Ana Lopez –De Fede, PhD

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at the University of South Carolina

HOW DATA DRIVES ACTION

Getting to the Heart of the Data

Presented by: Ana López - De Fede, PhD
Distinguished Research Professor Emerita and Associate Director

South Carolina Birth Outcomes Initiative Symposium
Oct. 22, 2025

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- Angela Kneece, BS; GIS Manager I
- Nathaniel Bell, PhD; Associate Professor and Director of Research and Evaluation

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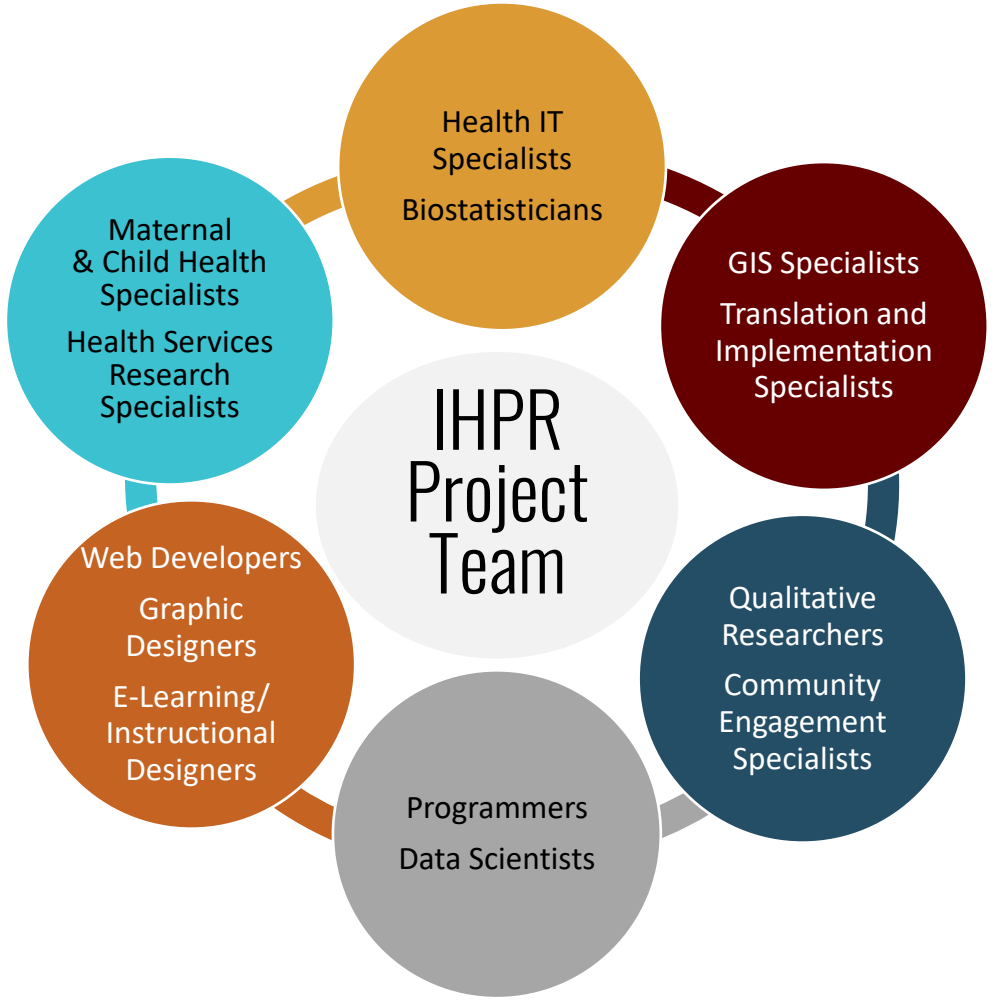

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CONTENTS

- SC Maternal Health Snapshot
  - Maternal Health Landscape
  - Maternal Outcomes of Interest (SMM among CCOC and Severe Hypertension)
  - ***NEW!*** Data Snapshot: A Multi-Layer View of Perinatal Risks and Maternal Care Deserts
- Data To Action

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MATERNAL HEALTH LANDSCAPE

DATA FROM CY 2024

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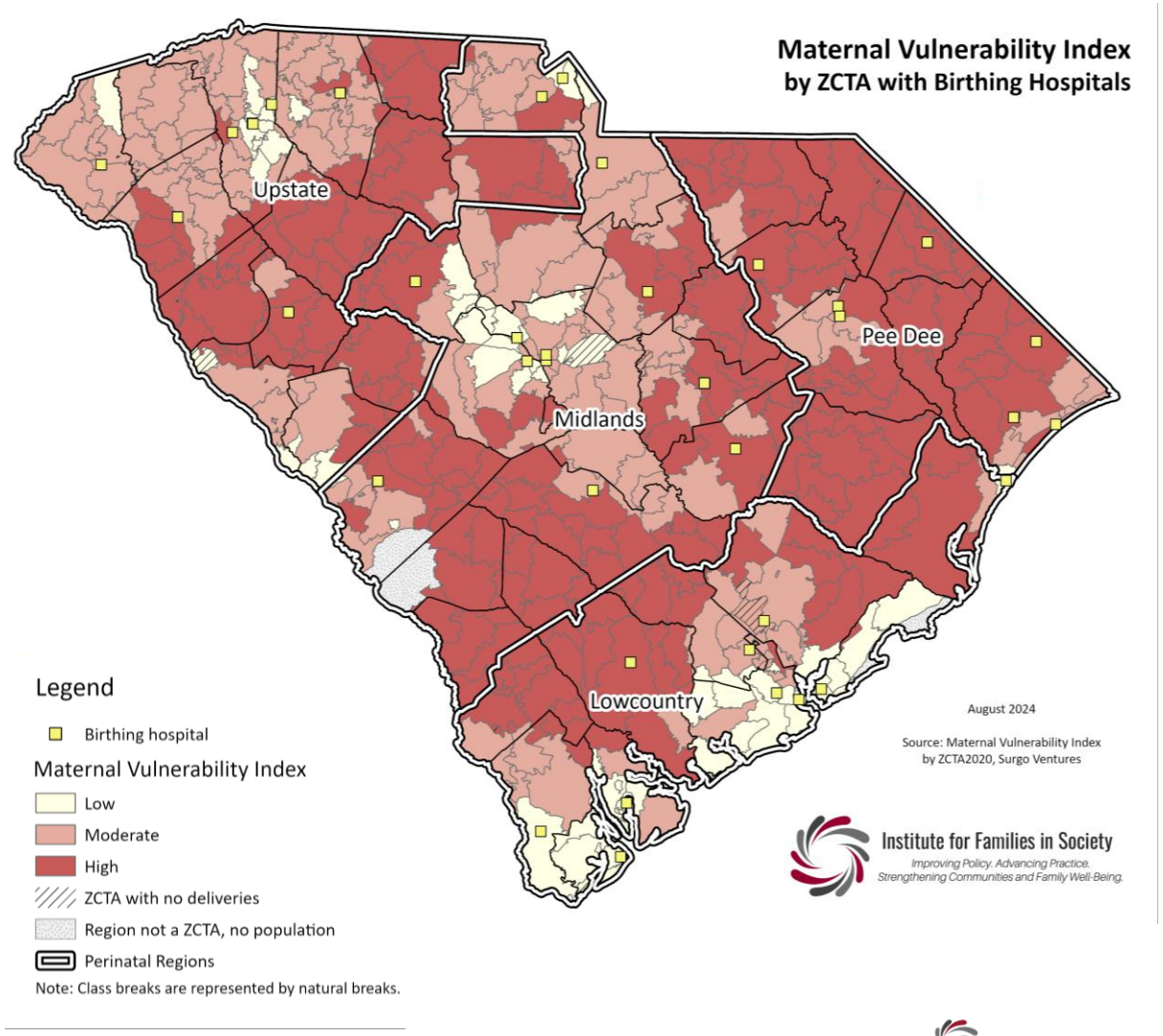
SC MATERNAL HEALTH LANDSCAPE

- Since 2012, **13 labor and delivery units have closed**, and 1 in 4 hospitals are not birthing facilities.
- Over **half of SC counties are designated medically underserved areas** (MUA) by HRSA.
- Nearly **2 in 5 SC counties had low access to maternity care** or were a maternity care desert (March of Dimes).
- SC ranks among the **top 5 states with the highest maternal vulnerability**, driven by high physical health and socioeconomic needs. Many high-need areas lack birthing facilities.
- SC is among the **top 10 states with the highest maternal mortality rates**. View the SCMMMRC 2025 Legislative Report for more information.
- A recent SC AIM survey (76% response rate) identified **lack of ED provider training, low staffing, limited resources, and physician buy-in as barriers to care**.



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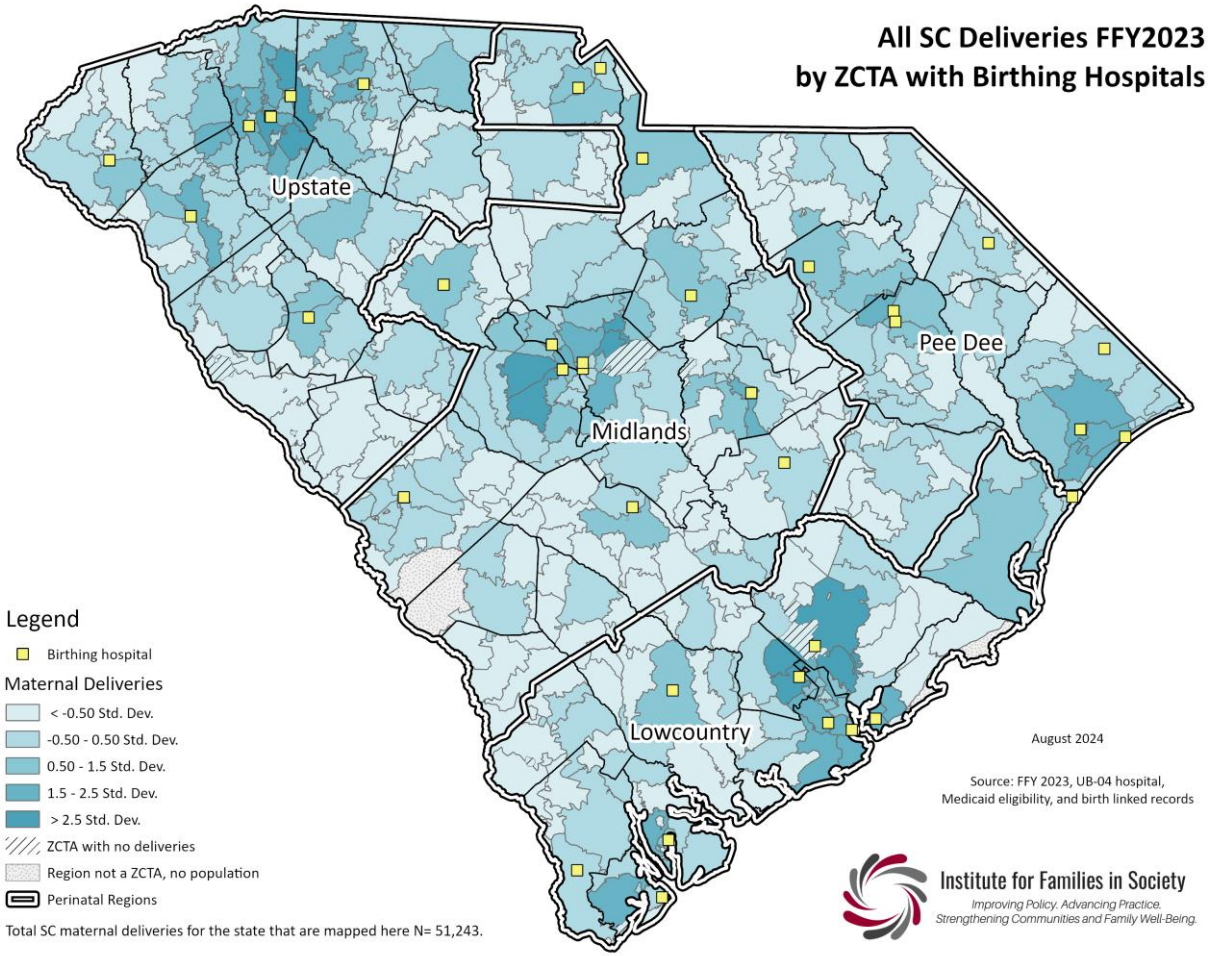
DELIVERIES ACROSS COMMUNITIES IN SOUTH CAROLINA



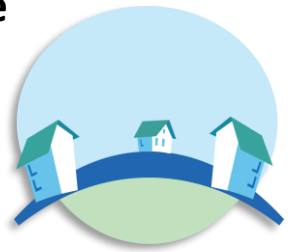
CY 2024 RURAL HEALTH TAKEAWAY

Urban areas and higher designation hospitals see the greatest volume of deliveries. Key facts regarding delivery patients residing in rural areas include:

Residence

Urban: 75%

Rural: 25%



Women of color comprised roughly **42%** of deliveries among rural residents.

Represented 1 in 4 severe maternal morbidity events.

1,755

Babies born prematurely to mothers in rural areas.

Medicaid paid **71%** of rural deliveries (vs. 59% statewide).

18% had a perinatal mental health diagnosis.

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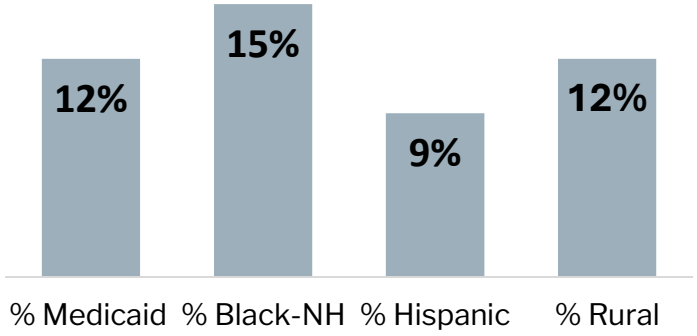
DELIVERY CHARACTERISTICS
(CY 2024)

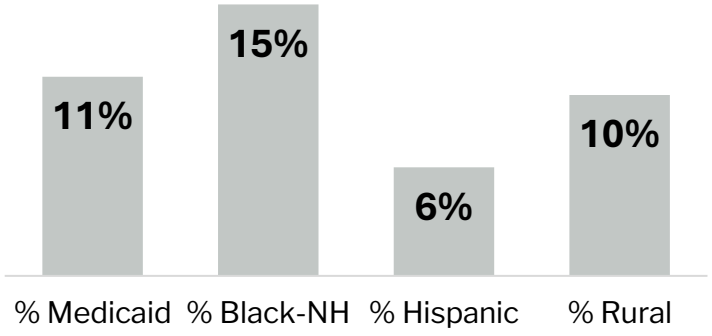
SC QUICK FACTS

- **3 out of 5** deliveries were paid for by Medicaid.
- **1 in 5** women received inadequate prenatal care.
- Approximately **1 in 10** delivered premature or had a low birthweight baby.
- Roughly **1 in 4** had a potentially avoidable cesarean.
- **Over half** of deliveries occurred in a Baby-Friendly designated hospital.
- Nearly **1 in 5** were ages 35 or older.
- **2 in 5** had a high school GED or less.

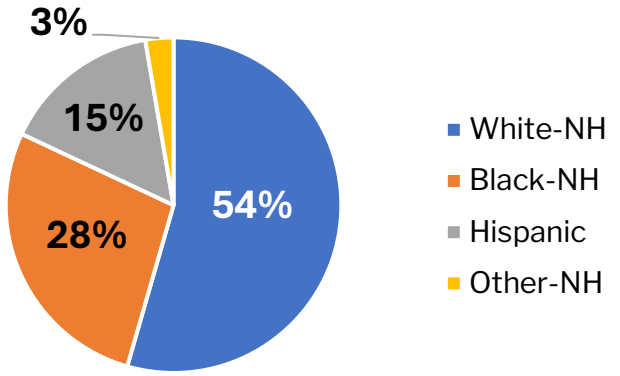
Premature Delivery



Low Birthweight Delivery



Race/Ethnicity



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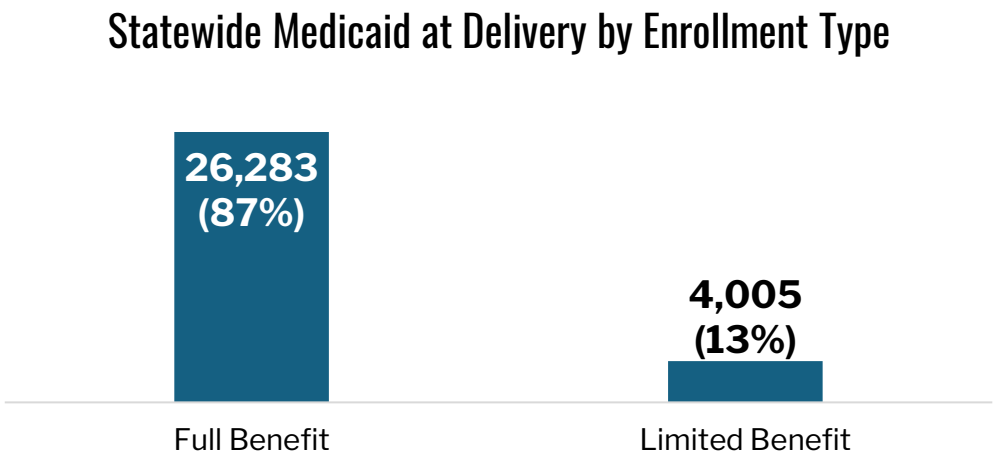
DELIVERY CHARACTERISTICS *(CONT.)*

MEDICAID ELIGIBILITY SNAPSHOT (FFY 2023)

TAKEAWAY

Our MCH data was linked with a Medicaid eligibility file to determine timing and type of Medicaid coverage.

In a recent IFS analysis of over 9,000 mothers whose deliveries were paid for by Medicaid, **2 out of 3** were enrollees in Medicaid at the start of their pregnancies, indicating the important role of Medicaid in support of quality prenatal care.



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MATERNAL OUTCOMES OF INTEREST

SMM AMONG CCOC, SEVERE HYPERTENSION (DATA FROM CY 2024)

Severe Maternal Morbidity (SMM) represents unexpected outcomes of labor and delivery that can result in short or long-term consequences. It reflects 20 conditions of severity and near missed events as defined by the Alliance for Innovation on Maternal Health (AIM).

MATERNAL HEALTH DATA: IFS AIM REPORTING PROCESS

Outcome Measures

IFS Data Team

IFS uses SCRFA-provided billing, birth, and Medicaid eligibility records to calculate outcome measures quarterly as delineated in the data collection plan of each AIM patient safety bundle (PSB).

SCBOI Portal

IFS shares results with individual hospitals via the SCBOI portal.

Process and Structure Measures

SC AIM Survey

IFS curates and administers a survey at least twice a year to facilities and their AIM Champions to collect process and structure measure data.

AIM Champion

The AIM Champion, a hospital staff member who coordinates their facilities adoption of the PSB, completes the survey.

AIM National

IFS analyzes and shares all data with AIM National using a provided template and later shares results with the Quality and Patient Safety Workgroup.

AIM
ALLIANCE FOR INNOVATION ON MATERNAL HEALTH
Welcome to the AIM Data Center!

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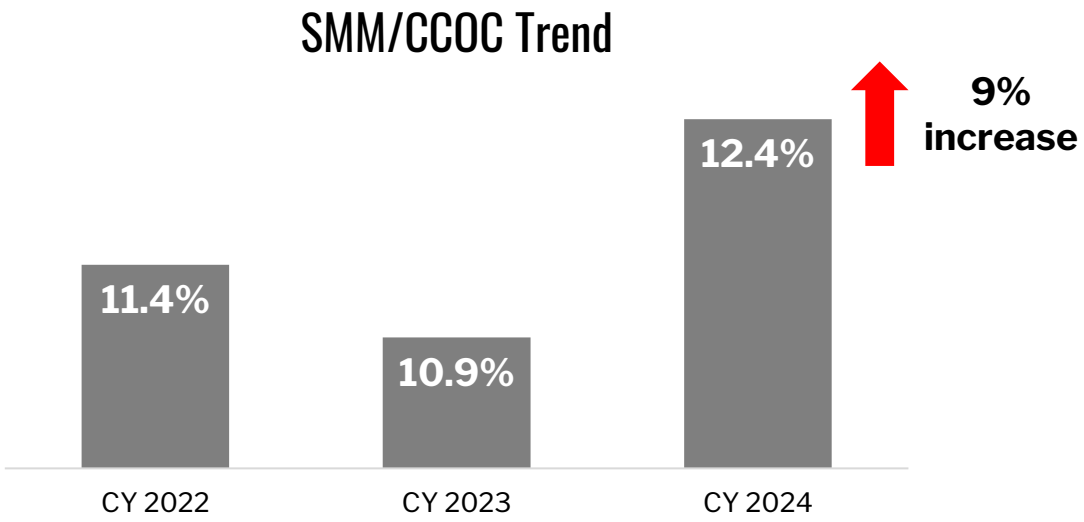
SMM AMONG DELIVERIES WITH CARDIAC CONDITIONS
(CY 2024)

Cardiac Conditions in Obstetric Care (CCOC) identified if below was present at time of delivery:

- Congenital Heart Disease
- Cardiac Valve Disorders
- Cardiomyopathies
- Arrhythmias
- Coronary Artery Disease
- Pulmonary Hypertension
- Other CCOC



TAKEAWAY

- Of SMM deliveries, roughly **1 in 2** have co-occurring CVD (inclusive of hypertension).
- Rate of SMM/CCOC has **increased** over time.
- SMM/CCOC deliveries were seen at a **higher** rate among Black-NH patients, those 35-54 years old, and Medicaid beneficiaries.

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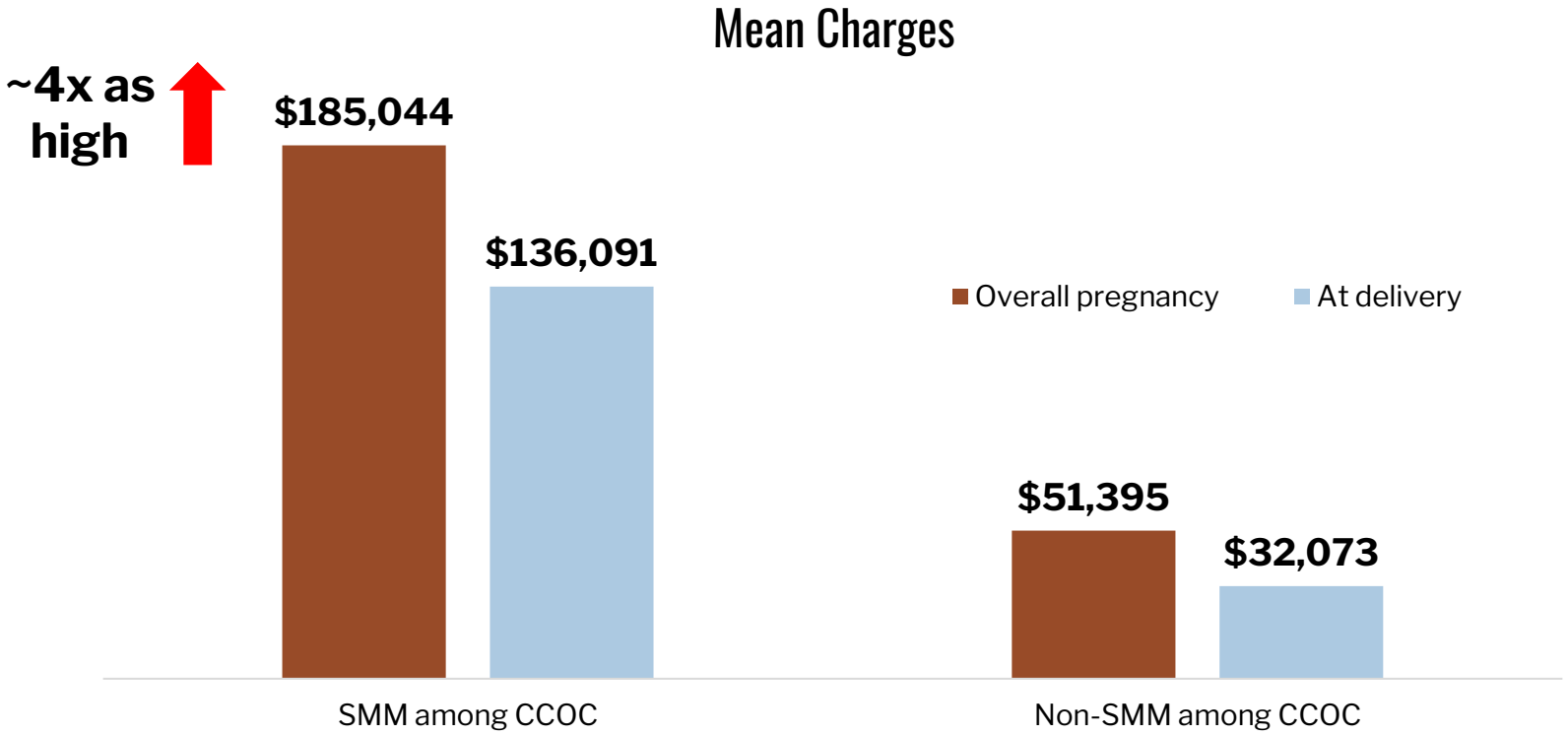
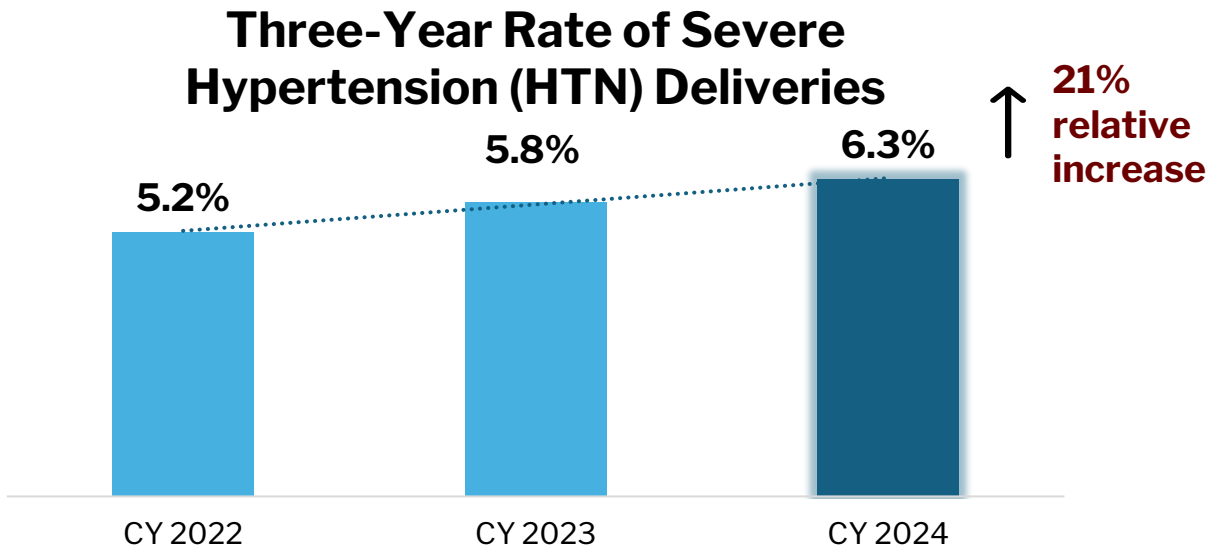
SMM AMONG DELIVERIES WITH CARDIAC CONDITIONS *(CONT.)* *(CY 2024)*

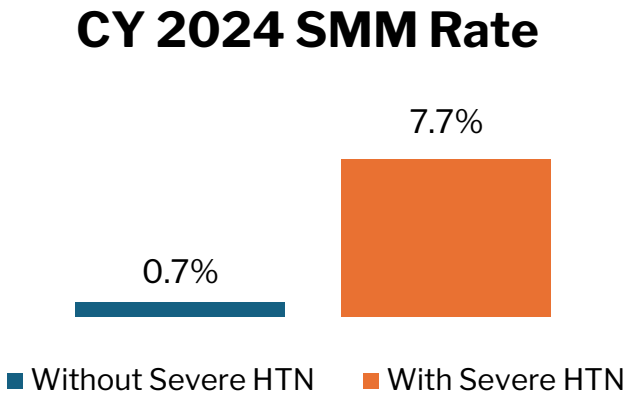


TAKEAWAY

Among deliveries with CCOC, mean charges for those with SMM were roughly **4x as high** than for those without SMM, both across the overall pregnancy and at delivery.

SEVERE HYPERTENSION IN PREGNANCY
(CY 2024)





SC SEVERE HYPERTENSION QUICK FACTS

- There was a 21% relative increase in the rate of severe hypertension deliveries from 2022 to 2024.
- The rate of SMM was 11 times higher among deliveries with severe hypertension compared to those without severe hypertension.
- Rates of severe hypertension exceeded the 2024 yearly rate among Black-NH women, Medicaid-covered deliveries, and women over 34.

***Note:**. **Any Hypertension** is inclusive of any chronic hypertension (hypertensive disease, preexisting hypertension complicating pregnancy or postprocedural hypertension) or pregnancy induced hypertension (gestational hypertension, preeclampsia and eclampsia) identified during the 12 months prior to delivery and at the time of delivery using the ICD-10 codes, DRG codes and VR flags.

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BARRIERS TO TREATING SEVERE HYPERTENSION

Takeaways from the AIM Severe Hypertension in Pregnancy Survey (Launched April 2025)

- Timely treatment and follow-up within 3 days of persistent severe hypertension were the lowest reported process measures.
- Education and engagement of emergency department staff in screening for hypertension was minimal.
- Significant underreporting of clinical team debriefs was noted.
- Other barriers included limited OB/ED staff , physician engagement and education, and lack of EMR triage questions related to pregnancy.

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NEW! Data Snapshot

PERINATAL RISK AND MATERNAL CARE DESERTS: A MULTI-LAYER VIEW

MULTI-LAYER ANALYSIS DEFINITIONS

1. **Maternal Care Deserts** refers to counties where there is a lack of maternity care resources/no access to obstetric services which poses significant risks to maternal and neonatal health as defined by the March of Dimes. Despite growing awareness, there remains a limited understanding of how structural barriers such as geographic access and resource availability shape perinatal outcomes, particularly for newborns at higher clinical risk.
2. **Newborn Complication Rates** reflects adverse outcomes in full-term newborns without pre-existing conditions. The Joint Commission uses PC-06 as a quality metric for obstetric care. The overall PC-06 rate consists of severe complications like neonatal death, birth injuries, neurological damage, and transfers to higher levels of care, as well as moderate complications or infections with longer stays.
3. **The Kotelchuck Index** determines the adequacy of prenatal care utilization based on two parts:
    - the month in which prenatal care was initiated
    - and the number of visits from initiation of care until delivery.

The level of adequacy is then grouped into four categories reported on the birth certificate: **Inadequate** (received less than 50% of expected visits), **Intermediate** (50%-79%), **Adequate** (80%-109%), and **Adequate Plus** (110% or more). Adequate prenatal care is defined as a score of 80% or greater on the Kotelchuck Index, or the sum of the Adequate and Adequate Plus categories. More detailed specifications here.

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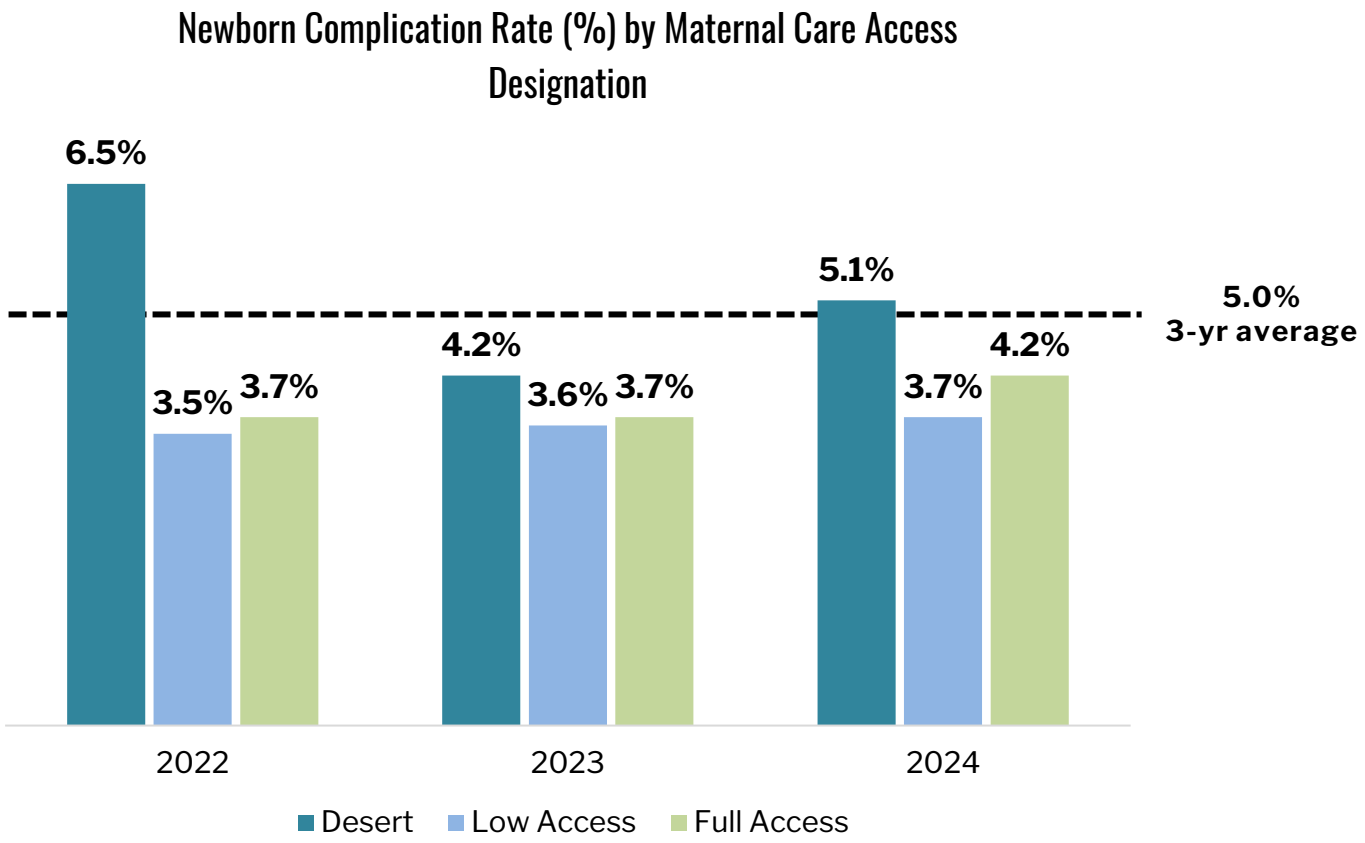
NEWBORN COMPLICATION RATES (2022 – 2024)



Note: Rates were stratified by the March of Dimes Maternal Care Access Designation. Newborn Complication rates are based on aggregate, county-level data, for years 2022 – 2024.

TAKEAWAY

- Newborn complication rates have been falling across the state, but remain higher in deserts compared to counties designated as full access or low access.
- In CY 2024, three counties were newly designated as maternal deserts (Abbeville, Calhoun, and Saluda), whereas three other counties transitioned from deserts to low/full access areas (Williamsburg, Barnwell, and Colleton).

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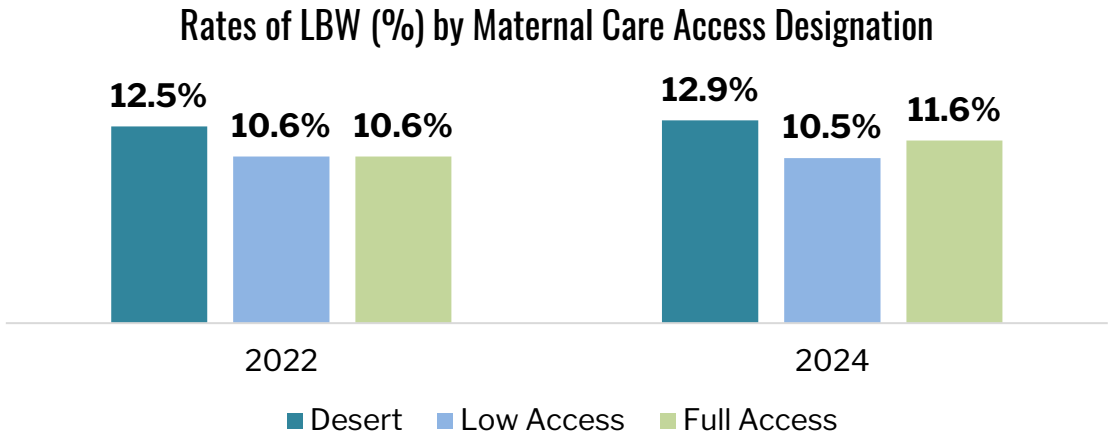
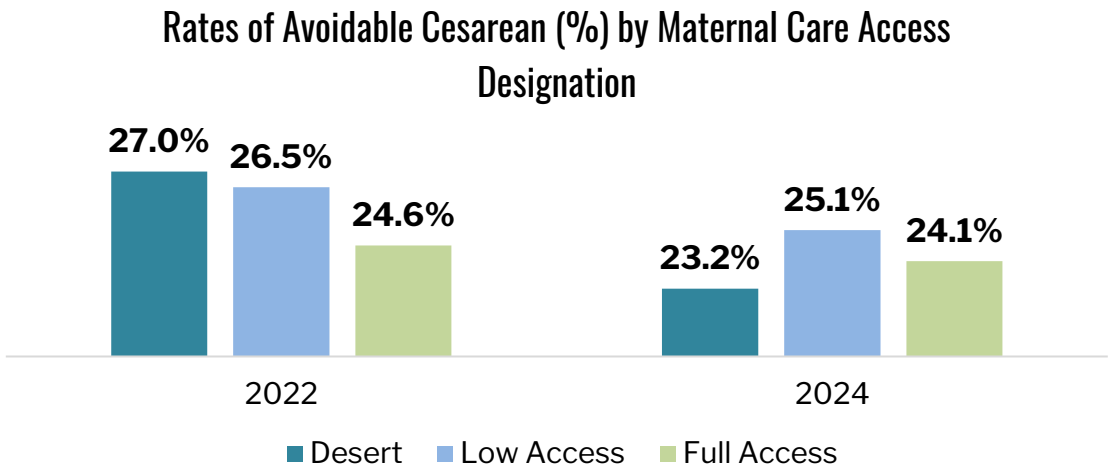
LOW BIRTHWEIGHT (LBW) AND AVOIDABLE CESAREAN RATES (2022 – 2024)





TAKEAWAY

- Rates of LBW are highest among maternal care deserts but have largely remained stable from 2022 to 2024.
- On the contrary, rates of avoidable cesarean decreased from 2022 to 2024 across all designations, but faster among deserts.

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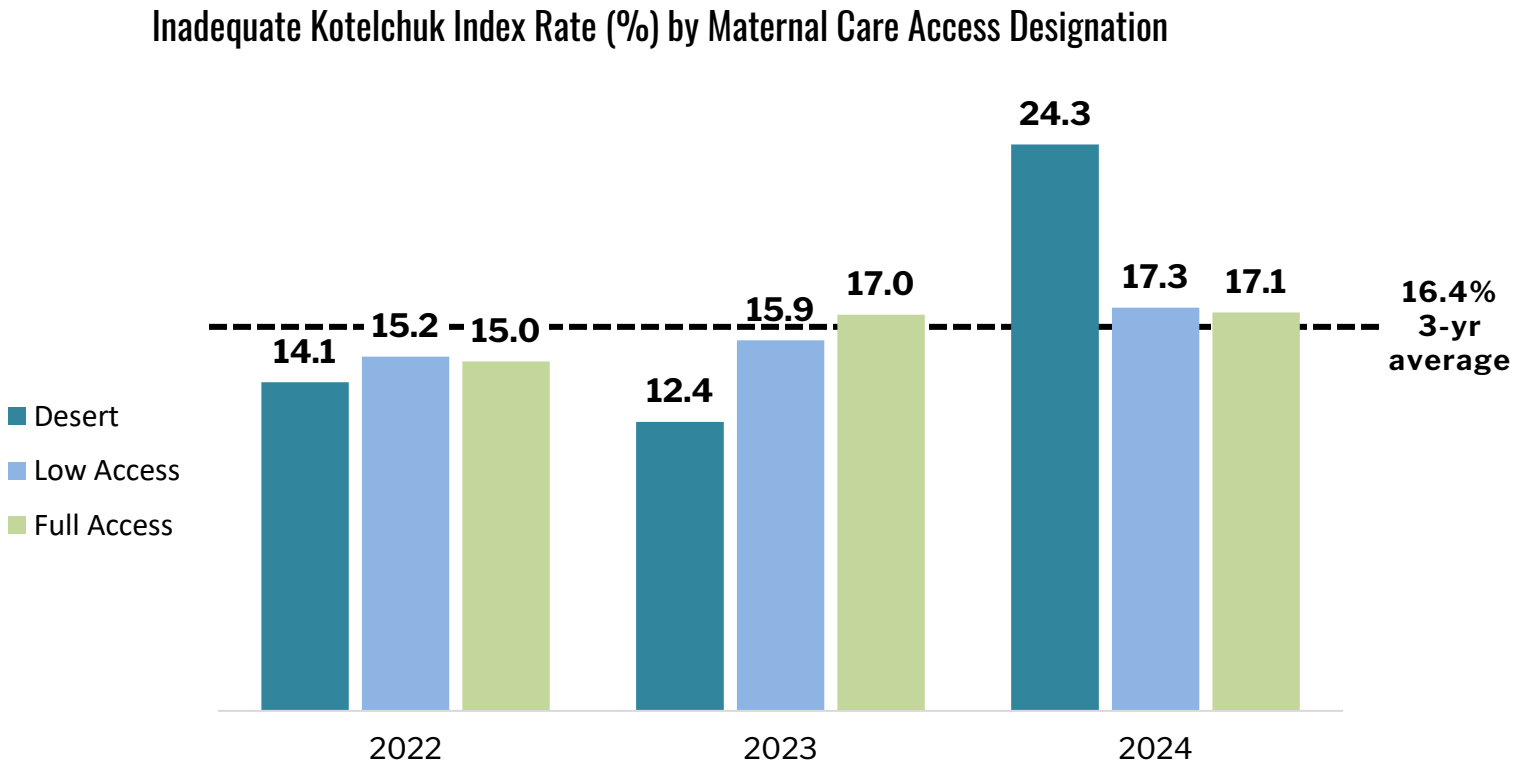
KOTELCHUK INDEX (2022 – 2024)



TAKEAWAY

- Rates of self-reported inadequate prenatal care **increased 96%** between 2023 and 2024 among women residing in maternal care deserts.

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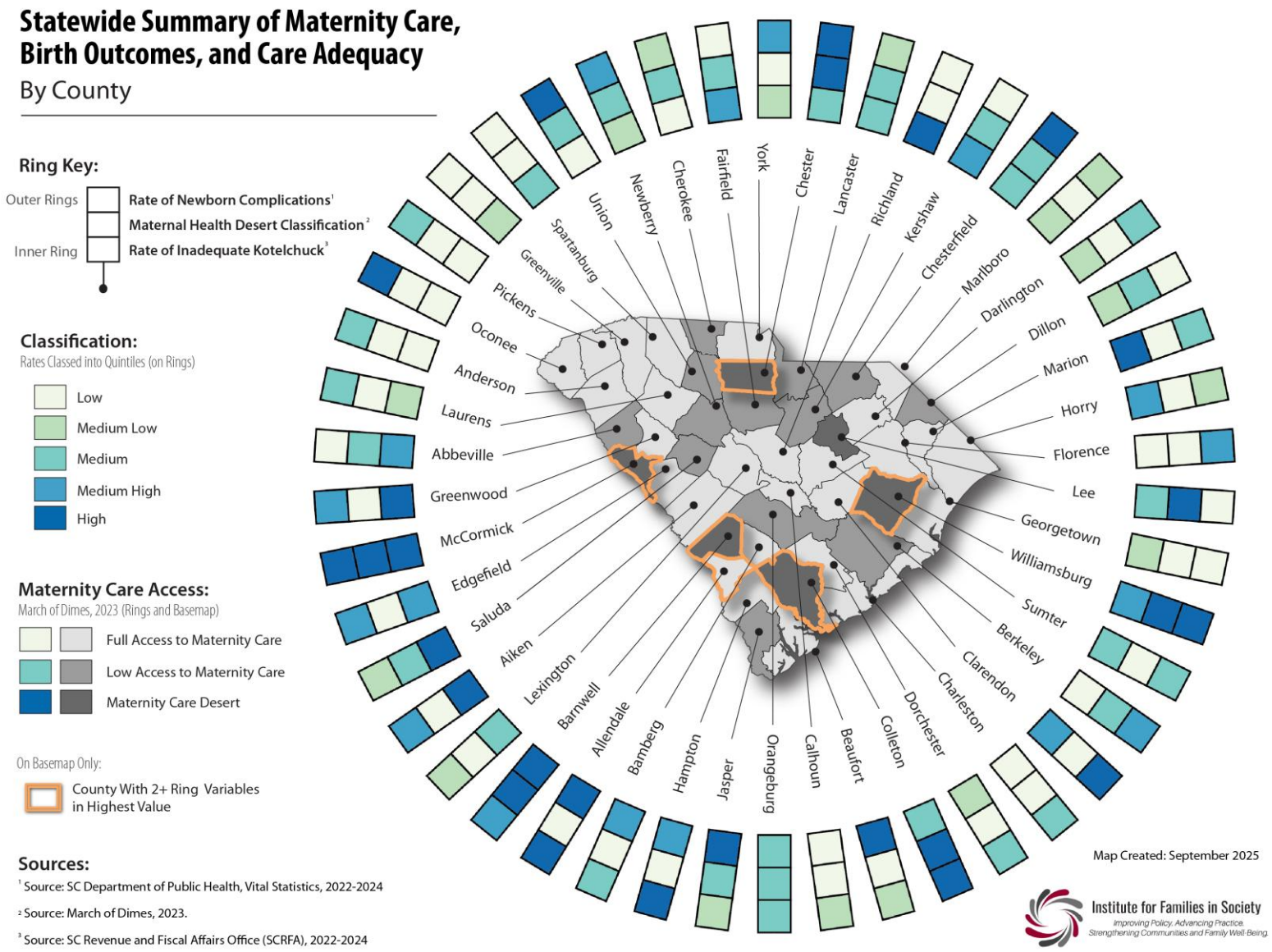
SUMMARY



TAKEAWAY

To visualize these intersecting risks, we introduce a ring map that integrates three critical dimensions of perinatal vulnerability. The inner map layer represents county-level classification of maternal care access using the March of Dimes (MOD) framework.

Our visualization method is instrumental in identifying areas of compounded risk. Counties that are both maternal care deserts and fall into the top quantile for both newborn complications and inadequate prenatal care are emphasized. This spotlight on compounded risk areas underscores the urgency and significance for targeted interventions.

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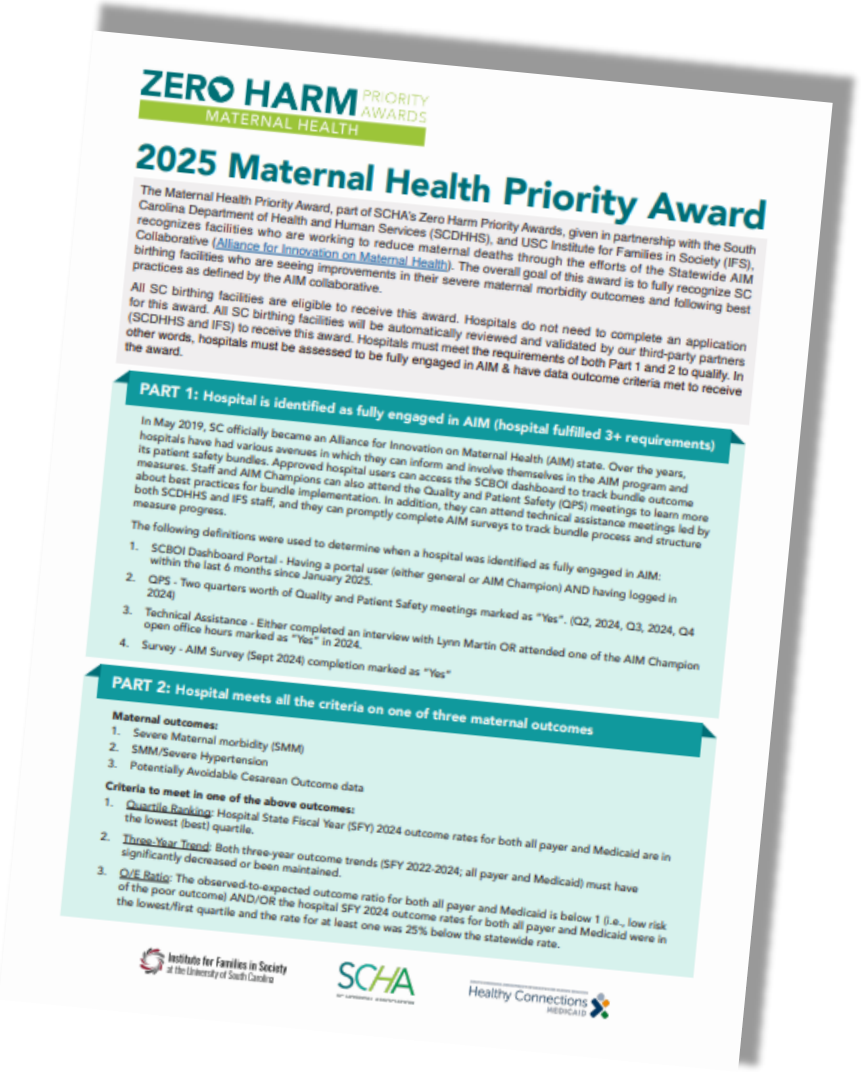
DATA TO ACTION

GET INVOLVED: SCHA ZERO HARM MATERNAL HEALTH PRIORITY AWARD



ZERO HARM PRIORITY AWARDS
MATERNAL HEALTH

2025 Maternal Health Priority Award

The Maternal Health Priority Award, part of SCHA's Zero Harm Priority Awards, given in partnership with the South Carolina Department of Health and Human Services (SCDHHS), and USC Institute for Families in Society (IFS), recognizes facilities who are working to reduce maternal deaths through the efforts of the Statewide AIM Collaborative (Alliance for Innovation on Maternal Health). The overall goal of this award is to fully recognize SC birthing facilities who are seeing improvements in their severe maternal morbidity outcomes and following best practices as defined by the AIM collaborative.

All SC birthing facilities are eligible to receive this award. Hospitals do not need to complete an application for this award. All SC birthing facilities will be automatically reviewed and validated by our third-party partners (SCDHHS and IFS) to receive this award. Hospitals must meet the requirements of both Part 1 and 2 to qualify. In other words, hospitals must be assessed to be fully engaged in AIM & have data outcome criteria met to receive the award.

PART 1: Hospital is identified as fully engaged in AIM (hospital fulfilled 3+ requirements)

In May 2019, SC officially became an Alliance for Innovation on Maternal Health (AIM) state. Over the years, hospitals have had various avenues in which they can inform and involve themselves in the AIM program and its patient safety bundles. Approved hospital users can access the SCBOI dashboard to track bundle outcome measures. Staff and AIM Champions can also attend the Quality and Patient Safety (QPS) meetings to learn more about best practices for bundle implementation. In addition, they can attend technical assistance meetings led by both SCDHHS and IFS staff, and they can promptly complete AIM surveys to track bundle process and structure measure progress.

The following definitions were used to determine when a hospital was identified as fully engaged in AIM:

1. SCBOI Dashboard Portal - Having a portal user (either general or AIM Champion) AND having logged in within the last 6 months since January 2025.
2. QPS - Two quarters worth of Quality and Patient Safety meetings marked as "Yes". (Q2, 2024, Q3, 2024, Q4 2024)
3. Technical Assistance - Either completed an interview with Lynn Martin OR attended one of the AIM Champion open office hours marked as "Yes" in 2024.
4. Survey - AIM Survey (Sept 2024) completion marked as "Yes"

PART 2: Hospital meets all the criteria on one of three maternal outcomes

Maternal outcomes:

1. Severe Maternal morbidity (SMM)
2. SMM/Severe Hypertension
3. Potentially Avoidable Cesarean Outcome data

Criteria to meet in one of the above outcomes:

1. Quartile Ranking: Hospital State Fiscal Year (SFY) 2024 outcome rates for both all payer and Medicaid are in the lowest (best) quartile.
2. Three-Year Trend: Both three-year outcome trends (SFY 2022-2024; all payer and Medicaid) must have significantly decreased or been maintained.
3. O/E Ratio: The observed-to-expected outcome ratio for both all payer and Medicaid is below 1 (i.e., low risk of the poor outcome) AND/OR the hospital SFY 2024 outcome rates for both all payer and Medicaid were in the lowest/first quartile and the rate for at least one was 25% below the statewide rate.

Institute for Families in Society at the University of South Carolina | SCHA | Healthy Connections Medicaid

[The Maternal Health Priority Award](), part of SCHA's Zero Harm Priority Awards, given in partnership with the South Carolina Department of Health and Human Services (SCDHHS), and USC Institute for Families in Society (IFS), **recognizes facilities who are working to reduce maternal deaths through the efforts of the Statewide AIM Collaborative (Alliance for Innovation on Maternal Health).**

The overall goal of this award is to fully recognize SC birthing facilities who are seeing improvements in their severe maternal morbidity outcomes and following best practices as defined by the AIM collaborative.

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WHY IS ENGAGING IN AIM DATA REPORTING AND THE SCBOI DASHBOARD ESSENTIAL?

Hospital engagement in AIM reporting allows hospitals to meet **other national requirements.**

AIM Data Reporting (SMM)

CMS

(ePC-07 Measure; "Severe Obstetric Complications")

TJC

(ePC-07 for accreditation)

Leapfrog Group

(Survey tracks management of DVT among cesarean patients, an SMM indicator)

CMS' Birthing Friendly Designation

"Birthing-Friendly" is the first-ever CMS designation to describe high-quality maternity care. To earn the designation, hospitals and health systems report their progress on CMS's Maternal Morbidity Structural Measure to the Hospital Inpatient Quality Reporting (IQR) Program. The measure identifies whether a hospital or health system has:

1. Participated in a statewide or national perinatal quality improvement collaborative program; and,
2. Implemented evidence-based quality interventions in hospital settings to improve maternal health.

Note: Requirements will be more specific going forward. We can define what participation means for SC.

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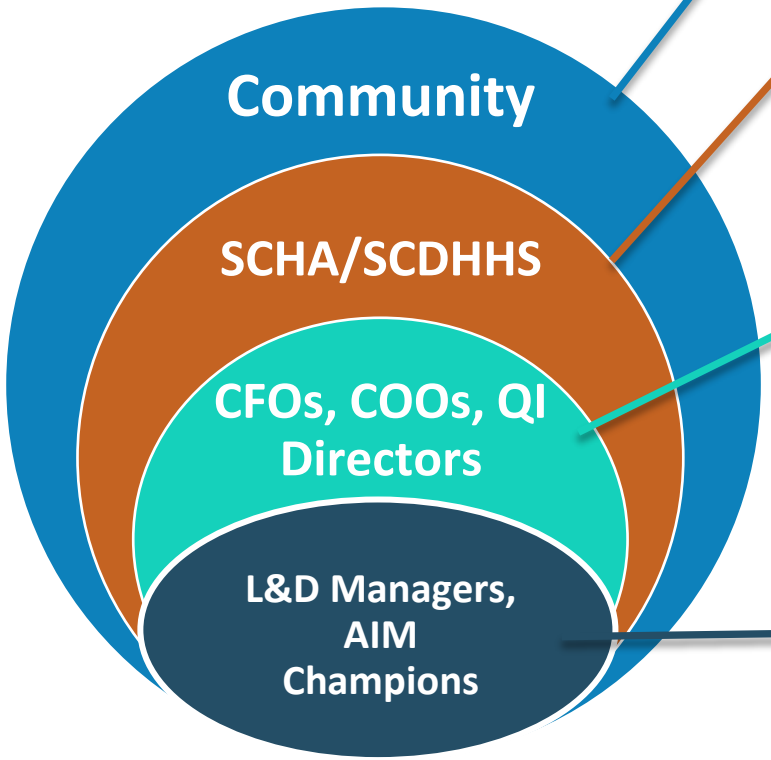
DATA TO ACTION

Action will take engagement from varying spheres of influence within the maternal health services space.



- Address social determinants of health, postpartum care transitions, care coordination, social support, and engagement of persons with living expertise.

- Enhance birthing friendly requirements for CMS structure measure.
- Coordinate AIM with other perinatal QI initiatives including the Quality Assurance Program.
- Establish incentives for participation including a perinatal award or AIM designation.

- Align AIM with other hospital reporting requirements (for CMS, The Joint Commission, and Leapfrog).
- Establish a resource repository to support implementation of evidence-based bundle policies, protocols, and trainings with an initial focus on the lowest-rated structure measures.
- Share information on potential return on investment (ROI) in improving AIM outcome measures.

- Attend Quality and Patient Safety Workgroup meetings to share best clinical practices, training, and resources to address process and structure measures requiring action.
- Use AIM standardized tools for SMM case review and debriefing.
- Encourage registration and use of the SCBOI dashboard and review survey results to use data to drive improved clinical practice.

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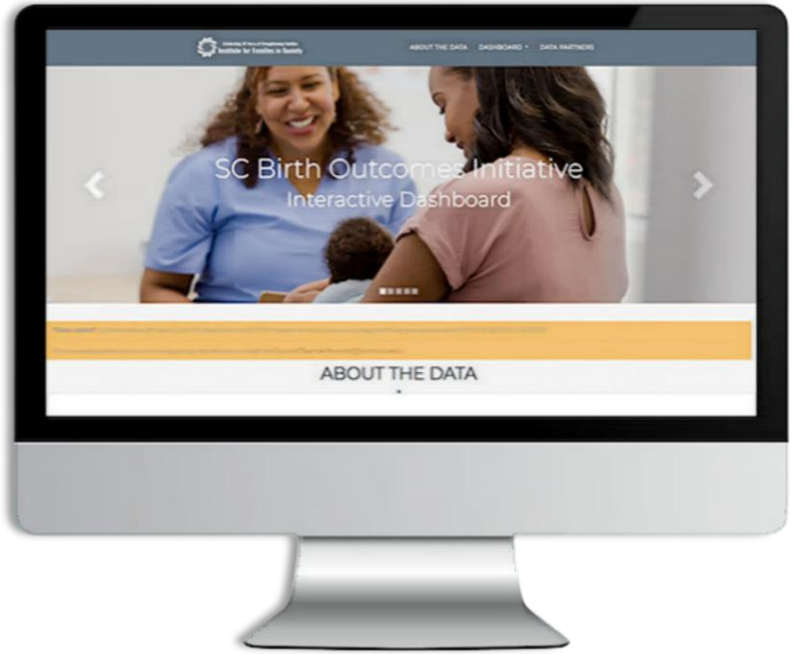
SPECIFIC AIM ACTION STEPS

1. **Attend the SCBOI Quality and Patient Safety Workgroup** meetings to learn more about bundle implementation and evaluation.
2. **Encourage AIM survey response** in your hospital to accurately report on practices and policies implemented which support bundle progress.
3. **Engage in hospital-based bundle materials** and ensure best practices are set in place for prenatal and postpartum care visits.
4. **View the SCBOI dashboard user guide** which provides a collective summary of existing programs and initiatives that may support birthing facilities in addressing some of the greatest challenges affecting maternal and newborn health in SC.



Access the SCBOI dashboard to learn more about maternal and birth outcomes at your specific facility. (Registration is required).

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