Maternal Mortality Review: Kentucky Accomplishments, Data and Recommendations

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August 10, 2023

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Objectives

- Participants will have improved knowledge about the Kentucky Maternal Mortality Review Program.
- Participants will recognize the impact of maternal mortality through a comprehensive review of Kentucky mortality data.
- Participants will identify one recommendation for implementation to improve outcomes for women of childbearing age.
- Participants will identify one way to collaborate with the Kentucky Perinatal Quality Collaborative for health promotion and prevention efforts to reduce maternal death.

History and Background

1. Maternal Mortality Review (MMR) in Kentucky dates back over 40 years
   - University support
   - No protections
   - Included some pregnancy-related cases
   - Excluded accidental deaths, suicides, or homicides
   - Data collection
2. 2017: Kentucky Maternal Child Health death certificate data review and response
3. 2018:
   - Established the Kentucky Maternal Mortality Review Committee (MMRC)
   - KRS 211.680, KRS 211.684, KRS 211.686
   - Initiated reviews for the 2017 death cohort

Legislative Authority

- KRS 211.680 – collection and analysis of data
- KRS 211.684
  - Authorizes Department for Public Health to establish and conduct the MMR Program
  - Membership and duties of the state MMRC
  - Annual report
  - Defines maternal fatality means the death of a woman within one year of giving birth
- KRS 211.686 – protects the MMR process from discovery, subpoena, or introduction into evidence in any civil action

Voluntary Multidisciplinary MMRC

- Chief Medical Examiner
- Obstetrician-Gynecologist (OB/GYN) Generalists
- Maternal Fetal Medicine (MFM) Specialists
- Neonatologists
- American Academy of Pediatrics (AAP)
- Association of Women's Health Obstetric and Neonatal Nurses (AWHONN)
- Certified Midwives
- Office of Inspector General (OIG)
- American College of Obstetricians and Gynecologists (ACOG)
- Kentucky State Police (KSP)
- Department for Community Based Services (DCBS)
- Kentucky Suicide Coordinator
- Kentucky Department for Medicaid Services (KDMS)
- Kentucky Hospital Association (KHA)
- Obstetric Cardiology
- Department for Behavioral Health, Developmental and Intellectual Disabilities (DBHDID)
- Kentucky All Schedule Prescription Electronic Reporting (KASPER)

MMR Classifications

- **Pregnancy-associated death** - The death of a woman while pregnant or within one year of the termination of pregnancy, regardless of the cause.
- **Pregnancy-associated, but not related, death** - The death of a woman during pregnancy or within one year of the end of pregnancy from a cause that is not related to pregnancy (e.g., a pregnant woman dies in an earthquake).
- **Pregnancy-related death** - The death of a woman during pregnancy or within one year of the end of pregnancy from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy.

Maternal Mortality Review: Data

James Cousett, Epidemiologist

August 10, 2023

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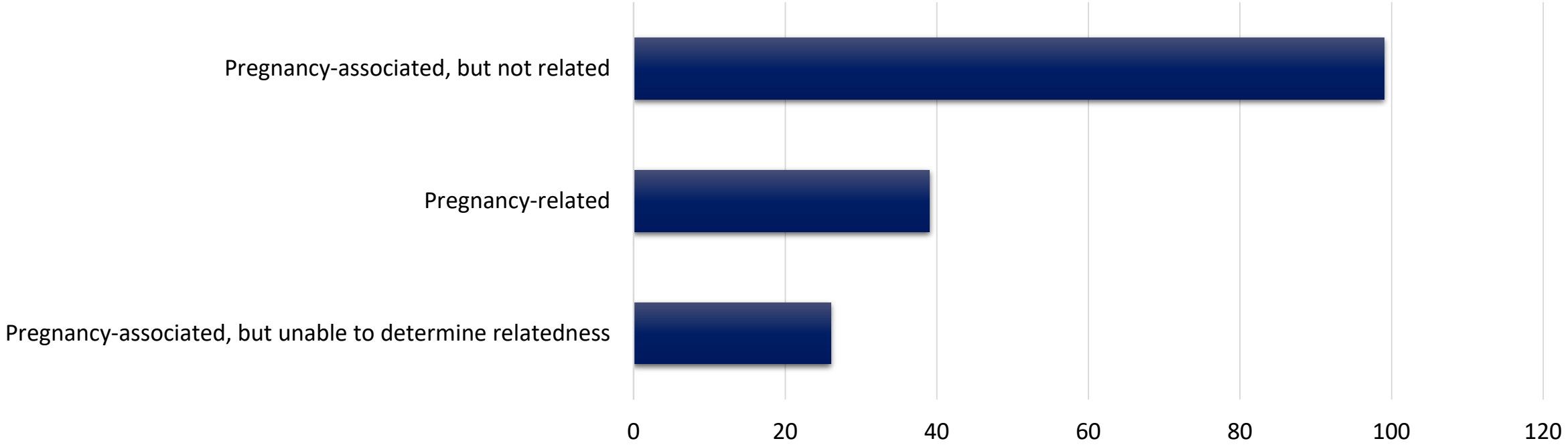
Current state of MMR data

- Kentucky's MMRC has reviewed cases for the 2017-2020 cohorts.
- The data is limited by the number of cases in each cohort.
- This presentation combines years of data except when calculating pregnancy-related maternal deaths and mortality rates.
- Data standardization of forms and categorizations have been revised over time.

Additional considerations

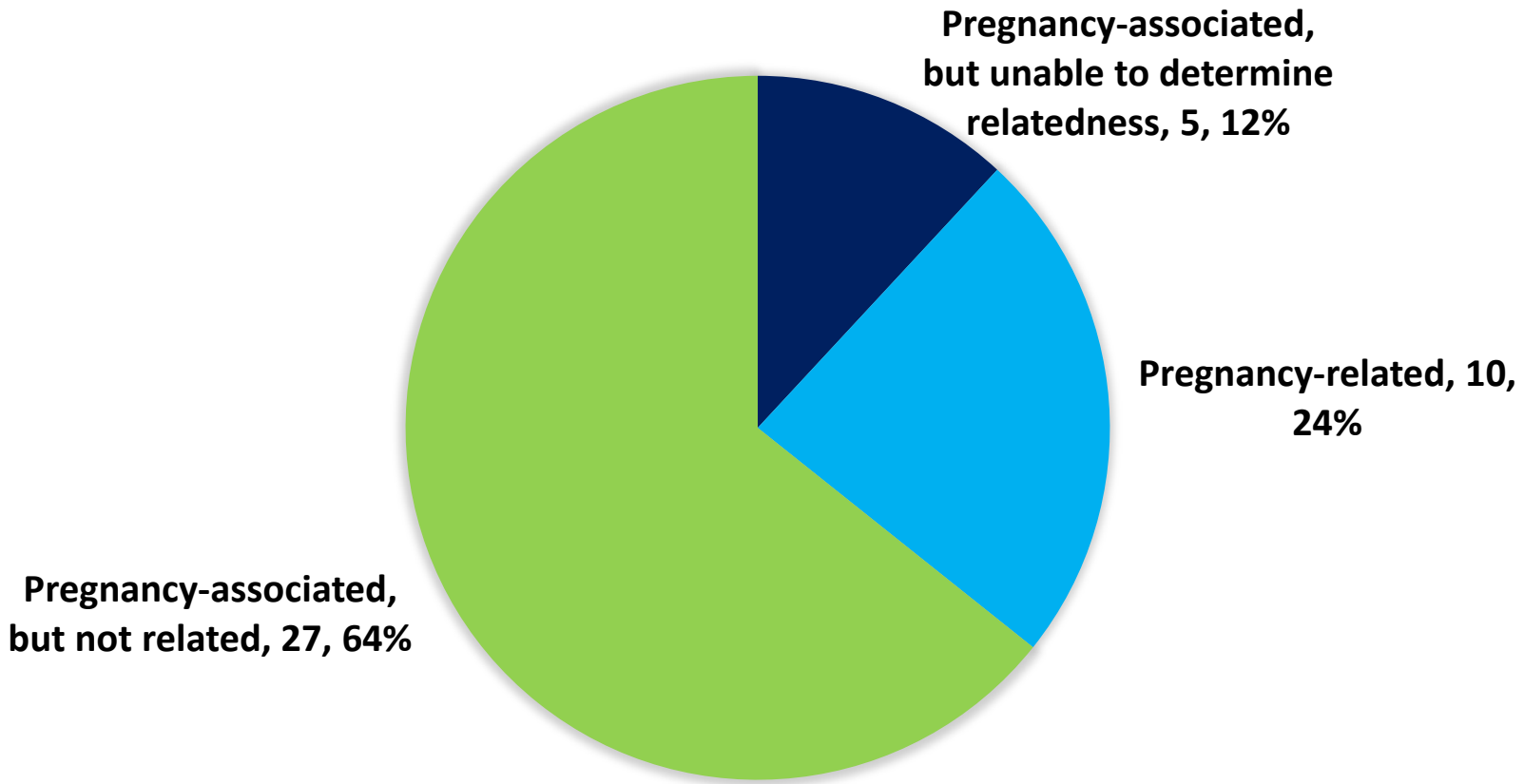
- This data is sourced from the Kentucky MMRC Decision forms, Kentucky Office of Vital Statistics, Health Resources and Services Administration (HRSA), and Maternal Mortality Review Information Application (MMRIA).
- Maternal mortality (or death) is the term for when a mother dies from a pregnancy-related health issue or an existing condition exacerbated by pregnancy. It can occur at any time during pregnancy or in the 42 days after giving birth.
- A late maternal death is “the death of a woman from direct or indirect obstetric causes, more than 42 days but less than one year after termination of pregnancy”.

Categorization of Maternal Death by Pregnancy-relatedness; Kentucky MMR 2017-2020 Cohorts Combined

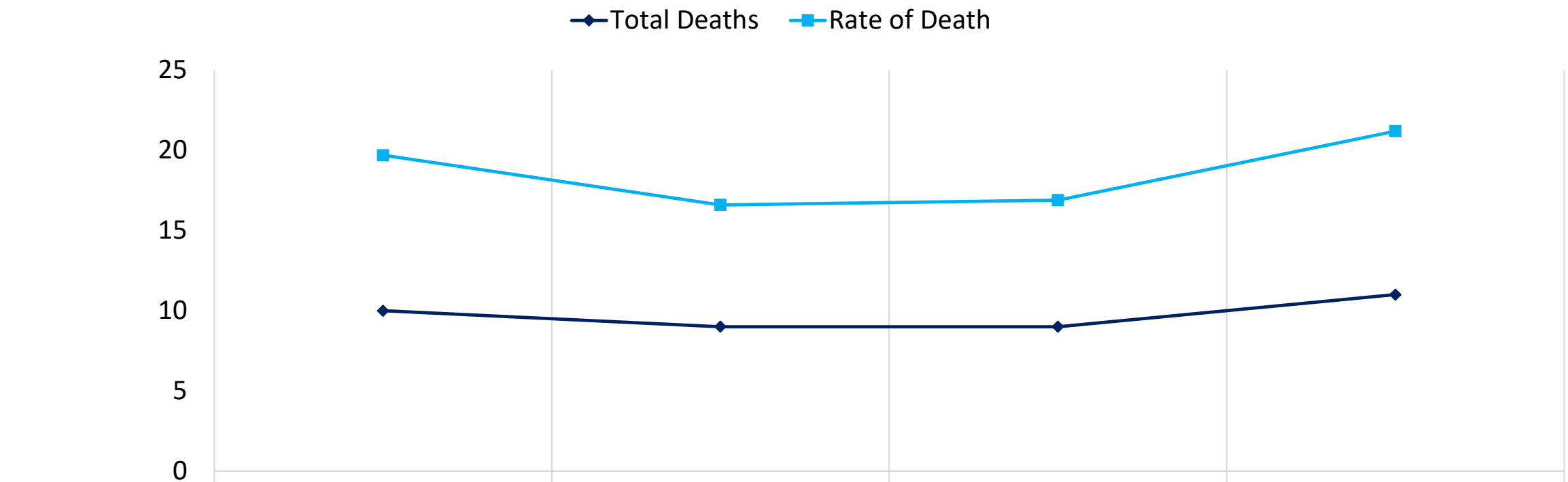


	Pregnancy-associated, but unable to determine relatedness	Pregnancy-related	Pregnancy-associated, but not related
■	26	39	99

Categorization of Maternal Death by Pregnancy-relatedness among First-time Mothers; Kentucky MMR 2017-2020 Cohorts Combined

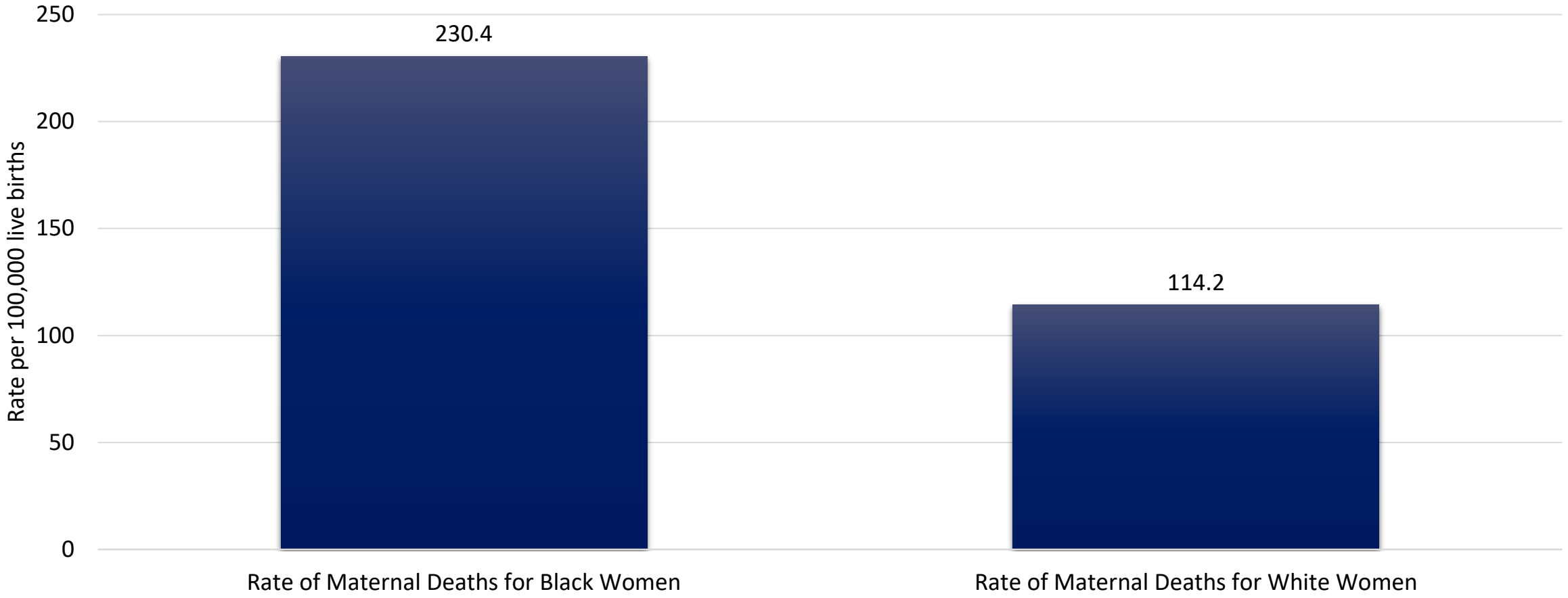


Total Number of MMRC Pregnancy-related Deaths and Rate of Deaths; Kentucky MMR 2017-2020

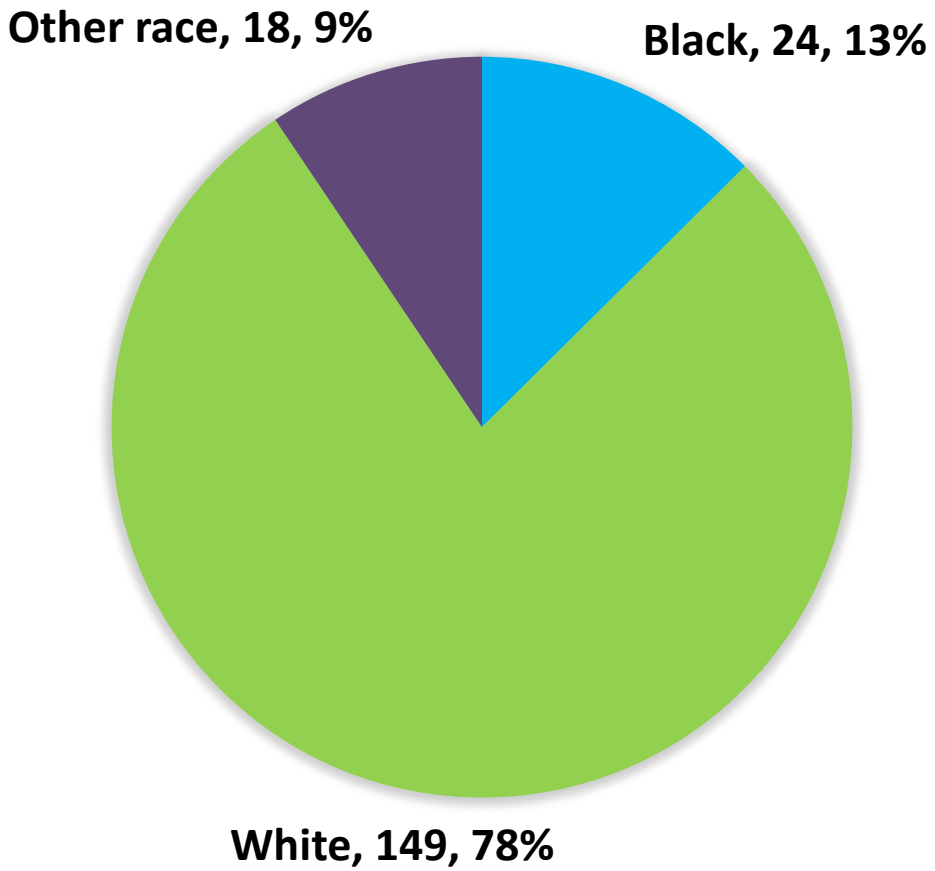


	2017	2018	2019	2020
Total Deaths	10	9	9	11
Rate of Death	19.7	16.6	16.9	21.2

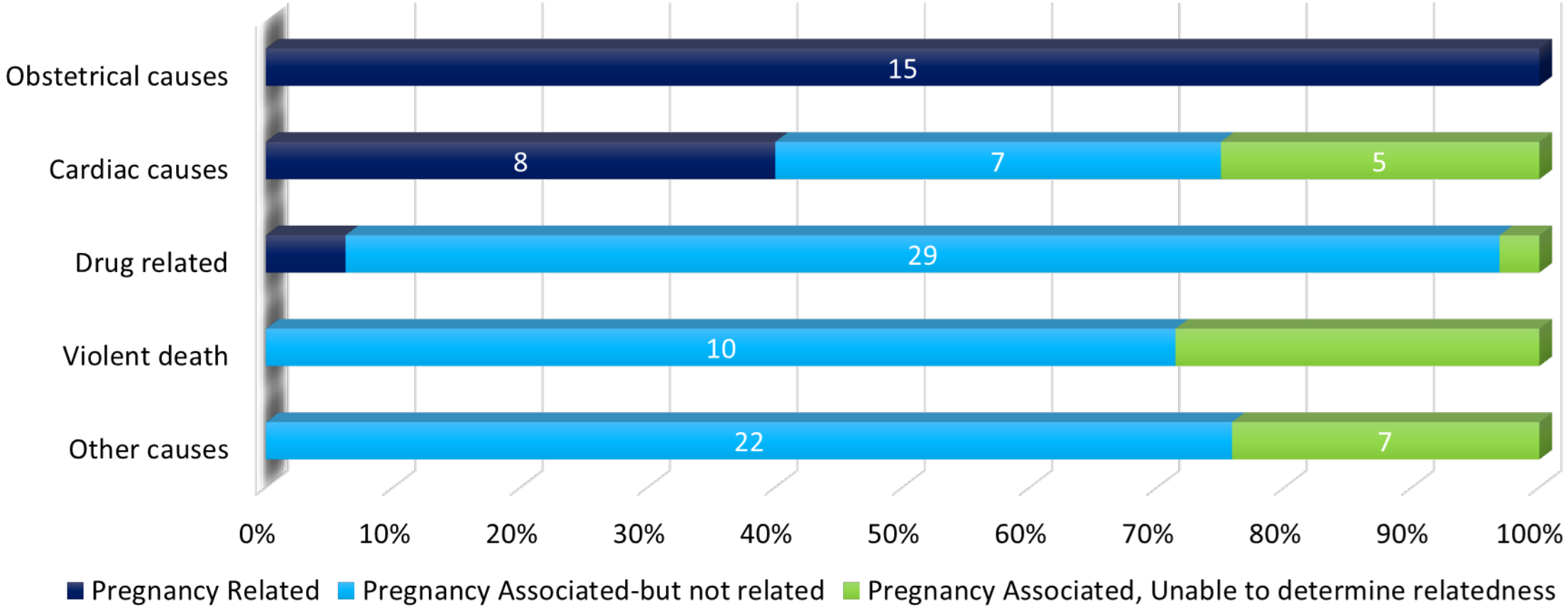
Difference in Rate of Maternal Deaths from any Cause by Race; Kentucky OVS 2020



Categorization of Maternal Death by Race; Kentucky MMR 2017-2020 Cohorts Combined

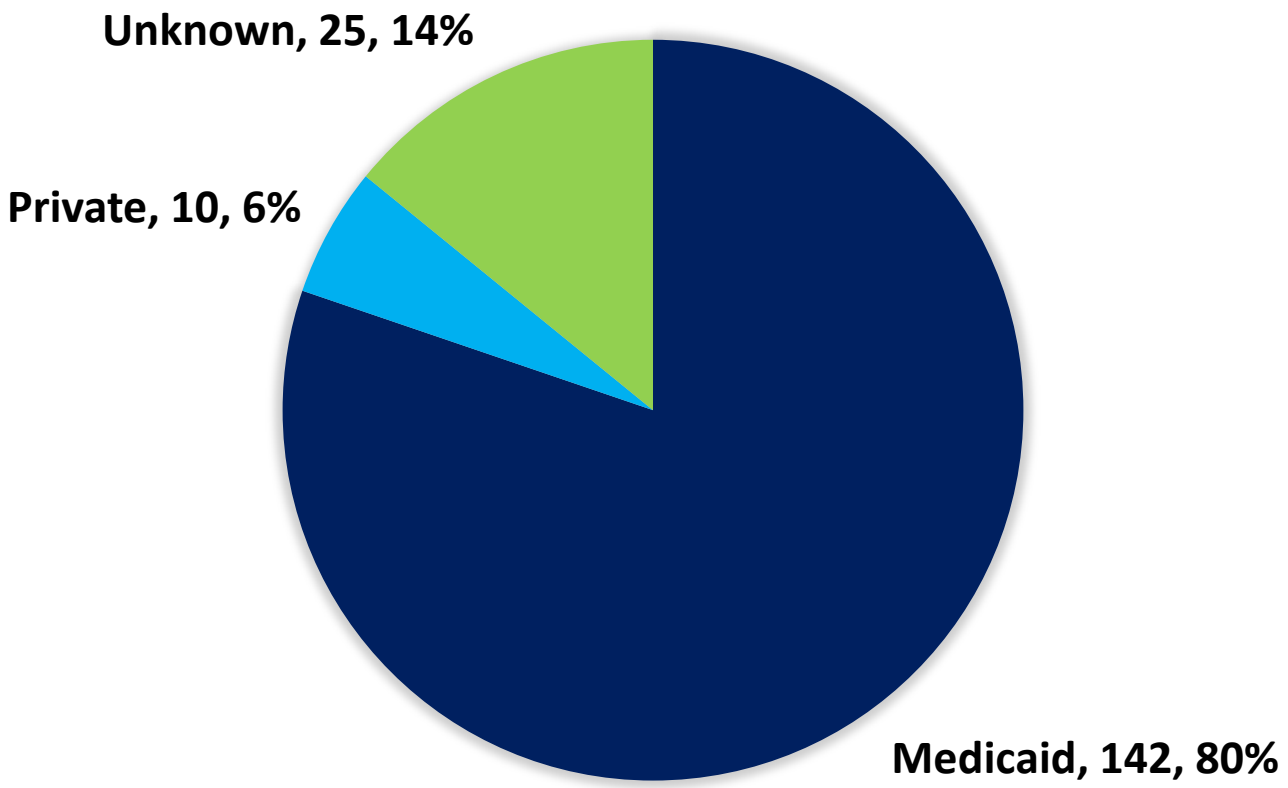


Categorization of Causes of Maternal Death Grouped; Kentucky MMR 2017-2020 Cohorts Combined*

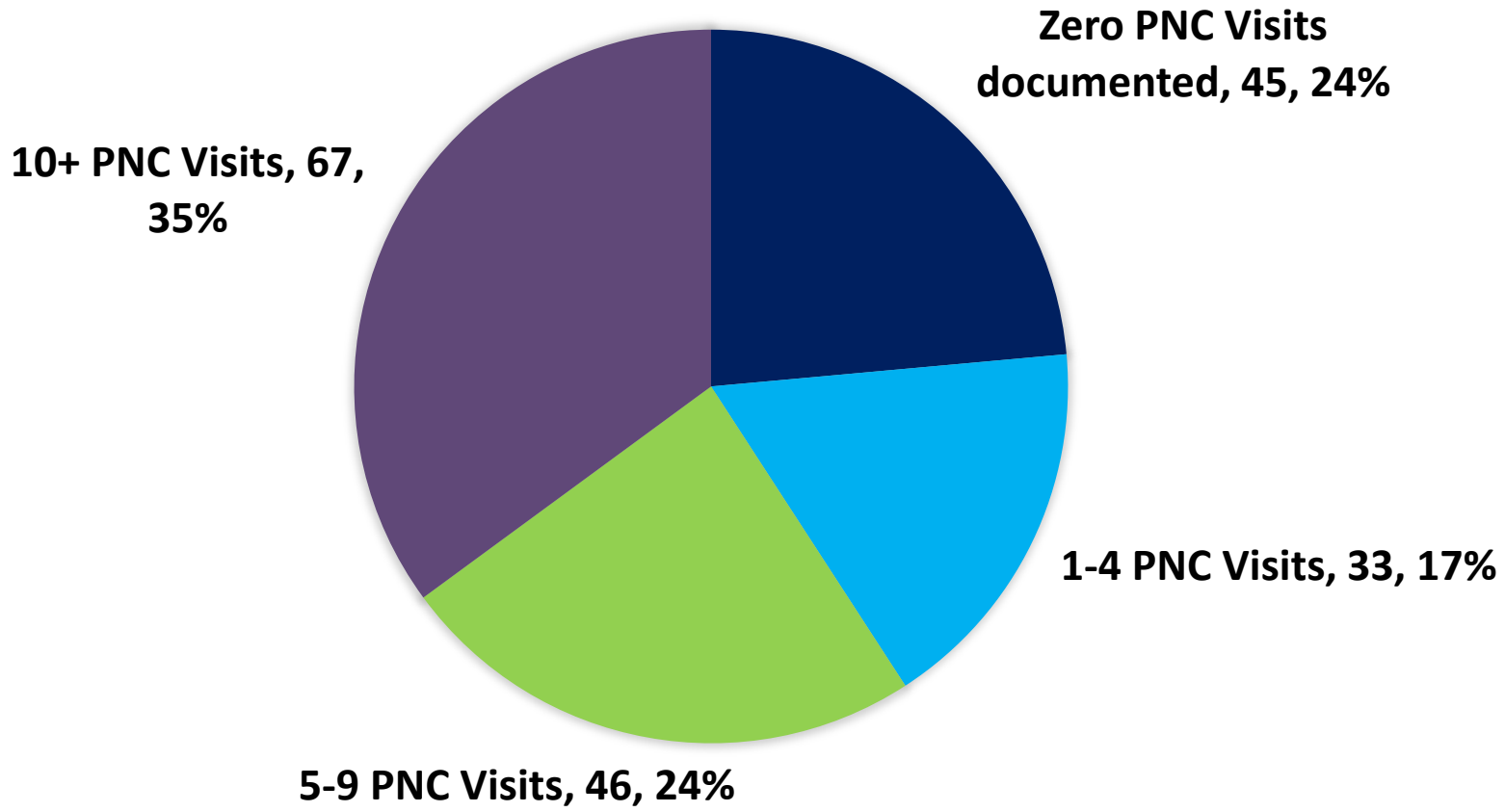


*Any values with a count <5 are suppressed due to data sharing limitations

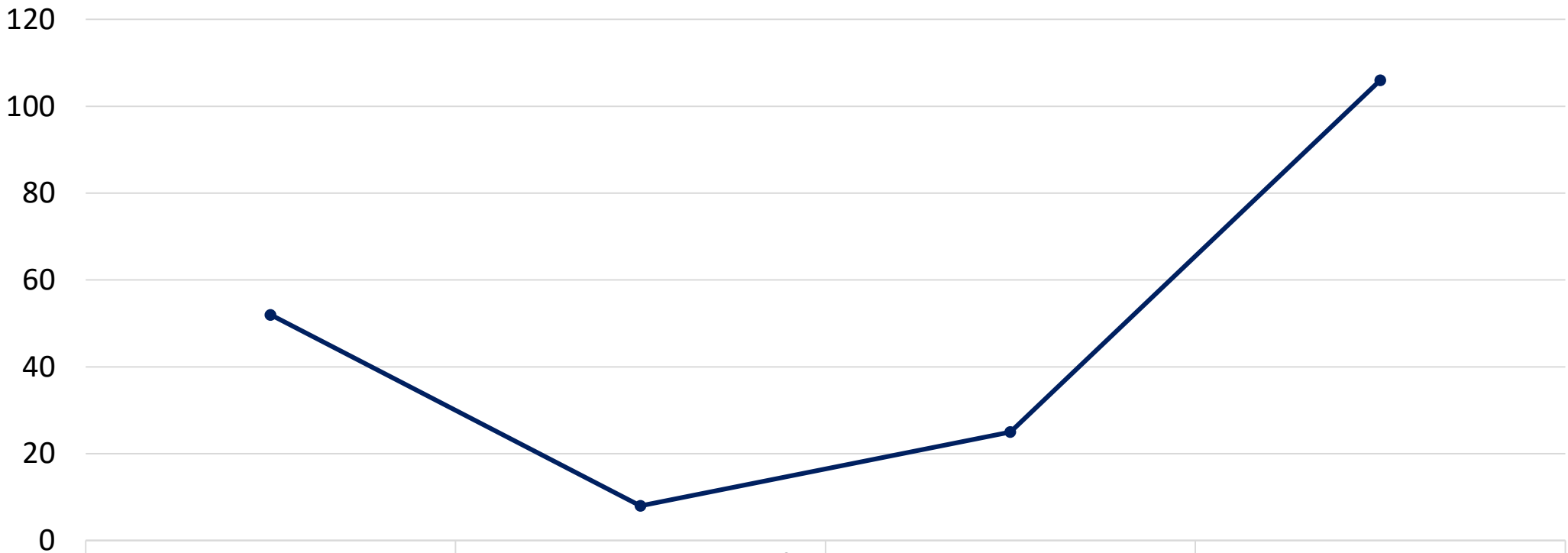
Payor source of Insurance among Mothers; Kentucky MMR 2017-2020 Cohorts Combined



Prenatal care (PNC) visits among Mothers; Kentucky MMR 2017-2020 Cohorts Combined

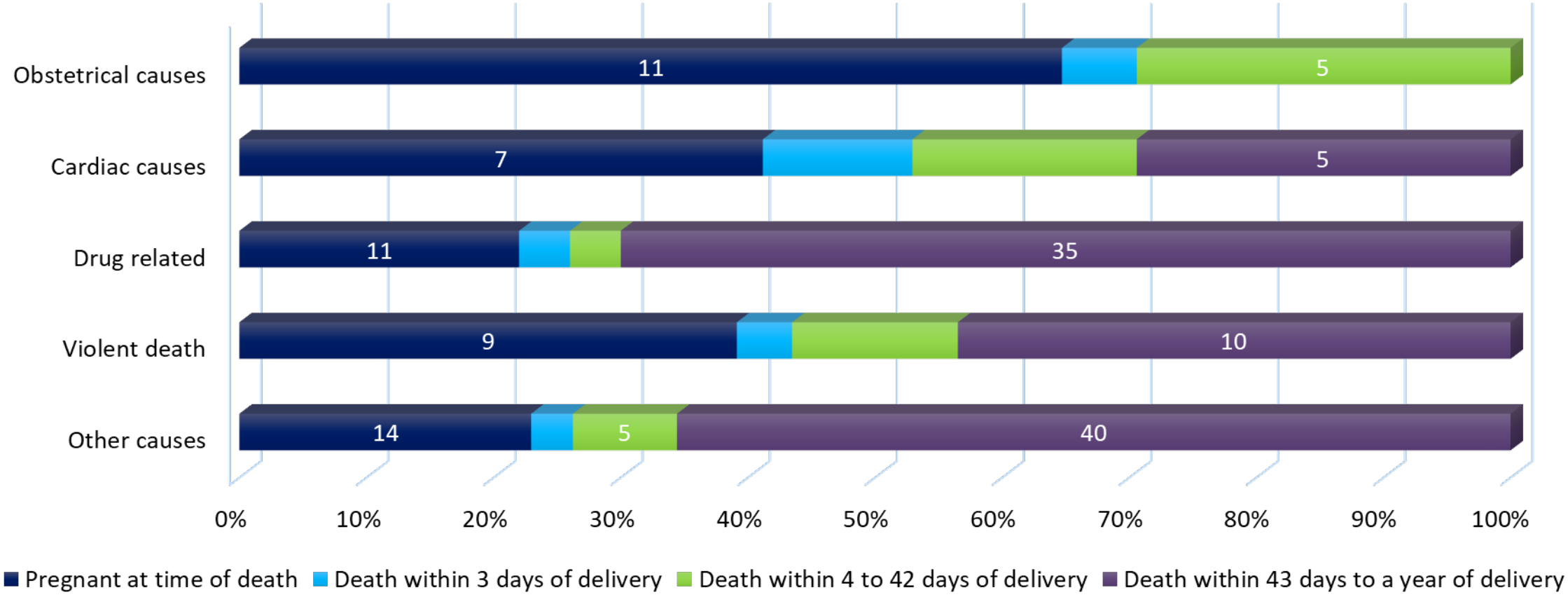


Timing of Maternal Deaths; Kentucky MMR 2017-2020 Cohorts Combined



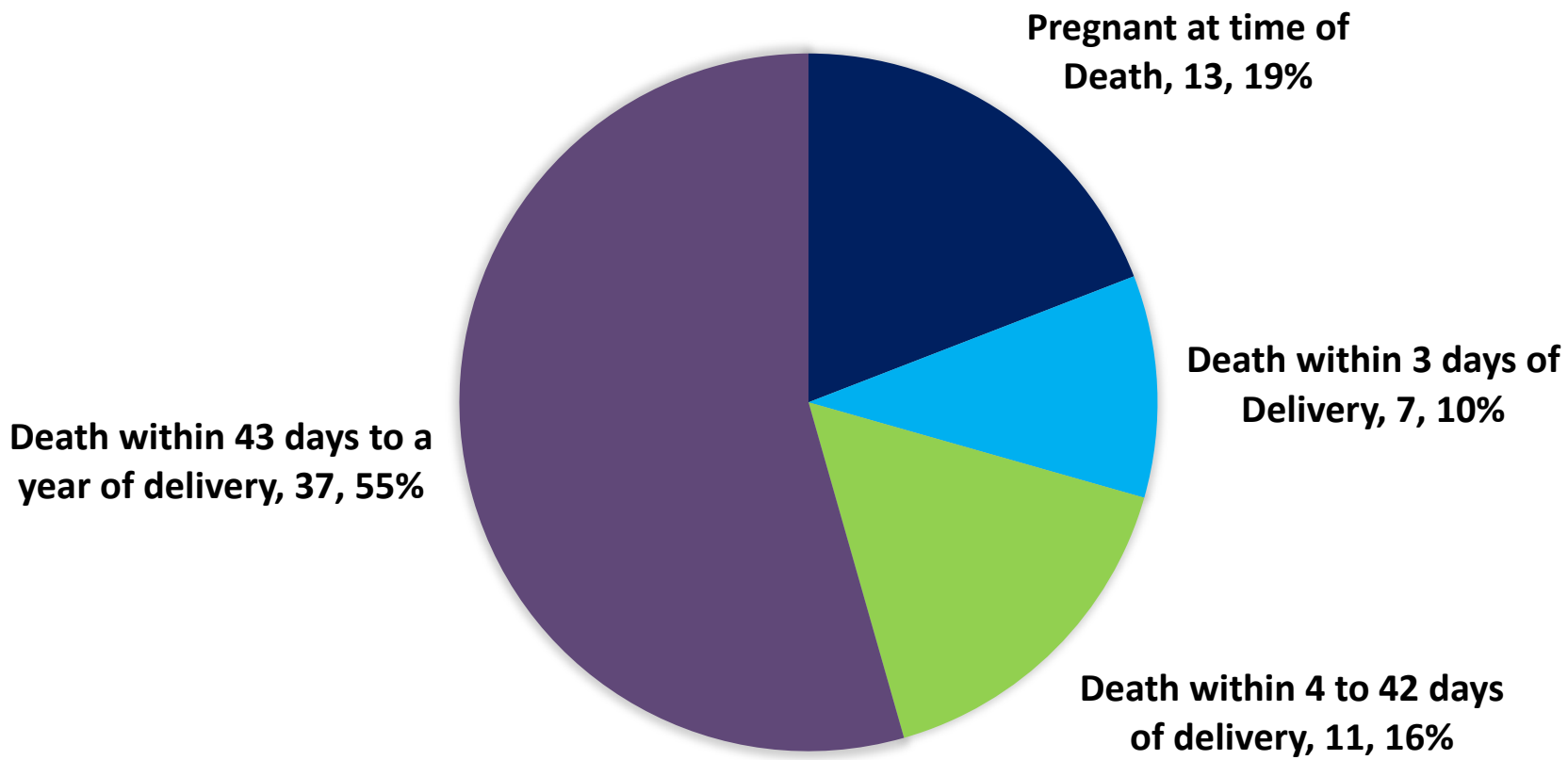
	Pregnant at time of Death	Death within 3 days of delivery	Death within 4 to 42 days of delivery	Death within 43 days to a year of delivery
Maternal deaths	52	8	25	106

Timing of Maternal Death by Underlying Cause Grouped; Kentucky MMR 2017-2020 Cohorts Combined*

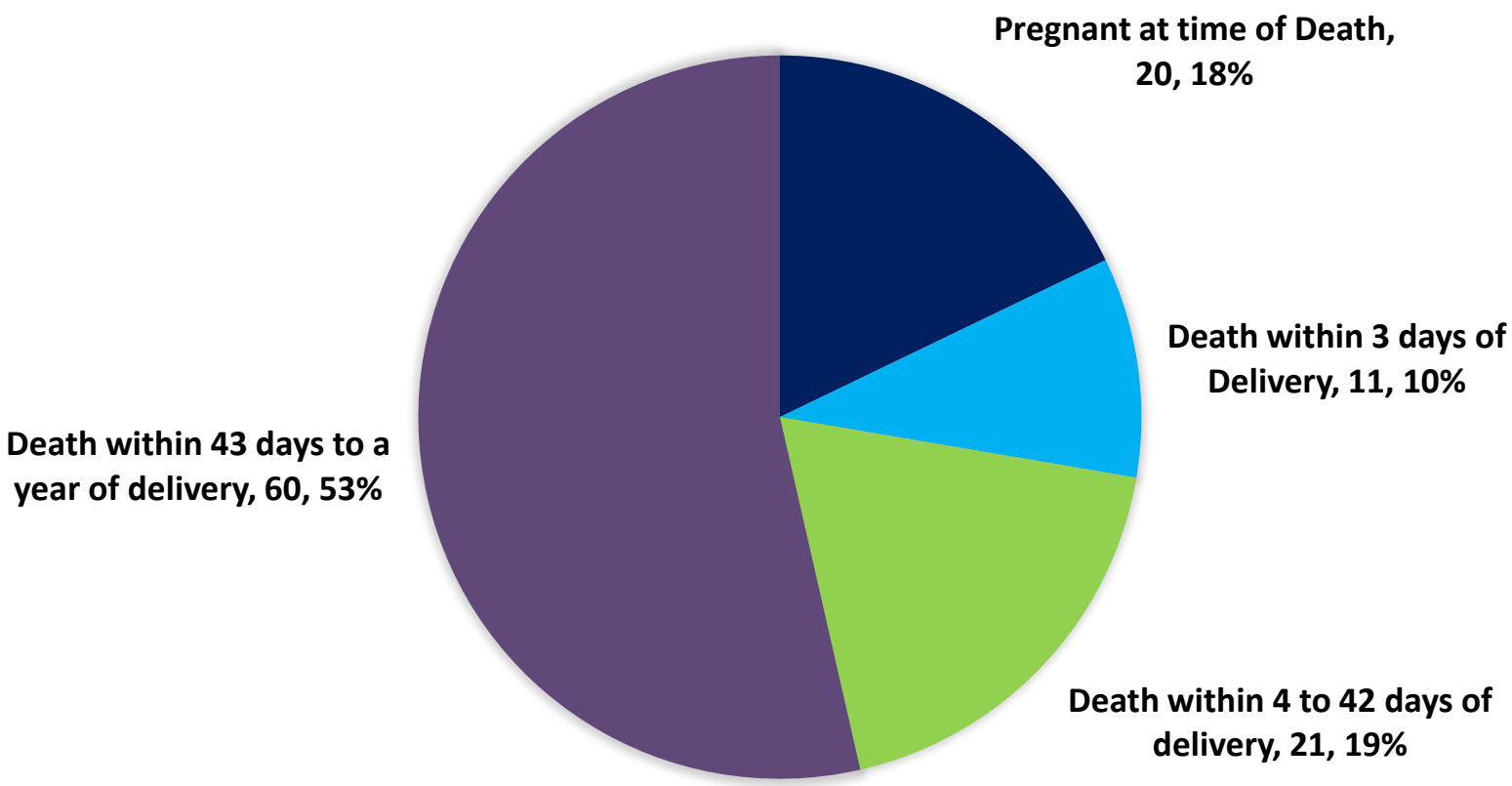


*Any values with a count <5 are suppressed due to data sharing limitations

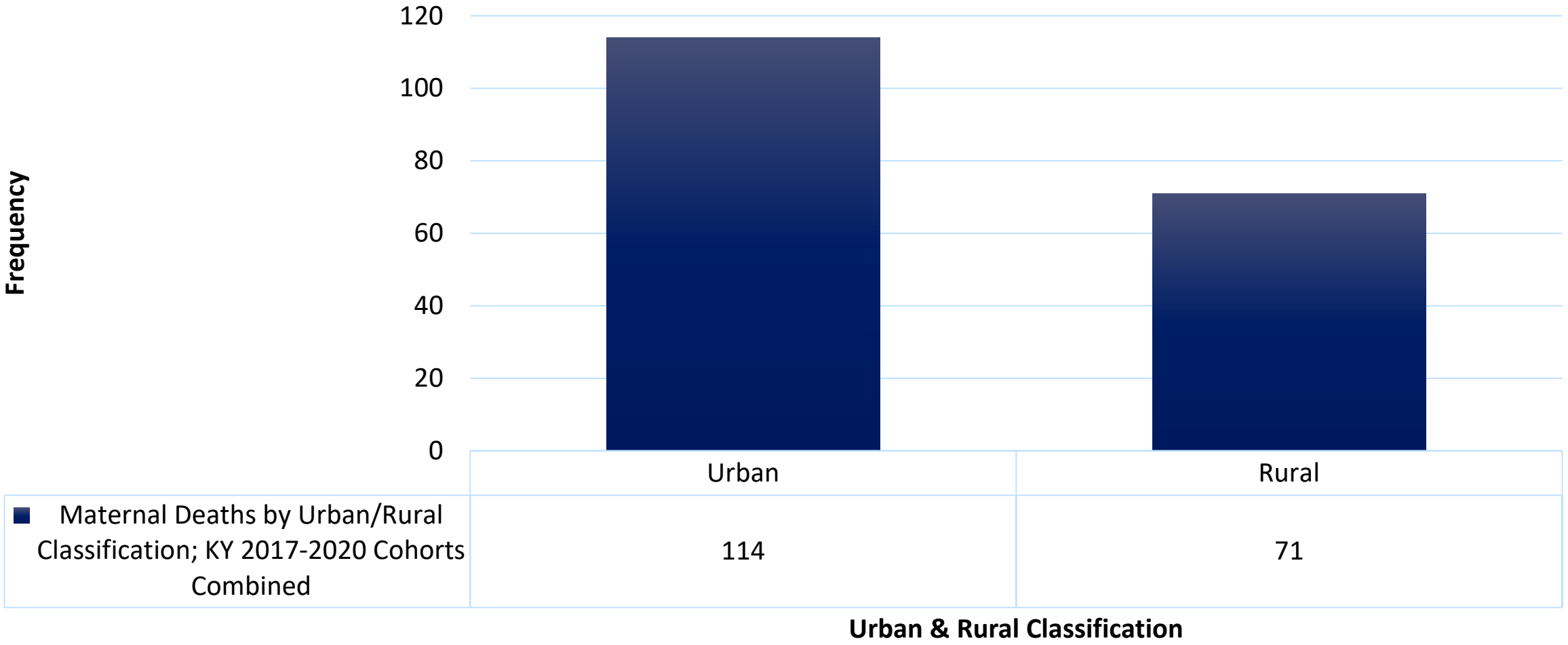
Mental Health Condition Contributing to Maternal Death by Timing; Kentucky MMR 2017-2020 Cohorts Combined



Substance Use Disorder Contributing to Maternal Death by Timing; Kentucky MMR 2017-2020 Cohorts Combined

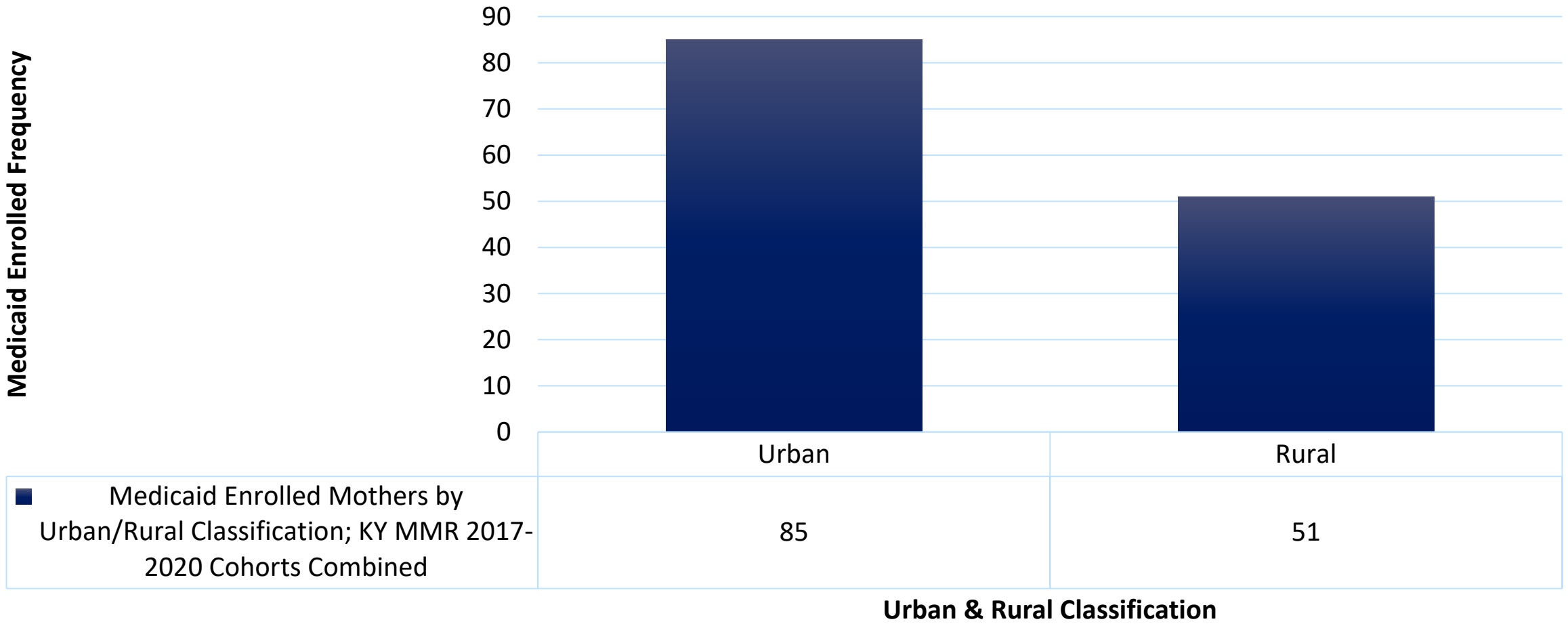


Maternal Deaths by Urban & Rural Classification; Kentucky MMR 2017-2020 Cohorts Combined*



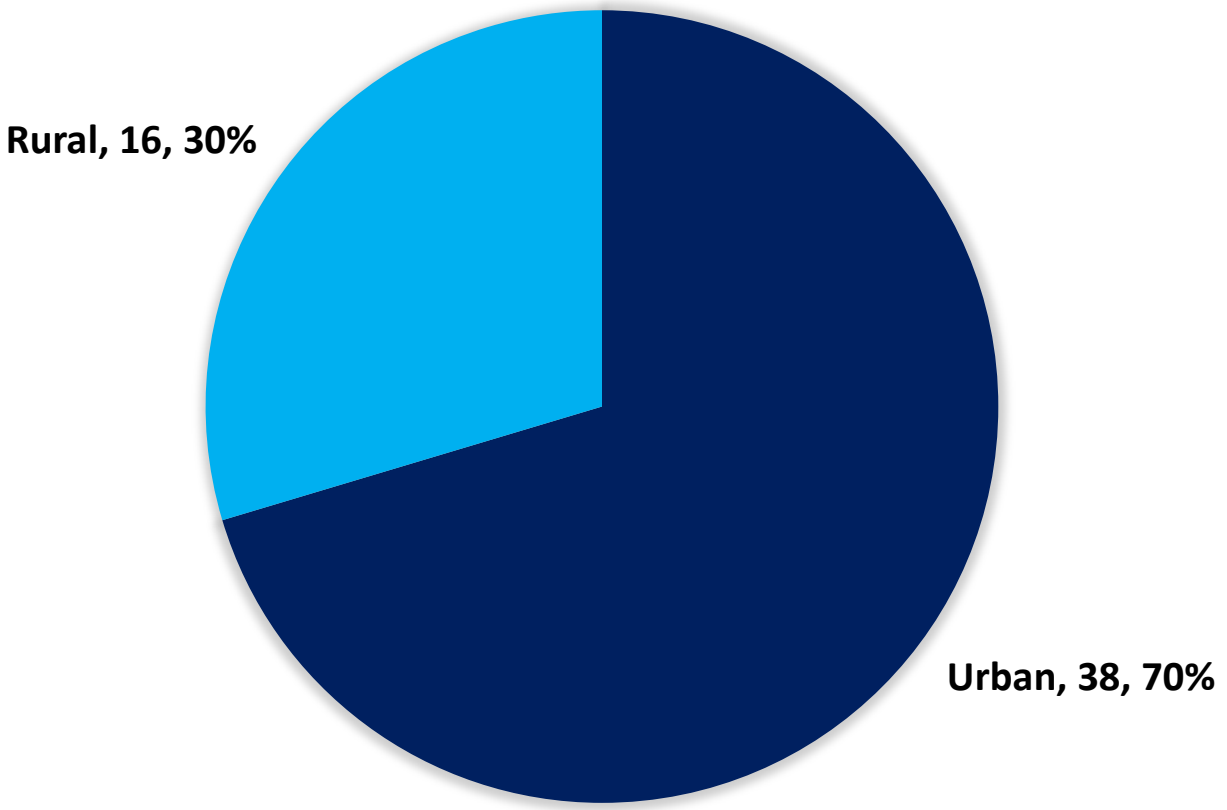
*Any null values associated with county data are excluded from this classification

Medicaid Enrolled Mothers by Urban & Rural Classification; Kentucky MMR 2017-2020 Cohorts Combined*



*Any null values associated with county data are excluded from this classification

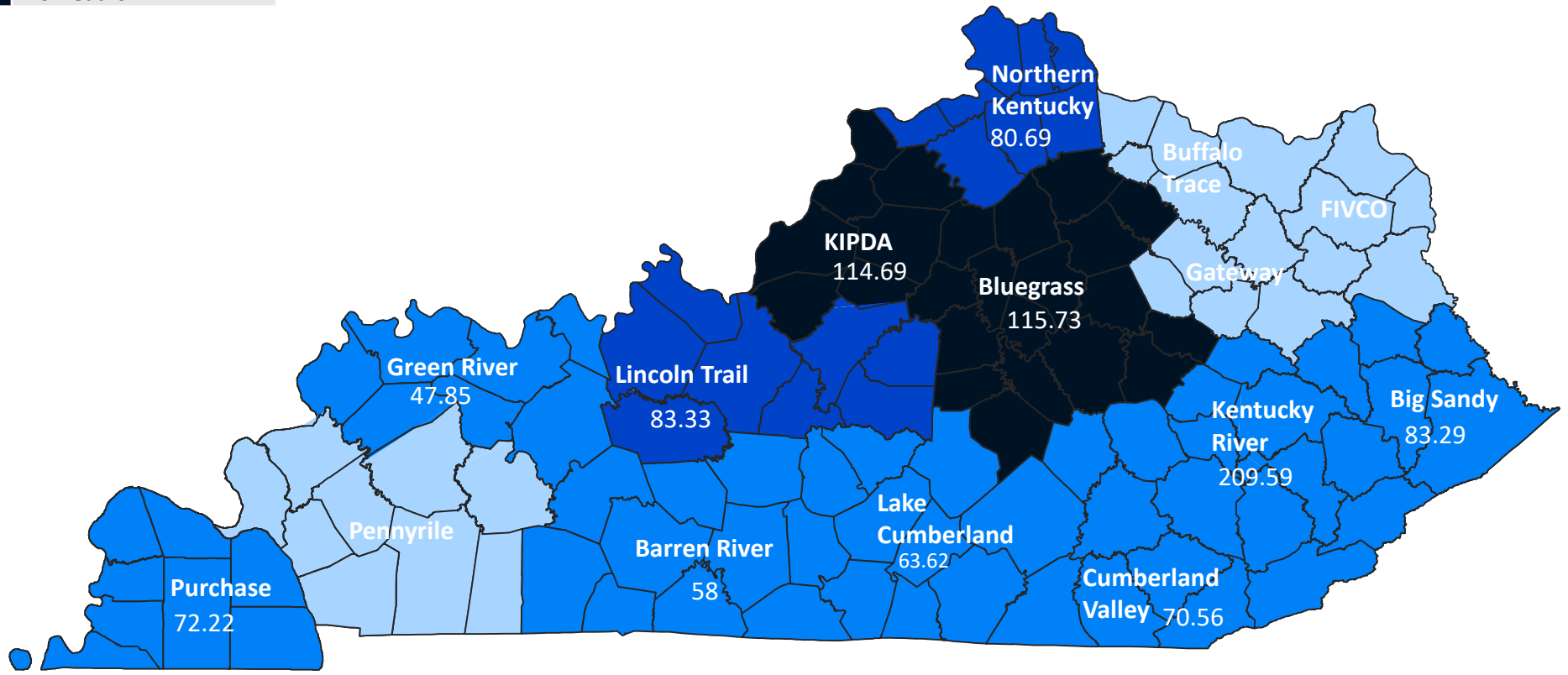
Maternal Deaths Directly Related to Overdose by Urban & Rural Classification; Kentucky MMR 2017-2020 Cohorts Combined*



*Any null values associated with county data are excluded from this classification

Kentucky Maternal Deaths and Rate of Death by Area Development District; Kentucky MMR 2017-2020 cohorts combined*

Legend	Combined Deaths per ADD
	<5 Deaths
	5-10 Deaths
	11-20 Deaths
	>20 Deaths



*Any values with a count <5 are suppressed due to data sharing limitations

Notes about prospective analysis

- 2020 cohort data includes a variety of new indicators, such as prenatal care initiation
- New information will be available when analyzing 2020 cohort data forward, but additional stratification is limited by the number of cases
- Inclusive of all fields, the MMRIA data dictionary contains information for over 1,300 variables

Maternal Mortality Review: Recommendations

Trina Miller, RN, BSN
Nurse Consultant
Maternal Mortality Review Program

August 10, 2023

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- Patient
- Family
- Provider
- Facility
- System

Broad Recommendations

Ensure the availability of risk-appropriate care across the healthcare system.

Coordinate with community resources.

Promote coordination of care across healthcare professionals.

Increase postpartum follow-up for women with mental health/substance use through the first year after delivery.

Medical

Collaboration between correctional facilities and medical providers/behavioral health facilities:
1. Prenatal care for incarcerated pregnant women and after released.
2. Substance use treatment and counseling for incarcerated pregnant women.

Providers should follow-up on patients within 7-10 days after antianxiety or antipsychotic medications are initiated, or a cardiac hypertensive medication is discontinued.

Emergency Room (ER) providers should admit a woman for further evaluation when she returns to the ER within 48 hours.

Incorporate suicide and depression screening into emergency room visits.

Provide Narcan:
1. Women who use/prescribed substances and her family and support system.
2. Residents of college dormitories.

Referrals and Consultations

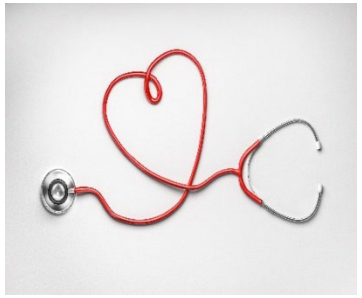
Social service consults:
1. For every woman actively using or a history of using substances.
2. For every woman who does not have stable housing/shelter.

An OB/GYN consult for pregnant women with repeat ER visits within 48 hours.

Women with high-risk conditions should have a warm hand-off or immediate referral for contraception, including a recommendation on type of contraception.

Coordinated referrals among primary physician, obstetric provider, substance use disorder specialist, and pediatrician for follow-up and plan of safe care for the mother and infant.

Collaboration between providers and behavioral health facilities for follow-up on patients who miss multiple appointments.



Cardiac

Women who have a history of cardiomyopathy and the ability to become pregnant should have regular cardiology follow-up annually.

Considering ordering a cardiology consult and/or echocardiogram: presence of other abnormal cardiac labs/tests, women with hypertension and other comorbidities, and order this early in the clinical course of a critically ill patient.

When possible, order the echocardiogram for the pregnant women when during the pregnancy when peak cardiac workload occurs.

Women should have a visit/evaluation with a provider within seven days after an antihypertensive is discontinued.

Safety

Seat belt and safety helmet (motorcycles, ATV, etc.).
1. Reinforce at prenatal visits, hospital discharge, and pediatric appointments.
2. Use of seatbelt extender if factory installed seatbelts do not fit appropriately.

Do not ever ride in a motorized vehicle with a person under the influences of substances.

Prior to discharge, a safety plan should be developed for women with mental health disorder and have access to a gun.

Every Mother Matters…and so do You!

We can implement lifesaving solutions to prevent further maternal mortality and ensure that mothers can live healthy lives before, during, and after giving birth.

- Download the MMR handout with the complete list of recommendations.
- Identify those that are a good fit for your clinical practice, organization, and community.
- Share the MMR annual report.

Promote

Engage

Collaborate

Implement

Individuals

Communities

Agencies

Clinical Practices

Professional Organizations

One MMRC Data to Action Success Story

Data:

Data from multiple cohorts demonstrated risk occurring after the 6-week postpartum visit, or the visit was not completed secondary to loss of payor source.

Recommendation:

Expand Medicaid access for an entire year postpartum to improve continuity of care and reduce the risk associated with pregnancy or morbidities exacerbated during pregnancy.

Action:

- Medicaid interagency work group reviewed the data and supported the request.
- Medicaid (led by Dr. Judy Theriot) submitted a plan for the expansion.

Success:

- May 25, 2022: Kentucky's request for 12-month postpartum coverage was approved by the Centers for Medicare and Medicaid Services (CMS).

MMR Program

Leadership:

- Dr. Connie White MD, MS, FACOG. KDPH Deputy Commissioner for Clinical Affairs.Connie.White@ky.gov
- Dr. Henrietta Bada MD, MPH. Maternal and Child Health Division Director.Henrietta.Bada@ky.gov
- Jan Bright RN, BSN. Nurse Manager, Child and Family Health Improvement Branch.Janice.Bright@ky.gov

Data:

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Nurse Abstractors:

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- Liz Johnson, RN, MSN. Nurse Consultant/Inspector.Liz.Johnson@ky.gov

Perinatal Outreach and Education, Record Requests:

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- Pauline Hayes, RN, BSN, MPH, Nurse Consultant/Inspector.Pauline.Hayes@ky.gov

Informant Interviews and Social Work Support:

- Kellie Rose, MSW, Social Service Specialist. Kellie.Rose@ky.gov

Thank you!

August 10, 2023

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2020 Complete List of Recommendations

Medical

- All providers should educate the patient on the severity of her condition, including additional risks if she becomes pregnant.
- Providers should hold multidisciplinary conferences for medically complex patients.
- Providers should review the patient's prior imaging and factor in abnormal findings when scheduling the timeframe for the next intervention or follow-up.
- ER providers should admit a woman for further evaluation when she returns to the ER within 48 hours.
- Additional ambulance services are needed for communities with only one ambulance.

Medical

- Primary provider should order a cardiac consult or echocardiogram for all abnormal cardiac tests (e.g., EKG, etc.) depending on the acuity of the woman's medical conditions.
- Women with a history of cardiomyopathy and the ability to become pregnant should have an annual cardiology follow-up.
- If a pregnant woman needs an echocardiogram, the provider should order it for the timeframe when peak cardiac workload occurs, when possible.
- Providers should order an echocardiogram for critically ill patients early in the clinical course.
- Providers should order an echocardiogram for women with hypertension and comorbidities (E.g., BMI>40, sleep apnea).

Consults, Referrals, and Continuity of Care

- Social service consults should be ordered: 1) For every woman actively using/history of using substances. 2) For every woman who does not have stable housing/shelter.
- Coordinated referrals among primary physician, obstetric provider, substance use disorder (SUD) specialist, and pediatrician are needed for follow-up and plan of safe care for the mother and infant.
- Women with high-risk conditions should have a warm hand-off or immediate referral for contraception, including a recommendation on type of contraception.
- An OB/GYN consult should be ordered for pregnant women with repeat ER visits within 48 hours.
- Providers should refer pregnant and postpartum women to the HANDS program when applicable.
- Providers should transfer appropriate patients to a higher level of care early in the clinical course.

Collaborations

- Collaboration is needed between mental health providers and OB providers.
- Increased collaboration is needed between medical providers and behavioral health facilities to follow-up on patients with multiple missed appointments.
- Patients should have an option of telemedicine appointments if they are unable to have an in-person visit, if medically appropriate.
- An educational tool, referral questionnaire, and referral process should be developed to improve communication between Department for Community Bases Services (DCBS) and medication assisted treatment (MAT) providers.
- OB providers should have a list of substance use treatment centers and facilitate appointments.

Follow-up

- Substance use providers/counselors should develop a one-year post-partum plan for monitoring and treatment for new mothers with SUD.
- Conduct in-person follow-up visits through one year postpartum for women with SUD or mental health disorders.
- Directors of behavioral health facilities should develop a one-year postpartum SUD monitoring/treatment program available to their clients who bring their infants home after delivery.
- Department of Corrections (DOC) should arrange follow-up SUD appointment upon release from jail and develop a system of facilitation between judicial system (E.g. parole officers, family drug court) and treatment providers.
- Women should follow-up with their parole officer and medical team for SUD care within 10 days of release from a correctional facility.
- Hospitals/providers should assure in-person/home/virtual postpartum visits with an APRN every three months through the first year.

Medication/Diagnostic/Resource Recommendations

- The medical/behavioral health facility should provide a universal prescription for Narcan to women at risk, with SUD, or on prescription opioids.
- The pharmacy should provide Narcan to all women who are prescribed buprenorphine or filling a prescription for buprenorphine.
- Narcan should be provided at no cost to relatives of substance users, resident assistants of college dormitories, and to medical providers.
- Providers should avoid prescribing high dose opioids for greater than 7 days after discharge from delivery event.
- Providers should follow-up on patients within 7-10 days after antianxiety/antipsychotics are initiated or a cardiac hypertensive medication is discontinued.
- Providers should consider an empiric postpartum hysterectomy when the patient is in septic shock and Group A strep is suspected.
- Hospitals should develop alternate facilities or pathways to provide necessary outpatient IV antibiotics (six-week course) for patients with a SUD history in high-risk situations.

Patient Education

- Patients with high-risk cardiac conditions should accept contraception or family planning guidance prior to pregnancy and during annual gynecology care.
- Patients should cease smoking, especially those with underlying medical conditions.
- Throughout the pregnancy, providers should educate their patients on the adverse effects of alcohol and the importance of abstaining.
- Develop and provide education to women on the risks of SUD relapse though 10 months postpartum.
- Educate patients with SUD on the importance of follow-up within one to two weeks after delivery.

Provider Education

- The Emergency Medical Society and American College of Obstetrics and Gynecology (ACOG) should create clinical simulations on critical care/cardiac emergencies in pregnancy.
- Increase provider awareness of legal options and issues for continued care beyond a 72-hour hold.
- The Kentucky Perinatal Quality Collaborative (KyPQC) and Kentucky Board of Medical Licensure should provide education to medical providers on the most recent ACOG guidance on contraception, particularly for women with high-risk medical conditions.

Safety

- Every person should always wear a seat belt in a motor vehicle.
- Every person should always wear a helmet (motorcycles, ATV, etc.).
- Educate patients that it is never safe to ride in a vehicle with a person under the influences of substances.
- Providers should reinforce parental seatbelt use during prenatal visits, at hospital discharge from delivery of infant, and at pediatric follow-up appointments.
- Providers should educate on the use of a seatbelt extender if the factory installed seatbelts do not fit.
- Prior to discharge, a safety plan should be developed for women with mental health disorder who have access to a gun.
- Behavioral health facilities should develop a safety plan for women with mental health disorder who have access to a gun.