphasis on data from the two-year period 2021-2022.

For this research brief, SMM was defined using the Alliance for Innovation on Maternal Health’s definitions of delivery hospitalizations and severe maternal morbidity. The results in this report were not adjusted for age or other patient characteristics to avoid masking important sociodemographic differences.

Severe Maternal Morbidity Rate in Pennsylvania, 2016 to 2022

The statewide SMM rate per 10,000 delivery hospitalizations increased from 75.2 in 2016 to 105.2 in 2022, which is a 40% increase.



Delivery Hospitalizations with Severe Maternal Morbidity in 2021-2022

- Severe maternal morbidities occurred in **2,625** of the **243,911** delivery hospitalizations during the two-year period 2021-2022. This is a rate of **107.6** per 10,000 delivery hospitalizations.
- Patients with an SMM in their delivery hospitalization stayed in the hospital for an average of **6.1 days**, which is significantly longer than the average of 2.7 days for other deliveries.
- Delivery hospitalizations that included an SMM had an average charge of **\$101,335**, which is significantly higher than the average of \$27,925 for other deliveries.
- 11 of the 12** in-hospital deaths of the mother during a hospital delivery also had an SMM.

Severe Maternal Morbidities by Type of Condition, 2021-2022

SMM Type	Number of Cases ¹	Percent of All SMM Cases (n=2,625)
Acute renal failure	857	32.6%
Disseminated intravascular coagulation	594	22.6%
Adult respiratory distress syndrome	360	13.7%
Hysterectomy	329	12.5%
Shock	247	9.4%
Sepsis	244	9.3%
Pulmonary edema/ acute heart failure	196	7.5%
Eclampsia	165	6.3%
Puerperal cerebrovascular disorders	149	5.7%
Ventilation	104	4.0%
Air and thrombotic embolism	101	3.8%
Sickle cell disease with crisis	43	1.6%
Cardiac arrest/ventricular fibrillation	25	1.0%
Other ²	88	3.4%

In the two-year period 2021-2022, the most common types of SMM were acute renal failure and the disseminated intravascular coagulation category, which includes conditions involving abnormal blood clotting and bleeding.

¹ Because patients can experience more than one type of SMM during the same hospital stay, the sum of the categories does not equal the total number of SMM hospitalizations (n=2,625).

² Includes other types of cardiac, obstetric, or medical complications or conditions that are potentially life-threatening.

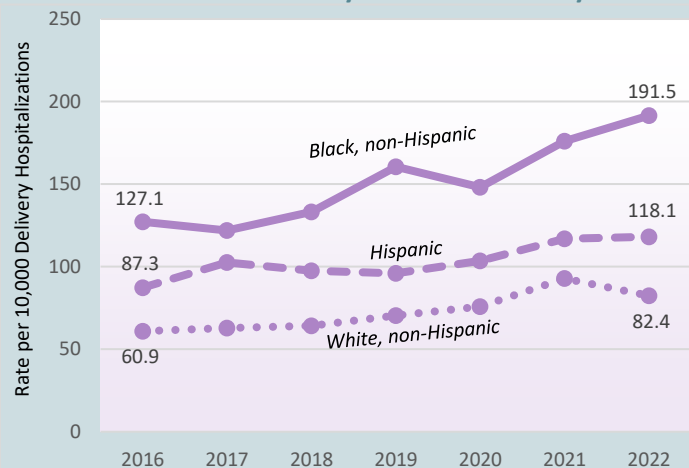
Transfusions are not included as an indicator of SMM in this analysis.

Trends in Severe Maternal Morbidity by Patient Characteristics, 2016 to 2022

From 2016 to 2022, SMM rates were consistently highest for Black, non-Hispanic patients, while SMM rates were consistently lowest for White, non-Hispanic patients.

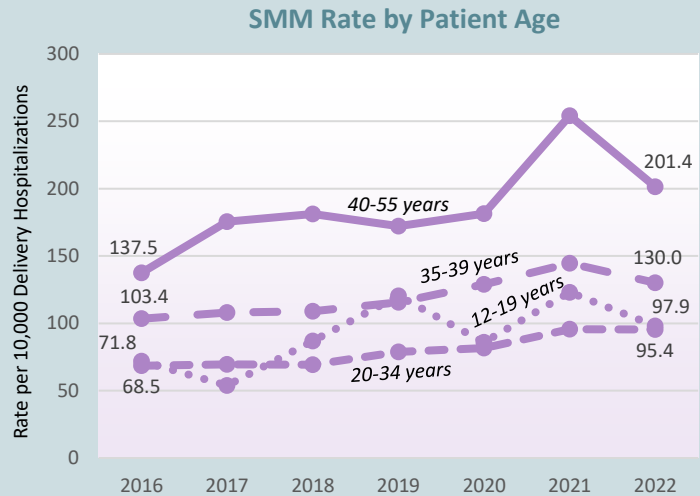
The increase in SMM rate during this time was largest for Black, non-Hispanic patients: from 127.1 in 2016 to 191.5 in 2022, a 51% increase.

SMM Rate by Race and Ethnicity

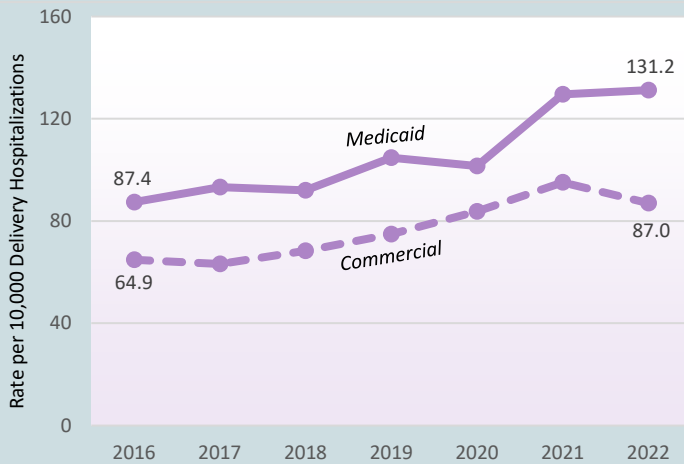


From 2016 to 2022, SMM rates were consistently highest for patients ages 40-55 years.

Patients in this age category (40-55 years) also showed the largest increase in SMM rate during this time: from 137.5 in 2016 to 201.4 in 2022, a 46% increase.



SMM Rate by Payer

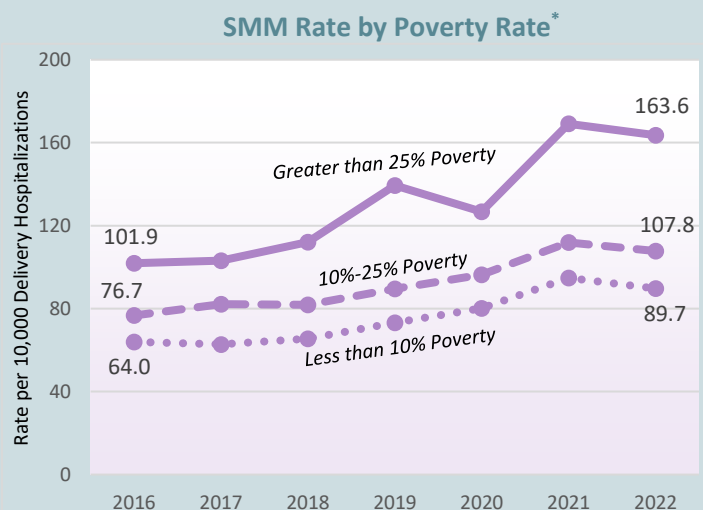


From 2016 to 2022, SMM rates were consistently higher for patients with Medicaid as the primary anticipated payer compared to patients with commercial insurance as the primary anticipated payer.

The increase in SMM rate during this time was larger in patients with Medicaid as the primary anticipated payer: from 87.4 in 2016 to 131.2 in 2022, a 50% increase.

From 2016 to 2022, SMM rates were consistently highest for patients from zip codes with poverty rates greater than 25%, while SMM rates were consistently lowest for patients from zip codes with poverty rates less than 10%.

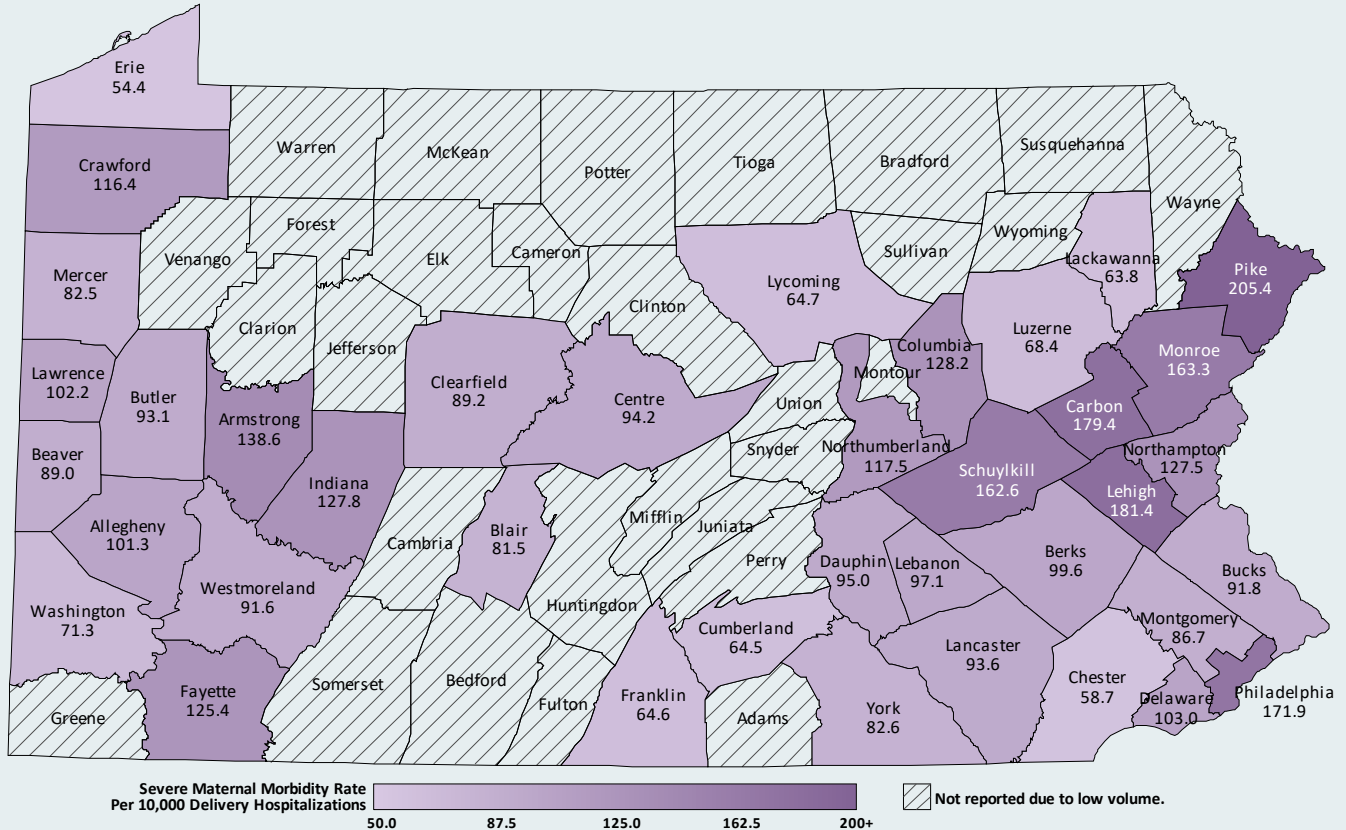
The increase in SMM rate during this time was largest for patients from zip codes with poverty rates greater than 25%: from 101.9 in 2016 to 163.6 in 2022, a 61% increase.



* Poverty rates are based on US Census Bureau estimates at the patient zip code level.

Rate of Severe Maternal Morbidity per 10,000 Delivery Hospitalizations by County of Residence, 2021-2022

Rates are based on Pennsylvania residents only (237,590 delivery stays or 97.4% of all delivery hospitalizations). There were 2,514 SMM cases among delivery stays for Pennsylvania residents for a rate of 105.8 per 10,000.



Note that higher rates for some counties might reflect larger numbers of delivery hospitalizations with certain at-risk characteristics (e.g., factors related to income, race, ethnicity, and age). County rates were not adjusted for those 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 board of directors representing business, labor, consumers, health care providers, insurers, health economists and state government.

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	Delivery Hospitalizations	Severe Maternal Morbidity	
		Cases	Rate
All PA Residents	237,590	2,514	105.8
Adams	1,524	NR	NR
Allegheny	22,208	225	101.3
Armstrong	938	13	138.6
Beaver	2,697	24	89.0
Bedford	754	NR	NR
Berks	8,537	85	99.6
Blair	2,208	18	81.5
Bradford	926	NR	NR
Bucks	8,825	81	91.8
Butler	3,115	29	93.1
Cambria	2,271	NR	NR
Cameron	51	NR	NR
Carbon	1,059	19	179.4
Centre	2,018	19	94.2
Chester	9,706	57	58.7
Clarion	604	NR	NR
Clearfield	1,233	11	89.2
Clinton	631	NR	NR
Columbia	1,092	14	128.2
Crawford	1,461	17	116.4
Cumberland	4,806	31	64.5
Dauphin	6,104	58	95.0
Delaware	12,626	130	103.0
Elk	499	NR	NR
Erie	5,330	29	54.4
Fayette	1,276	16	125.4
Forest	52	NR	NR
Franklin	2,478	16	64.6
Fulton	207	NR	NR
Greene	208	NR	NR
Huntingdon	745	NR	NR
Indiana	1,252	16	127.8
Jefferson	786	NR	NR

	Delivery Hospitalizations	Severe Maternal Morbidity	
		Cases	Rate
Juniata	404	NR	NR
Lackawanna	3,918	25	63.8
Lancaster	11,214	105	93.6
Lawrence	1,468	15	102.2
Lebanon	2,883	28	97.1
Lehigh	7,112	129	181.4
Luzerne	5,990	41	68.4
Lycoming	2,163	14	64.7
McKean	258	NR	NR
Mercer	1,697	14	82.5
Mifflin	752	NR	NR
Monroe	2,510	41	163.3
Montgomery	16,496	143	86.7
Montour	374	NR	NR
Northampton	5,648	72	127.5
Northumberland	1,532	18	117.5
Perry	808	NR	NR
Philadelphia	37,064	637	171.9
Pike	633	13	205.4
Potter	212	NR	NR
Schuylkill	2,275	37	162.6
Snyder	617	NR	NR
Somerset	1,043	NR	NR
Sullivan	74	NR	NR
Susquehanna	565	NR	NR
Tioga	451	NR	NR
Union	584	NR	NR
Venango	803	NR	NR
Warren	506	NR	NR
Washington	3,785	27	71.3
Wayne	678	NR	NR
Westmoreland	5,457	50	91.6
Wyoming	426	NR	NR
York	8,963	74	82.6

NR: Not reported due to low volume.