Assessing the Impact of the 'Management of Maternal ('MOMs') Diabetes Program' in South Carolina

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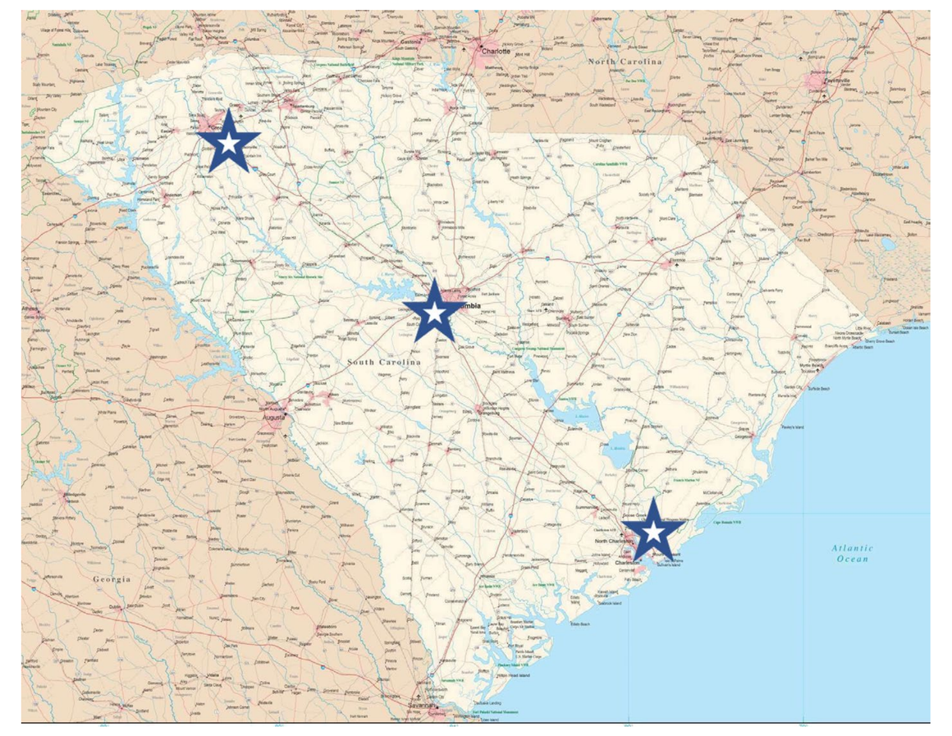
Introduction & Objective

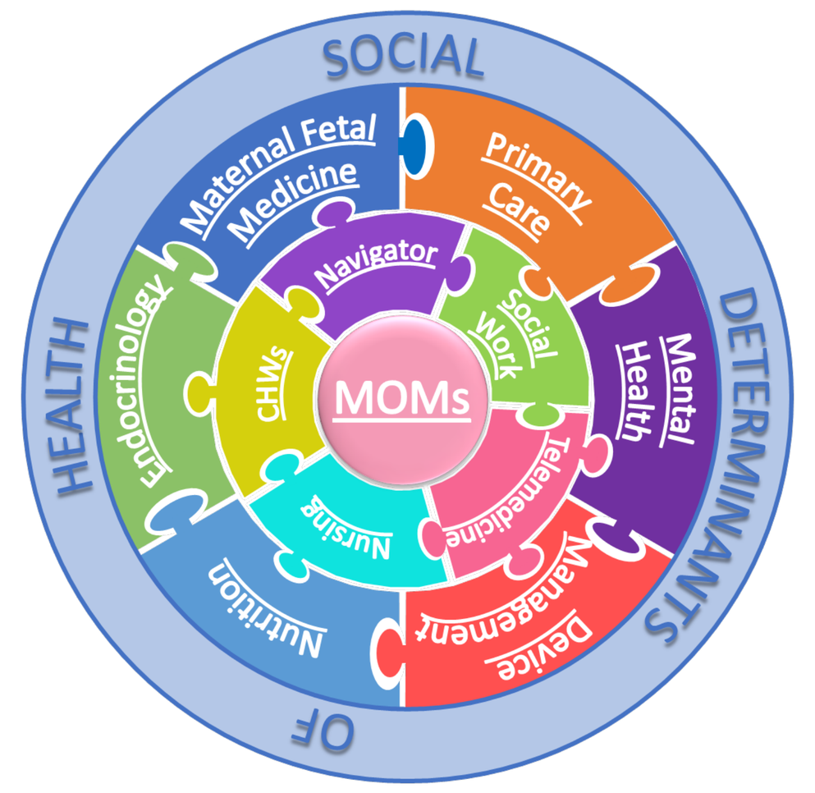
In South Carolina, risks of diabetic pregnancy are amplified by racial, economic, and geographic disparities, and by adverse social determinants of health (SDOH). Expert team-based care is essential: it must be equitable and feasible for both patients and providers, and must address real-life needs.

Objective: To improve pregnancy outcomes through a 'Management of Maternal (MOMs) Diabetes Program', implemented at three centers across SC. To emphasize a 'one stop shop', team-based approach, reducing disparities while optimizing the use of new technologies.

MOMs Program locations



MOMs Model Schema



Methods

MOMs programs were implemented in 2020 at the Medical University of SC (Charleston), and at two Prisma Health locations: Midlands (Columbia, Sumter) and Upstate (Greenville). The team approach aimed to enhance patient-provider communication, educate everyone, utilize new technologies, reduce clinic visits & travel, and address SDOH.

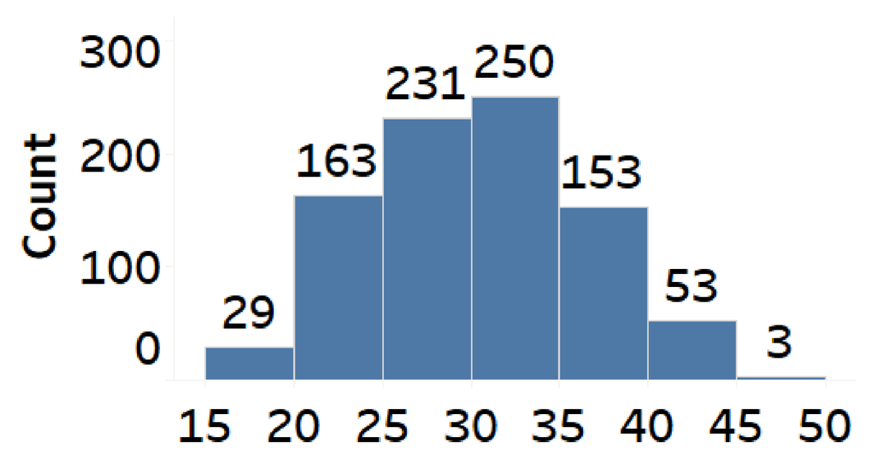
Core team members/components were: Maternal Fetal Medicine, Endocrinology, RN/RD Diabetes Educators, Navigator, Retinal Screening, and Telemedicine. Coordinated, de-identified clinical data were collected at each location and incorporated into a Diabetes Free SC repository. Since 2020, MOMs Programs have cared for about 2,000 pregnancies. Data reported are from 1,593 with deliveries in 2020-2023.

MOMs outcomes were compared with 944 patients in a 'standard care' comparator group (COMP) from the Medical University of South Carolina perinatal database (2017-2019). Distributions for maternal age were similar between MOMs and COMP, but COMP had a higher proportion of Black patients and a lower proportion with T1DM. MOMs data were adjusted accordingly. Full cohort comparisons are presented. Statistical analyses used Two Proportion Z-Tests (p<0.05).

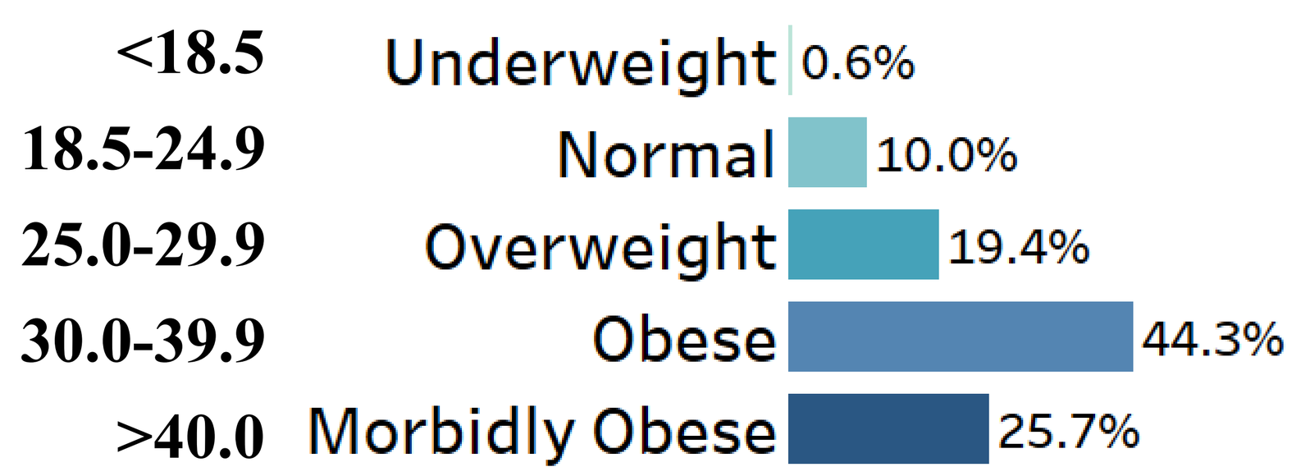
Results: MOMs Cohort

Demographics

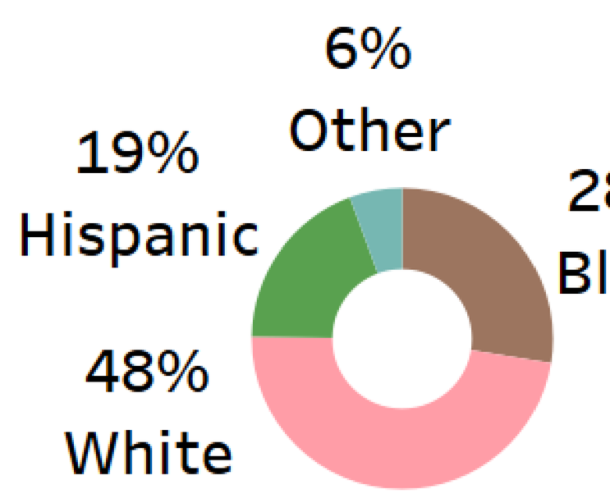
Maternal Age



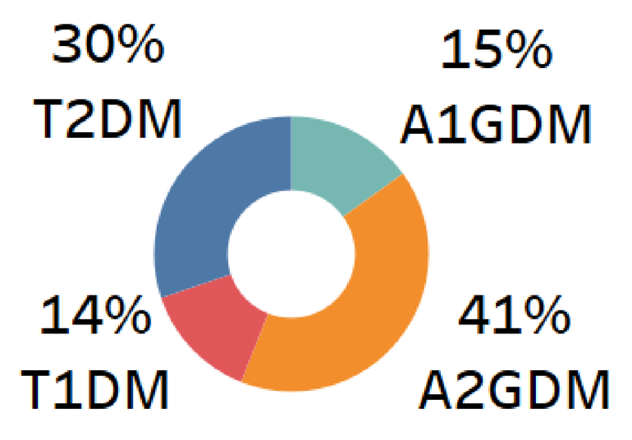
Pre-pregnancy BMI



Race

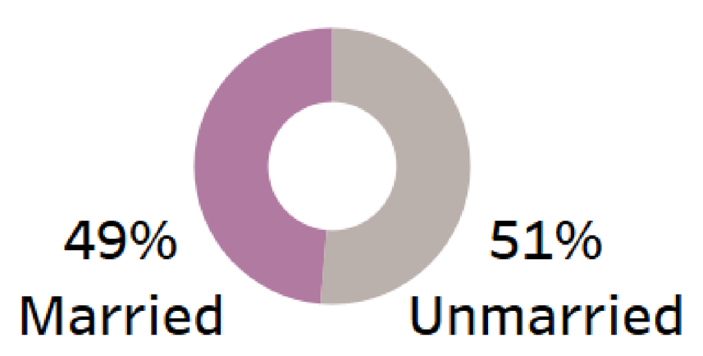


Diabetes types

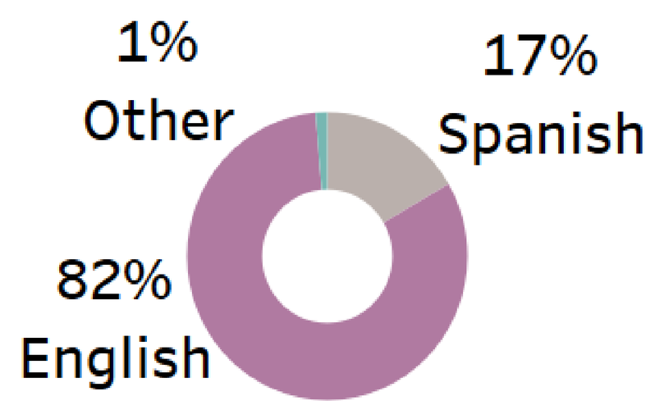


Social Determinants of Health

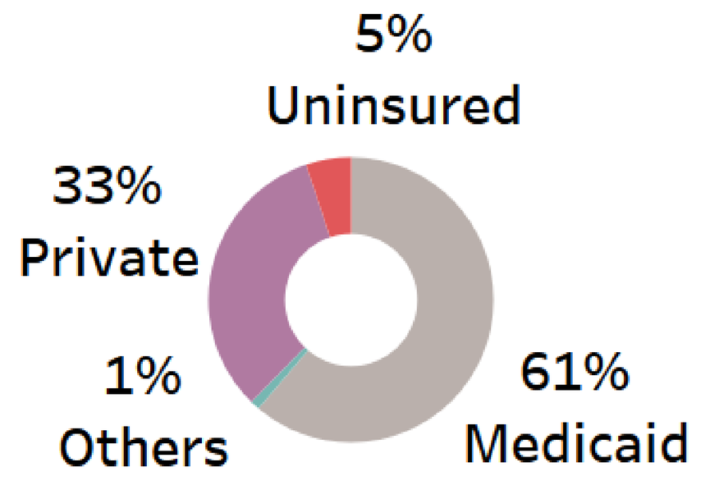
Marital status



Language

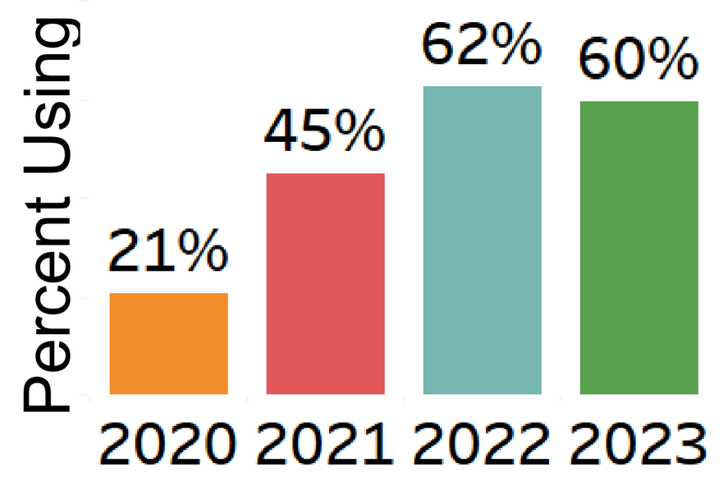


Insurance

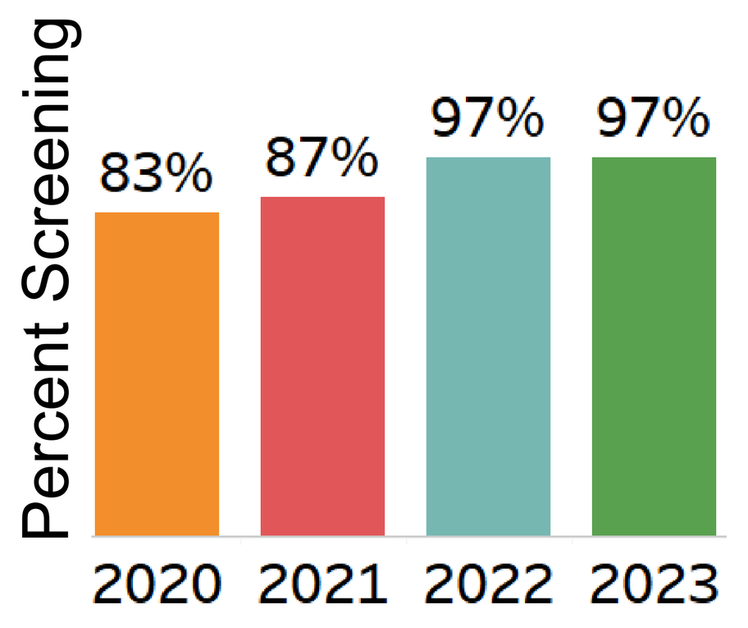


Changes in Diabetes Care, 2020-2023

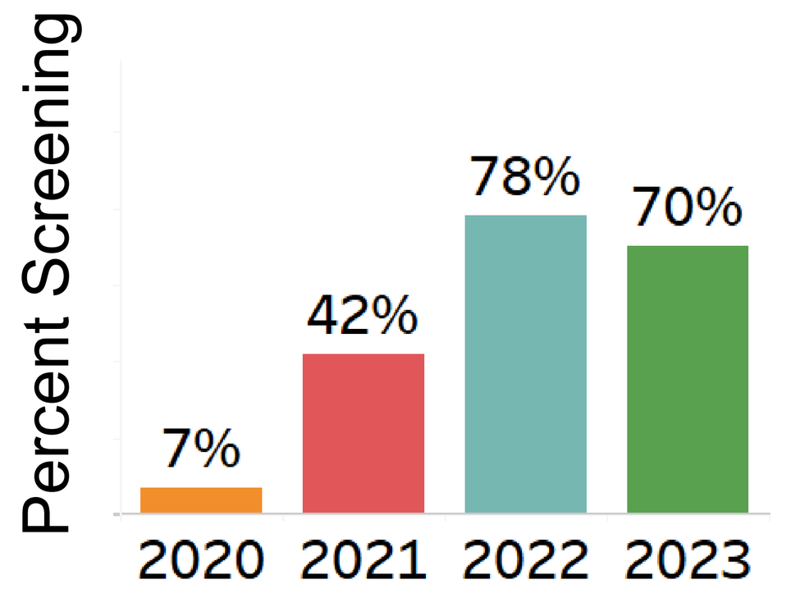
Use of continuous glucose monitor (CGM)



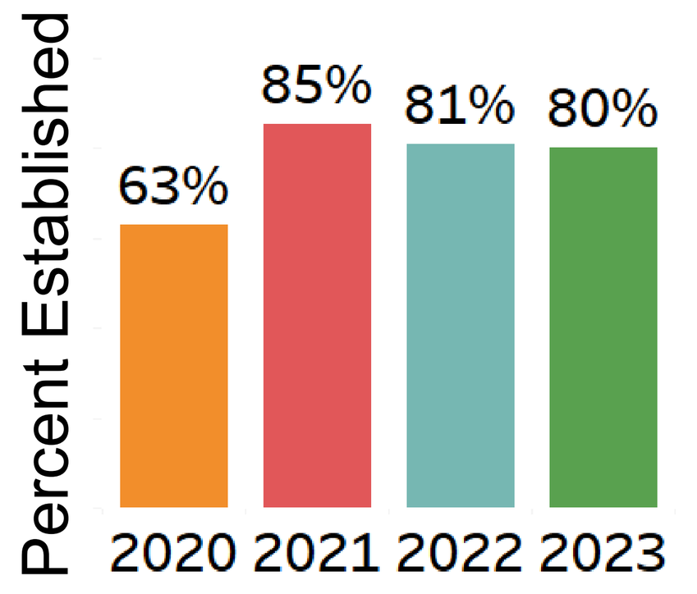
Mental health screening



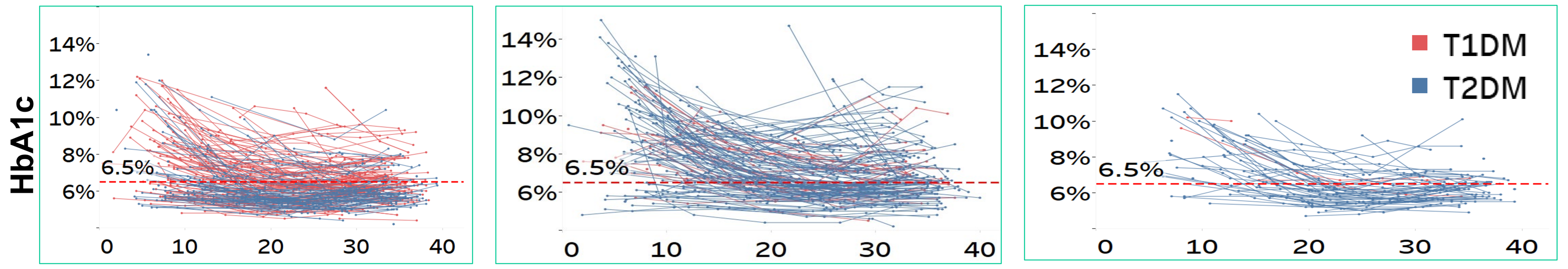
Retinal screening T1DM &T2DM only



Establishment of postpartum care

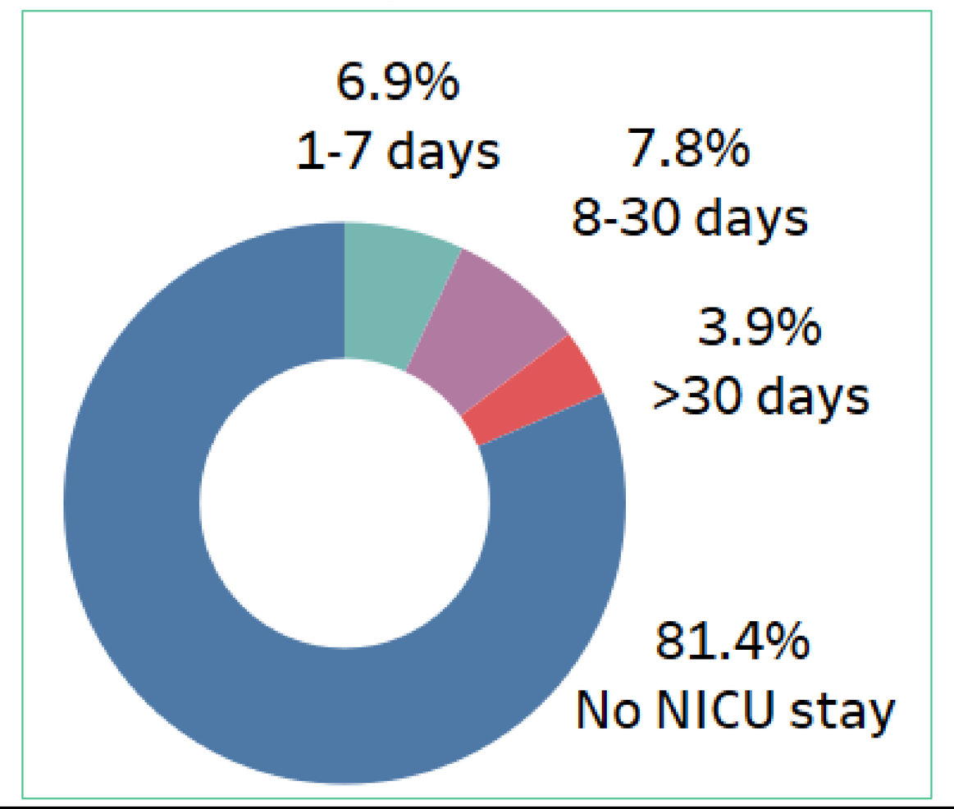


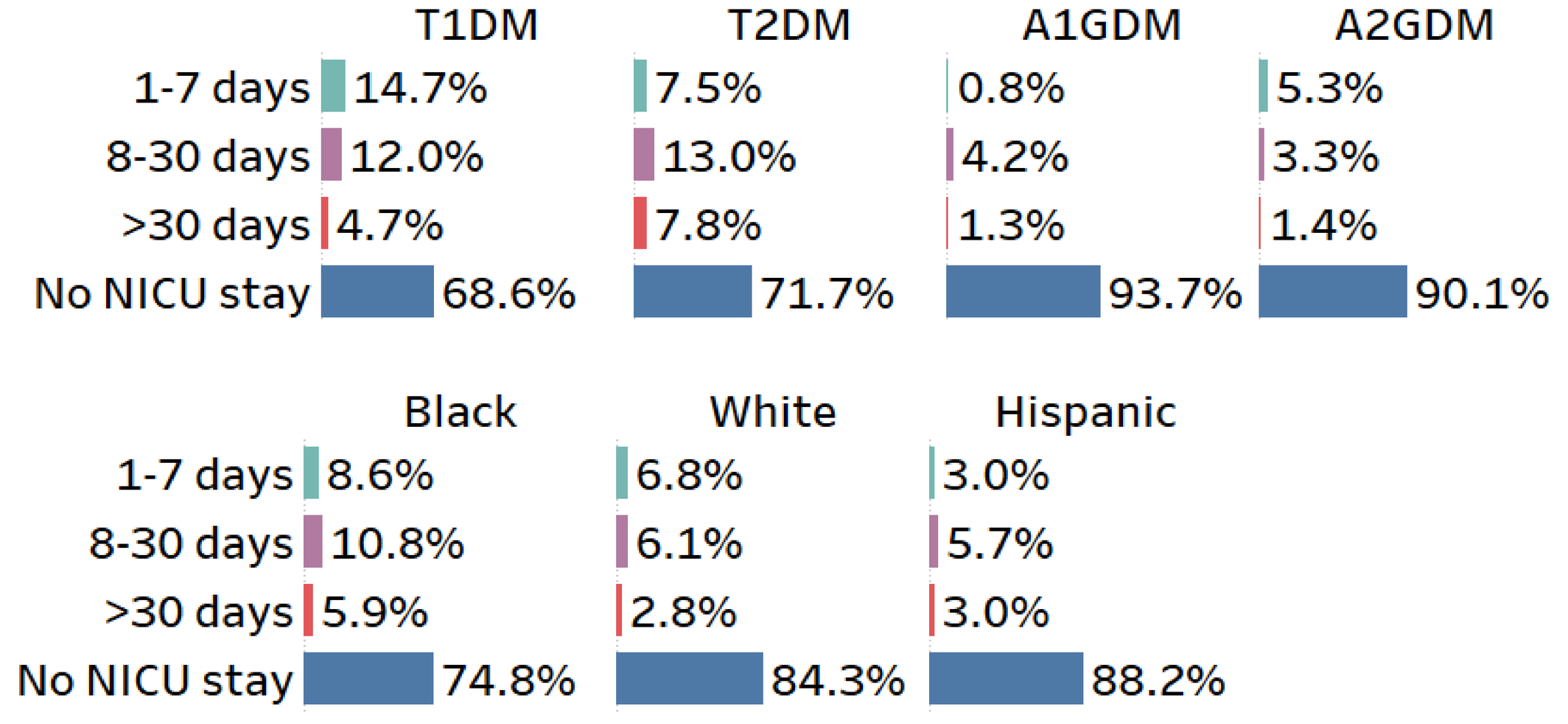
HbA1c changes through the pregnancy: T1DM &T2 DM only



Infants: Duration of NICU stay (days)

All patients





Results: MOMs vs. COMP

MOMs and COMP demographic comparisons

Maternal Age: Median (25th, 75th Percentile)

	T1DM	T2DM	A2 GDM	A1GDM	All
MOMs	28(24-31)	32(27-36)	29(25-34)	30(26-34)	30(25-34)
COMP	30 (25-34)	32 (28-36)	32 (29-36)	31(27-35)	31 (25-36)

DM Type N (%)

	T1DM	T2DM	A2 GDM	A1 GDM	All
MOMs	221 (13.9)	480 (30.1)	651 (40.9)	241 (15.1)	1593 (100)
COMP	84 (8.9)	238 (25.2)	331 (35.1)	291 (30.8)	944(100)

Race N (%)

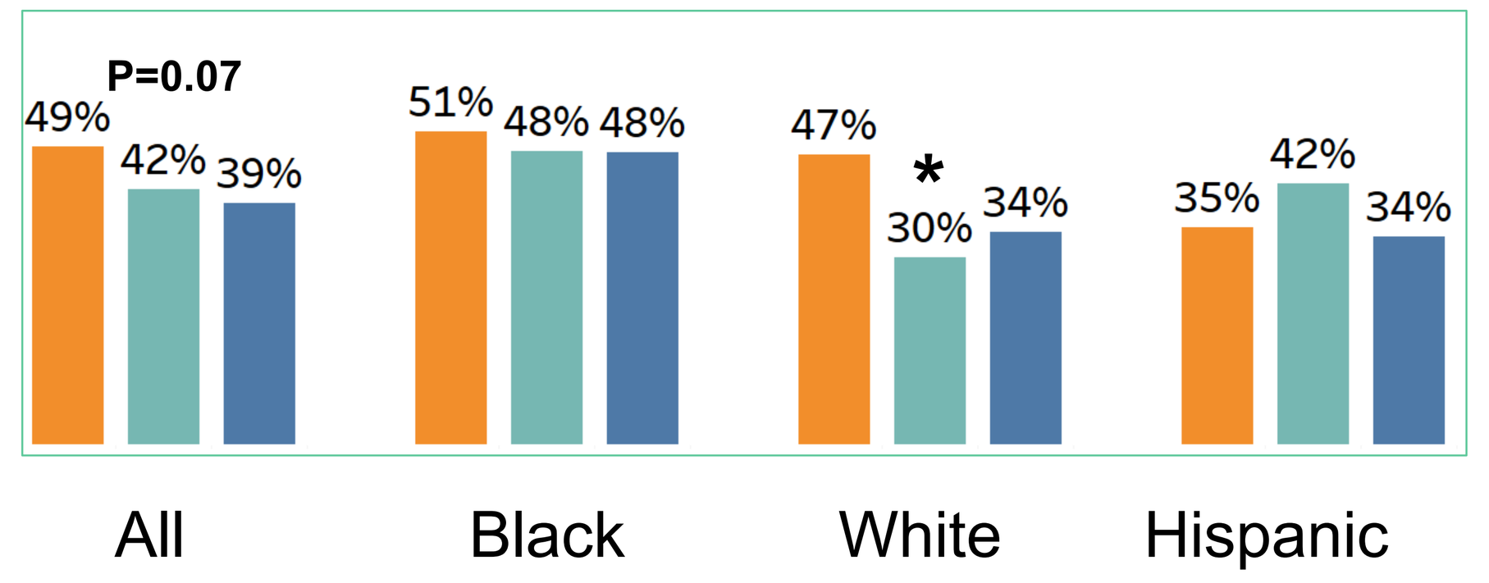
	Black	White	Hispanic	Other	All
MOMs	439 (27.6)	760(47.7)	304(19.1)	90(5.6)	1593(100)
COMP	413 (43.8)	392 (41.5)	72 (7.6)	67 (7.1)	944 (100)

Patients with incomplete datasets were excluded, as were 43 twin pregnancies. For neonatal outcomes, only live births were analyzed (n=1514).

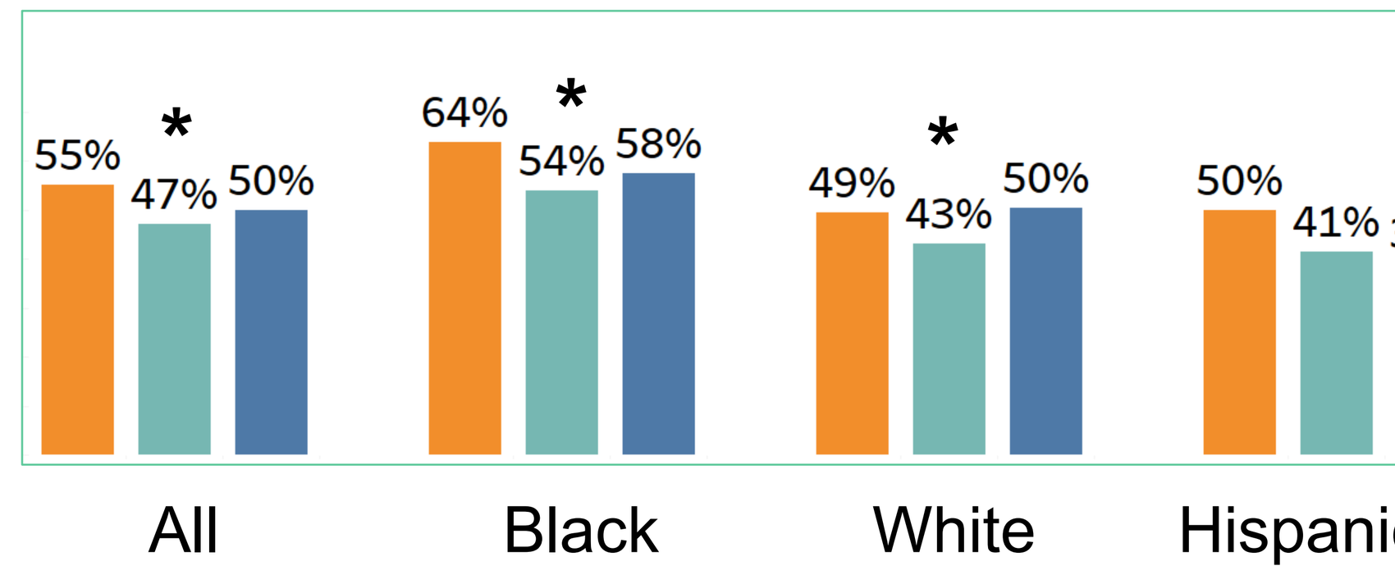
Outcome comparisons, MOMs vs. COMP, are shown in the Figures below. MOMs data were adjusted either by diabetes type (in each race) or by both diabetes type and race (in all patients)

COMP
MOMs adjusted
MOMs

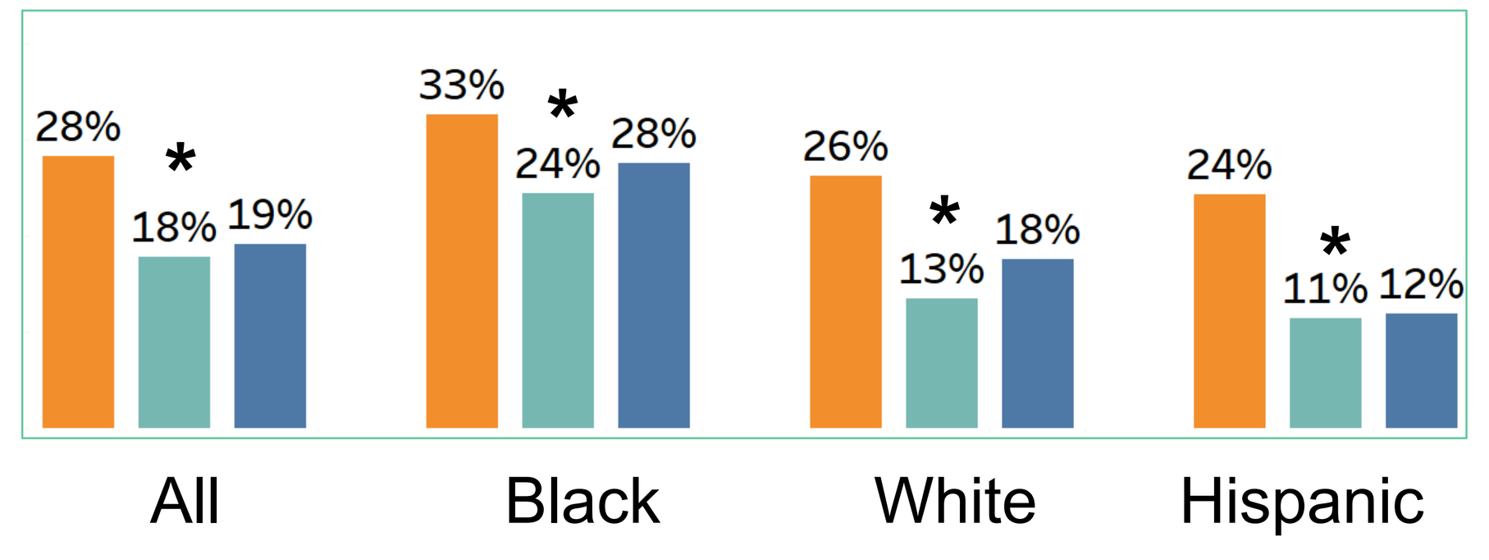
HbA1c 3rd trimester reading >6.5% $



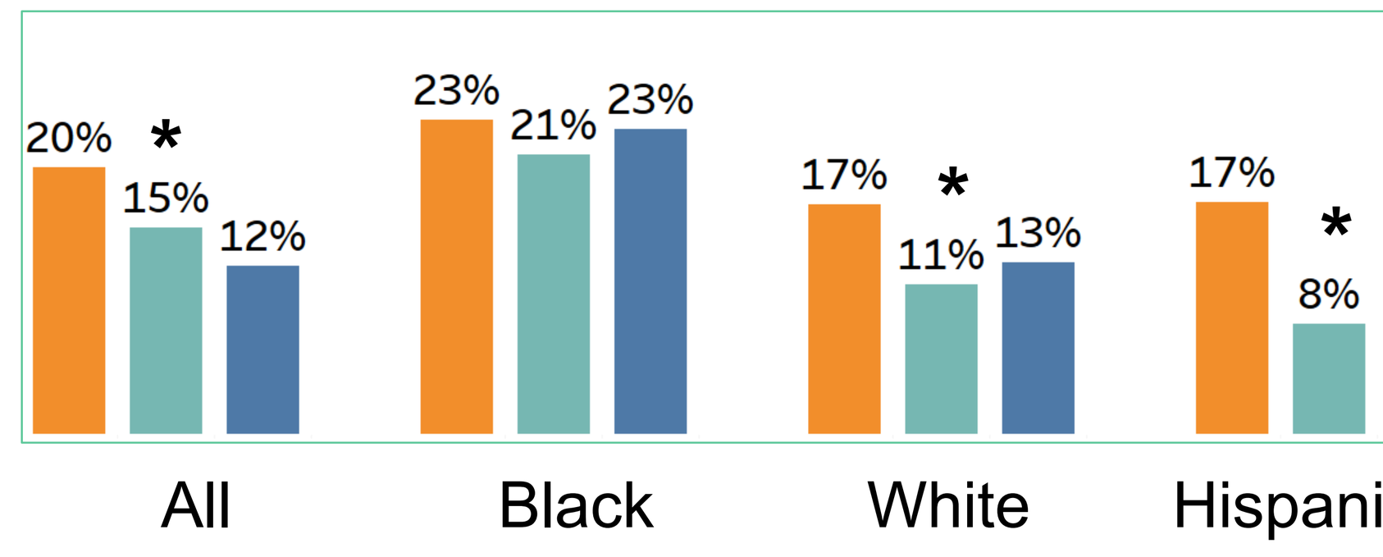
Total C-section Prevalence



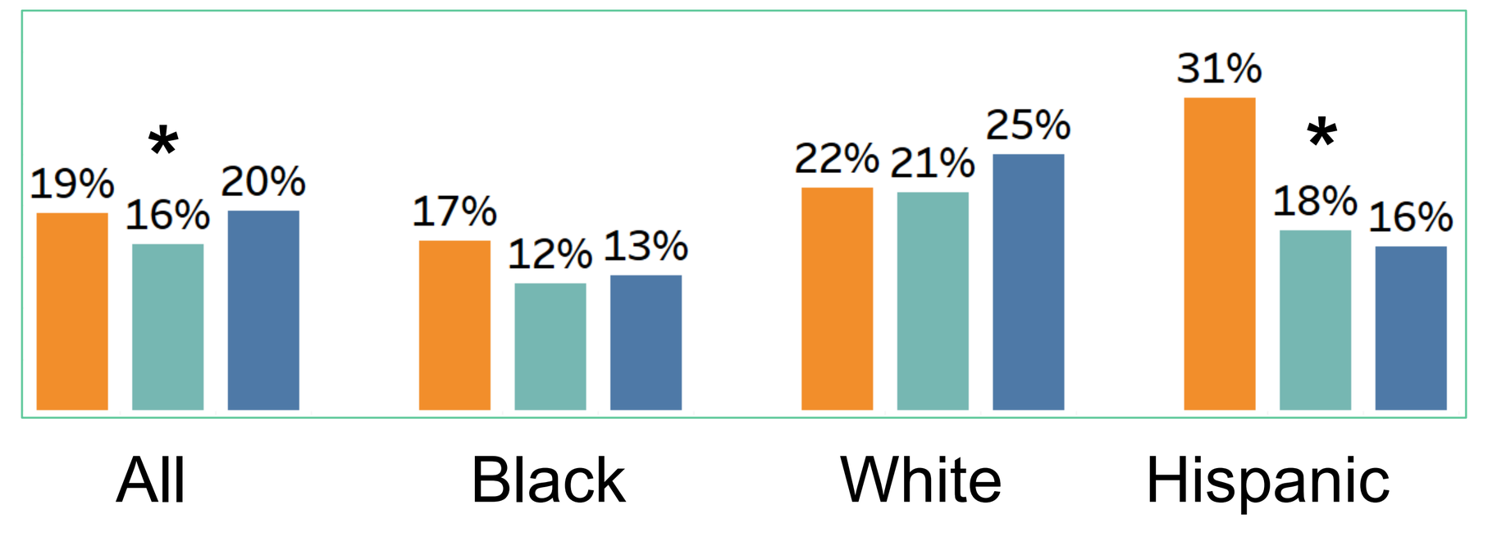
NICU admission rate



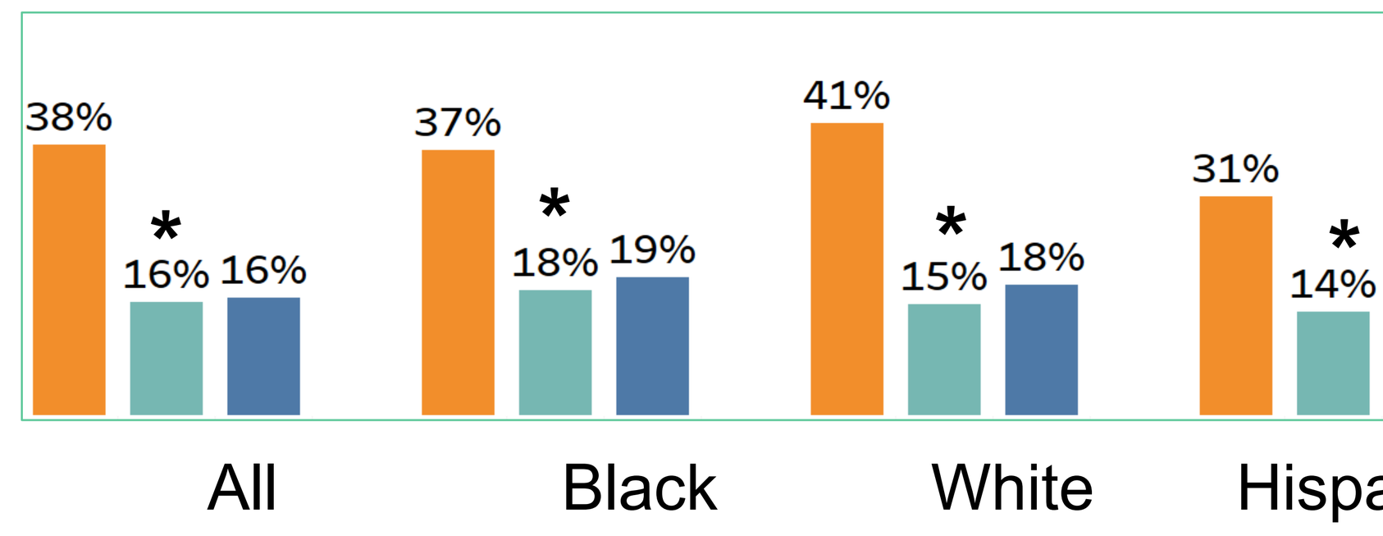
Neonatal hospital stays > 7 days



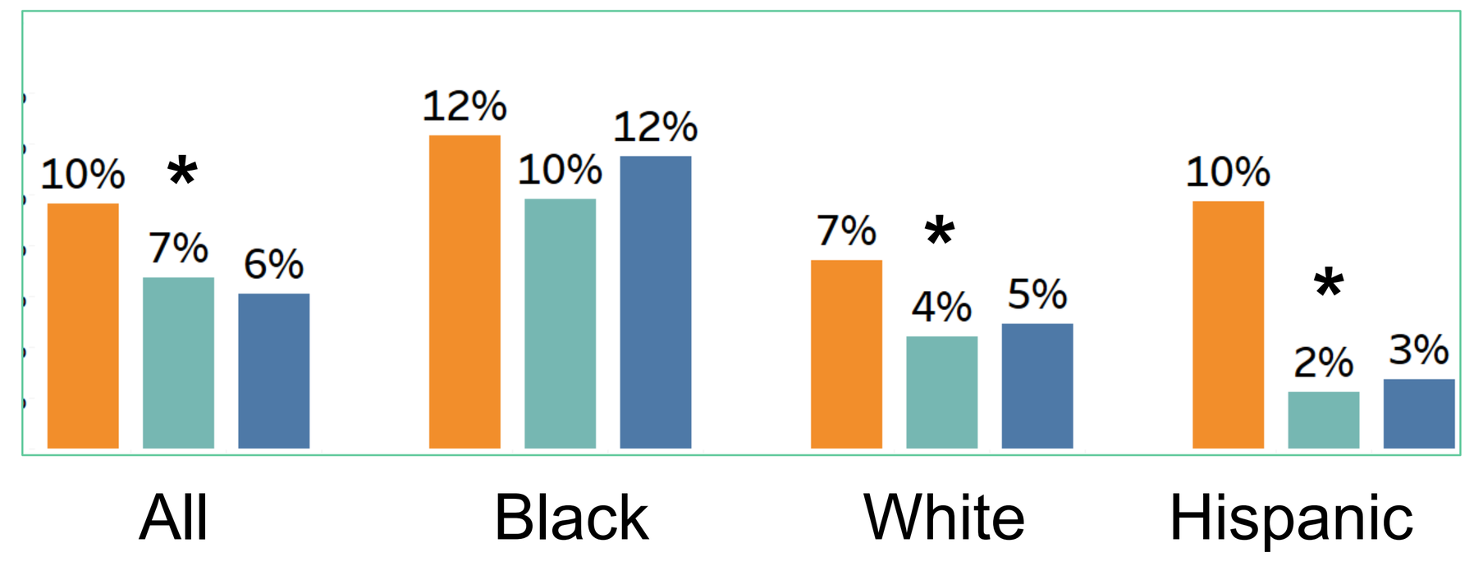
Large for gestational age



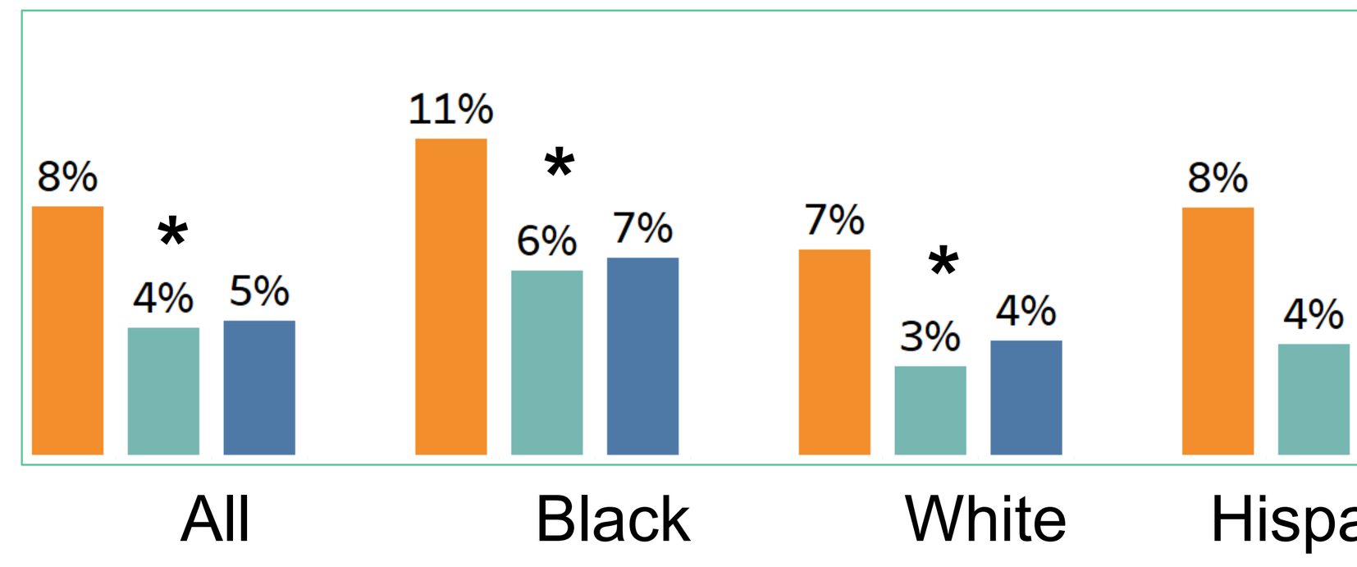
Neonatal Hypoglycemia



Preterm birth (<34wks)



Low 5-minute APGAR score (<7)

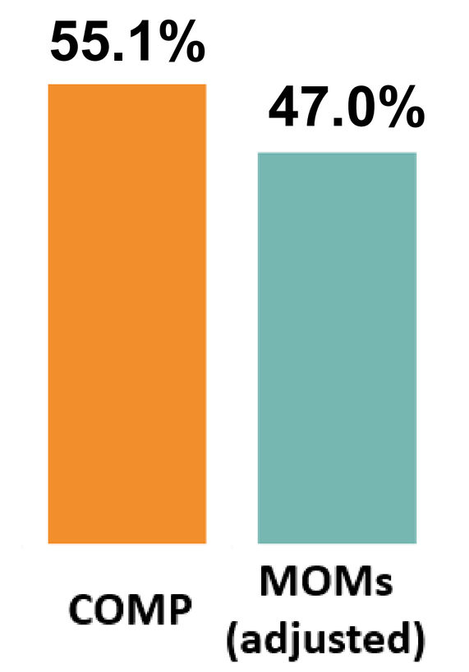


$ Pregestational diabetes only , * p<0.05, statistical significance: "MOMs adjusted " vs. COMP

Estimated Cost saving (South Carolina, yearly)

About **5,000** deliveries each year are complicated by diabetes in SC. If MOMs care provided statewide:

Saving for C-section delivery



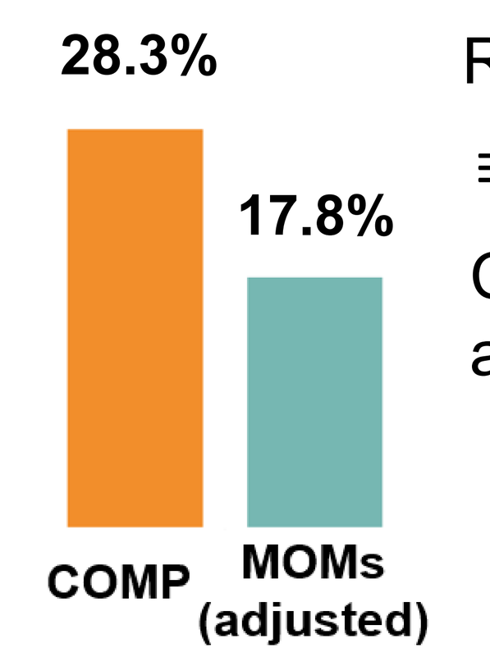
Reduction by **8.1 percentage points** ≡ **405** C-sections annually.

Cost saving per C-section: $4,681

Total saving each year:

$1.9M

Saving for NICU Admission



Reduction by **10.5 percentage points** ≡ **525** NICU admissions yearly

Cost per NICU admission (estimated): $71,158

Total saving each year:

$37.4M

To these short-term savings may be added many long-term, durable benefits and health-related cost savings for mother and child, extending years and decades into the future.

Summary & conclusion

Implementation of the MOMs program was associated with fewer C-sections, NICU admissions, pre-term births and episodes of neonatal hypoglycemia, and improved APGAR scores. However, emphasizing the continuing challenge of racial disparities and the need for redoubled effort, benefits were generally greater for White than Black patients.

Acknowledgements

Diabetes Free SC recognizes the outstanding skill and commitment of the team leaders and members at the three MOMs sites. MOMs Programs are funded by the BlueCross BlueShield of South Carolina Foundation to support the goals of Diabetes Free SC. MUSC MOMs Program was also supported by The Duke Endowment