Maternal Health in the Sunflower State: KPQC and Hospital Partnerships to Improve Outcomes and Address CMS Requirements

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KS Maternal Mortality Review Committee
(KMMRC) and
KS Perinatal Quality Collaborative
(KPQC) Coordinator


KANSAS
MATERNAL &
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Kansas Maternal
Mortality Review
Committee


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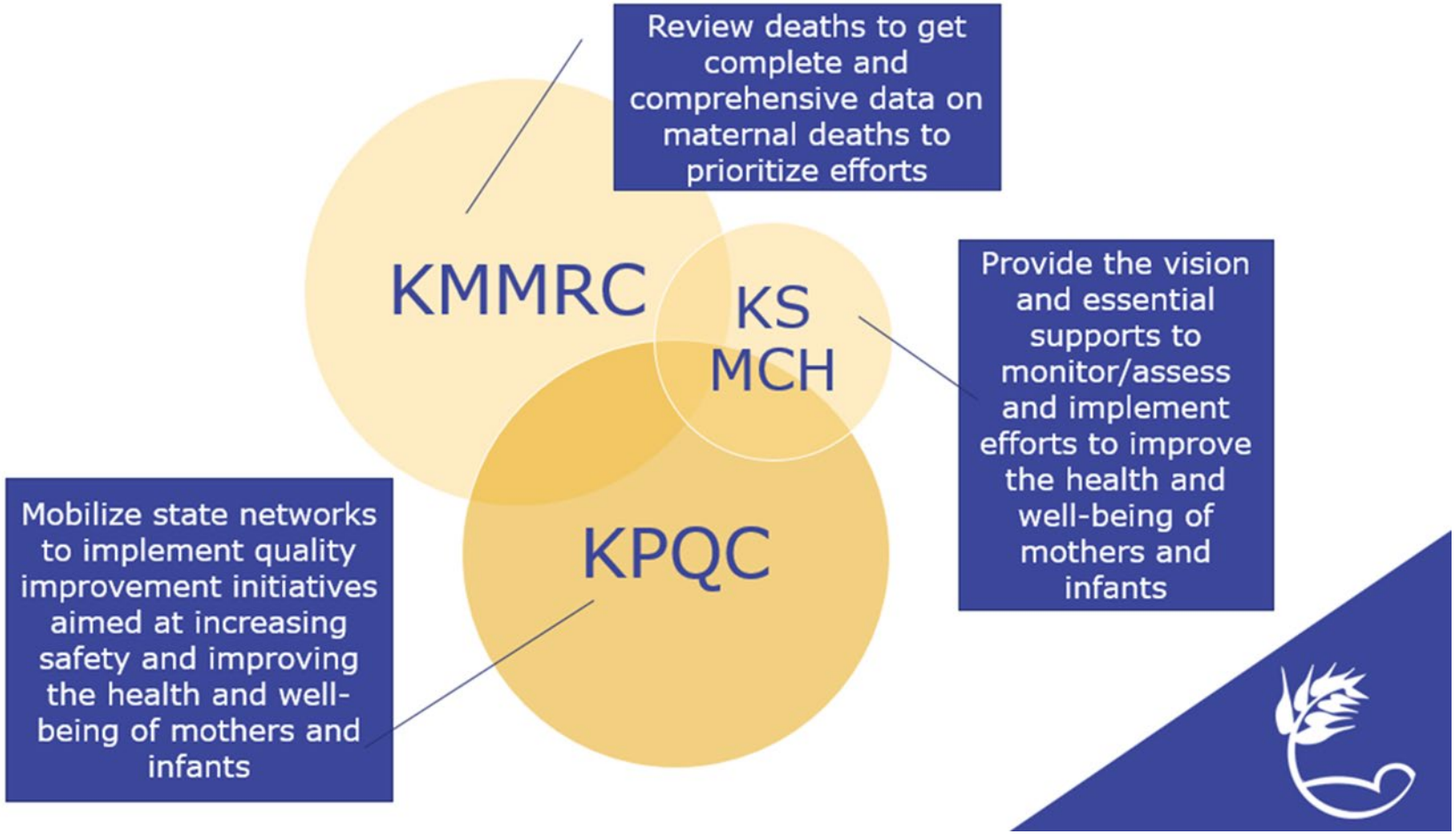

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Community Support for Positive Clinical Outcomes

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	CDC – National Center for Health Statistics (NCHS)	CDC – Pregnancy Mortality Surveillance System (PMSS)	Maternal Mortality Review Committees
Data Source	Death certificates	Death certificates linked to fetal death and birth certificates	Death certificates linked to **fetal death and birth certificates, medical records, social service records, autopsy, informant interviews…**
Time Frame	During pregnancy – 42 days	During pregnancy – 365 days	During pregnancy – 365 days
Source of Classification	ICD-10 codes	Medical epidemiologists (PMSS-MM)	**Multidisciplinary committees**
Purpose	Show national trends and provide a basis for international comparison	Analyze clinical factors associated with deaths, publish information that may lead to prevention strategies	**Understand medical and non-medical contributors to deaths, prioritize interventions that effectively reduce maternal deaths**

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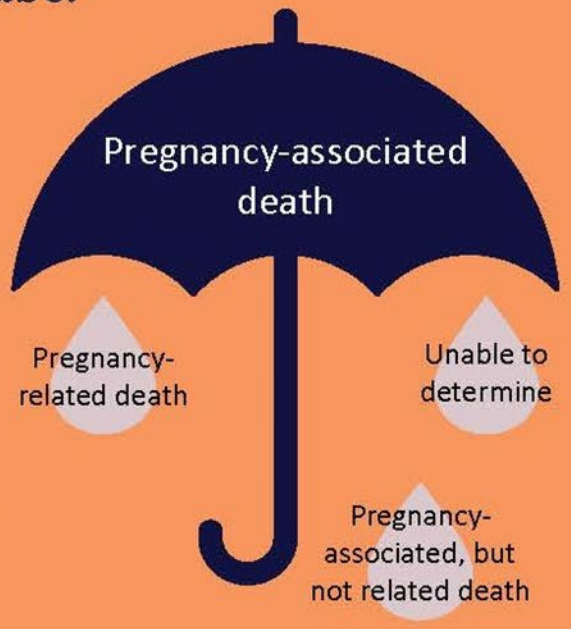
Source: St. Pierre A; Zaharatos J; Goodman D; Callaghan WM. Jan 2018. Challenges and opportunities in identifying, reviewing, and preventing maternal deaths. Obstetrics and Gynecology. 131; 138-142.

Pregnancy Associated Death

A pregnancy-associated death refers to the death of a woman while pregnant or anytime within one year of pregnancy regardless of cause.[1]

- **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.
- **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.
- **Pregnancy-associated but unable to determine pregnancy relatedness.** The death of a woman while pregnant or within one year of pregnancy, due to a cause that could not be determined to be pregnancy-related or not pregnancy-related.



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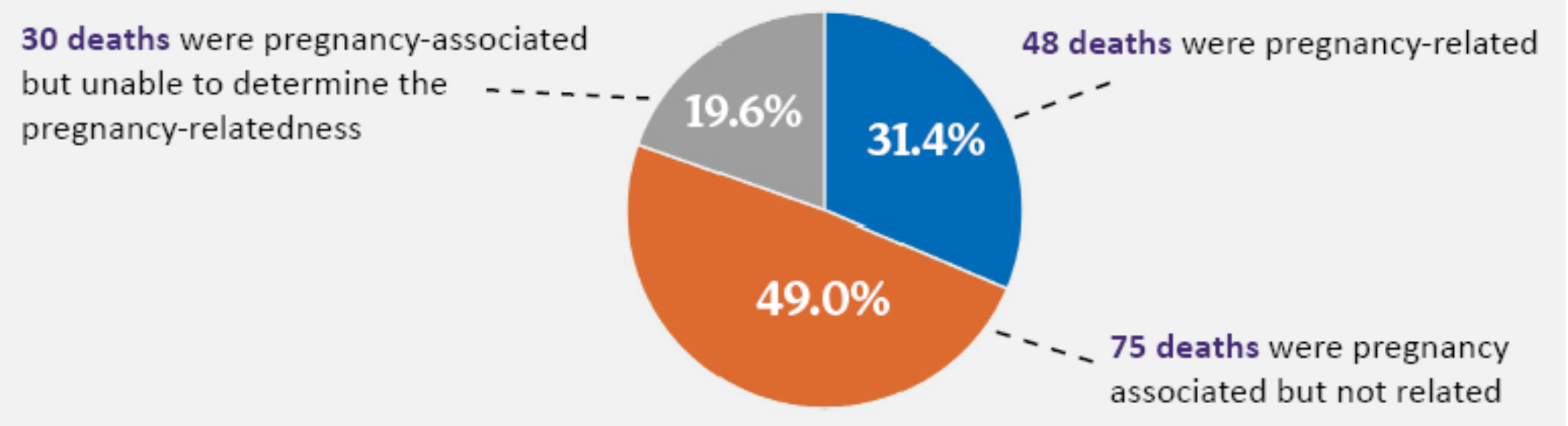
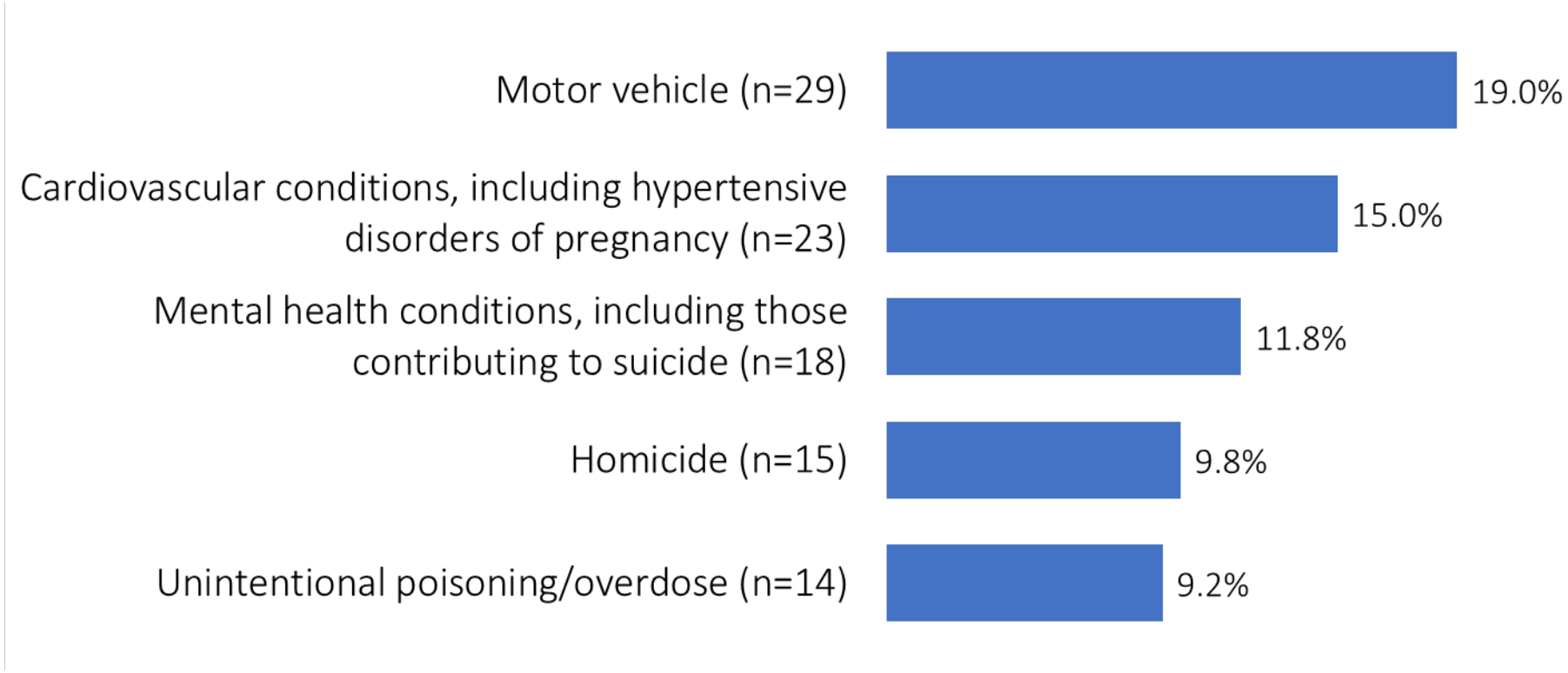
Pregnancy-Associated Deaths 2016-2022 (Total=153)



More than half (51.6%) of all pregnancy-associated deaths occurred after 42 days postpartum.

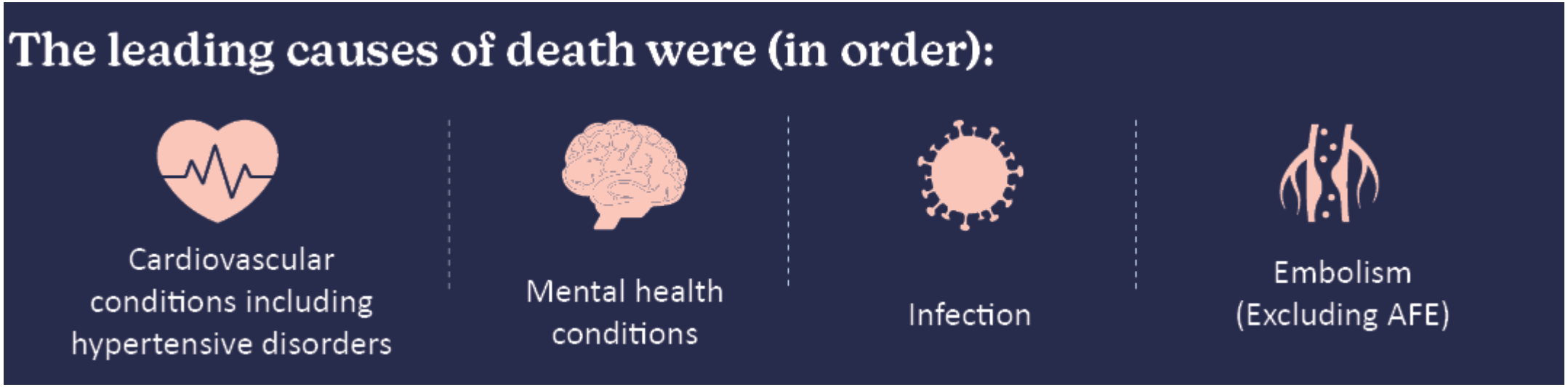
Source: KMMRC Determinations, Kansas, 2016-2022 (Preliminary Data, Subject To Change)

Leading Causes of Pregnancy-Associated Deaths 2016-2022 (Total=153)



Source: KMMRC Determinations, Kansas, 2016-2022 (Preliminary Data, Subject To Change)

Pregnancy-Related Deaths 2016-2022 (Total=48)



Note: Mental health conditions, including those contributing to suicide.

Source: KMMRC Determinations, Kansas, 2016-2022 (Preliminary Data, Subject To Change)

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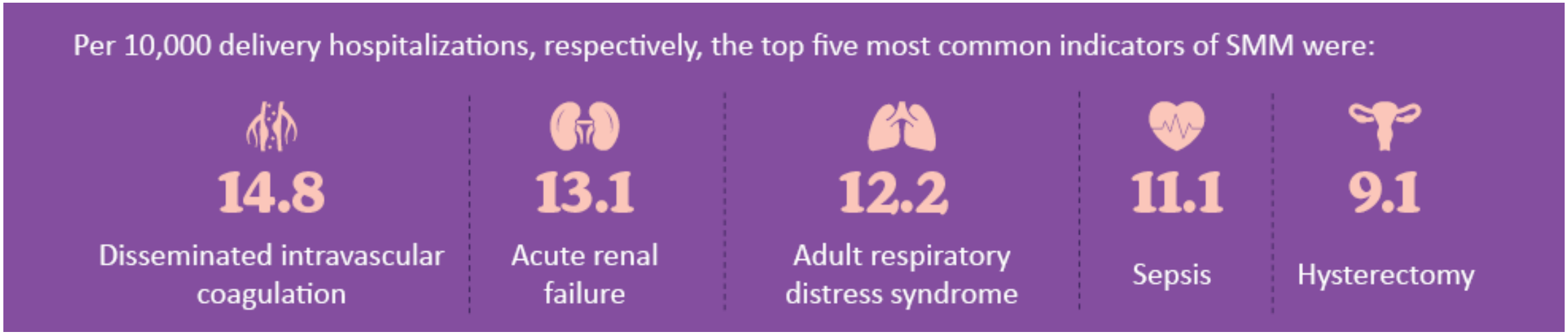
Severe Maternal Morbidity 2018-2022 (Total=1,067)



Source: Kansas Department of Health and Environment, Kansas Hospital Discharge Data, Kansas, 2018-2022, (Preliminary Data, Subject To Change).

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KMMRC Recommendations for Action:

- ***Patient education and empowerment.***

- ***Screen, brief intervention and referrals to treatment*** for:
  - Comorbidities and chronic illness.
  - Intimate partner violence.
  - Pregnancy intention.
  - Mental health conditions (including postpartum anxiety and depression).
  - Substance use disorder – alcohol, illicit or prescription drugs.
  - Social Determinants of Health.

- Better ***communication and multi-disciplinary collaboration*** between providers, including referrals.

Source: KMMRC Determinations, Kansas, 2016-2022 (Preliminary Data, Subject To Change)

KMMRC Recommendations for Action:

- Obstetric providers and facilities should implement and follow **Alliance for Innovation on Maternal Health (AIM) patient safety bundle** recommendations for critical clinical events.

- ***Promote and support culturally congruent, holistic care coordination for all birthing persons*** through the use of midwives, doulas, community health workers (CHWs) and home visiting services as the “standard of perinatal care” in Kansas.

Source: KMMRC Determinations, Kansas, 2016-2022 (Preliminary Data, Subject To Change)

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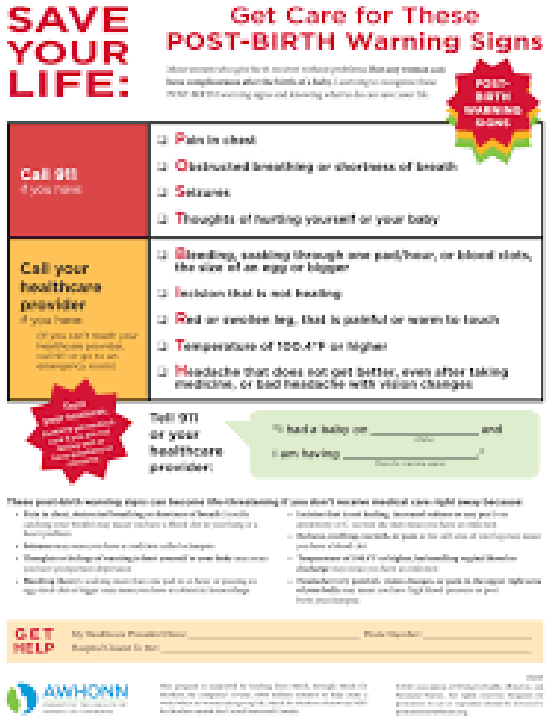
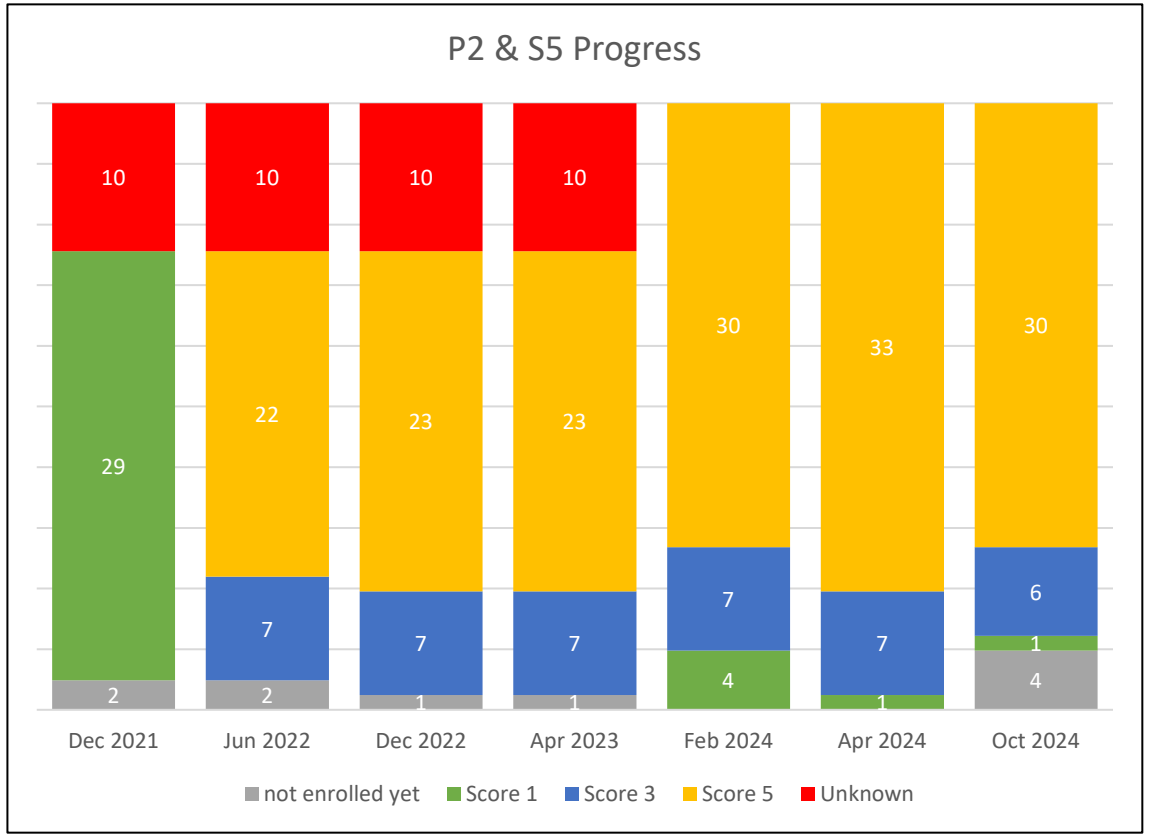
Final Data

AWHONN POST BIRTH Training and Implementation to Discharge Teaching





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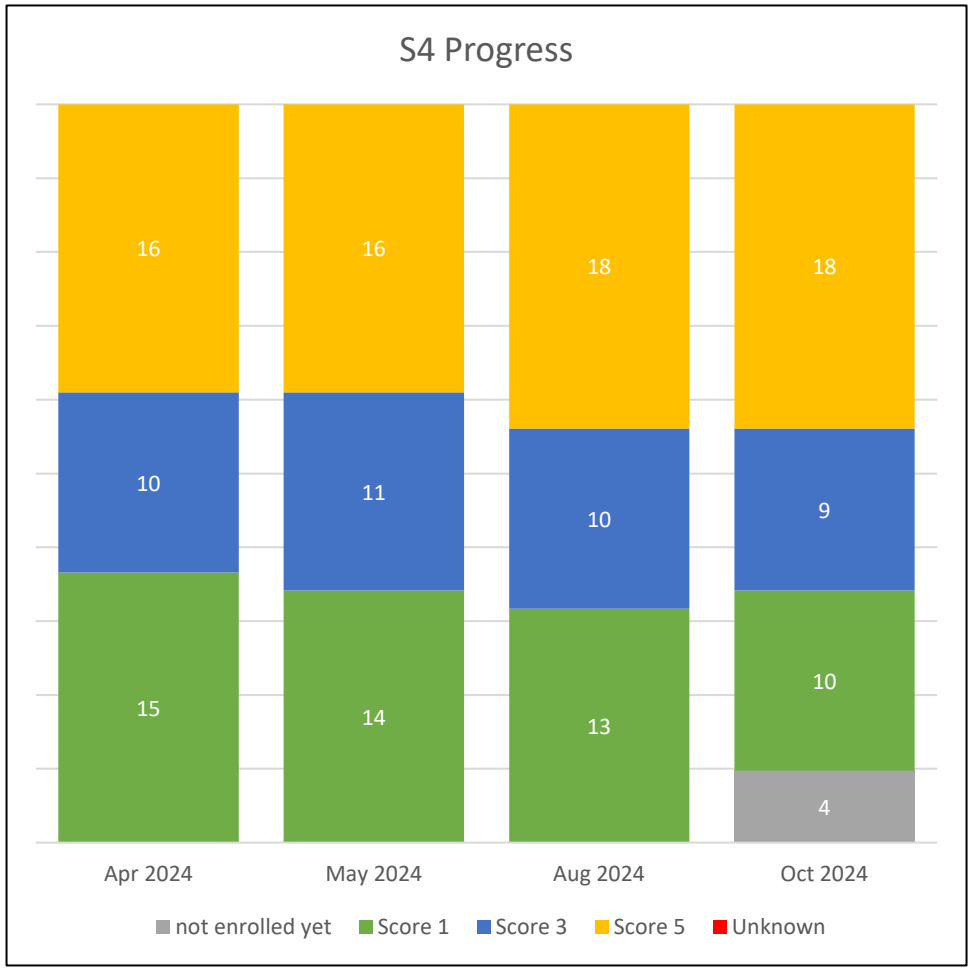
83% of facilities have fully implemented this!

Final Data

Emergency Department Triage: Asking the question "Have you been pregnant or delivered a baby within the last year?"

76% of facilities enrolled facilities have implemented or are in the process of implementing this!



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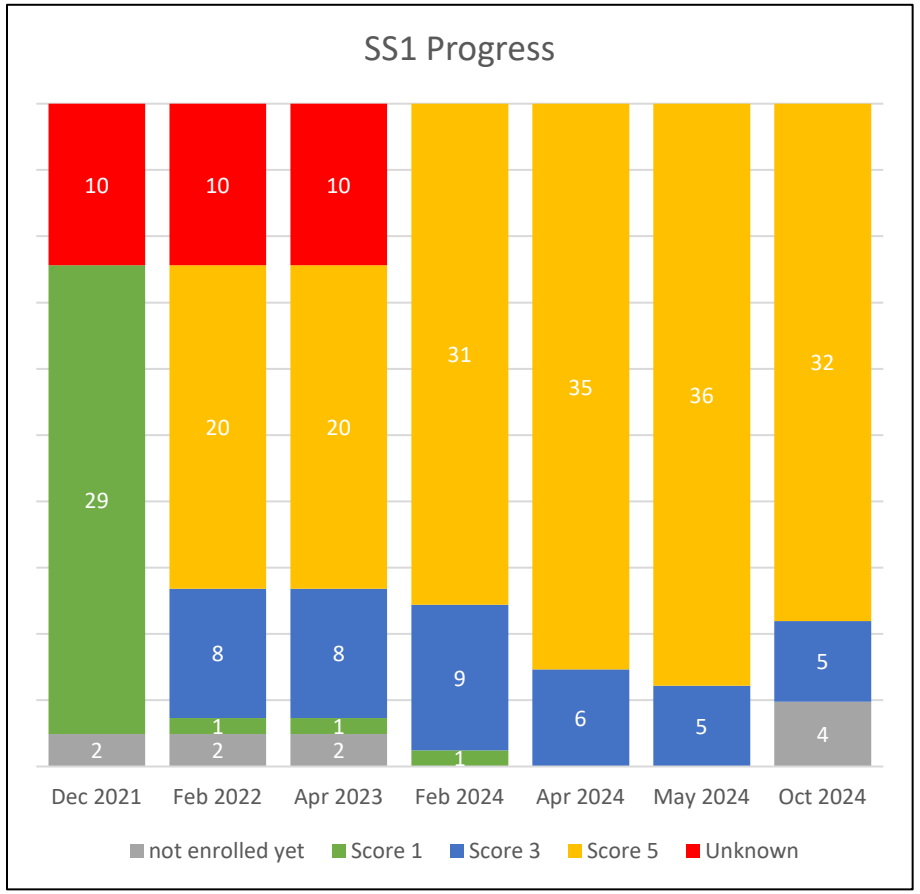
Final Data

Postpartum Appointments: Ensuring there is a follow up appointment scheduled prior to Discharge:

- Primary OB Provider appt may be made for patient at any of the following, based on patient indication:
  2 weeks, 3 weeks, 6 weeks, 12 weeks

81% of facilities have fully implemented this!



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Where Do We Go Next?

FOURTH TRIMESTER INITIATIVE

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Alliance for Innovation on Maternal Health (AIM)

There are 8 Core AIM Patient Safety Bundles:

- Cardiac Conditions in Obstetric Care
- Sepsis in Obstetric Care
- ***Postpartum Discharge Transition+ (Fourth Trimester Initiative)***
- Care for Pregnant and Postpartum People with Substance Use Disorder
- Perinatal Mental Health Conditions
- **Severe Hypertension in Pregnancy***
- Obstetric Hemorrhage
- Safe Reduction of Cesarean Birth

The American College of Obstetricians and Gynecologists (ACOG) is the technical assistance and data organization for AIM patient safety bundle implementation.

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2022 Natality Report

Table 22. Number of Births Where Reported Medical Risk Factors by Population Group, Kansas, 2022*

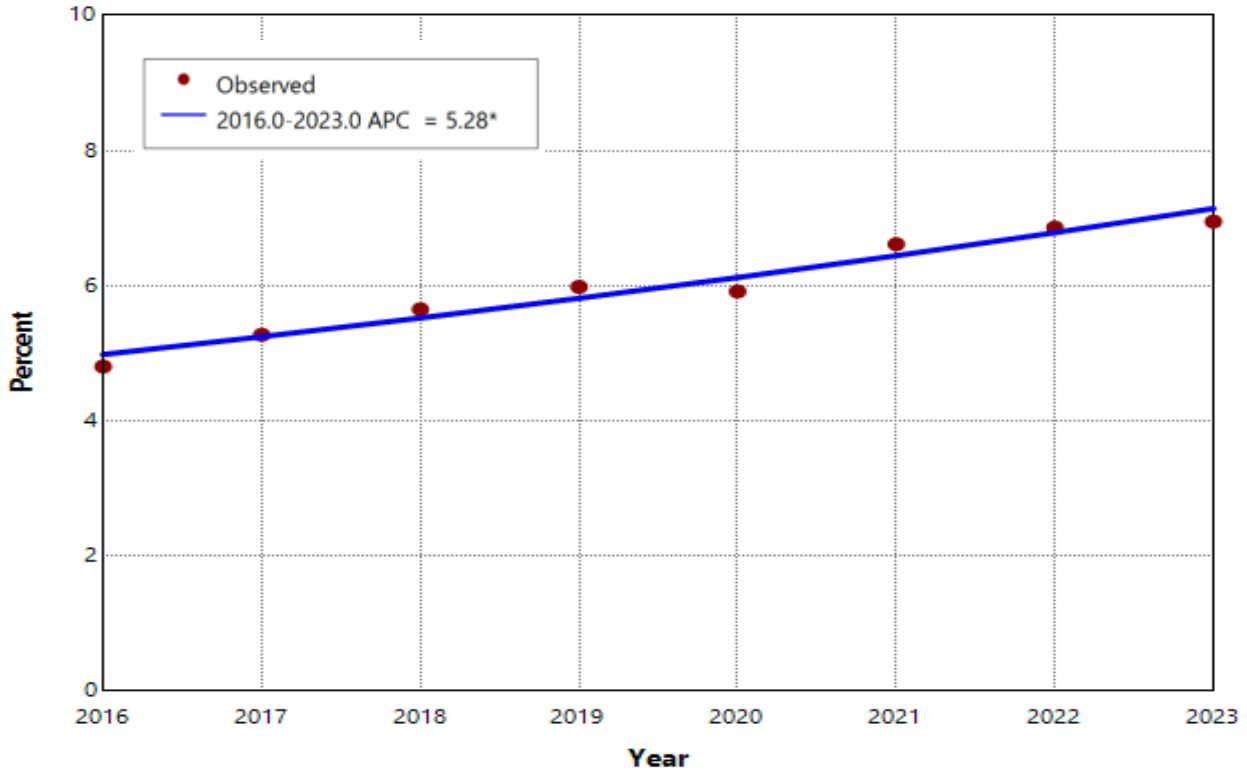
Medical Risk Factors†	Population Group															
	White NH		Black NH		American Indian Alaska Native NH		Asian-PI NH		Multi Race-Other NH		Hispanic-Any Race		n.s.‡		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Pre-pregnancy Diabetes	217	0.9	31	1.4	2	1.2	15	1.3	14	1.5	99	1.6	1	1.0	379	1.1
Gestational Diabetes	1,945	8.3	173	7.9	16	9.7	195	17.3	74	7.8	608	9.7	6	6.3	3,017	8.8
Pre-pregnancy Hypertension	636	2.7	113	5.2	6	3.6	23	2.0	26	2.7	107	1.7	3	3.1	914	2.7
Pre-eclampsia	2,467	10.5	204	9.3	20	12.1	83	7.4	80	8.4	462	7.3	3	3.1	3,319	9.7
Eclampsia	84	0.4	8	0.4	0	0.0	1	0.1	3	0.3	19	0.3	0	0.0	115	0.3
Previous Pre-term Birth	656	2.8	124	5.7	6	3.6	26	2.3	26	2.7	203	3.2	1	1.0	1,042	3.0
Previous Poor Pregnancy Outcome	776	3.3	144	6.6	12	7.3	56	5.0	23	2.4	303	4.8	1	1.0	1,315	3.8
Vaginal Bleeding	216	0.9	28	1.3	0	0.0	9	0.8	10	1.1	63	1.0	0	0.0	326	0.9
Previous C-Section	3,536	15.0	456	20.8	29	17.6	168	14.9	131	13.8	941	14.9	20	20.8	5,281	15.4
Infertility Treatment	618	2.6	13	0.6	2	1.2	47	4.2	11	1.2	45	0.7	3	3.1	739	2.1
Infections Contracted or Treated During Pregnancy§	874	3.7	178	8.1	13	7.9	40	3.6	76	8.0	285	4.5	4	4.2	1,470	4.3
Smoking During Pregnancy	1,442	6.1	166	7.6	23	13.9	10	0.9	89	9.4	143	2.3	0	0.0	1,873	5.4
Alcohol Use During Pregnancy	39	0.2	6	0.3	0	0.0	0	0.0	2	0.2	9	0.1	0	0.0	56	0.2
Total of Medical Risk Factors°	13,506	n/a¶	1,644	n/a¶	129	n/a¶	673	n/a¶	565	n/a¶	3,287	n/a¶	42	n/a¶	19,846	n/a¶
Total Births	23,569		2,191		165		1,124		949		6,295		96		34,389	

*Residence data
†More than one medical risk factor may have been reported for a birth. Therefore, actual number of births maybe lower than totals.
‡n.s. = not stated
§Infections include: Gonorrhea, Syphilis, Herpes Simplex Virus, Chlamydia, HIV, Hepatitis B & Hepatitis C
¶ n/a: Not Applicable
°The data provided only includes births with reported medical risk factors, each risk factor is counted individually. The total of birth with risk factor does not equal the total of births.

Source: Kansas Department of Health and Environment, Natality Report by Racial and Ethnic Population Groups, Kansas, 2022
Available at: kdhe.ks.gov/DocumentCenter/View/40442/

Preeclampsia prevalence increased significantly from 4.8 to 6.9 per 100 delivery hospitalizations (2016-2023).

Kansas Prevalence of Preeclampsia among Delivery Hospitalization by Year, 2016-2023



Year	Preeclamsia*	Delivery Hospitalizations	Prevalence (%)
2016	1679	34952	**4.8**
2017	1766	33499	5.3
2018	1793	31739	5.6
2019	1941	32453	6.0
2020	1857	31406	5.9
2021	2079	31434	6.6
2022	2116	30849	6.9
2023	2145	30878	**6.9**

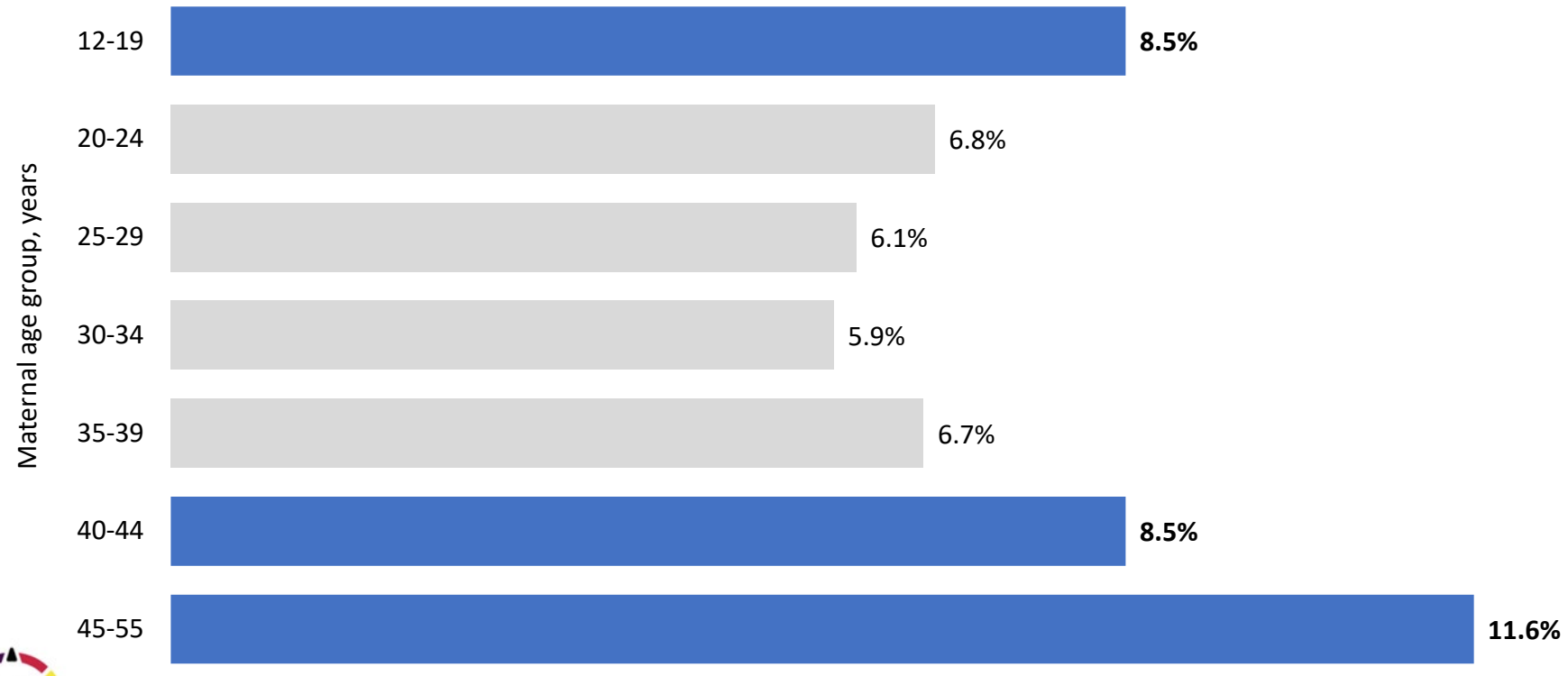
*ICD-10-CM diagnosis codes for preeclampsia (O15)

* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 0 Joinpoints.

Source: Kansas Department of Health and Environment, Kansas Hospital Discharge Data, Kansas, 2016-2023

The prevalence was highest at the youngest (12-19 years, 8.5%) and oldest (45-55 years, 11.6%) age groups

Kansas prevalence of Preeclampsia among Delivery Hospitalization by Maternal Age Group (Years) 2019-2023 (5 years combined)

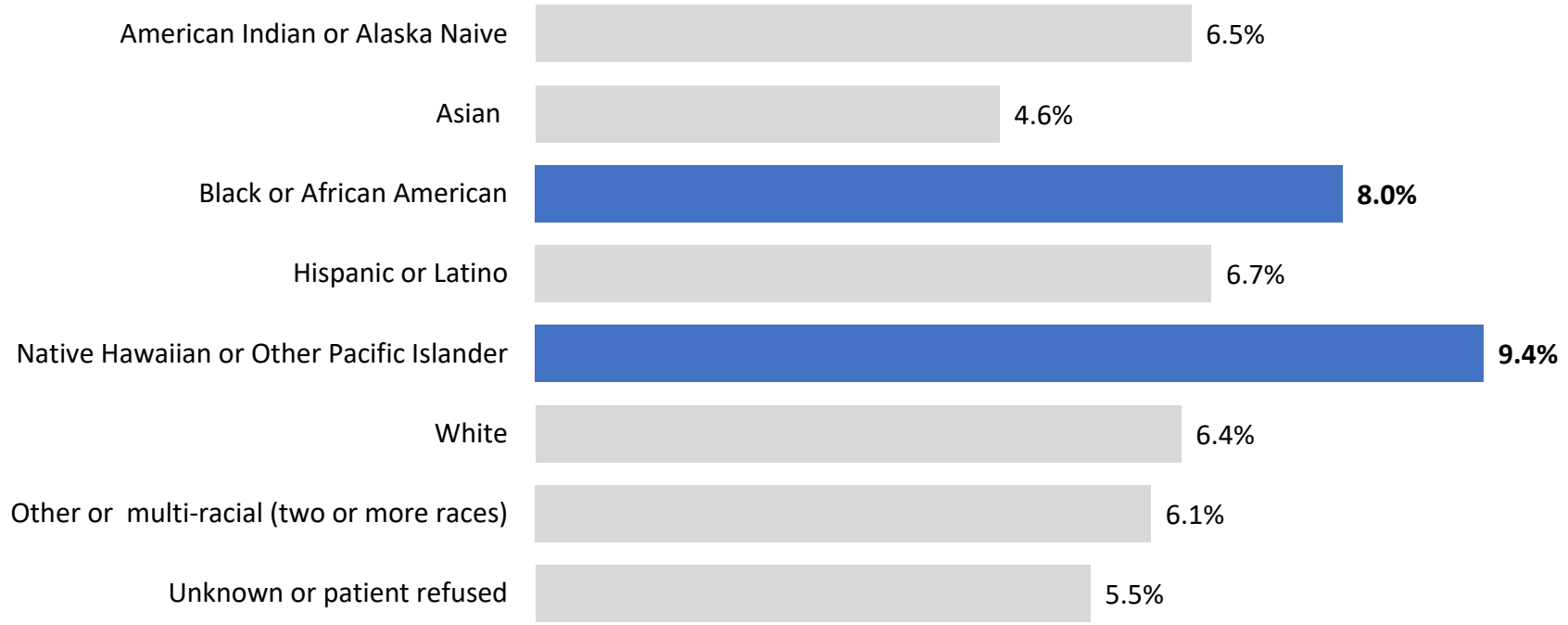


Source: Kansas Department of Health and Environment, Kansas Hospital Discharge Data, Kansas, 2019-2023

Non-Hispanic Native Hawaiian or Other Pacific Islander and Non-Hispanic Black or African American mothers experienced the highest prevalence.

Kansas Prevalence of Preeclampsia among Delivery Hospitalization by **Race and Ethnicity**
2019-2023 (5 years combined)

Patients with Hispanic ethnicity are classified as Hispanic and all non-Hispanic patients are classified according to their reported race.



Source: Kansas Department of Health and Environment, Kansas Hospital Discharge Data, Kansas, 2019-2023

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2023 Annual Summary of Vital Statistics

Live Births: **34,041**

Stillbirths: 186

Total Births: **34,227**

Preterm Birth (<37 wks): 10.5%

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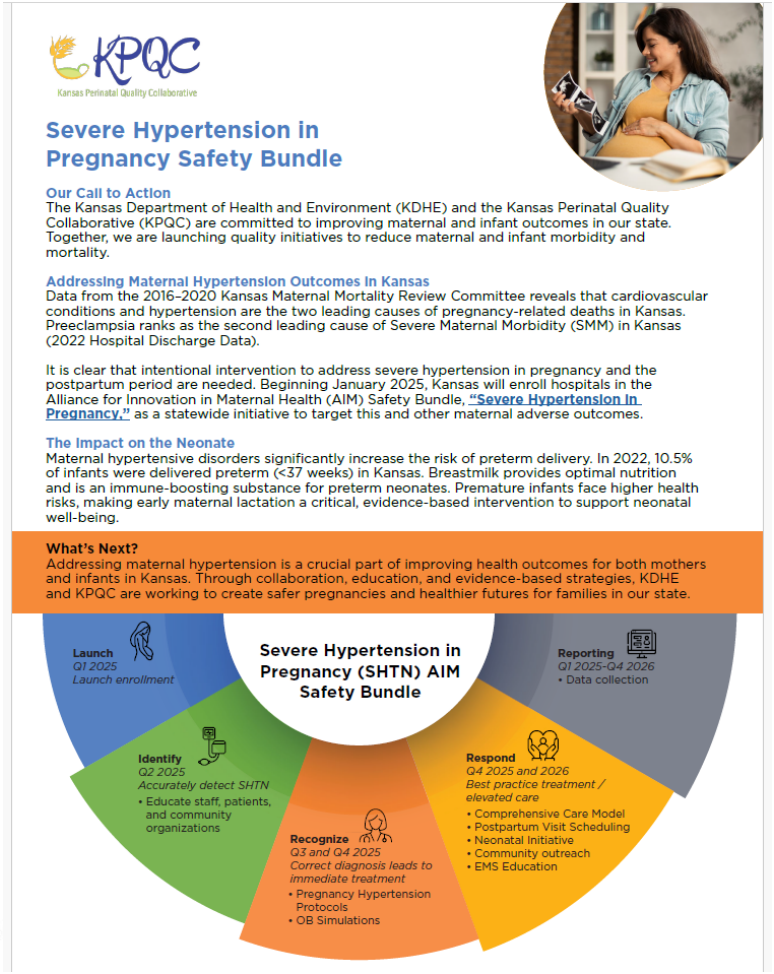
Facts Sheet



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Severe Hypertension in Pregnancy Safety Bundle

Our Call to Action
The Kansas Department of Health and Environment (KDHE) and the Kansas Perinatal Quality Collaborative (KPQC) are committed to improving maternal and infant outcomes in our state. Together, we are launching quality initiatives to reduce maternal and infant morbidity and mortality.

Addressing Maternal Hypertension Outcomes in Kansas
Data from the 2016-2020 Kansas Maternal Mortality Review Committee reveals that cardiovascular conditions and hypertension are the two leading causes of pregnancy-related deaths in Kansas. Preeclampsia ranks as the second leading cause of Severe Maternal Morbidity (SMM) in Kansas (2022 Hospital Discharge Data).

It is clear that intentional intervention to address severe hypertension in pregnancy and the postpartum period are needed. Beginning January 2025, Kansas will enroll hospitals in the Alliance for Innovation in Maternal Health (AIM) Safety Bundle, "Severe Hypertension in Pregnancy," as a statewide initiative to target this and other maternal adverse outcomes.

The Impact on the Neonate
Maternal hypertensive disorders significantly increase the risk of preterm delivery. In 2022, 10.5% of infants were delivered preterm (<37 weeks) in Kansas. Breastmilk provides optimal nutrition and is an immune-boosting substance for preterm neonates. Premature infants face higher health risks, making early maternal lactation a critical, evidence-based intervention to support neonatal well-being.

What's Next?
Addressing maternal hypertension is a crucial part of improving health outcomes for both mothers and infants in Kansas. Through collaboration, education, and evidence-based strategies, KDHE and KPQC are working to create safer pregnancies and healthier futures for families in our state.

NEW: Severe Hypertension in Pregnancy Model for Kansas

Recognize & Respond
- Identify Hypertension
- SHTN Protocols
- Screening for: medical conditions, mental health, substance abuse, breastfeeding, family planning, structural and social drivers of health

Elevated Care Needed

Inpatient Transfer
- Transfer protocol
- Lactation initiation
- Specialty services
- SSDOH needs

Discharge

Discharge

Outpatient Care
- Appointment with Primary OB at 72 hours and 2-3 weeks
- Referral to navigator and/or additional resources
- Cuff Project

Loop Closure

Comprehensive Postpartum Visit 6-12 weeks

For questions or to enroll, contact karl.smith@kansaspqc.org

To learn more, visit kansaspqc.org.

Funding
This initiative is supported by the Kansas Department of Health and Environment with funding through the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number #A3049988 and title *Alliance for Innovation on Maternal Health State Capacity Program.*

KHA Kansas Hospital Association · KPQC · Kansas Department of Health and Environment · Kansas Maternal & Child Health

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Recognize & Respond

- Identify hypertension
- SHTN protocols
- Screening for: medical conditions, mental health, substance abuse, breastfeeding, family planning, structural and social drivers of health (SSDOH)

Elevated Care Needed

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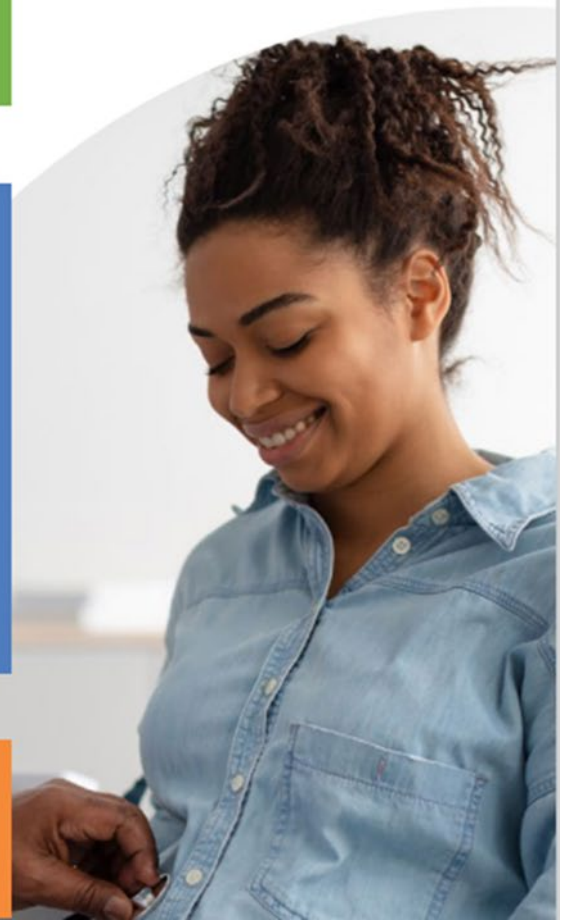

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Emergency Services Readiness
Effective: July 1, 2025

CMS Requirement:

- Hospitals and CAHs with emergency services have ***adequate provisions and protocols consistent with nationally recognized and evidence-based guidelines for the care of patients with emergency conditions and meet the emergency needs of patients.***
  - Applicable staff be trained on these protocols and provisions annually, and documentation would be expected to show that staff have successfully completed such training and can demonstrate knowledge on these topics.

Source: Centers for Medicaid and Medicare, CY 2025 Medicare Hospital Outpatient Prospective Payment System and Ambulatory Surgical Center Payment System Final Rule (CMS 1809-FC), Fact Sheet Nov 2024 Available at: https://www.cms.gov/newsroom/fact-sheets/cy-2025-medicare-hospital-outpatient-prospective-payment-system-and-ambulatory-surgical-center-0

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Emergency Services Readiness

CMS Requirement:

Require hospitals to set aside provisions for emergencies. Such ***provisions include equipment, supplies, and medication used in treating emergency cases*****.** Available provisions must include:

1. Drugs, blood and blood products, and biologicals commonly used in lifesaving procedures.
2. Equipment and supplies commonly used in lifesaving procedures.
3. Call-in system for each patient in each emergency services' treatment area.

Source: Centers for Medicaid and Medicare, CY 2025 Medicare Hospital Outpatient Prospective Payment System and Ambulatory Surgical Center Payment System Final Rule (CMS 1809-FC), Fact Sheet Nov 2024 Available at: https://www.cms.gov/newsroom/fact-sheets/cy-2025-medicare-hospital-outpatient-prospective-payment-system-and-ambulatory-surgical-center-0

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Obstetrical Services' Conditions of Participation (CoP)
Effective: January 1, 2026

Goal:

Ensure that all Medicare and Medicaid participating hospitals and CAHs offering OB services are held to a consistent standard of high-quality maternity care that protects the health and safety of pregnant, birthing, and postpartum patients.

Source: Centers for Medicaid and Medicare, CY 2025 Medicare Hospital Outpatient Prospective Payment System and Ambulatory Surgical Center Payment System Final Rule (CMS 1809-FC), Fact Sheet Nov 2024 Available at: https://www.cms.gov/newsroom/fact-sheets/cy-2025-medicare-hospital-outpatient-prospective-payment-system-and-ambulatory-surgical-center-0

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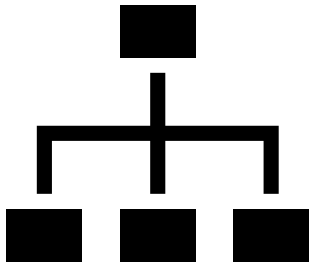
Obstetrical Services Conditions of Participation (CoP)
Effective: January 1, 2026



Organization and Staffing

Delivery of Service

Training

Source: Centers for Medicaid and Medicare, CY 2025 Medicare Hospital Outpatient Prospective Payment System and Ambulatory Surgical Center Payment System Final Rule (CMS 1809-FC), Fact Sheet Nov 2024 Available at: https://www.cms.gov/newsroom/fact-sheets/cy-2025-medicare-hospital-outpatient-prospective-payment-system-and-ambulatory-surgical-center-0

Delivery of Service

CMS Requirement:

- The facility ensure that it has adequate, readily available ***provisions and protocols*** consistent with ***nationally recognized and evidence-based guidelines*** for OB emergencies, complications, immediate post-delivery care, and other patient health and safety events.

Source: Centers for Medicaid and Medicare, CY 2025 Medicare Hospital Outpatient Prospective Payment System and Ambulatory Surgical Center Payment System Final Rule (CMS 1809-FC), Fact Sheet Nov 2024 Available at: https://www.cms.gov/newsroom/fact-sheets/cy-2025-medicare-hospital-outpatient-prospective-payment-system-and-ambulatory-surgical-center-0

Staff Training

CMS Requirement:

- Develop ***policies and procedures*** to ensure that relevant staff are trained on topics aimed at improving the delivery of maternal care. Training topics should reflect the scope and complexity of services offered, including, but not limited to, facility-identified, ***evidence-based, best practices and protocols*** to improve the delivery of maternal care within the facility.

Source: Centers for Medicaid and Medicare, CY 2025 Medicare Hospital Outpatient Prospective Payment System and Ambulatory Surgical Center Payment System Final Rule (CMS 1809-FC), Fact Sheet Nov 2024 Available at: https://www.cms.gov/newsroom/fact-sheets/cy-2025-medicare-hospital-outpatient-prospective-payment-system-and-ambulatory-surgical-center-0

Staff Training

CMS Requirement:

- Use findings from QAPI programs to inform staff training needs and any additions, revisions, or updates to training topics on an ongoing basis.
  - ***Relevant new staff receive initial training***
  - ***Hospital and CAH identify which staff must complete training at a minimum every two years.***
  - Hospitals and CAHs must document in staff personnel records that training was successfully completed and be able to demonstrate staff knowledge on the training topics identified.

Source: Centers for Medicaid and Medicare, CY 2025 Medicare Hospital Outpatient Prospective Payment System and Ambulatory Surgical Center Payment System Final Rule (CMS 1809-FC), Fact Sheet Nov 2024 Available at: https://www.cms.gov/newsroom/fact-sheets/cy-2025-medicare-hospital-outpatient-prospective-payment-system-and-ambulatory-surgical-center-0

AIM Severe Hypertension Bundle

Readiness — Every Care Setting

Readiness Element	Key Points
Care Setting	All care settings potentially including: • Labor and Delivery Units • Freestanding Birthing Centers • Emergency Departments • Urgent Care • Critical Care • Primary Care/Ob-Gyn Office • Other Outpatient Settings

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AIM Severe Hypertension Bundle

Response — Every Event

Response Element	Key Points
Standardized, facility-wide protocols	Should include: • Onset and duration of magnesium sulfate therapy • Advance preparation for seizure prophylaxis and magnesium toxicity • Notification of physician or primary care provider if systolic pressure is 160 mm Hg or more or diastolic pressure is 110 mm Hg or more for two measurements within 15 minutes • Monitoring cases of borderline severe hypertension (150 to 159 mm Hg systolic and/or 105-109 mm Hg diastolic) closely for progression to severe hypertension. • Initiating treatment within 60 minutes of verification after first severe range blood pressure reading, assuming confirmation of persistent elevation through a second reading. • Escalation measures for ongoing observation and management

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AIM Severe Hypertension Bundle

Recognition & Prevention — Every Patient

Recognition Element	Key Points
Obtain and assess labs while listening to and investigating patient symptoms	Recommended labs include, at minimum: • Proteinuria • CBC with platelet count • Serum creatinine • LDH • AST • ALT

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AIM Severe Hypertension Bundle

Medications	Medications should be stocked and immediately available in obstetric units (AP, L&D, PP), the Emergency Department, and in other areas where patients may be treated. Recommended medications include: • Magnesium sulfate • Oral nifedipine, immediate release (acceptable first-line medication) • Intravenous hydralazine • Labetalol

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Interprofessional and interdepartmental team-based drills	Facilitate drills with simulated patients and timely debriefs that emphasize: • All elements of the facility severe hypertension emergency management plan • Patient-centered, empathetic, trauma-informed care

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AIM Severe Hypertension Bundle

Referral resources and communication pathways	Ensure that: • Maternal and neonatal transfer protocol is in place • Hospitals/prenatal care sites should implement resource mapping to identify local resources and support services so that this information is available to providers and other care team members to optimize referrals. Consider providing blood pressure cuff, education materials, and information on who to call for concerns for patient to take home

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Quality Assessment and Performance Improvement (QAPI) Program

CMS Requirement:

- Hospitals or CAHs providing OB services must use their QAPI programs to assess and improve health outcomes and disparities among OB patients on an ongoing basis. At a minimum, the facility will have to:
    1. ***Analyze data and quality indicators*** collected for the QAPI program by diverse subpopulations as identified by the facility among OB patients.
    2. ***Measure, analyze, and track data, measures, and quality indicators on patient outcomes*** and disparities in processes of care, services and operations, and outcomes among obstetrical patients.

Source: Centers for Medicaid and Medicare, CY 2025 Medicare Hospital Outpatient Prospective Payment System and Ambulatory Surgical Center Payment System Final Rule (CMS 1809-FC), Fact Sheet Nov 2024 Available at: https://www.cms.gov/newsroom/fact-sheets/cy-2025-medicare-hospital-outpatient-prospective-payment-system-and-ambulatory-surgical-center-0

Quality Assessment and Performance Improvement (QAPI) Program

CMS Requirement:

3. Analyze and prioritize patient health outcomes and disparities, develop and implement actions to improve patient health outcomes and disparities, measure results, and track performance to ensure improvements are sustained when disparities exist among obstetrical patients.

4. ***Conduct at least one performance improvement project focused on improving health outcomes and disparities among the hospital's population(s) of obstetrical patients annually.***

Hospitals and CAHs that offer OB services must have a process for incorporating publicly available information and data from the Maternal Mortality Review Committee (MMRC) into the hospital or CAH QAPI program.

Source: Centers for Medicaid and Medicare, CY 2025 Medicare Hospital Outpatient Prospective Payment System and Ambulatory Surgical Center Payment System Final Rule (CMS 1809-FC), Fact Sheet Nov 2024 Available at: https://www.cms.gov/newsroom/fact-sheets/cy-2025-medicare-hospital-outpatient-prospective-payment-system-and-ambulatory-surgical-center-0

AIM Severe Hypertension Bundle

Reporting and Systems Learning - Every Unit

Reporting Element	Key Points
Multidisciplinary Case Review	Reviews may assess and/or identify: • Alignment with standard policies and procedures • Appropriate updates to standard policies and procedures for future events • Other opportunities for improvement, including identification of discriminatory practices and opportunities to improve respectful, equitable and supportive care. Consistent issues should be reported via established pathways

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Additional AIM Bundle Elements (Not directly tied to CMS CoPs)

- Trauma-informed protocols and bias training
- Screening for community support needs and resources provided
- Patient Education
- Postpartum follow-up visit
- Trauma-informed support for patients and identified support network
- Open, transparent, and empathetic communication with pregnant and postpartum people and their identified support network
- Inclusion of the patient as part of the multidisciplinary care team

***Groundwork for ALL of these elements were established as part of the Fourth Trimester Initiative**

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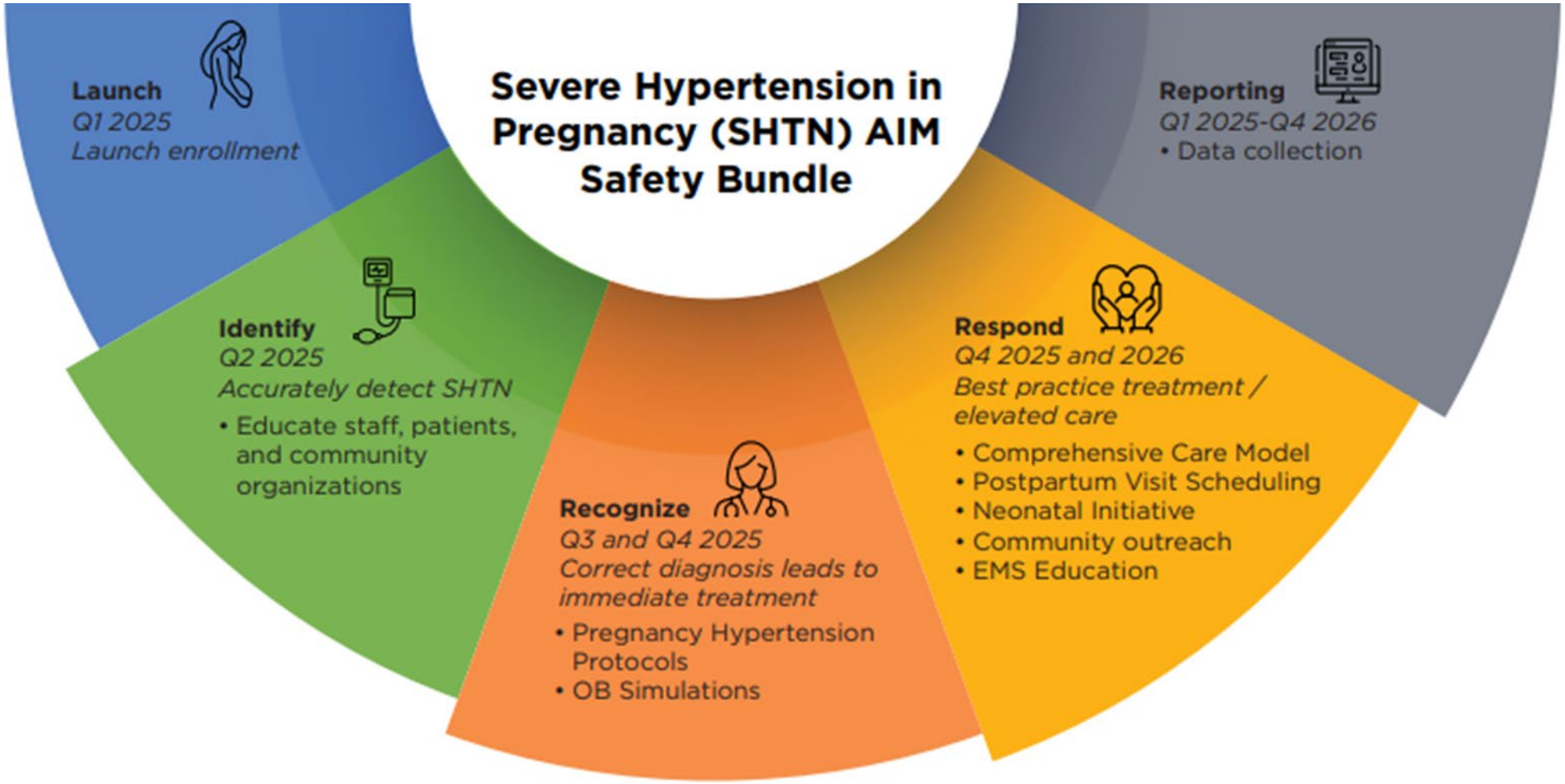

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Identify

Normal vs Abnormal Blood Pressure in female patients, including Pregnant and Postpartum (One year!)

Accurate Diagnosis

- **Chronic Hypertension**
- **Chronic Hypertension with Superimposed Preeclampsia**
- **Gestational Hypertension**
- **Preeclampsia**
  - With Severe Features
- **Eclampsia**

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Definitions ACOG:

Types of Hypertension

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Chronic Hypertension	○ SBP ≥ 140 **or** DBP ≥ 90 ○ Pre-pregnancy or <20 weeks
Gestational Hypertension	○ SBP ≥ 140 **or** DBP ≥ 90 on at least two occasions at least 4 hrs apart after 20 weeks gestation in women with previously normal BP ○ Absence of proteinuria or systemic signs/symptoms
Preeclampsia – Eclampsia	○ SBP ≥ 140 **or** DBP ≥ 90 ○ Proteinuria with or without signs/symptoms ○ Presentation of signs/symptoms/lab abnormalities but no proteinuria **Proteinuria not required for diagnosis eclampsia seizure in setting of preeclampsia*
Chronic Hypertension with Superimposed Preeclampsia	○ Preeclampsia in a woman with a history of hypertension before pregnancy or before 20 weeks of gestation
Preeclampsia with severe features *(ACOG Practice Bulletin #202, Gestational Hypertension and Preeclampsia, & ACOG Practice Bulletin #203, Chronic Hypertension in Pregnancy)*	○ SBP ≥ 160 **or** DBP ≥ 110 (can be confirmed within a short interval to facilitate timely antihypertensive therapy) ○ Thrombocytopenia (platelet count less than 100,000/microliter) ○ Impaired liver function that is not accounted for by alternative diagnoses and as indicated by abnormally elevated blood concentrations of liver enzymes (to more than twice the upper limit normal concentrations), or by severe persistent right upper quadrant or epigastric pain unresponsive to medications. ○ Renal insufficiency (serum creatinine concentration more than 1.1 mg/dL or a doubling of the serum creatinine concentration in the absence of other renal disease) ○ Pulmonary edema ○ New-onset headache unresponsive to medication and not accounted for by alternative diagnoses ○ Visual disturbances

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Taking a Blood Pressure

Correct Position!

- Sitting or Semi Fowlers
- Feet flat, not dangling
- If BP ≥ 160 systolic **and/or ≥** 110 diastolic, take steps to initiate treatment for severe hypertension—notifying provider, procuring medication

DO NOT REPOSITION PATIENT (yet)

- **Retake BP after 15 minutes**. If BP remains severe, obtain order for medication.
- Administer medication as ordered

***Treat ASAP*—at least within 1 hour of 1st severe reading**

Correct Cuff Size!

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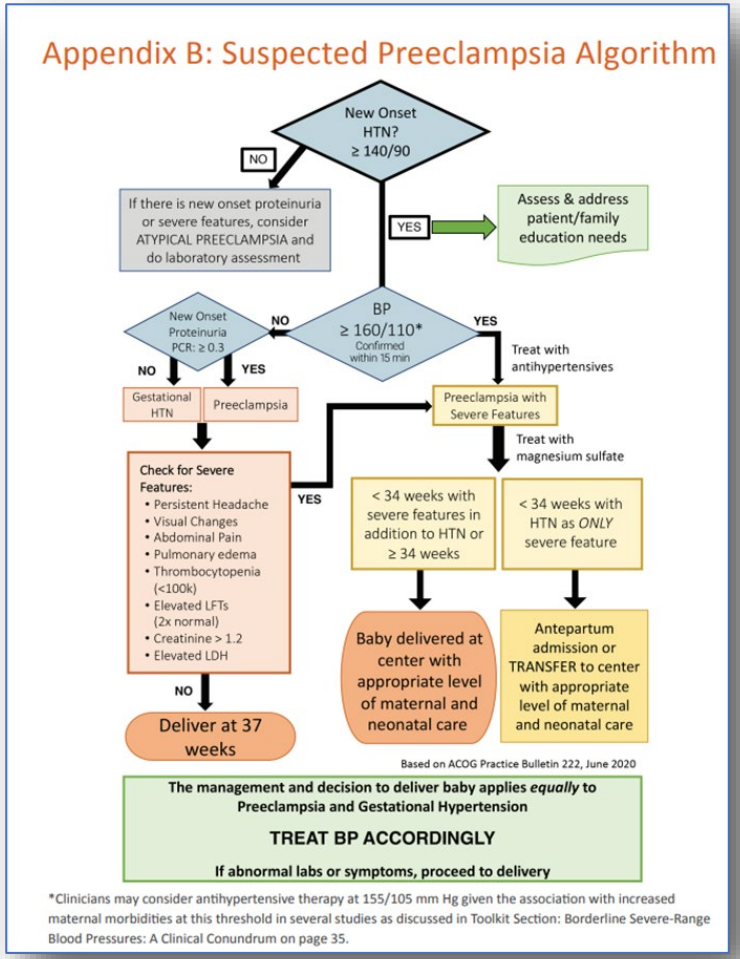
Recognize

Recognize the Problem and think “ALGORITHM”!

Respond

Treatment= Algorithms, Algorithms and MORE Algorithms!

Recognition to Treatment



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EXAMPLE

Hypertensive Emergency Checklist

HYPERTENSIVE EMERGENCY:

- Two severe BP values (≥160/110) taken 15-60 minutes apart. Values do not need to be consecutive.
- May treat within 15 minutes if clnically indicated

- ☐ Call for Assistance
- ☐ Designate:
  - ○ Team leader
  - ○ Checklist reader/recorder
  - ○ Primary RN
- ☐ Ensure side rails up
- ☐ Ensure medications appropriate given patient history
- ☐ Administer seizure prophylaxis (magnesium sulfate first line agent, unless contraindicated)
- ☐ Antihypertensive therapy within 1 hour for persistent severe range BP
- ☐ Place IV; Draw preeclampsia labs
- ☐ Antenatal corticosteroids (if <34 weeks of gestation)
- ☐ Re-address VTE prophylaxis requirement
- ☐ Place indwelling urinary catheter
- ☐ Brain imaging if unremitting headache or neurological symptoms
- ☐ Debrief patient, family, and obstetric team

† "Active asthma" is defined as:
Ⓐ symptoms at least once a week, or
Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
Ⓒ any history of intubation or hospitalization for asthma.

Magnesium Sulfate

Contraindications: Myasthenia gravis; avoid with pulmonary edema, use caution with renal failure

IV access:

- ☐ Load 4-6 grams 10% magnesium sulfate in 100 mL solution over 20 min
- ☐ Label magnesium sulfate; Connect to labeled infusion pump
- ☐ Magnesium sulfate maintenance 1-2 grams/hour

No IV access:

- ☐ 10 grams of 50% solution IM (5 g in each buttock)

Antihypertensive Medications

For SBP ≥ 160 or DBP ≥ 110
(See SMI algorithms for complete management when necessary to move to another agent after 2 doses.)

- ☐ **Labetalol** (initial dose: 20mg); **Avoid parenteral labetalol with active asthma, heart disease, or congestive heart failure; use with caution with history of asthma**
- ☐ **Hydralazine** (5-10 mg IV* over 2 min); **May increase risk of maternal hypotension**
- ☐ **Oral Nifedipine** (10 mg capsules); Capsules should be administered orally, not punctured or otherwise administered sublingually

** Maximum cumulative IV-administered doses should not exceed 220 mg labetalol or 25 mg hydralazine in 24 hours*

***Note:** If first line agents unsuccessful, emergency consult with specialist (MFM, internal medicine, OB anesthesiology, critical care) is recommended*

Anticonvulsant Medications

For recurrent seizures or when magnesium sulfate contraindicated

- ☐ **Lorazepam (Ativan):** 2-4 mg IV x 1, may repeat once after 10-15 min
- ☐ **Diazepam (Valium):** 5-10 mg IV q 5-10 min to maximum dose 30 mg

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EXAMPLE

Eclampsia Checklist

- ☐ Call for Assistance
- ☐ Designate
  - ○ Team leader
  - ○ Checklist reader/recorder
  - ○ Primary RN
- ☐ Ensure side rails up
- ☐ Protect airway and improve oxygenation:
  - ○ Maternal pulse oximetry
  - ○ Supplemental oxygen (100% non-rebreather)
    - ☐ Lateral decubitis position
    - ☐ Bag-mask ventilation available
    - ☐ Suction available
- ☐ Continuous fetal monitoring
- ☐ Place IV; Draw preeclampsia labs
- ☐ Ensure medications appropriate given patient history
- ☐ Administer magnesium sulfate
- ☐ Administer antihypertensive therapy if appropriate
- ☐ Develop delivery plan, if appropriate
- ☐ Debrief patient, family, and obstetric team

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Note: *If persistent seizures, consider anticonvulsant medications and additional workup*

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For Persistent Seizures

- ☐ Neuromuscular block and intubate
- ☐ Obtain radiographic imaging
- ☐ ICU admission
- ☐ Consider anticonvulsant medications

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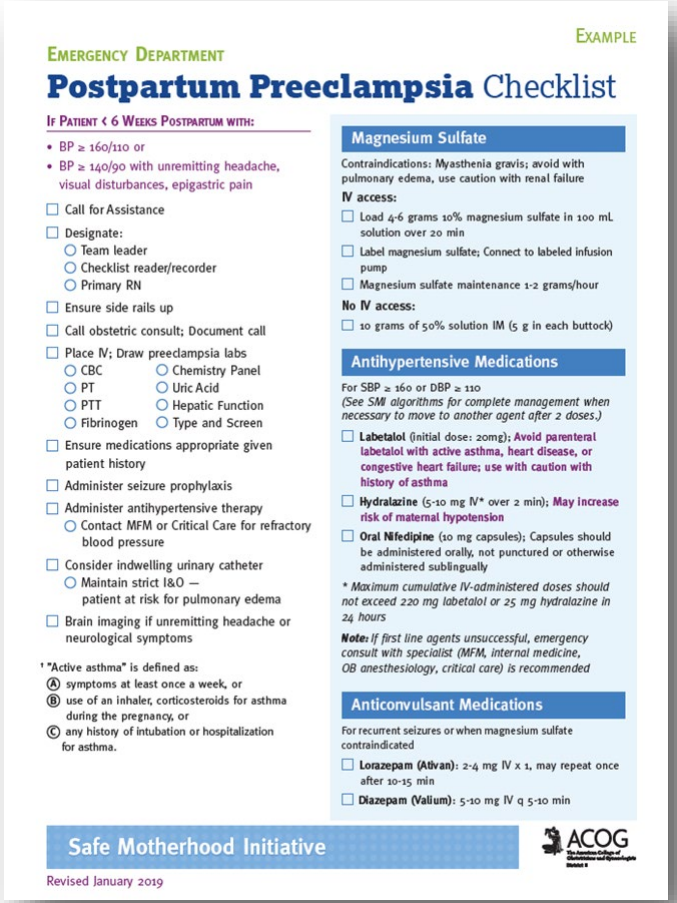
Postpartum (and Antepartum) Preeclampsia



EXAMPLE

EMERGENCY DEPARTMENT

Postpartum Preeclampsia Checklist

IF PATIENT < 6 WEEKS POSTPARTUM WITH:

- BP ≥ 160/110 or
- BP ≥ 140/90 with unremitting headache, visual disturbances, epigastric pain

☐ Call for Assistance

☐ Designate:
- ○ Team leader
- ○ Checklist reader/recorder
- ○ Primary RN

☐ Ensure side rails up

☐ Call obstetric consult; Document call

☐ Place IV; Draw preeclampsia labs
- ○ CBC
- ○ PT
- ○ PTT
- ○ Fibrinogen
- ○ Chemistry Panel
- ○ Uric Acid
- ○ Hepatic Function
- ○ Type and Screen

☐ Ensure medications appropriate given patient history

☐ Administer seizure prophylaxis

☐ Administer antihypertensive therapy
- ○ Contact MFM or Critical Care for refractory blood pressure

☐ Consider indwelling urinary catheter
- ○ Maintain strict I&O — patient at risk for pulmonary edema

☐ Brain imaging if unremitting headache or neurological symptoms

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EXAMPLE

Postpartum Surveillance

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Necessary to prevent additional morbidity as preeclampsia/eclampsia can develop postpartum

INPATIENT

- Measure BP every 4 hours after delivery until stable
- Do not use NSAIDs for women with elevated BP
- Do not discharge patient until BP is well controlled for at least 24 hours

OUTPATIENT

- For pts with preeclampsia, visiting nurse evaluation recommended:

✓ Within 3-5 days

✓ Again in 7-10 days after delivery (earlier if persistent symptoms)

ANTIHYPERTENSIVE THERAPY

- Recommended for persistent postpartum HTN: SBP ≥ 150 or DBP ≥ 100 on at least two occasions at least 4 hours apart
- Persistent SBP ≥ 160 or DBP ≥ 110 should be treated within 1 hour

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Post-Discharge Evaluation

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ELEVATED BP AT HOME, OFFICE, TRIAGE

Postpartum triggers:

- SBP ≥ 160 or DBP ≥ 110 or
- SBP ≥ 140-159 or DBP ≥ 90-109 with unremitting headaches, visual disturbances, or epigastric/RUQ pain

↓

- Emergency Department treatment (OB /MICU consult as needed)
- AntiHTN therapy suggested if persistent **SBP ≥ 150 or DBP ≥ 100** on at least two occasions at least 4 hours apart
- Persistent **SBP ≥ 160 or DBP ≥ 110** should be treated within 1 hour

↓

Good response to antiHTN treatment and asymptomatic

↓

Admit for further observation and management
(L&D, ICU, unit with telemetry)

↓

Signs and symptoms of eclampsia, abnormal neurological evaluation, congestive heart failure, renal failure, coagulopathy, poor response to antihypertensive treatment

↓

Recommend emergency consultation for further evaluation (MFM, internal medicine, OB anesthesiology, critical care)

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POST-BIRTH

-Staff Education
L&D, ED, Clinics

-Orientation

-Patient Education
Discharge Protocols

POST-BIRTH: No Wrong Door

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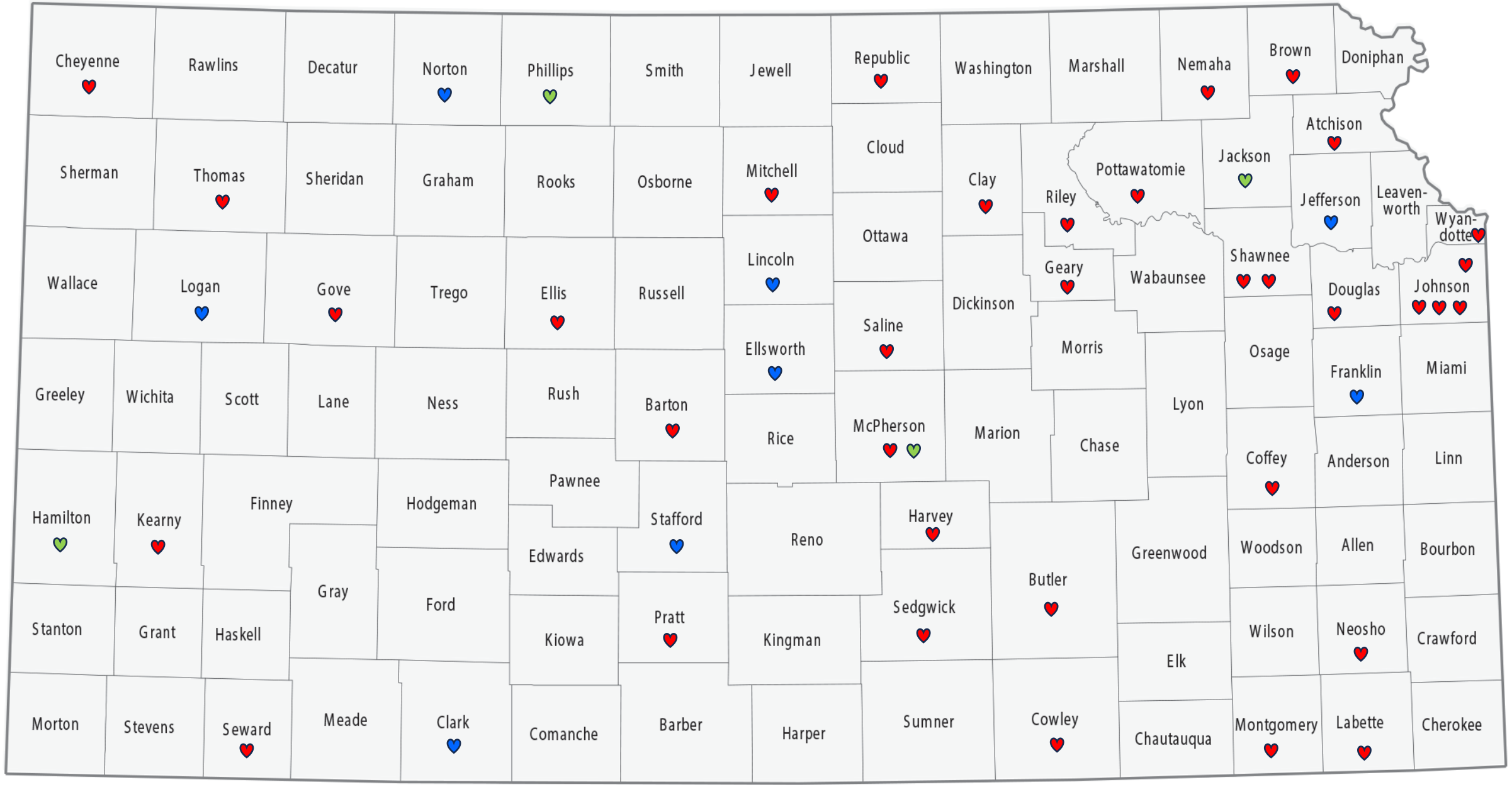
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