Pennsylvania Maternal Mortality Review Committee

December 16, 2020

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AGENDA

1) Introduction to maternal mortality and the Maternal Mortality Review Committee (MMRC) process
2) Pregnancy Associated Deaths in PA from 2013-2018
3) Using the Opioid Dashboard to understand Maternal OUD in your county

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1) Introduction to maternal mortality and the MMRC process

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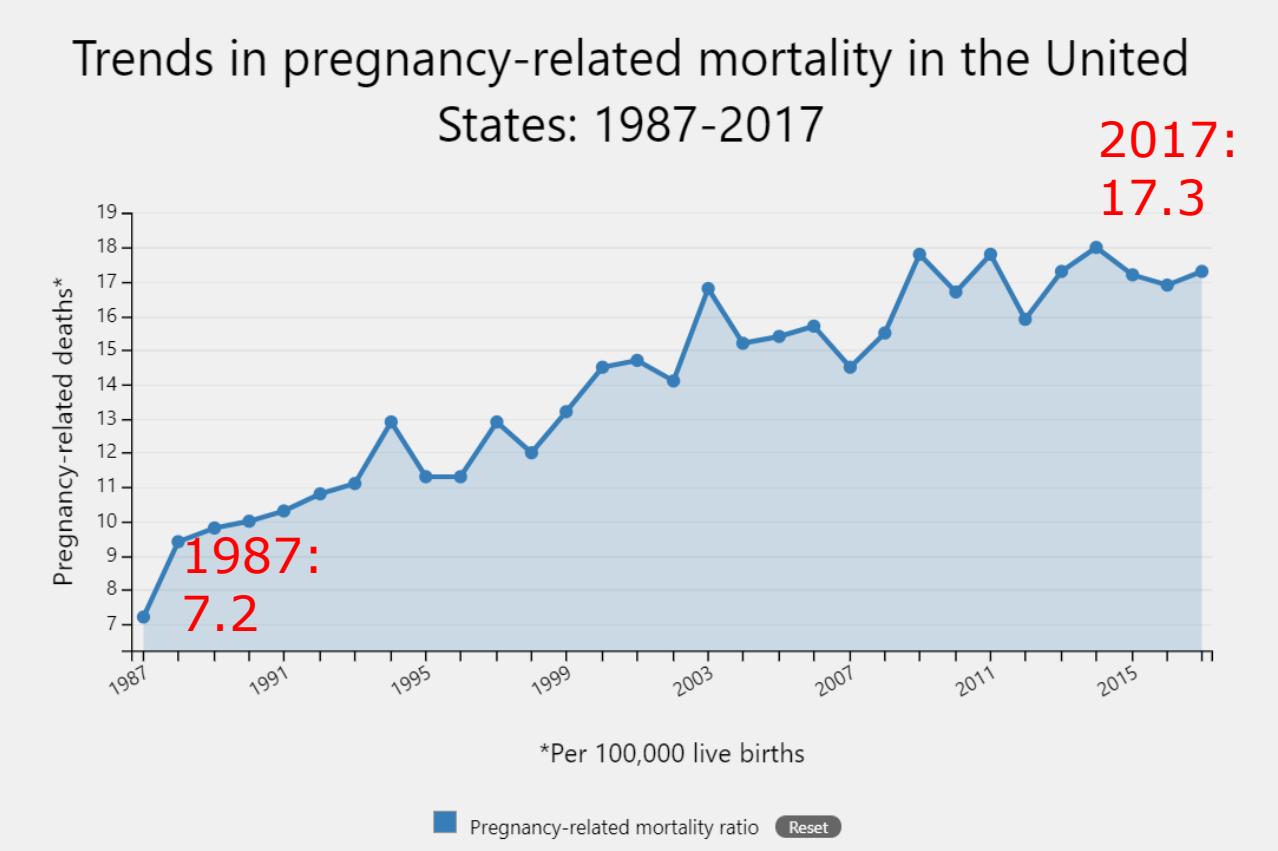
Maternal Mortality

Maternal mortality has been increasing in the U.S.



Pregnancy –related mortality is defined as the death of a woman while pregnant or within one year of the end of pregnancy regardless of the outcome, duration, or site of the pregnancy — from any cause related to or aggravated by the pregnancy or its management.

Source: Pregnancy Mortality Surveillance System, CDC

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PA MMRC Summary

- Act 24 of 2018 created the multidisciplinary Pennsylvania Maternal Mortality Review Committee (MMRC).
  - The Philadelphia MMRC reviews deaths of Philadelphia residents, and began this work in 2010.

- MMRC Purpose: review maternal deaths up to one year after pregnancy to identify why women are dying and make recommendations to prevent maternal deaths.

- Gather records on each death, create case summaries, and committee reviews deidentified case summaries to make determinations.

- MMRC works to understand medical and non-medical contributors to deaths and prioritize interventions that effectively reduce maternal deaths.

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PA MMRC

The **mission** of the Pennsylvania Maternal Mortality Review Committee is to:

- Systematically review all maternal deaths;
- Identify root causes of these deaths; and
- Develop strategies to reduce preventable morbidity, mortality and racial disparities related to pregnancy in Pennsylvania.

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Act 24 Authority for Records

In conducting a review of a maternal death case, the committee may review the following:

- Medical examiner and coroner's reports or postmortem examination records
- Death certificates and birth certificates
- Traffic fatality reports
- Dept. of Human Services records
- Information made available by firefighters or emergency services personnel
- Reports and records made available by the court to the extent permitted by law or court rule
- **Medical records from hospitals and other health care providers**
- Emergency medical services records
- Reports to animal control
- Any other records necessary to conduct the review
- Law enforcement records and interviews with law enforcement officials as long as the release of the records will not jeopardize an ongoing criminal investigation or proceeding

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Documentation in Medical Records

While providing prenatal, delivery, and postpartum care, please document in records:

- Whether a screen for mental health/depression, intimate partner violence, or substance use disorder were performed and the outcome;
- Challenges faced by the mother, especially social determinants (transportation, financial, etc.), language barriers, and personal circumstances, including who was at the visit or who they have for support;
- Referrals to other providers, and if a hospitalization where the patient receives prenatal and/or postpartum care; and
- Referrals to social services programs, such as home visiting programs, WIC, etc.

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Definitions

Pregnancy Associated Deaths:
the death of a woman while pregnant or up to one year from the end of a pregnancy regardless of the outcome, duration or site of the pregnancy, including all accidental or incidental causes of maternal death

Pregnancy-Related Death
The death of a woman during pregnancy or within one year of pregnancy due to a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy

Pregnancy-Associated but NOT Related Death
The death of a woman during pregnancy or within one year of pregnancy from a cause that is not related to pregnancy

Unable to Determine

Source: St. Pierre A; ZaharatosJ; Goodman D; Callaghan WM. Jan 2018. Challenges and opportunities in identifying, reviewing, and preventing maternal deaths .Obstetrics and Gynecology. 131; 138-142.

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Identifying Maternal Deaths

- Pregnancy associated deaths are identified in women 10- 60 years old via:
  - Matching of birth and fetal death certificates the year prior with women's death certificates;
  - Pregnancy checkbox;
  - PHC4 discharge data; and
  - LexisNexis notifications from CDC on maternal deaths identified in the media

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Record Requests and Case Abstraction

- PA MMRC is currently reviewing 2018 deaths and continues to request records.
- 20 percent of PA cases are Philadelphia residents and are reviewed by the Philadelphia MMRC.
- It can take months for all records to come in for a case.
- Abstraction of the records can take about 10-15 hours per case.

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Case Review

- On average, a review of one death in committee meeting takes 30-45 minutes.
- The PA MMRC meets quarterly to review cases, along with additional meetings as needed.
- The PA MMRC uses CDC's MMRIA decision form to review cases during meetings.

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MMRIA Decision Form

6 Key Questions Answered in Case Review

1. Was the death pregnancy-related?
2. What was the underlying cause of death?
3. Was the death preventable?
4. What factors contributed to the death?
5. What are recommendations that address the contributing factors?
6. What are the expected impacts of the recommendations?

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Mock Panel

www.reviewtoaction.org

WELCOME

Have you ever wondered what happens during a maternal mortality review committee meeting? Maybe you are in the early phases of assembling a committee in your local jurisdiction, and you aren't quite sure who should be involved or how to describe the process to potential committee members. Or maybe you have been invited to serve on a review committee, but you don't know what to expect when you arrive.

This interactive website was designed to offer people a peek inside a review committee

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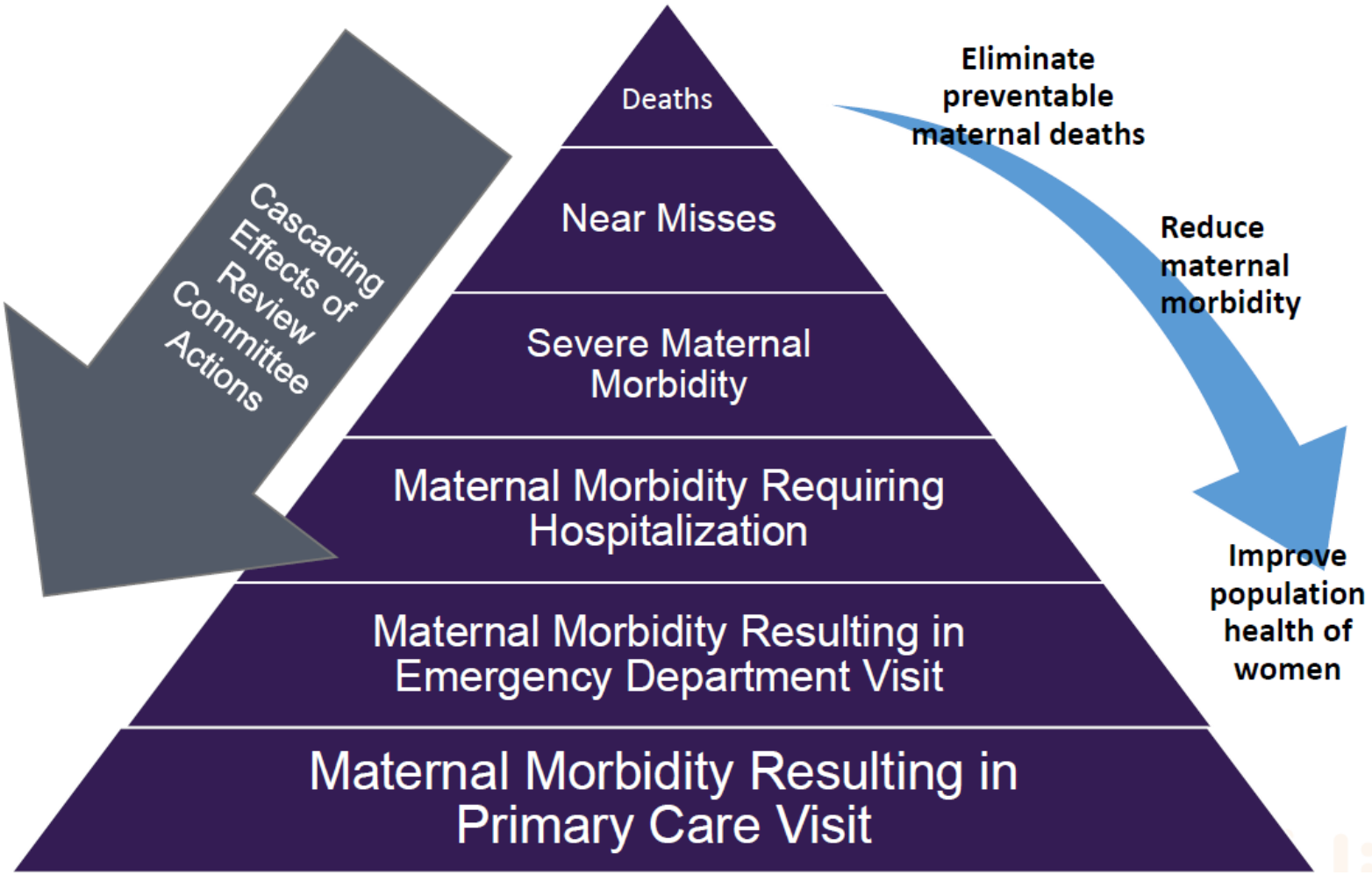
Cascading Effects of MMRC



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Source: Power of MMRCs, www.reviewtoaction.org

Funding MMRC

- The department was awarded funds by CDC through the ERASE MM program to fund partnership with Philadelphia MMRC, additional personnel, and racial bias training.

- The federal Title V Maternal and Child Health Services Block Grant Funding for PA provides for one nurse abstractor to review records and create case summaries.

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2) Pregnancy Associated Deaths in PA from 2013-2018

A report with the following data to be published by the department by the end of December 2020

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Pregnancy Assoc. Deaths Report

Acknowledgements

- Gina Wiser, MPH, Epidemiologist for MMRC
- Faryal Durrani, MD, Secretary of Health Office Intern and MPH Student
- David Oliver, Vital Records Statistician

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Pregnancy Assoc. Deaths Report

Purpose of the report:

To learn more about pregnancy associated deaths in years prior to 2018, to inform prevention efforts, and to fulfill requests from stakeholders for more data.

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Pregnancy Assoc. Deaths Report

Pregnancy associated deaths:

the death of a woman while pregnant or up to one year from the end of a pregnancy regardless of the outcome, duration or site of the pregnancy, including all accidental or incidental causes of maternal death.

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Pregnancy Assoc. Deaths Report

Identification of Pregnancy Associated Deaths 2013-2018: **547**

- Matching Birth Certificate or Fetal Death Certificate:**375 (69%)**

- No matching certificate, but
  - Checkbox marked as pregnant or pregnant within the last 365 days: **161 (29%)**
  - Checkbox marked unknown, but examination of death certificate found data indicating pregnancy: **11 (2%)**

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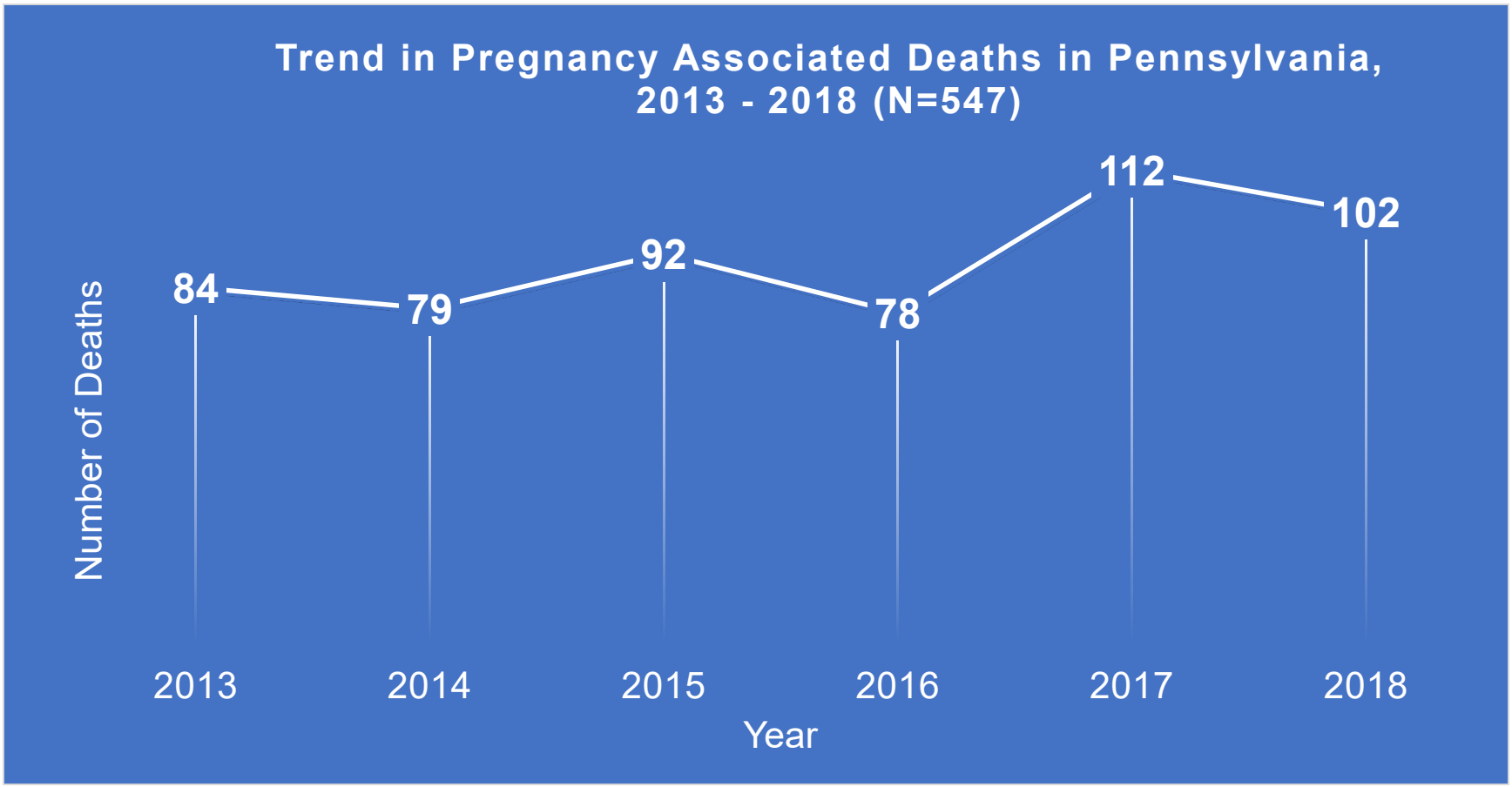
Pregnancy Assoc. Deaths Report



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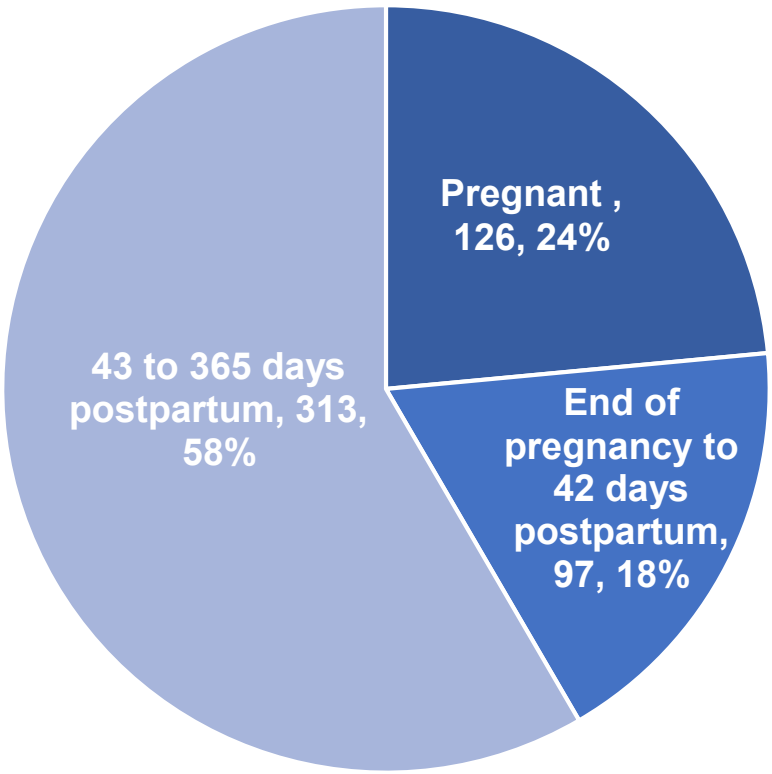
Pregnancy Assoc. Deaths Report

Distribution of Pregnancy Associated Deaths by **Pregnancy Status at Time of Death**, Pennsylvania, 2013-2018 (Number, Percent)



Pregnancy Status determined using the follow methods:

1) Difference between date of death from date on birth certificate or fetal death certificate.
   - When date difference equaled 0, the pregnancy checkbox was used to establish timing.

2) If no birth certificate or fetal death certificate was identified, then pregnancy checkbox was used for timing.

Note: 11 deaths were excluded because they had no matching birth certificate or fetal death certificate, and the checkbox was marked unknown.

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Connection to PQC Driver Diagram

- **Driver**: Expand Postpartum Care
- **Interventions:**
  - Document postpartum care plans with warning signs, responses, and support teams
  - Provide post-partum care within three weeks from delivery with ongoing care as needed (based on ACOG's fourth trimester guidelines, including telehealth, home visits, and other innovative patient-centered approach)
  - Ensure that each woman has a source of ongoing primary care and a pediatrician
  - Use evaluation and management strategies for issues facing the mother-infant dyad
  - Increase access to immediate postpartum contraception LARC and other options.

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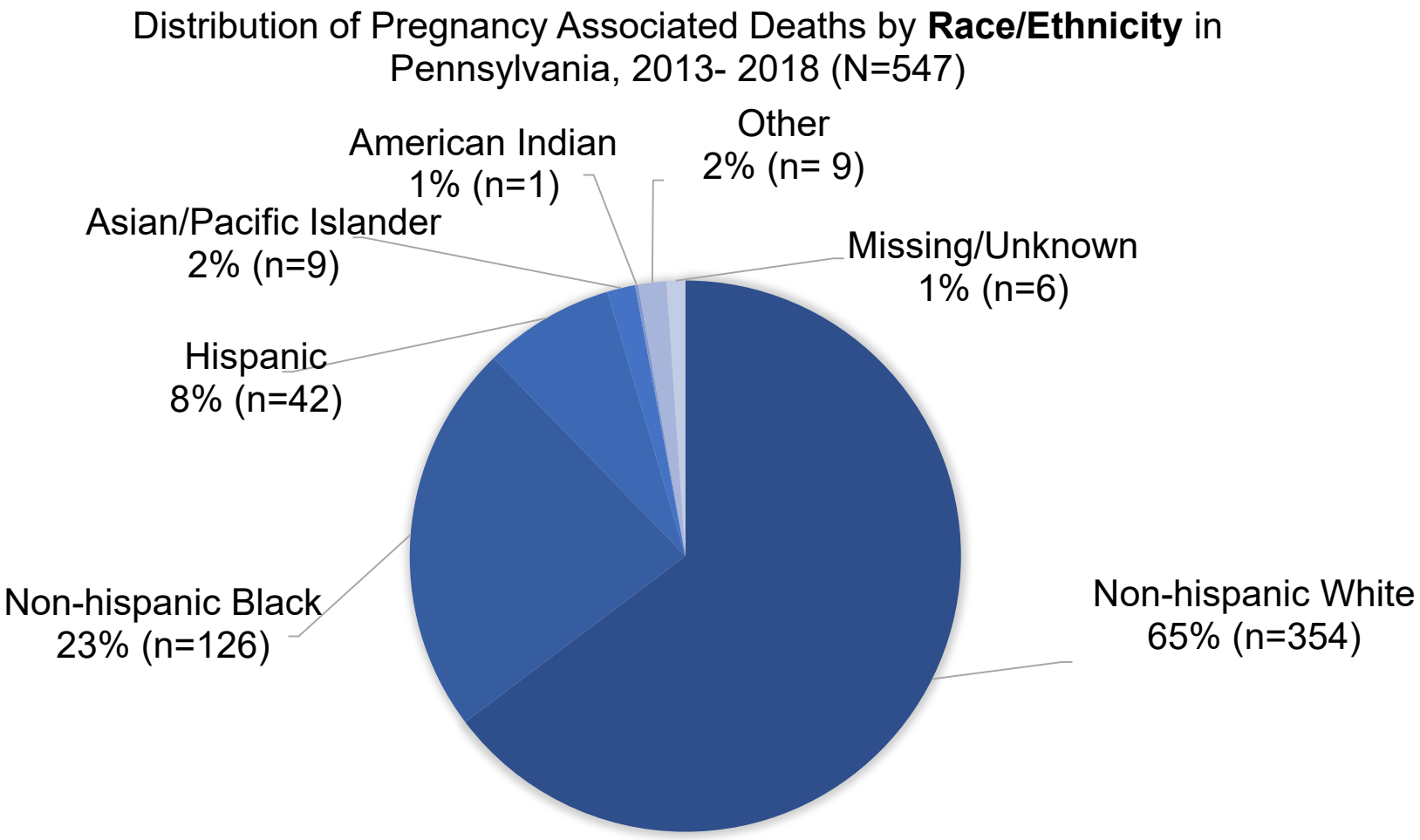
https://www.whamglobal.org/images/PA_PQC_Maternal_Mortality_Driver_Diagram.pdf

Pregnancy Assoc. Deaths Report



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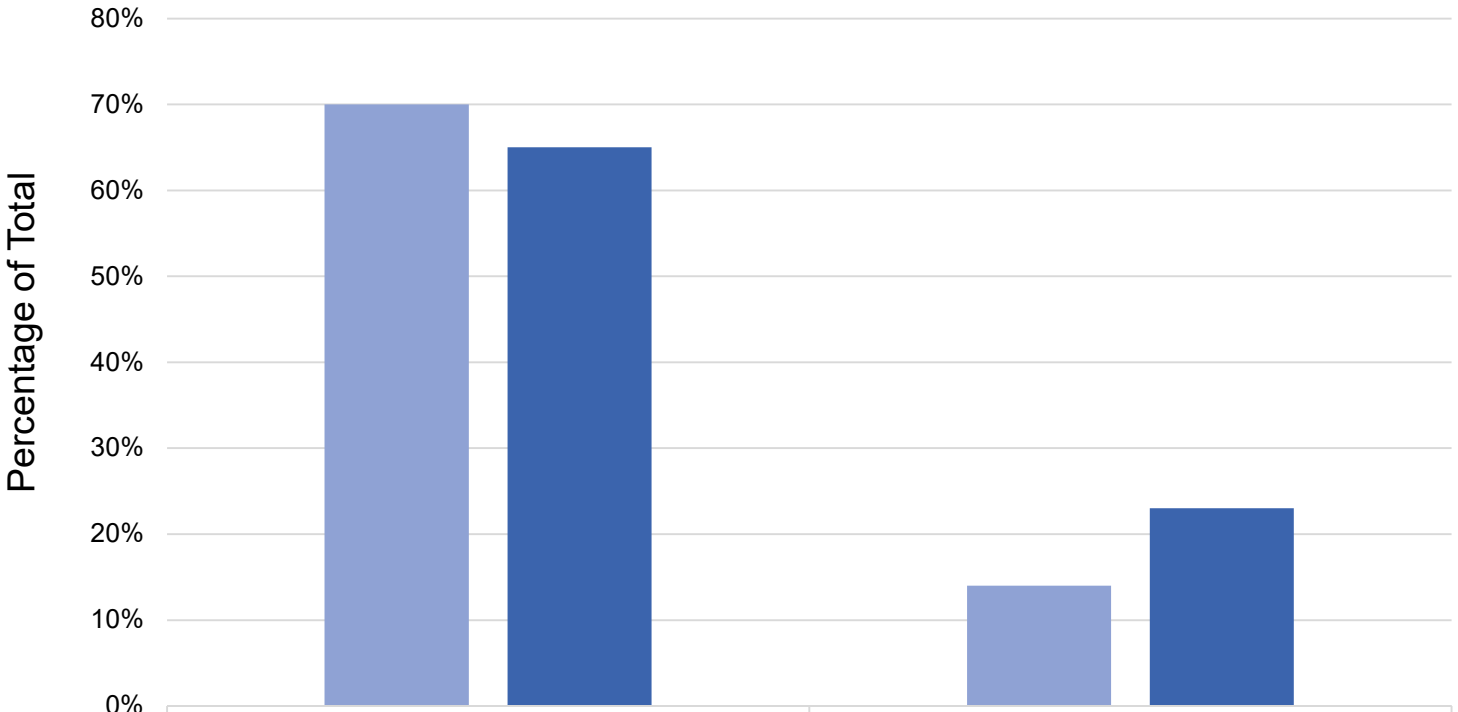
Pregnancy Assoc. Deaths Report

Distribution of **Pregnancy Associated Deaths and Births** among Non-Hispanic Whites and Non-Hispanic Blacks, Pennsylvania, 2013 - 2018



	Non-Hispanic White	Non-Hispanic Blacks
Births	70%	14%
Pregnancy associated deaths	65%	23%

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Connection to PQC Driver Diagram

- **Driver**: Recognition of and Response to Racial and Ethnic Disparities
- **Interventions:**
  - Implement training, assessment, and re-assessment of organizations' systemic racism and individuals' implicit bias
  - Build a culture of equity, including systems for reporting, response, and learning, and applying resources towards identified problems
  - Engage diverse patient, family, and community advocates on quality and safety leadership teams
  - Train staff and provide ongoing coaching on shared decision making and motivational interviewing methods

https://www.whamglobal.org/images/PA_PQC_Maternal_Mortality_Driver_Diagram.pdf

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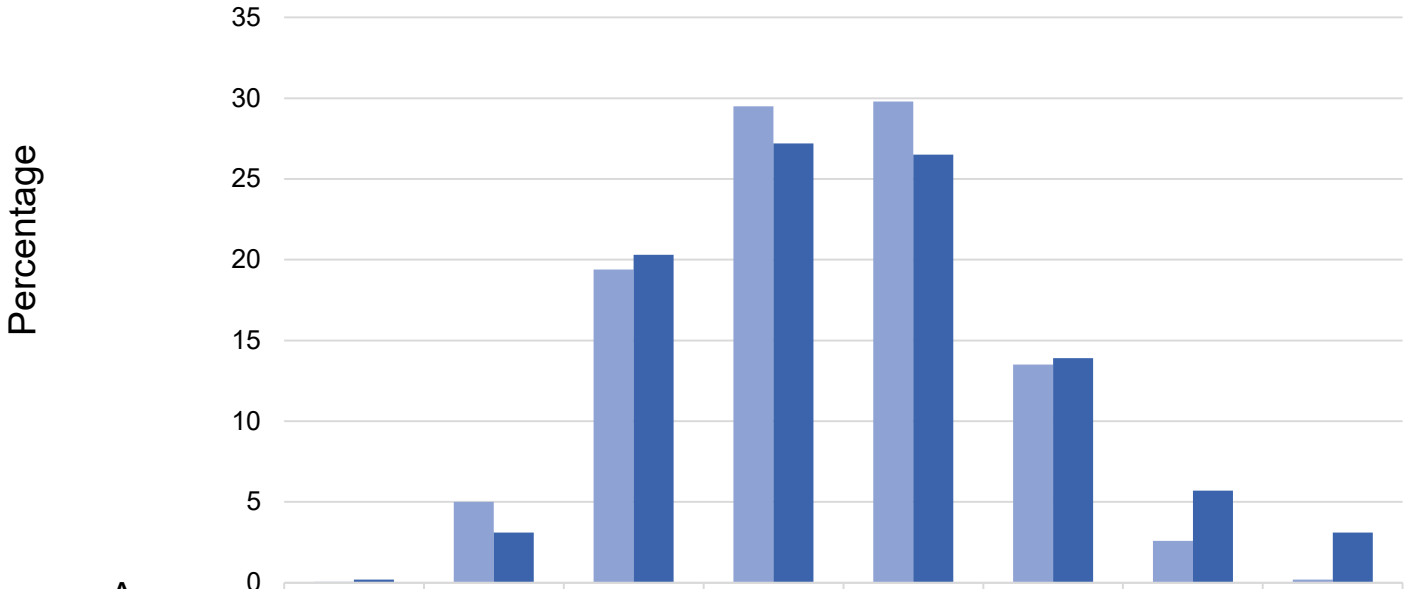
Pregnancy Assoc. Deaths Report

Distribution of Pregnancy Associated Deaths and Births by Maternal **Age**, Pennsylvania, 2013 - 2018 (N=547).



Age	<15	15-19	20-24	25-29	30-34	35-39	40-44	45>
Percentage of Births	0.05	5	19.4	29.5	29.8	13.5	2.6	0.2
Percentage of Pregnancy Associated Deaths	0.2	3.1	20.3	27.2	26.5	13.9	5.7	3.1

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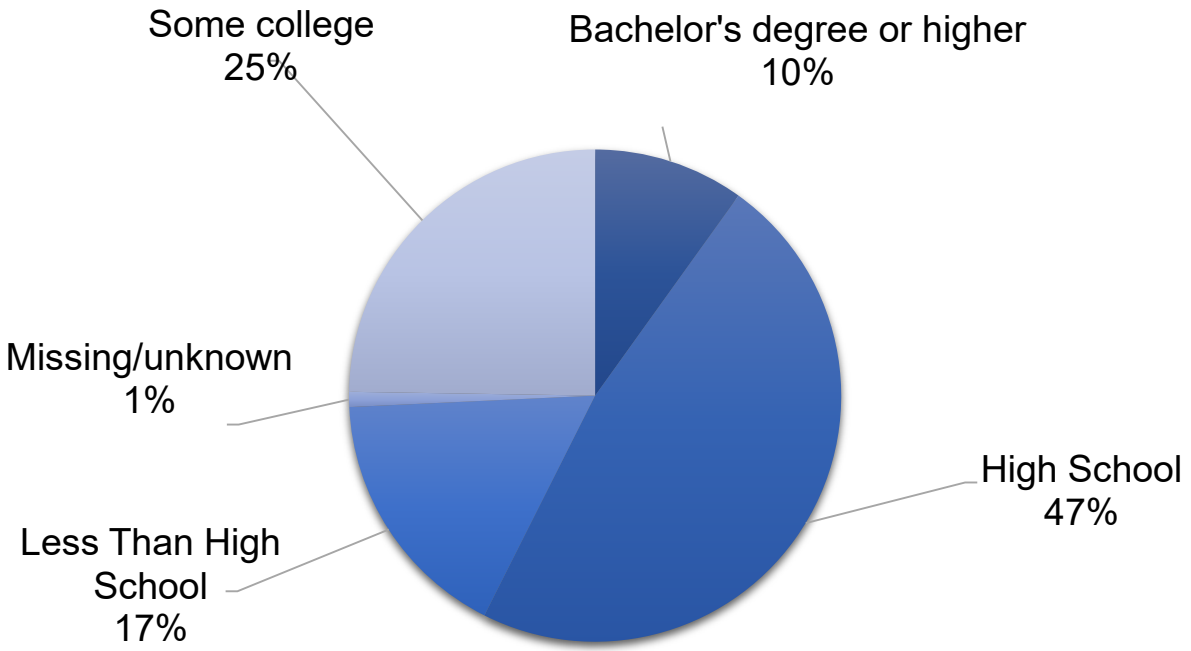
Pregnancy Assoc. Deaths Report

Distribution of Pregnancy Associated Deaths by Maternal **Education**, Pennsylvania, 2013 - 2018 (N=547).



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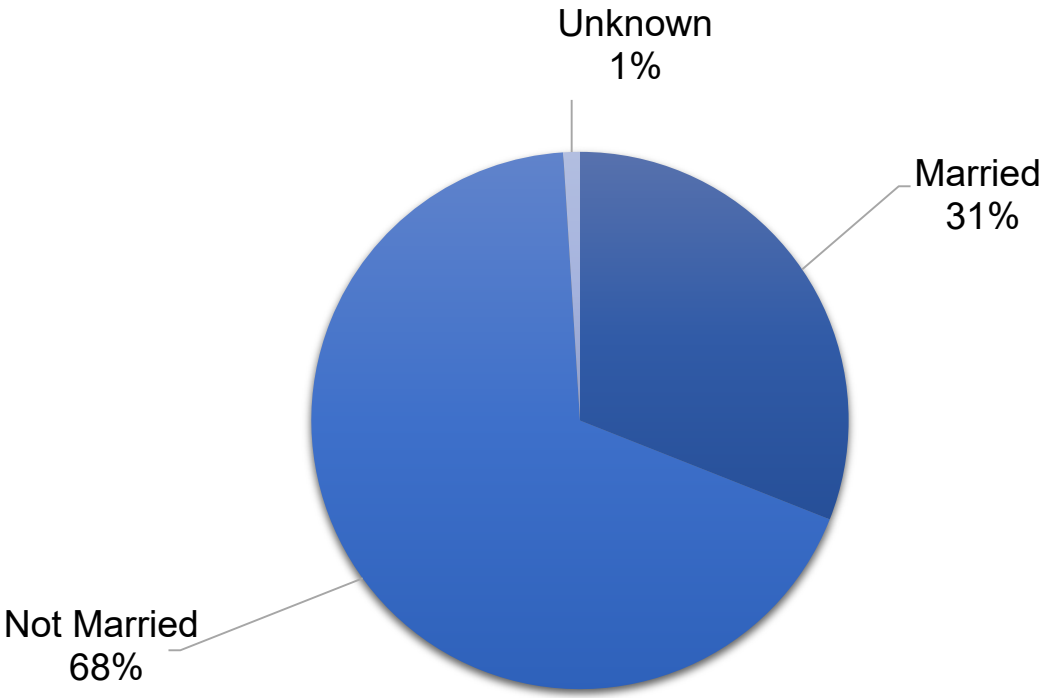
Pregnancy Assoc. Deaths Report

Distribution of Pregnancy Associated Deaths by Maternal **Marital Status**, Pennsylvania, 2013- 2018 (N=547).



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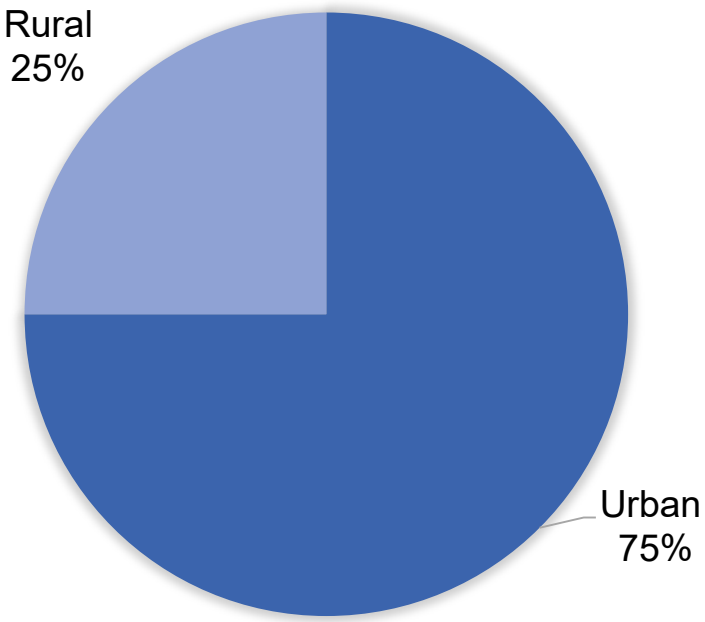
Pregnancy Assoc. Deaths Report

Distribution of Pregnancy Associated Deaths by Decedent's **County of Residence**, Pennsylvania, 2013 -2018 (N=547)



Between 2013 and 2018, 76% (635,664) of live births were among residents of urban counties and 24% (199,902) of live births were among residents of rural counties. **Pregnancy associated deaths of rural and urban county residents are comparable to the live birth rates,** with 408 (75%) deaths of urban county residents, and 139 deaths (25%) of rural county residents.

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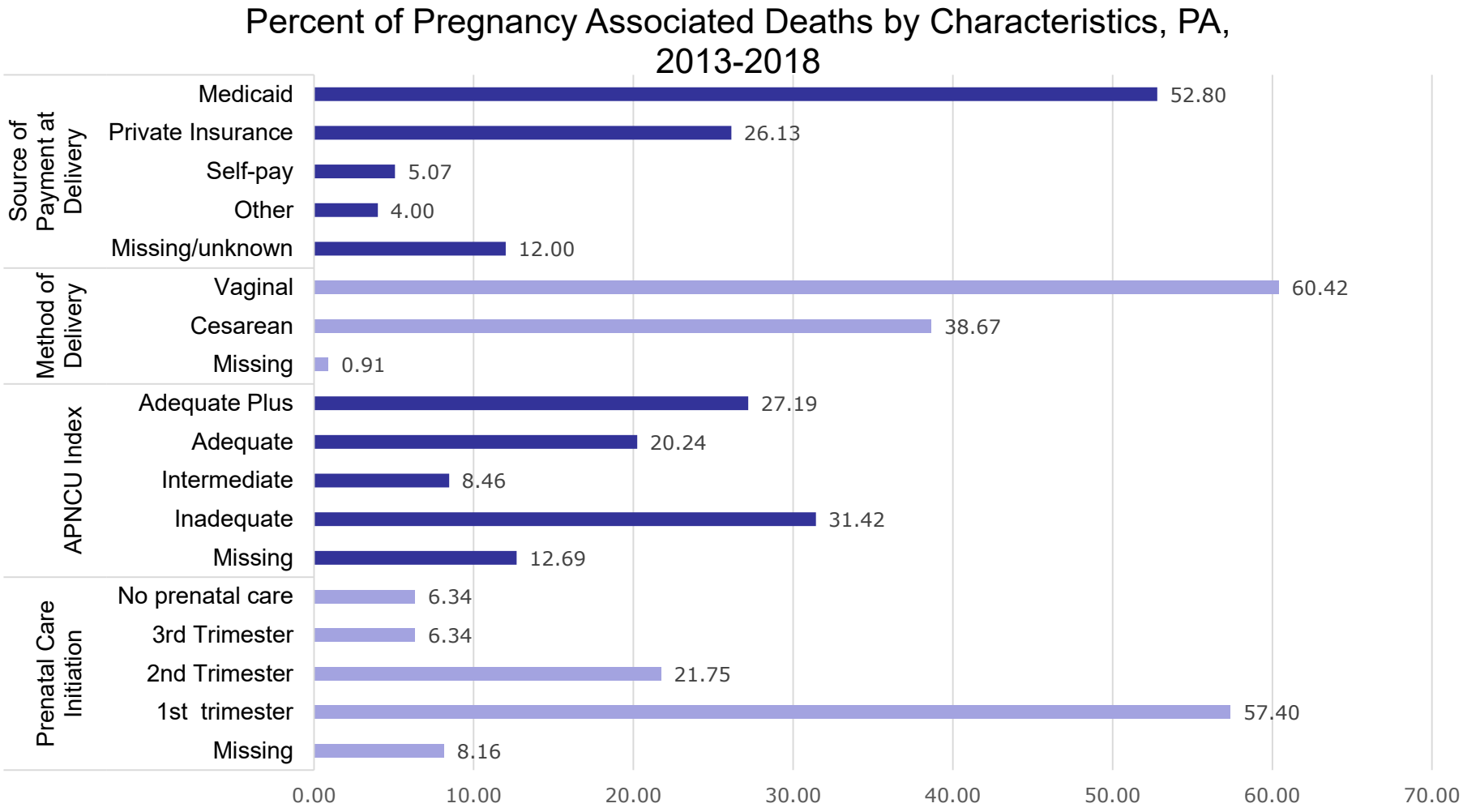
Pregnancy Assoc. Deaths Report



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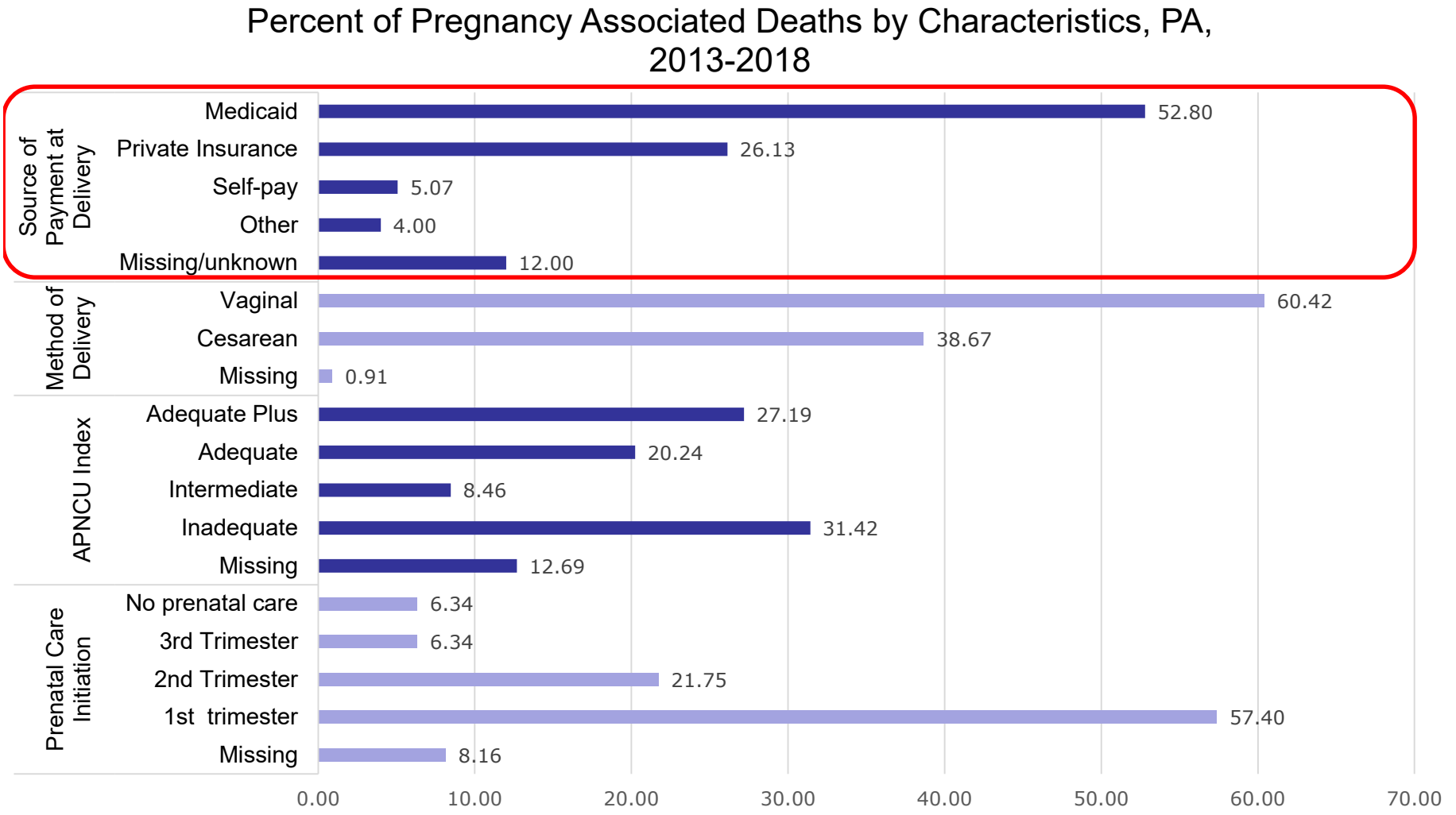
Pregnancy Assoc. Deaths Report



Medicaid was the method of payment for 32% of births in PA from 2013 to 2018 but 53% of pregnancy-associated deaths during the same time period.

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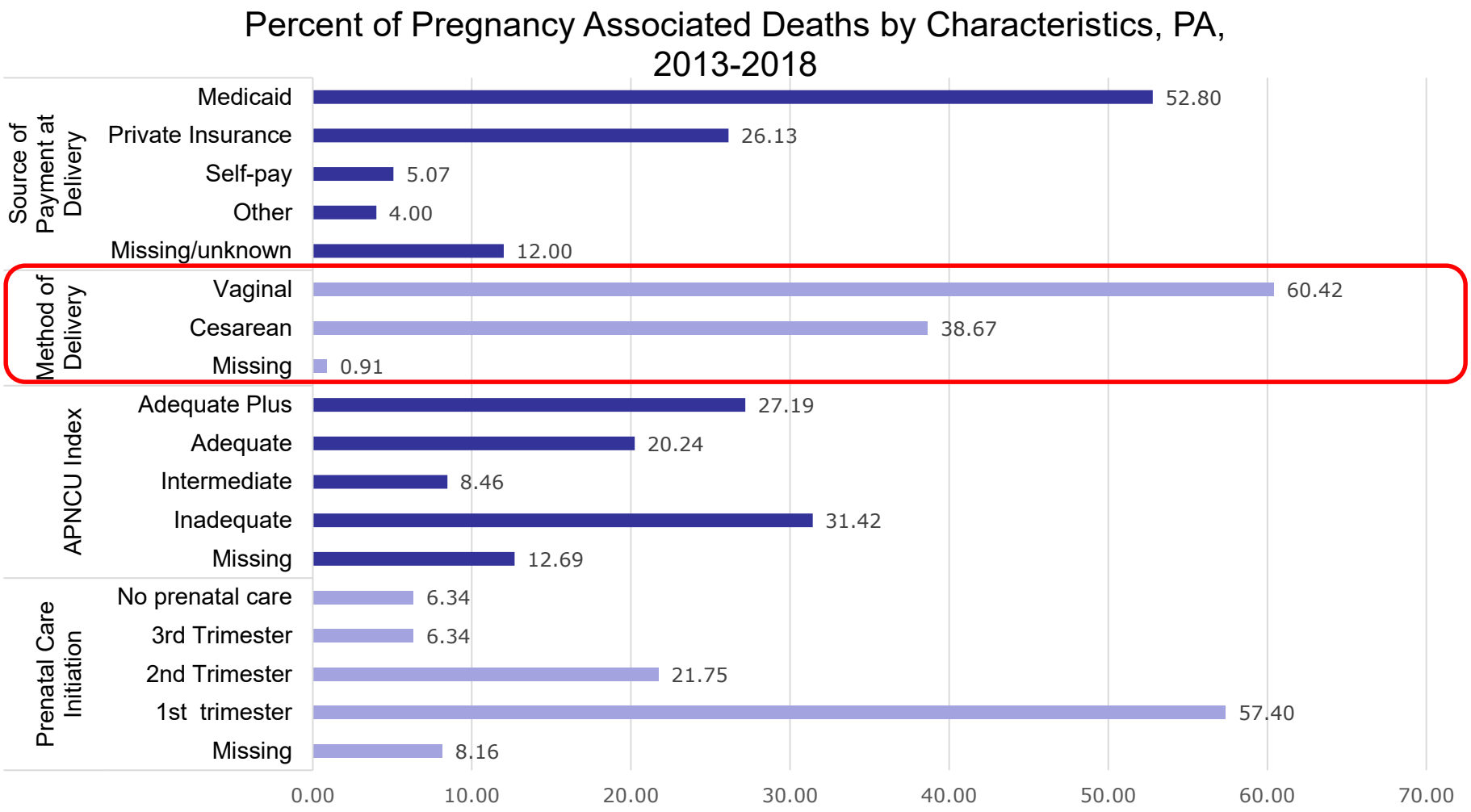
Pregnancy Assoc. Deaths Report



In Pennsylvania from 2013 – 2018, 30% of all births were by cesarean section delivery, but 39% of pregnancy-associated deaths for the same time period.

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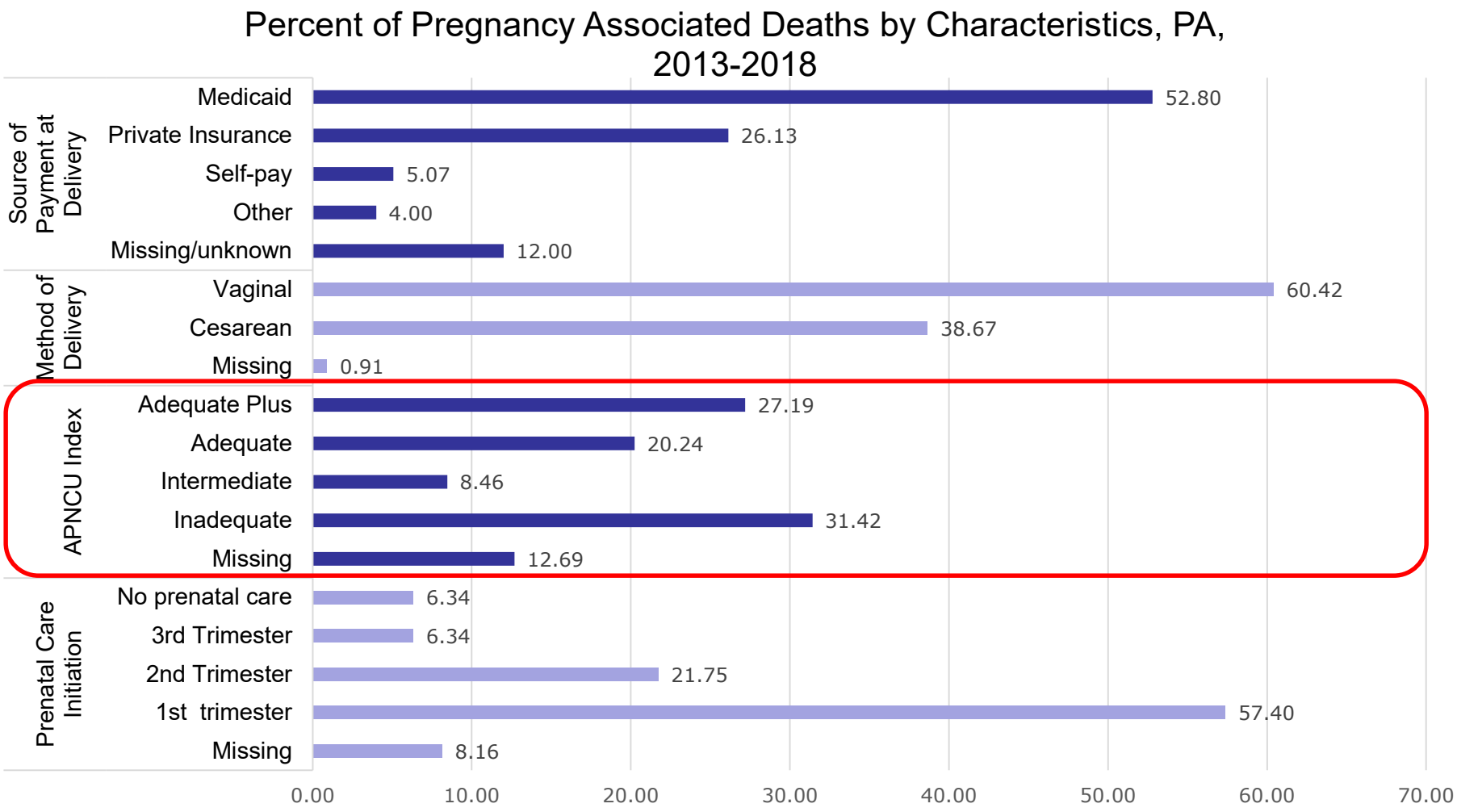
Pregnancy Assoc. Deaths Report



In 2017, 75.1% of all births in PA were to mothers who received adequate prenatal care.

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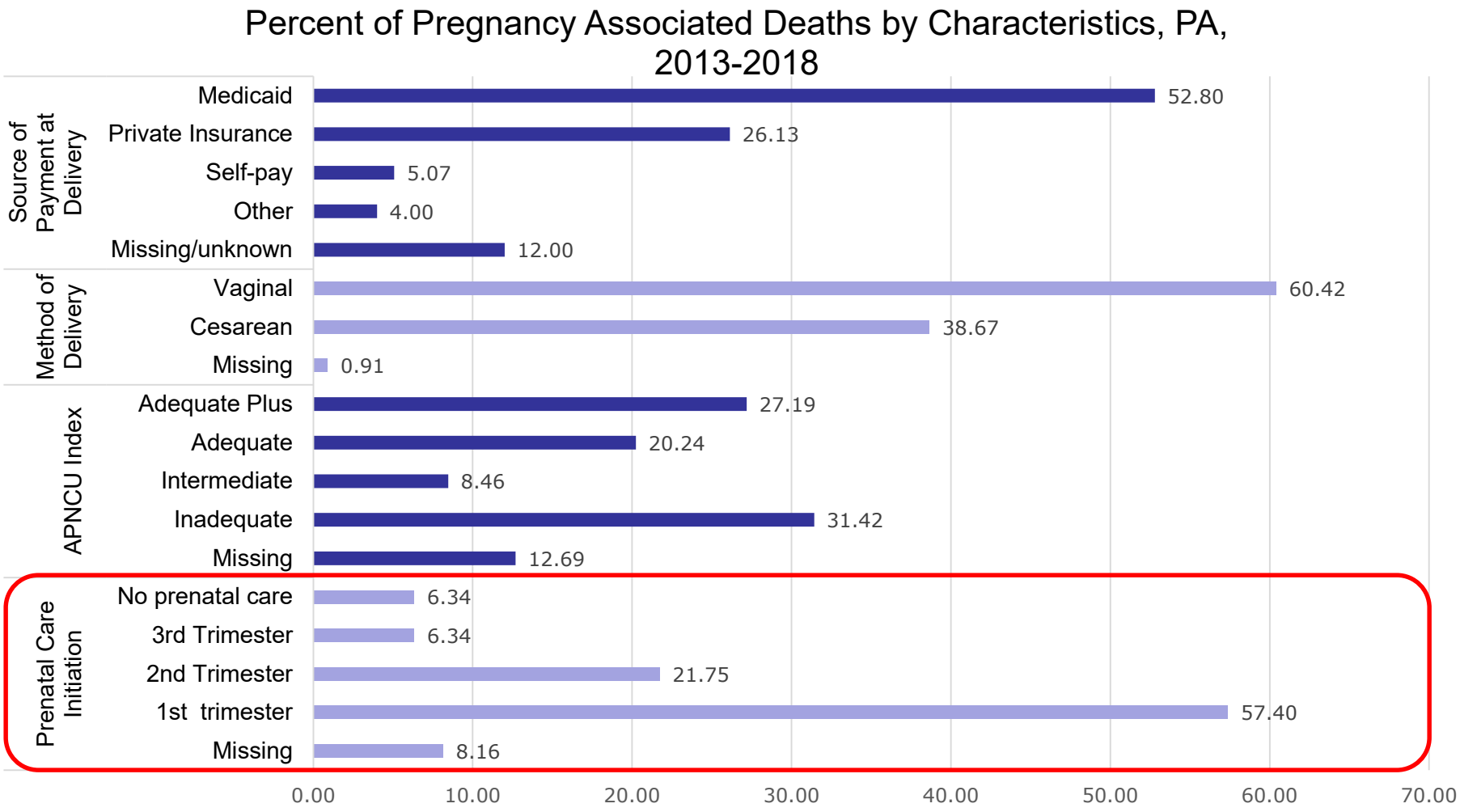
Pregnancy Assoc. Deaths Report



In 2018, 73.9% of births in PA were to mothers who started care in the first trimester.

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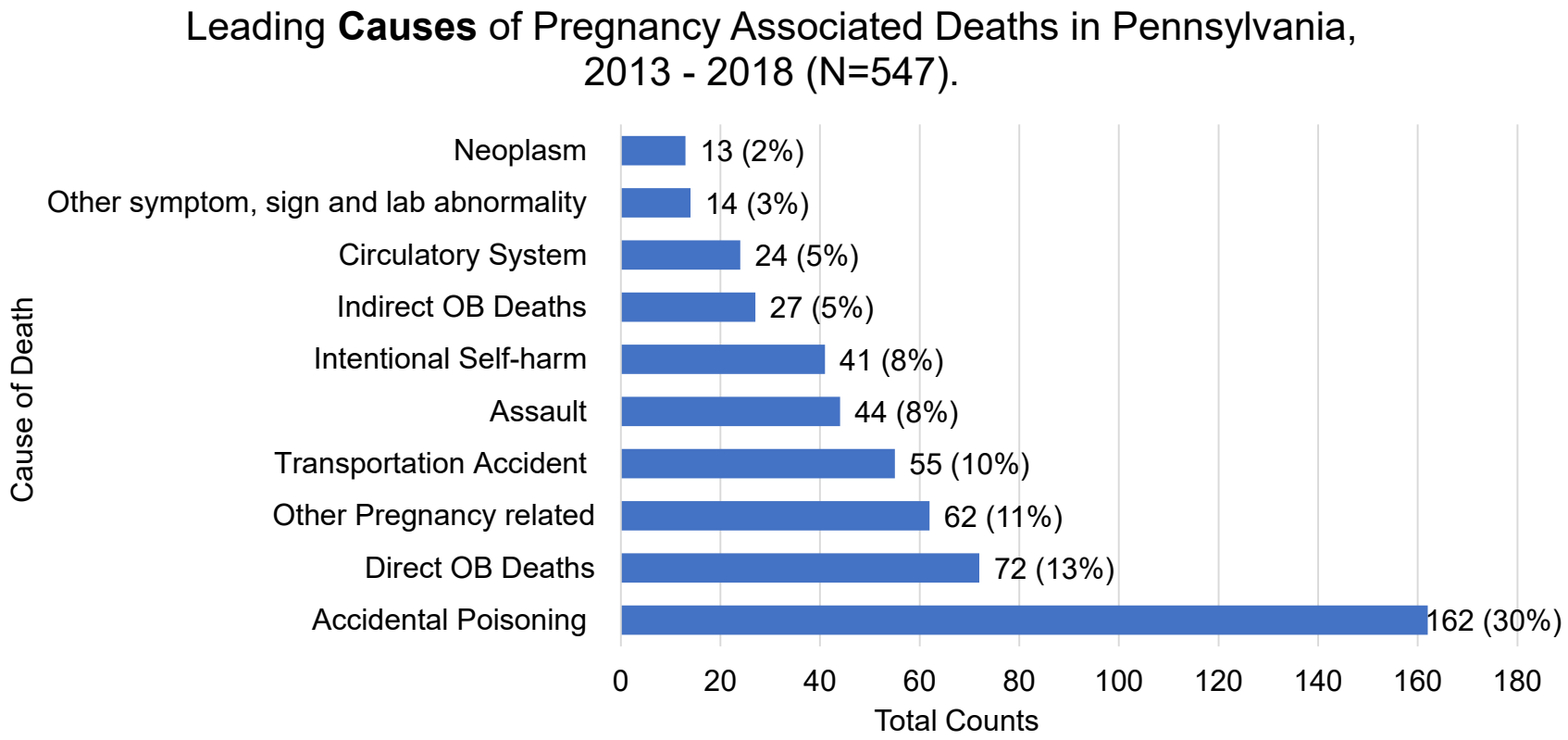

See slides 44 and 45 for ICD 10 codes for causes of death

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Pregnancy Assoc. Deaths Report

Cause of Death	2013	2014	2015	2016	2017	2018	Total
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Accidental Poisoning	16 (19.0)	14 (17.7)	29 (31.5)	21 (27.0)	41 (36.6)	41 (40.2)	162 (29.6)
Direct OB Deaths	14 (16.7)	11 (14.0)	12 (13.0)	13 (16.7)	11 (9.8)	11 (10.8)	72 (13.2)
Other Pregnancy related	7 (8.3)	11 (14.0)	9 (9.8)	9 (11.5)	17 (15.2)	8 (8.8)	62 (11.3)
Transportation Accident	14 (16.7)	9 (11.4)	7 (7.6)	6 (7.7)	11 (9.8)	8 (7.8)	55 (10.0)
Assault	6 (7.1)	10 (12.7)	3 (3.3)	4 (5.1)	10 (9.0)	11 (10.8)	44 (8.0)
Intentional Self-harm	7 (8.3)	8 (10.0)	11 (12.0)	3 (3.9)	7 (6.3)	5 (5.0)	41 (7.5)
Indirect OB Deaths	7 (8.3)	6 (7.6)	3 (3.3)	4 (5.1)	4 (3.6)	3 (2.9)	27 (4.9)
Circulatory System	5 (6.0)	1 (1.3)	6 (6.5)	5 (6.4)	3 (2.7)	4 (3.9)	24 (4.4)
Other system, sign and lab abnormality	0 (0.0)	3 (3.8)	4 (4.4)	4 (5.1)	1 (1.0)	2 (2.0)	14 (2.6)
Neoplasm	1 (1.2)	3 (3.8)	1 (1.1)	3 (3.9)	3 (2.7)	2 (2.0)	13 (2.4)
Other *	7 (8.4)	3 (3.9)	7 (7.7)	6 (7.8)	4 (3.6)	6 (6.0)	33 (6.1)

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Leading Causes of Preg. Assoc. Death by Race

Cause of Death Rank	ALL RACES	WHITE	BLACK/ AFRICAN AMERICAN
1	Accidental Poisoning (162)	Accidental Poisoning (130)	Accidental Poisoning (28)
2	Direct OB (72)	Transportation Accident (41)	Assault (21)
3	Other Pregnancy Related (62)	Other Pregnancy Related (40)	Direct OB (20)
4	Transportation Accident (55)	Direct OB (39)	Other pregnancy related (15)
5	Assault (44)	Intentional Self-Harm (29)	Transportation Accident (9)

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Connection to PQC Driver Diagram

- PQC Driver Diagram
  - **Driver**: Comprehensive Perinatal Assessments & Connections to Behavioral Health and Wraparound Supports
  - **Interventions:**

- Administer validated social determinants of health, mental health, and substance misuse screens during prenatal and postpartum visits
- Connect patients to mental health, substance misuse services, and community-based social services through warm handoffs, co-location, or integration models
- Engage women who smoke in smoking cessation programs
- Establish processes for screening, managing, and preventing intimate partner violence
- Apply trauma-responsive principles

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https://www.whamglobal.org/images/PA_PQC_Maternal_Mortality_Driver_Diagram.pdf

Connection to PQC Driver Diagram

Interventions continued:

- Offer access to comprehensive prenatal care that adheres to guidelines, including group education models and virtual options
- Implement policies on risk factor assessment, counseling, and follow-up for high-risk patients prior to discharge
- Create and implement communication and referral workflows between hospitals/clinics and care manager, home visiting, and community support programs to meet patients where they are
- Deploy care managers (with health plans) for women with individualized needs, to ensure connections to wrap around supports, track outcomes, and increase self-efficacy in identifying warning signs and when to seek care.

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Pregnancy Assoc. Deaths Report

Conclusions:

- **Black/African American** women and those utilizing **Medicaid** as source of payment at delivery were disproportionately impacted;
- **Delivery and the postpartum period** are important times for intervention as most of the pregnancy associated deaths occurred during that time.
- When compared to all births, those who experienced a pregnancy associated death initiated **prenatal care in first trimester** at a lower rate and were less likely to have an **adequate number of prenatal care visits**.
- A notable increase in pregnancy associated deaths due to **accidental poisonings** was observed.

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Pregnancy Assoc. Deaths Report

PA MMRC is currently reviewing 2018 deaths. After review is complete, we will be able to present data on the following for 2018 pregnancy associated deaths:

- Pregnancy relatedness;
- Contributing factors;
- Preventability; and
- Recommendations to address preventable pregnancy-related deaths.

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ICD 10 Codes for Cause of Death

Natural Causes of Pregnancy Associate Deaths:

- **Circulatory** – (ICD-10 CM Diagnosis Code I00 - I99): Diseases of the circulatory system
- **Congenital malformations** – (ICD-10 CM Diagnosis Code Q00 – Q99): Congenital malformations, deformations and chromosomal abnormalities
- **Direct OB Cause** - (ICD-10 CM Diagnosis Code O10 – O92): Pregnancy, childbirth and the puerperium
- **Digestive** – (ICD-10 CM Diagnosis Code K00 - K92): Diseases of the digestive system
- **Endocrine/Nutrition/Metabolic** – (ICD-10 CM Diagnosis Code E00 - E88): Endocrine, nutritional and metabolic diseases
- **Indirect OB cause** – (ICD-10 CM Diagnosis Code O98 – O99): Maternal infectious and parasitic diseases complicating pregnancy, childbirth and the puerperium
- **Genitourinary** – (ICD-10 CM Diagnosis Code N00 - N98): Diseases of the genitourinary system
- **Mental behavior** – (ICD-10 CM Diagnosis Code F01 – F99): Mental, Behavioral and Neurodevelopmental disorders
- **Musculoskeletal** – (ICD-10 CM Diagnosis Code M00 - M99): Diseases of the musculoskeletal system and connective tissue
- **Neoplasms** - (ICD-10 CM Diagnosis Code C00 – D48): Neoplasms
- **Nervous** – (ICD-10 CM Diagnosis Code G00 – G98): Diseases of the nervous system
- **Other system/sign/lab abnormality causes** - (ICD-10 CM Diagnosis Code R00 - R99): Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified
- **Other pregnancy related cause** - (ICD-10 CM Diagnosis Code O95 - O97): Other obstetric conditions, not elsewhere classified
- **Pregnancy with abortive outcome** - (ICD-10 CM Diagnosis Code O00 - O07): Pregnancy with abortive outcome
- **Respiratory** - (ICD-10 CM Diagnosis Code J00 - J98): Diseases of the respiratory system
- **Septicemia** - (ICD-10 CM Diagnosis Code A41): Other sepsis

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ICD 10 Codes for Cause of Death

Non-natural Causes of Pregnancy Associated Deaths:

- **Accidental poisoning** - (ICD-10 CM Diagnosis Code X40 - X49): Accidental poisoning by and exposure to noxious substances
- **Accidental drowning** - (ICD-10 CM Diagnosis Code W65 – W74): Accidental non-transport drowning and submersion
- **Assault** – (ICD-10 CM Diagnosis Code X85 – Y09, W20 - W64, W75 - W99, X10 - X39, X50 - X59, Y10 - Y89): External causes of morbidity
- **Falls** - (ICD-10 CM Diagnosis Code W00 – W19): Slipping, tripping, stumbling and falls
- **Intentional self-harm** - (ICD-10 CM Diagnosis Code X60 - X84): Suicide and Attempted suicide
- **Smoke/fire/flames** - (ICD-10 CM Diagnosis Code X00 - X09): Exposure to smoke, fire and flames
- **Transportation accident** - (ICD-10 CM Diagnosis Code V01 - V99): Any accident involving a device designed primarily for, or being used at the time primarily for, conveying persons or goods from one place to another

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3) Using the Opioid Dashboard to understand Maternal Opioid Use Disorder in Your County

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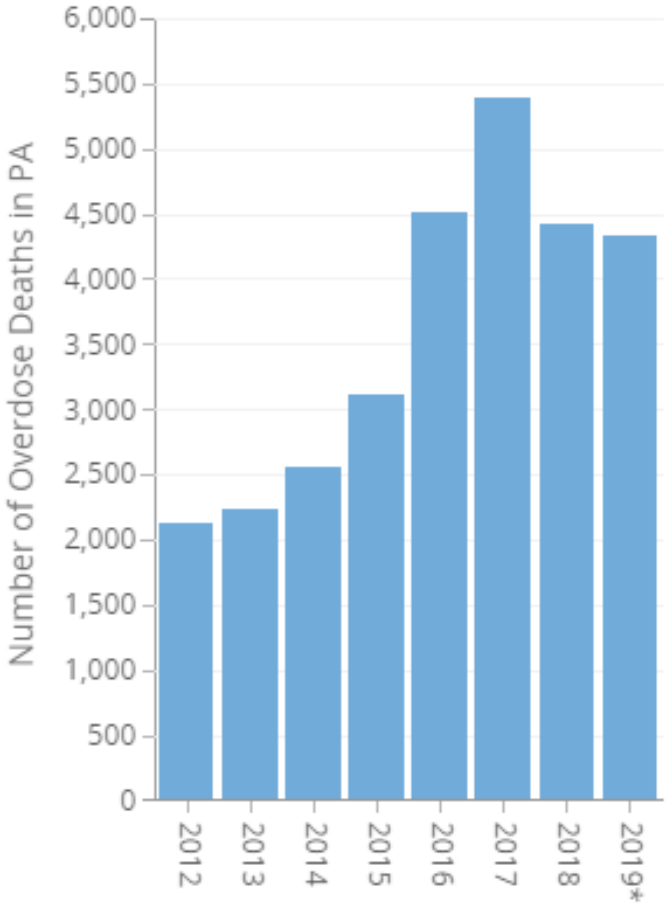
Opioid Epidemic in Pennsylvania

Accidental and Undetermined Drug Overdose Deaths, PA



*Provisional estimates of annual counts of deaths for 2019 generated from preliminary 2019 mortality data as of February 2020.

- The opioid epidemic is one of the worst public health crises in Pennsylvania, and the nation.
- PA saw a peak of 5,396 overdose deaths in 2017.
- In January 2018, Governor Wolf issued a Disaster Declaration proclaiming heroin and opioid addiction a public health emergency in PA and established the Opioid Command Center.

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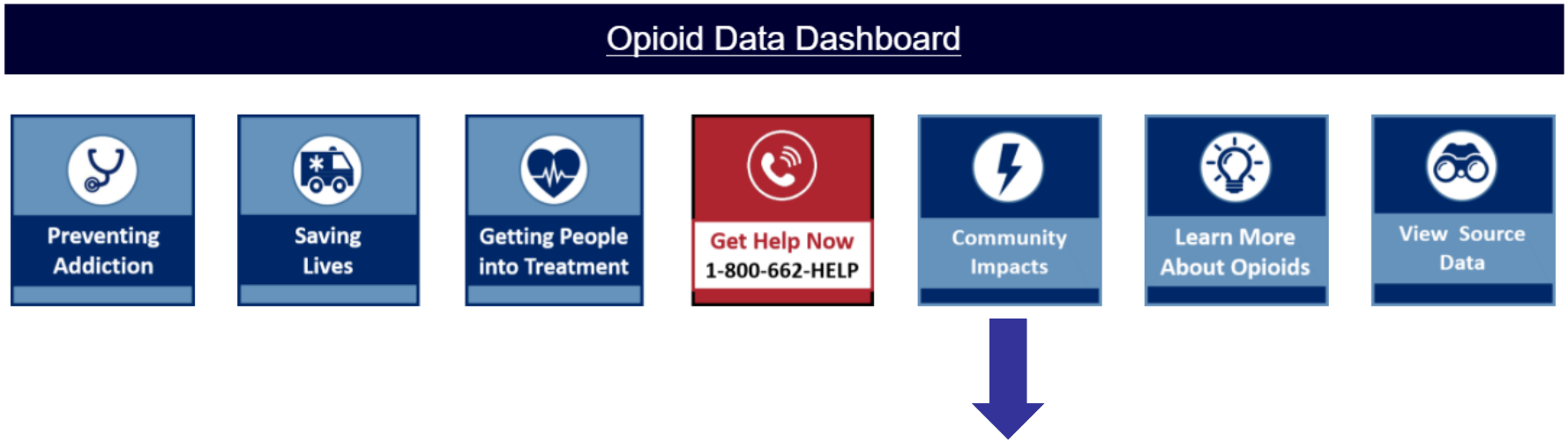
Agenda



The opioid epidemic's impacts on:

- **Families;**
- Opioid related diseases;
- The criminal justice system; and
- The economy.

Link: [PA Opioid Data Dashboard Community Impacts]

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Impact on Families

Pennsylvania's opioid epidemic has significant impact and consequences on our children and families. Whether it is an infant born with neonatal abstinence syndrome (NAS), children in kinship care where parental drug use was a factor, or a **pregnant woman suffering from opioid-use disorder (OUD),** the experiences have lifelong impacts on families and children.

Link: PA Opioid Dashboard Impacts on Families

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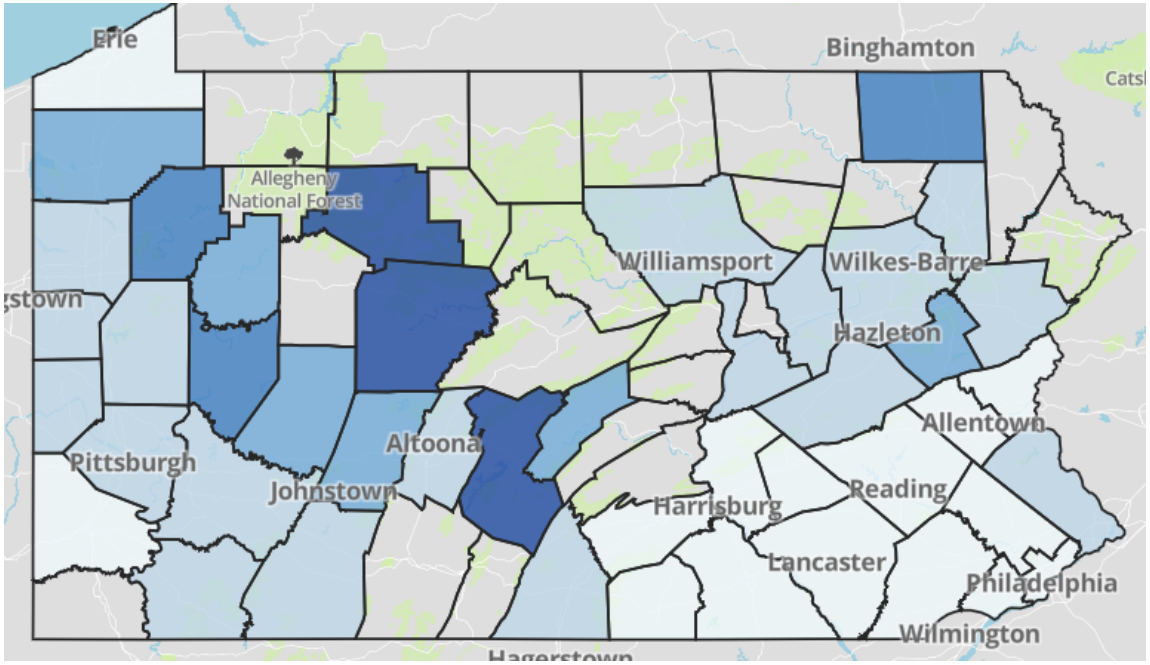
All Hospital Births

Rate of Maternal OUD Present at Delivery per 1,000 Delivery Hospitalizations, 2018



- County reflects patient's residence.
- Data provided by Pennsylvania Health Care Cost Containment Council (PHC4).
- Counties not displayed had less than 11 women with a delivery and an OUD diagnosis.

In 2018, 2,069 women delivering in hospitals had an OUD diagnosis, an increase from 2,017 in 2016.

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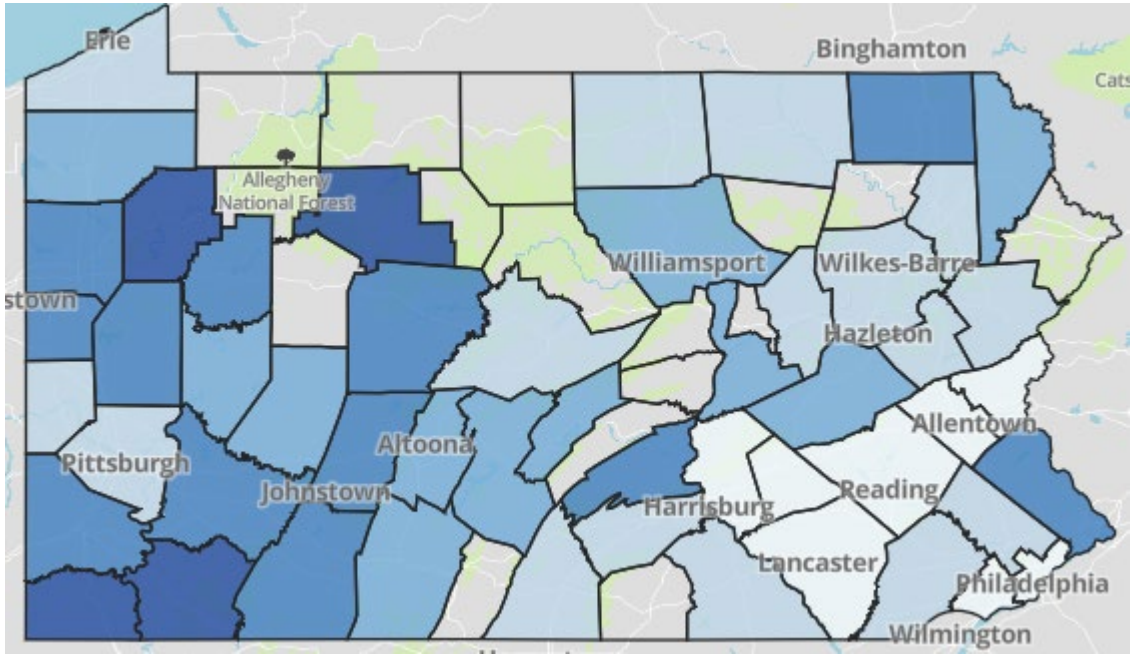
Women on Medical Assistance

Rate of Women on Medical Assistance (MA) with OUD During Pregnancy per 1,000 Deliveries, 2018



- County reflects patient's residence.
- Data provided by Pennsylvania Department of Human Service (DHS).
- Counties not displayed had less than 11 women with a delivery and an OUD diagnosis.

In 2018, 2,771 women on Medical Assistance (MA) had both a delivery and an OUD diagnosis, an increase from 2,548 in 2016.

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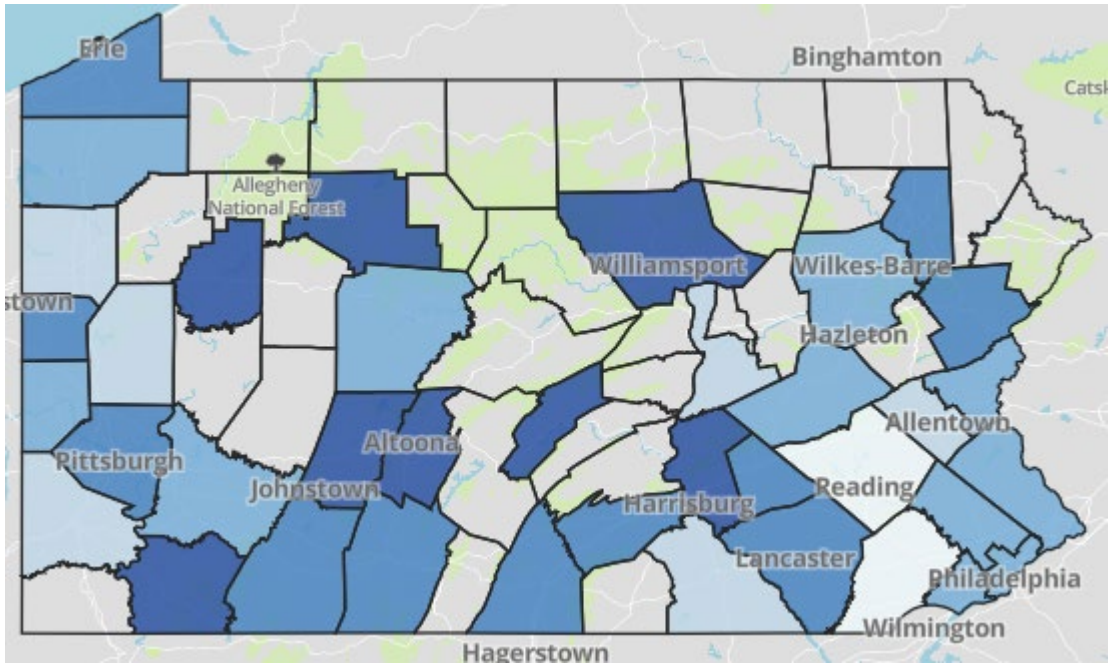
Women on Medical Assistance

Percent of Women on MA Diagnosed with OUD During Pregnancy Receiving MAT, 2018



27.08 - 35.19
42.59 - 50.00
53.85 - 61.90
63.16 - 69.70
74.36 - 84.78

- County reflects patient's residence.
- Data provided by Pennsylvania Department of Human Service (DHS).
- Counties not displayed had less than 11 women with a delivery and an OUD diagnosis.

In **2018, 60.09% (1,665)** of the women on MA that had both a delivery and an OUD diagnosis received Medication Assisted Treatment (MAT), an increase from **53.85% (1,372) in 2016.**

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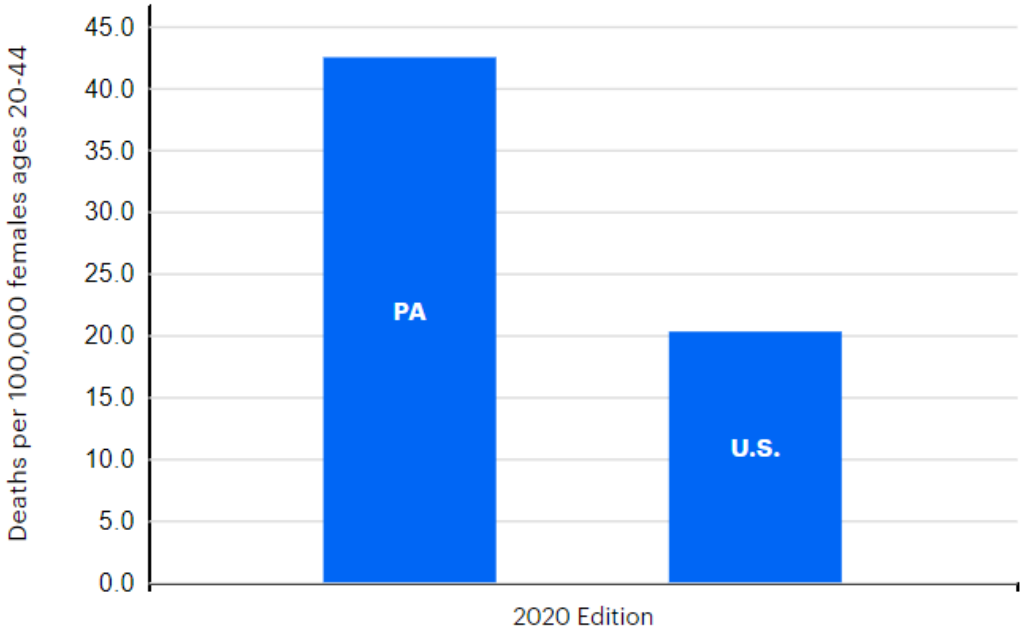
Drug Deaths, Females aged 20-44

Drug Deaths of Women in Pennsylvania[1]

- Age-adjusted number of deaths due to drug injury of any intent (unintentional, suicide, homicide, or undetermined) per 100,000 females aged 20 to 44
- Source: CDC WONDER Online Database, Underlying Cause of Death, Multiple Cause of Death files, 2016-2018



PA: 42.5 (Rank: 48th)

United States: 20.3

1. America's Health Rankings analysis of CDC WONDER Online Database, Underlying Cause of Death, Multiple Cause of Death files, United Health Foundation, AmericasHealthRankings.org, Accessed 2020.

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Connection to PQC Driver Diagram

- **Driver:** Link all pregnant women with OUD to substance use treatment programs that provide MAT, behavioral health counseling and social services support.

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Additional Data on the Impact on Families

- Additional data available on the dashboard:
  - Maternal OUD breakdowns by age and annual and quarterly trends,
  - Infants born with NAS, and
  - Children removed from the home due to parental drug use.

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THANK YOU

THANK YOU for your time and efforts to improve maternal health care in PA!

COVID-19: If your hospitals L&D is experiencing difficulties maintaining operations during our recent surge in hospitalizations, please let us know.

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