



Maternal Hypertension Remote Patient Monitoring Program

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Agenda/ Objectives

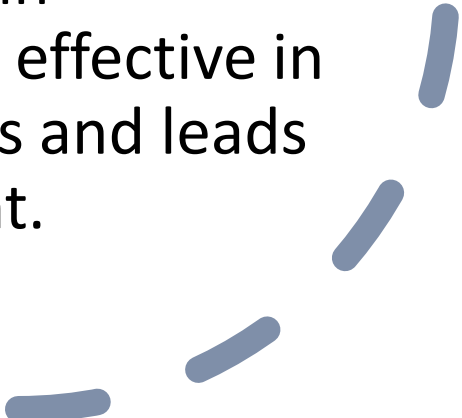
- Introductions
- Overview of the RPM program- Connected Prenatal Care
 - Enrollment
 - Protocols
- Questions & Answers




UMMC Maternal RPM Project

- The objective of this study is to evaluate the feasibility and effectiveness of a home blood pressure monitoring program using a central telemonitoring program for pregnant women at elevated risk of hypertensive disorders of pregnancy.
- Our hypothesis is that remote hypertension management during pregnancy using home BP telemonitoring can be successfully implemented in a pregnant population in Mississippi to identify and appropriately triage elevated blood pressures and symptoms in a timely manner.

Study Objectives

- **Objective 1.** To determine if a home pressure monitoring (HBPM) program through an established telehealth center is safe and feasible in a pregnant population through the postpartum period.
 - **Objective 2.** To determine if HBPM in a pregnant population is acceptable to patients and providers as indicated by uptake of the program, completion of weekly measurements and high satisfaction.
 - **Objective 3.** To determine if HBPM in pregnant/postpartum population is effective in identifying elevated blood pressures and leads to appropriate and timely treatment.
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Participants

- Number of Participants: 100
 - Inclusion Criteria:
 1. Adult patients with an intrauterine pregnancy at 20 weeks or greater
 2. Receiving prenatal care and giving birth at UMMC or an affiliate study hospital.
 3. Ability to understand English.
 4. Reliable access to the internet
 5. Moderate to high risk of developing a hypertensive complication in pregnancy as defined by the US Preventative Task Force² including:
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Moderate to High Risk of HTN Disorder

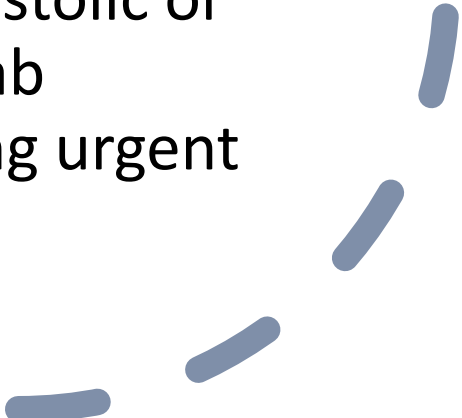
Any One of the following

- a) A diagnosis of chronic hypertension
- b) A past history of a hypertensive disorder of pregnancy as defined by ACOG 2019 Guidelines (chronic hypertension, HELLP syndrome, eclampsia, preeclampsia, gestational hypertension or new onset postpartum hypertension).
- c) Multifetal gestation
- d) Type 1 or 2 diabetes
- e) Renal disease
- f) Autoimmune disease (i.e., systemic lupus erythematosus, the antiphospholipid syndrome)
- g) New onset gestational hypertension
- h) New onset preeclampsia diagnosis without severe features

And/ Or any two of the following characteristics:

- a) Black or African-American race/ethnicity
- b) Age > 35 years
- c) BMI > 30 kg/m²
- d) Family History of preeclampsia or cardiac event in pregnancy or postpartum

Exclusion Criteria

- a) Current enrollment in another remote patient monitoring program
 - b) Difficulty communicating or understanding English
 - c) Inability to use a mobile app
 - d) Any condition that may limit the capacity to provide informed consent.
 - e) Enrollment blood pressure >155 systolic or >110 diastolic, severe symptoms or lab abnormalities, or diagnosis warranting urgent hospital admission or delivery.
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Patient Incentives

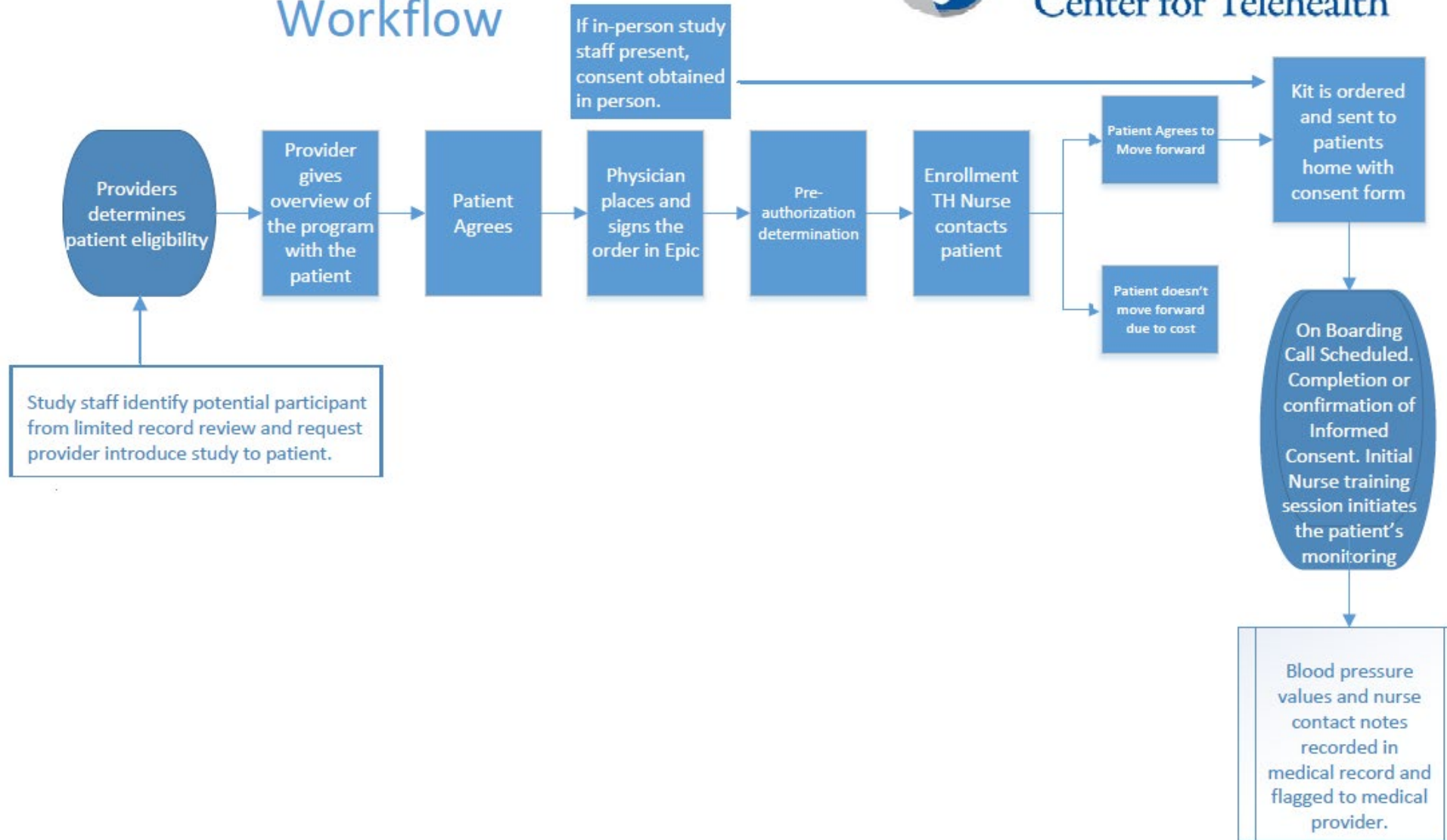
- Swag bag with promotional items
- Diapers
- \$25 gift card at enrollment
- \$50 gift card at completion
- Educational information from Preeclampsia Foundation



Enrollment

- UMMC OB and Maternal-Fetal Medicine Clinics at Jackson Medical Mall: Dr. Michelle Owens, Dr. Charlene Collier, Dr. Sarah Novotny
- Antepartum patients
- Information Flyers Provided to Patients in Clinic
- In-person study personnel and provider **referral through EPIC**

RPM Onboarding HTN Workflow



Initial Patient On-Boarding & Consent

- **Contact from Telehealth Nurse Coordinator**- After receiving the telemonitoring kit, the patient will be contacted by a UMMC Center for Telehealth nurse coordinator
- **Confirm Informed Consent** - Confirm informed consent via a secure video connection. If informed consent was not obtained in person, the nurse will read through the consent with the patient over the secure video connection. If attempts to connect via secure video visit are unsuccessful will transition to telephone call.
- **Instruction to use System & Proper BP measurement Technique**
- The nurse coordinator will ensure the patient uses the appropriate technique for BP measurement and that the cuff fits appropriately.
- Prior to measuring BP, the patient is instructed to sit quietly for 5 minutes with both feet flat on the floor, with back and arms supported. Additionally, the patient is instructed to measure BP with an empty bladder, without caffeine, and no exercise within the prior 30 minutes

Patient Activities

- Minimum weekly blood pressure when pregnant
- Postpartum: Daily for 7 days after delivery then weekly through 6 weeks
- Answer series of questions with each session
- Measure 2 BPs with each session

Daily Screening Questions

- Are you experiencing any of these symptoms?
- Headache that will not go away (Y/N)
- Visual Changes /Blurry Vision/ Spots in front of eyes (Y/N)
- Abdominal pain (Y/N)
- Shortness of Breath or trouble breathing (Y/N)
- Chest Pain (Y/N)
- Swelling in hands, face or increased swelling in feet?
- Baby moving less or not moving (Y/N)

- After questions will record blood pressure

- **System will prompt patient to seek medical attention for any screening questions with a Yes reply**
- Blood pressure >140- call medical provider
- Blood pressure >155- present to hospital for urgent evaluation

Telemonitoring

- Blood pressures reviewed daily during business hours M-F 8-5
- Patient will always be instructed within the system to contact their medical provider or seek medical attention regardless of hours
- Triggers will prompt a phone call by the nurse monitor, who will message the patient's provider or on-call coverage through the outlined triage protocol for the practice.
- After hours and on weekends patients will have to call or seek medical attention based upon prompts received by the tablet system.
- They will receive a call on the same day within business hours for moderate measurements (140- 155 mmHg systolic or 90- 100 mm Hg diastolic).
- They will receive a call at first alert by telehealth nurse for severe measurements (>155 mm Hg systolic or >100 mm Hg diastolic).
- If measurements are obtained outside of business hours, they will be contacted by phone at first alert on the next business day. The tablet system will provide guidance to the patient directly based upon measured parameters.

| Blood Pressure Management Response Chart | | | |
|--|--|--|--|
| | GREEN | YELLOW | RED |
| Symptoms | <ul style="list-style-type: none"> -No Headache -No Visual Changes -No Epigastric Pain -No Shortness of Breath -No Chest Pain -No feelings of sickness that the patient desires evaluation -Normal Fetal Movement | <ul style="list-style-type: none"> -Mild or intermittent Headache - Mild to moderate feelings of sickness that the patient desires evaluation for | <ul style="list-style-type: none"> - Persistent or severe headache -Visual changes -Severe epigastric pain -Shortness of breath -Chest pain -Cannot lay flat -Other severe feelings of sickness that patient desires evaluation |
| Blood Pressures | <ul style="list-style-type: none"> Less than 140mmHg systolic Less than 90mmHg diastolic | <ul style="list-style-type: none"> 140 – 155 mmHg systolic 90- 100 mmHg diastolic | <ul style="list-style-type: none"> >155 mmHg systolic >100 mm Hg diastolic |
| Actions | <ul style="list-style-type: none"> Encourage ongoing monitoring Educate on warning signs. Encourage ongoing use of medications | <ul style="list-style-type: none"> Green interventions plus: Patient instructed to contact medical provider same day. Follow up by phone within 24 hours. | <ul style="list-style-type: none"> Call 911 or go to OB emergency department for in person evaluation immediately. Follow up call to patient at first alert. |

Triage Communication

- Message in Epic to patient OB provider, nurse & C. Collier
- If the patient is advised to go to Women's Urgent Care (WUC)
 - Call 601 815 7000
 - Inform nurse of patient's name and reason for being told to come in
 - Document in the record that – patient instructed to go in, message sent in epic and verbally signed out to WUC nursing staff.
 - If unable to reach patient – message or contact the patient's provider and document attempt to reach patient.

Non-Participation (> 1 week without measurement)

- Attempt to contact patient to determine barriers to participation
 - Offer encouragement or address barriers
 - Confirm ongoing interest in participating
 - Determine if using BP cuff without logging into system
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- If ongoing non-participation (>3 weeks without BP measurement)
 - Message patient-provider, inform and determine if should end enrollment

Help Wanted

- Co-authorship open to all involved/interested
- Data collection and analysis with Center for Telehealth
- Recruitment
- Feedback/Improvement

- HRSA Disclaimer:
- “This presentation is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of the U66 Telehealth Centers of Excellence award totaling \$3.25M with (zero) percentage financed with non-governmental sources. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS or the U.S. Government.”

Questions?

- THANK YOU

