

Medical
monitoring
support
for moms.



Postpartum Care Quality:
Real-Time Postpartum
Symptom Monitoring
Through Gator MOMitor™

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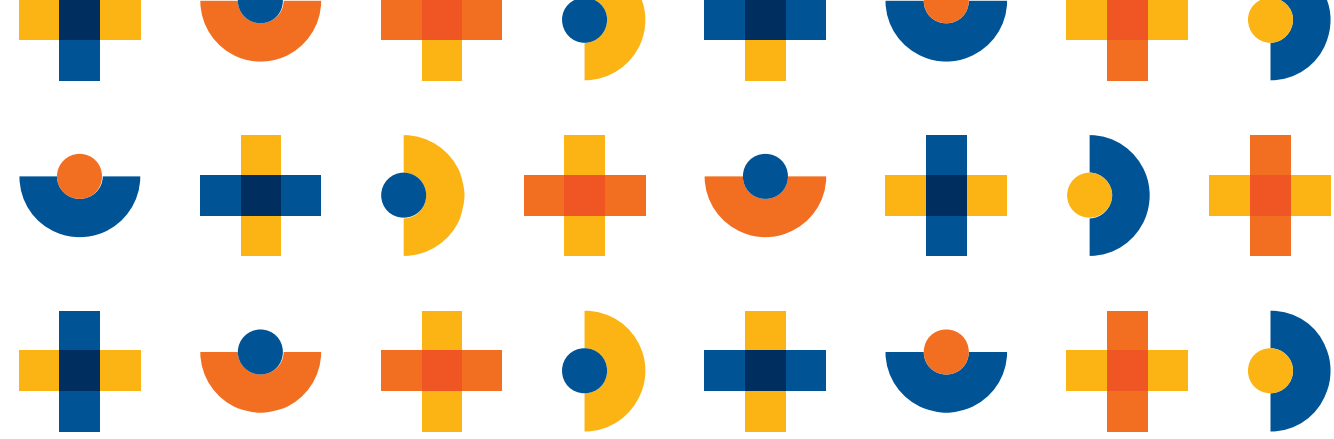
College of Medicine

MOMitor[™]
PERINATAL MEDICAL MONITORING

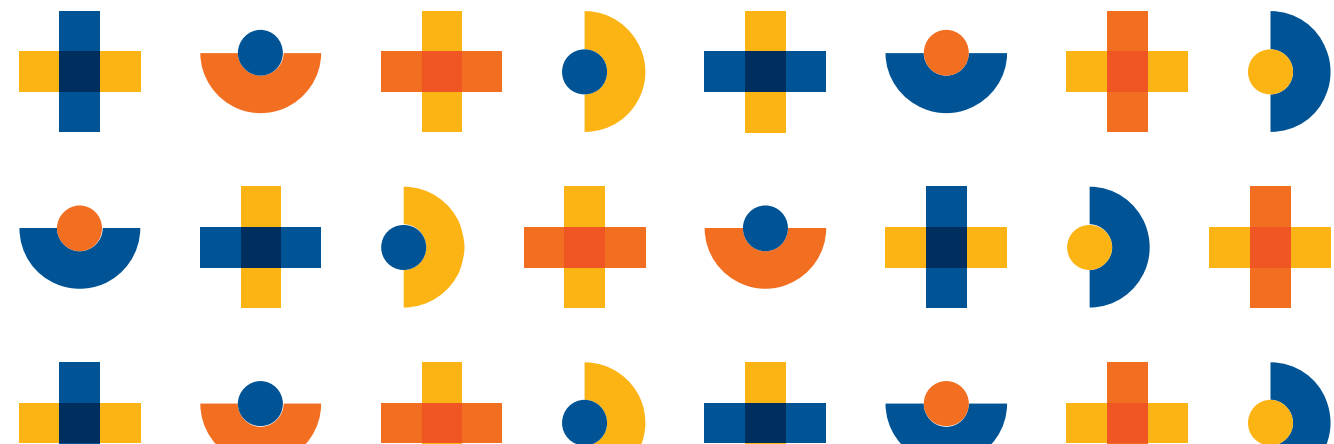


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- Authors report no conflicts of interest



MonitorTM
PERINATAL MEDICAL MONITORING

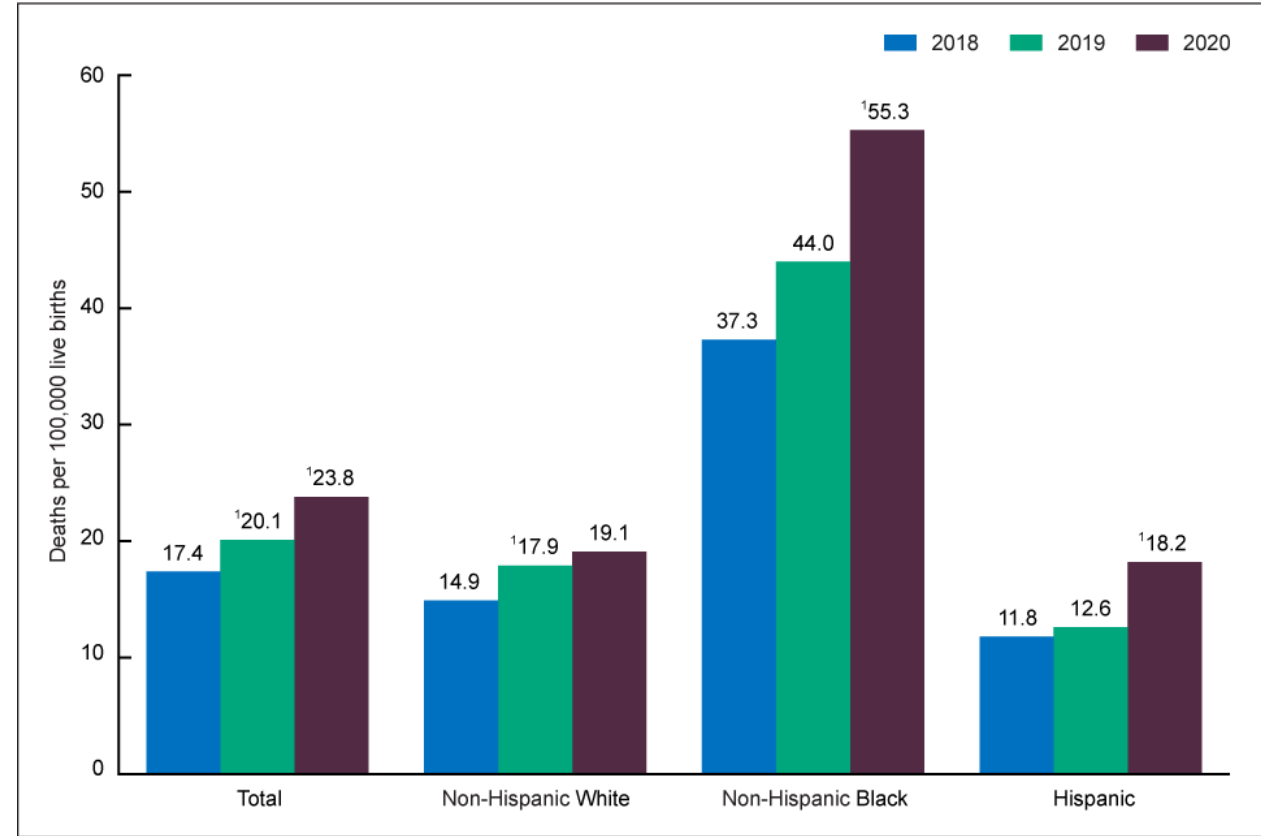
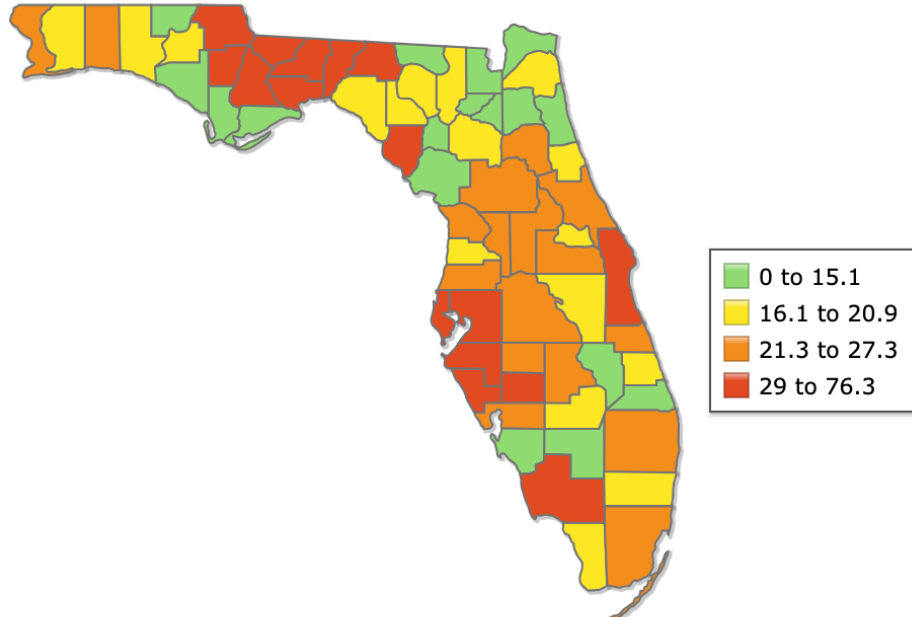


Learning Objectives

- Understand the utility of EMA technology
- Understand the trends of maternal morbidity and mortality in the US
- Identify interventions to improve postpartum care

Maternal Morbidity and Mortality

Severe Maternal Morbidity, Rate Per 1,000 Delivery Hospitalizations, 2021



Protecting mom's health.



Bridging the Postpartum Gap

- **The “postpartum gap:”** Up to 30% (higher in states that did not expand Medicaid) have coverage interruptions within weeks after birth
 - Between 30%-60% do not attend the 6-week postpartum visit
- Limited postpartum care encounters are a **big problem:**
 - For a birth with no complications, women receive 1-2 visits postpartum
 - Morbidity and mortality risks are high during the 6-week postpartum period
- Our mission: **bridge the gap** by improving patient-clinician communication and identifying concerning symptoms earlier



Gator MOMitor™



- Smartphone-based application that utilizes EMA technology
 - provides an effective and safe tool for obstetrics clinicians to effectively address maternal morbidity and mortality by continuing to monitor at-risk postpartum women during the initial 6 weeks postpartum
- Allows for continuous monitoring and real-time assessment of postpartum women who are at risk of developing mental health and medical conditions and equips those women with a tool for self-management and increased patient-clinician communication.

Interventions

Mental and physical symptom monitoring is implemented via a series of app-pushed notifications, linking to user-input questionnaire responses/measurements, for each of the following:

Mental Health (depression, anxiety, substance use disorders)

Hypertension (blood pressure)

Diabetes (blood glucose)

Cesarean incision infection

Lactation concerns

Cardiovascular disease (weight, pulse ox)



Medical monitoring
support **for moms.**

Concerning responses trigger Nurse contact and IMMEDIATE follow-up

MOMitorTM
PERINATAL MEDICAL MONITORING

Methods

- Patients delivering at UF Health are/were offered participation in GatorMOMitor™
 - Included data (poster) is through December 31, 2022, and comprises 939 patients
 - GatorMOMitor™ intervention arms include: mood, hypertension, cesarean wound infection, Type I, II diabetes, cardiovascular disease, and lactation concerns
 - This abstract specifically focuses on mood and hypertension
 - All patients, 939, were enrolled in the mood intervention, 374 patients (38.6%) were enrolled in hypertension intervention
 - A total of 6309 assessments were completed by patients. Of these, 3044 were for hypertension and 2118 were for mood





Methods

- Specifics:
 - All patients over 18 years of age who were English speaking were approached for participation
 - Those agreed to participation, owned a mobile phone, agreed to downloading the app and receiving messaging were consented by the research coordinators
 - Patients were offered incentive of \$30 for participation (\$15 at enrollment and \$15 at conclusion)
 - Patients were educated about the app, were aided with downloading, given “practice questions” to complete with the research coordinators to make sure they felt comfortable with the app



Methods

- Specifics:
 - Survey questions were sent to patients on a routine schedule, M-F, 8am-3pm on non-holidays
 - This was for patient safety to assure that positive responses were addressed by nursing/clinical staff
 - Non-responses were addressed in the following way:
 - After 3 consecutive non-responses the nursing staff would contact the patient to encourage participation, trouble-shoot any IT issues
 - If patients decided they no longer wanted to participate they would be withdrawn from the study
 - If they decided to continue participation the questions would continue and the protocol for 3 consecutive non-responses would re-start

Methods

- At the conclusion of the study, or at study withdrawal patients were asked to complete an exit survey to share thoughts, suggestions for improvement of the app



Example clinical algorithm

3:15 ↖

Back MyChart MyChart by Epic

A Questionnaires

As you are pregnant or have recently had a baby, we would like to know how you are feeling. Please check the answer that comes closest to how you have felt IN THE PAST 7 DAYS, not just how you feel today.

* I have been able to laugh and see the funny side of things

As much as I always could

Not quite so much now

Definitely not so much now

Not at all



3:15 ↖

Back A Questionnaires

For the To Do task **Intervention for Mood Disorders**

Thank you, the nurse will call you for further discussion.

Complete Survey

Continue

Back Cancel

Example clinical algorithm

8:06

Back MyChart MyChart by Epic

A Questionnaires

For the To Do task **Intervention for Hypertension 1**

*Is your BP great than 140/90?

Yes No

Do you feel dizzy or lightheaded, short of breath or had a terrible headache?

Yes No

Continue

Cancel



How a question appears to a participant on their smartphone

8:06

Back MyChart MyChart by Epic

A Questionnaires

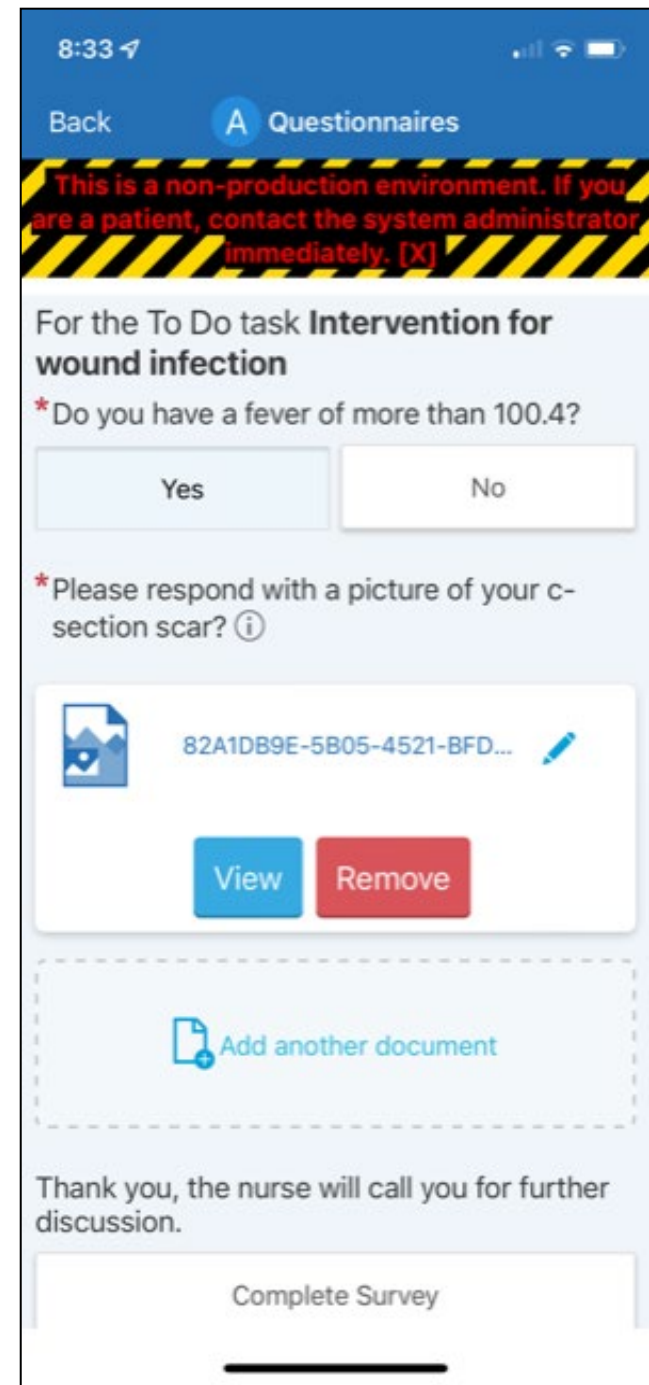
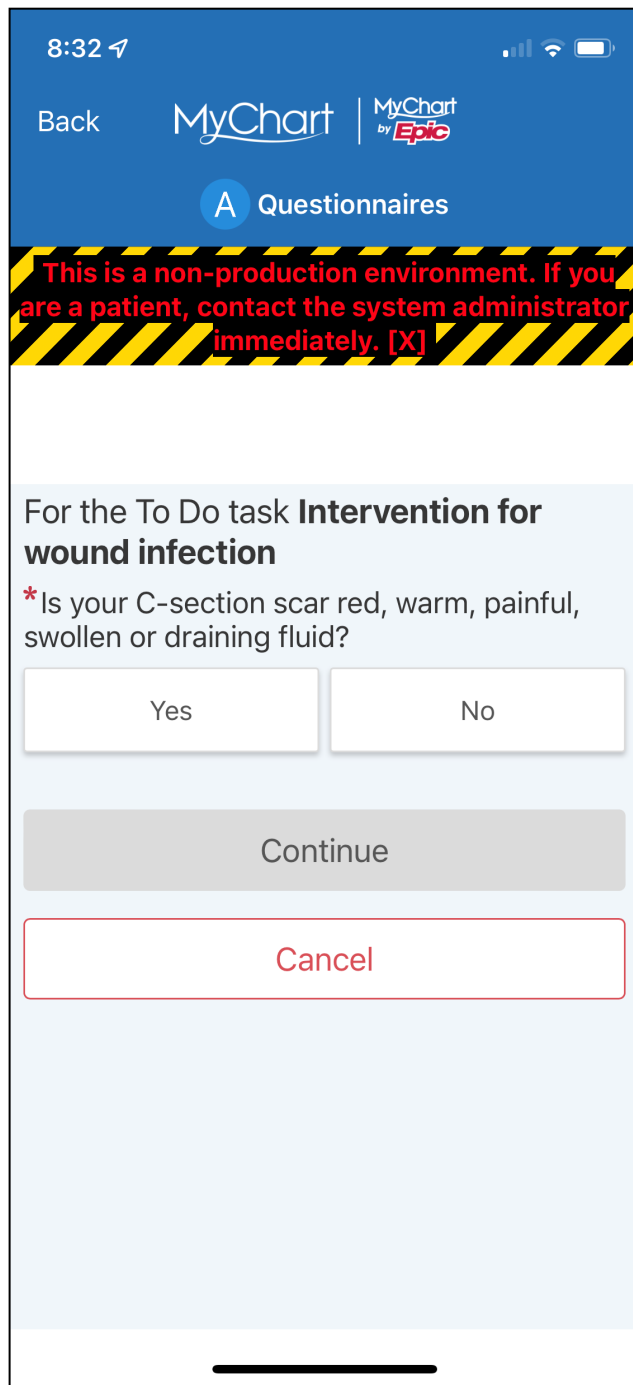
For the To Do task **Intervention for Hypertension 1**

Thank you, it looks like your blood pressure is under good control.

Close Survey

Continue

Back Cancel





Methods

- A positive result for the mood intervention included feeling “sad” and/or an Edinburgh Postpartum Depression Scale (EPDS) score of 12 or greater, or a request via the app for the nurse to contact the patient regarding her mood.
- A positive result for hypertension included a blood pressure value greater than 140/90 and/or headache, feeling dizzy, lightheaded, short of breath.
- When a positive result or concerning symptom was received, a notification was triggered to the study nurse and the patient was contacted immediately.
 - Based on the evaluation, the nurse could reassure the patient, discuss the treatment plan with the physician, schedule a telehealth or clinic visit, or refer the patient to the emergency department or for inpatient admission.

Demographics

	Intervention Group					
	Mood (n=1,430)	Hypertension (n=545)	Diabetes (n=55)	Cesarean Delivery (n=528)	Cardiovascular Disease (n=25)	Lactation (n=777)
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Race**						
American Indian/Alaskan Native	12 (0.8%)	9 (1.7%)	2 (3.6%)	4 (0.8%)	0 (0.0%)	4 (0.5%)
Asian	68 (4.8%)	8 (1.5%)	7 (12.7%)	32 (6.1%)	1 (4.0%)	35 (4.5%)
Black	371 (25.9%)	166 (30.5%)	18 (32.7%)	162 (30.9%)	3 (12.0%)	195 (25.1%)
Native Hawaiian/Other Pacific Islander	9 (0.8%)	4 (0.7%)	1 (1.8%)	1 (0.2%)	0 (0.0%)	4 (0.5%)
Other	123 (8.6%)	49 (9.0%)	4 (7.3%)	40 (7.6%)	2 (8.0%)	75 (9.7%)
Refused to Answer	9 (0.6%)	5 (0.9%)	0 (0.0%)	1 (0.2%)	0 (0.0%)	1 (0.1%)
White	886 (62.0%)	319 (58.5%)	26 (47.3%)	304 (57.6%)	19 (76.0%)	498 (64.1%)
Hispanic Ethnicity						
Yes	207 (14.5%)	79 (14.5%)	6 (10.9%)	70 (13.3%)	3 (12.0%)	119 (15.3%)
Education						
Attended high school but not graduated	110 (7.7%)	42 (7.7%)	5 (9.1%)	39 (7.4%)	0 (0.0%)	48 (6.2%)
Attained high school diploma	659 (46.1%)	274 (50.3%)	25 (45.5%)	216 (40.9%)	13 (52.0%)	352 (45.3%)
Diploma or Technical certificate program	68 (4.8%)	37 (6.8%)	2 (3.6%)	27 (5.1%)	1 (4.0%)	31 (4.0%)
Associate's degree	220 (15.4%)	68 (12.5%)	7 (12.7%)	90 (17.0%)	6 (24.0%)	127 (16.3%)
Bachelor's degree	127 (8.9%)	39 (7.2%)	3 (5.5%)	56 (10.6%)	2 (8.0%)	80 (10.3%)
Master's degree	143 (10.0%)	63 (11.6%)	10 (18.2%)	60 (11.4%)	1 (4.0%)	87 (11.2%)
Doctorate degree (PhD)	31 (2.2%)	5 (0.9%)	1 (1.8%)	12 (2.3%)	1 (4.0%)	18 (2.3%)
Professional degree	69 (4.8%)	15 (2.8%)	2 (3.6%)	27 (5.1%)	0 (0.0%)	31 (4.0%)
Refused or missing	3 (0.2%)	2 (0.4%)	0 (0.0%)	1 (0.2%)	0 (0.0%)	3 (0.4%)



Demographics

	Intervention Group					
	Mood (n=1,430)	Hypertension (n=545)	Diabetes (n=55)	Cesarean Delivery (n=528)	Cardiovascular Disease (n=25)	Lactation (n=777)
Insurance Type						
Medicaid	729 (51.0%)	312 (57.2%)	27 (49.1%)	260 (49.2%)	11 (44.0%)	363 (46.7%)
Other	101 (7.1%)	42 (7.7%)	7 (12.7%)	46 (8.7%)	2 (8.0%)	65 (8.4%)
Private	595 (41.6%)	189 (34.7%)	20 (36.4%)	220 (41.7%)	12 (49.0%)	347 (44.7%)
Missing	5 (0.3%)	2 (0.4%)	1 (1.8%)	2 (0.4%)	0 (0.0%)	2 (0.3%)
Total Pregnancies, mean (SD)	2.6 (1.8)	2.8 (2.0)	2.8 (2.0)	2.7 (1.8)	3.2 (1.9)	2.5 (1.8)
Living Children, mean (SD)	2.1 (1.4)	2.2 (1.6)	2.0 (1.0)	2.1 (1.2)	2.3 (1.2)	2.1 (1.5)
Delivery Method						
Cesarean	539 (37.7%)	230 (42.2%)	45 (81.8%)	528 (100%)	7 (28.0%)	293 (37.7%)
Vaginally	891 (62.3%)	315 (57.8%)	10 (18.2%)	0 (0.0%)	18 (72.0%)	484 (62.3%)
COVID-19 during pregnancy						
Yes	556 (38.9%)	224 (42.9%)	17 (30.9%)	214 (40.5%)	5 (20.0%)	163 (21.0%)
NICU Admission						
Yes	286 (20.0%)	153 (28.1%)	29 (52.7%)	172 (32.6%)	4 (16.0%)	142 (18.3%)
Baby Health Issues?						
Yes	121 (8.5%)	60 (11.0%)	10 (18.2%)	65 (12.3%)	4 (16.0%)	62 (8.0%)

Notes:

*Both ECC and original app-enrolled participants are included in these baseline characteristics as linked to assessments.

**Some demographic response categories do not sum to 100%, due to questions that allow for multiple response options. This is most notable for reports of Race.



Data for Mental Health and Hypertension through December 2022

Outcome	Mental Health Intervention	Hypertension intervention
Total number of participants	939	374
Total number of assessments through the app	3044	2118
Number of participants with nurse follow up	209	220
Number of participants admitted	4	11
Number of participants seen in clinic	15	10
Number of participants seen by emergency services	5	8

Data

- As of September 30, 2023
 - 1679 patients have been enrolled

Intervention Group	Overall Cumulative Enrollment
Mood evaluations	1679 (100%)
Cesarean delivery	605 (36%)
Diabetes	63 (3.8%)
Hypertension	615 (36.6)
Cardiovascular disease	31 (1.8) *
Lactation	990 (59%) *
Total enrolled	1679

*began in year 2

Data from November 2021- September 30, 2023

	Mood	Hypertension	Diabetes	Cesarean delivery	Cardiovascular disease	Lactation
# receiving any f/u contact	324	321	7	81	19	107
# hospital admissions	4 and 4 required well check	19	0	1	0	0
# clinic referrals	47	18	2	10 and 1 meds by phone	2	5
# referred to L+D	3	22	0	2	0	1
#referred to lactation	10	1	0	2	0	28
# decline appt	40	1	0	1	0	0
# unable to contact	58	49	1	10	1	21
# no referral needed	158	211	4	54	16	52

Conclusions

- GatorMOMitor™ improves follow-up of postpartum women, allowing for their active engagement in their mental and physical health, and improves access to care
- Additionally, rapid identification and treatment of postpartum conditions (postpartum depression, pre-eclampsia, cardiovascular disease, poorly controlled diabetes, post-operative wound infections, and lactation concerns) is an opportunity to decrease unplanned inpatient readmissions and maternal morbidity

Upcoming Plans

- Economic evaluation of program compared to standard care
 - Are we saving healthcare dollars
 - Are we decreasing hospital admissions
 - Are we decreasing length of stay for hospital readmissions
- Expanding access to Gator MOMitor™



Study Team



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User
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Outcomes
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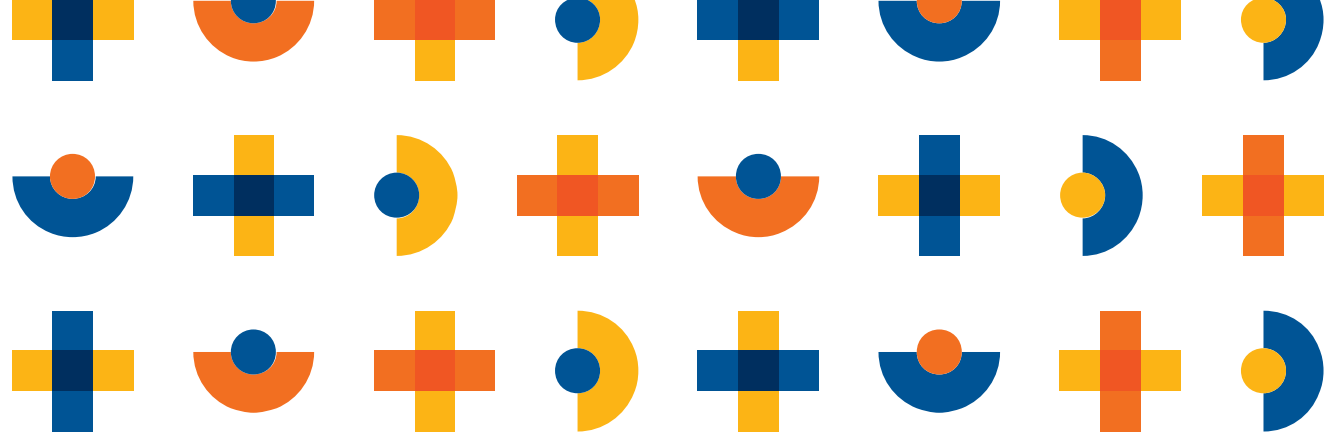
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Questions? Contact us!

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