Protocol Title:	Exploring the Effect of Discharge Education, Blood Pressure Cuffs, and Postpartum Bracelets to Improve Health Among Newly Diagnosed Gestational Hypertension and Preeclampsia Patients During the Postpartum Period.
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Co-Investigators:	Xiomara Hernandez MSN, RNC-MNN, Mi Park, MSN, RNC-OB, Natalie Garner BSN, RNC-MNN, Tajudaullah Bhaloo PhD, MHA, Kaitlyn Shaw BSN, RNC-MNN, CLC, Marieditha Hatol BSN, RNC-MNN, Busola Oloyede BSN, RN
Population:	40 low-risk postpartum female patients, childbearing age, newly diagnosed with gestational hypertension or preeclampsia at MH-Memorial City Medical Center
Number of Sites:	Single site
Study Duration:	One year
Subject Duration:	2 hours in 10 weeks period

General Information

This pilot, exploratory qualitative, descriptive study examines the effects of postpartum discharge education, the use of postpartum (PP) bracelets, and home blood pressure (BP) cuffs on patients newly diagnosed with preeclampsia (PE) or gestational hypertension (GHTN) at Memorial Hermann (MH) Memorial City Medical Center. The intervention in this clinical trial is the combination of discharge education, a blood pressure cuff and a “At-Risk Postpartum” bracelet. The primary outcome is evidence of self-management, defined as efforts to take and manage high blood pressure. Secondary outcomes include enhanced maternal knowledge and self-advocacy. Follow-up virtual interviews will be conducted at 6- and 10-weeks post-discharge to evaluate the outcomes.

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The research team includes all Memorial Hermann employees and brings expertise in nursing, labor and delivery, maternal health, preeclampsia education, patient education and qualitative research methods.

Background Information

Hypertensive disorders during pregnancy affect approximately 10% of all pregnancies and are a major cause of postpartum readmissions and maternal mortality in the United States (Hoppe et al., 2020). Postpartum maternal deaths account for over half (52%) of pregnancy-related fatalities (Cilenti et al., 2024). In 2021, the Centers for Disease Control and Prevention reported that 80% of pregnancy-related deaths were preventable (Noble et al., 2023). A significant contributing factor to these preventable deaths is the lack of patient knowledge about the risks associated with preeclampsia (PE) and gestational hypertension (GHTN). Although the American College of Obstetrics and Gynecology recommends checking blood pressure seven and ten days postpartum, the majority of women, an estimated 50-70%, do not adhere to the recommendation (Hoppe et. al, 2020). There are few studies that examine preeclampsia education; one study, which compared different educational initiatives, concluded that preeclampsia education resulted in 75% of patients being able to identify and retain signs and symptoms associated with preeclampsia, understood the value of taking their blood pressure regularly and knew what actions to take (Strassberg et al., 2022).

Beyond acute health risks, preeclampsia poses long-term dangers. Arntzen and colleagues (2023) note that preeclampsia doubles the lifetime risk of ischemic heart disease, stroke, and cardiovascular death, while increasing the likelihood of subsequent heart failure and hypertension fourfold. One QI effort build upon the “I Gave Birth” initiative, which used bracelets as visual reminders and successfully reduced readmission rates from 2.24% to 1.47% (Noble et al., 2023). These visual cues were instrumental in health care team – patient conversations, especially in postpartum emergency visits (Noble et al., 2023). This study supports the notion that education may need to be accompanied or supplemented with tools.

Intervention

At the Family Life Center (Postpartum Unit) at MH Memorial City Medical Center, the standard of care includes education to mothers and families about PE and GHTN. Additionally, every patient will be given the "Your Guide to Postpartum and Newborn Care" booklet, which contains vital information on preeclampsia, other high-risk postpartum complications, nutrition, and exercise guidelines.

In this clinical trial, we supplement the above-mentioned education with two additional components. We give each patient a blood pressure cuff (free of charge) and distribute an “At Risk Postpartum” bracelet.

The care team will demonstrate how to use the blood pressure cuff, offered free-of-charge in consideration of our underserved population.) Patients will also receive "Your Blood Pressure: Check, Know, Share" sheet developed by the Preeclampsia Foundation, which includes clear instructions on checking blood pressure, understanding BP ranges, and recognizing when to seek medical attention for elevated readings. We will encourage each mother to wear the discharge bracelet for up to 10 weeks, which serves as a visual cue of the risks associated with preeclampsia.

Significance

This research aims to evaluate the impact of educational interventions and tools on patient self-management, knowledge and engagement. The ultimate objective is to encourage behavioral changes in self-management and self-advocacy for preeclampsia. This pilot study will inform a more robust and larger study on preeclampsia education and tools.

No study has evaluated the combination of concise, comprehensive education (which includes recognizing warning signs, understanding symptoms requiring urgent medical attention, and effective hypertension management strategies) in conjunction with self-monitoring tools and visual cues. The pilot research focuses on how these interventions influence behavioral changes in participants, such as adopting a well-balanced, healthy diet, engaging in regular exercise, and seeking medical advice promptly when necessary. By exploring these factors, the study seeks to understand how these tools and education can collectively help manage and minimize complications related to preeclampsia, ultimately improving maternal health outcomes and fostering long-term well-being.

By equipping patients with effective tools and clear guidance, the initiative strives to enhance maternal outcomes, minimize preventable complications, and contribute to the broader goal of improving postpartum health and safety. By integrating visual reminders with practical self-monitoring resources, the study seeks to bridge gaps in patient knowledge and behavioral changes while promoting safer postpartum recovery.

Objectives

This qualitative descriptive study aims to evaluate the impact of preeclampsia (PE) education with the distribution of a free a blood pressure (BP) monitoring cuff, and a postpartum (PP) bracelet to eligible patients newly diagnosed with gestational hypertension (GHTN) or PE.

The research objectives include:

Primary outcome: To assess if the intervention (education, blood pressure cuff and bracelet) encourages BP monitoring at home (defined as two times per day) at six week and at 10-weeks.

Secondary outcome: To evaluate whether the postpartum (PP) bracelet serves as a visual reminder that inspires or reinforces self-management of PE and GHTN.

Tertiary outcome: To determine whether the in-hospital patient education is retained by participants based on interviews conducted at 6 and 10 weeks post-discharge.

Supplementary analysis: To explore what challenges or barriers participants encountered (at 10 weeks), which made it difficult for them to follow through on education and self-management.

Measure	**Outcome**	**Data Collection**	**Time point**	**Consent**
Primary outcome	Evidence of self-management of BP	Patient interview	6-weeks	Verbal consent upon arrival to FLC and confirmation of eligibility. Reminder to patient before discharge about follow-up call/zoom. Right before zoom interview, review verbal consent.
Primary outcome	Evidence of self-management of BP	Patient interview	10- weeks	Verbal consent upon arrival to FLC and

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				confirmation of eligibility. Reminder to patient before discharge about follow-up call/zoom. Right before zoom interview, review verbal consent.
Secondary outcome	Bracelet serves as visual cue and inspires other forms of self-management	Patient interview	6-weeks	Verbal consent upon arrival to FLC and confirmation of eligibility. Reminder to patient before discharge about follow-up call/zoom. Right before zoom interview, review verbal consent.
Secondary outcome	Bracelet serves as visual cue and inspires other forms of self-management	Patient interview	10-weeks	Verbal consent upon arrival to FLC and confirmation of eligibility. Reminder to patient before discharge about follow-up call/zoom. Right before zoom interview,

				review verbal consent.
Tertiary outcome	Knowledge of preeclampsia (signs and symptoms)	Patient interview	6-weeks	Verbal consent upon arrival to FLC and confirmation of eligibility. Reminder to patient before discharge about follow-up call/zoom. Right before zoom interview, review verbal consent.

Study Design

This is a pilot, qualitative descriptive study that evaluates the intervention by semi-structured post-discharge patient interviews. A research team member will provide the postpartum discharge education, demonstrate how to use the (BP) cuff, and encourage the use of postpartum (PP) bracelets on eligible patients discharged from the clinical unit.

Study Population

This study will focus on postpartum patients admitted to the Family Life Center (FLC) at Memorial Hermann Memorial City, with a new diagnosis of gestational hypertension (GHTN) or preeclampsia (PE), who were not on antihypertensive medications prior to admission. Up to forty participants will be recruited during their hospital stay and consented by trained members of the research team.

Inclusion criteria: A new diagnosis of GHTN or PE, who are discharged from FLC, and express willingness to participate in virtual interviews.

Exclusion criteria: Patients with a preexisting diagnosis of chronic hypertension or PE, or are currently on antihypertensive medications (as these factors may influence self-management behaviors and outcomes).

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Roles of Research Team Members

Veronica Zayas, MSN, RNC-MNN **– PI –** designed study, will obtain consent, conduct post-discharge interviews via Zoom and analyze qualitative data.

Xiomara Hernandez MSN, RNC-MNN – designed study, will do post-discharge interviews via Zoom.

Mi Park, MSN, RNC-OB, - designed study, will analyze qualitative data.

Natalie Garner BSN, RNC-MNN, - will analyze qualitative data.

Tajudaullah Bhaloo PhD, MHA, - designed study, will analyze qualitative and quantitative data

Kaitlyn Shaw BSN, RNC-MNN, CLC, -is organizing the distribution of blood pressure cuffs and bracelets and can obtain consent.

Marieditha Hatol BSN, RNC-MNN,- will provide discharge education

Busola Oloyede BSN, RN- will provide discharge education

Study Procedures

As part of the research procedures, patients admitted to FLC will be screened by a member of the research team to determine eligibility based on the study's inclusion and exclusion criteria. Eligible patients will be approached by the research team, who will explain the study protocol and obtain verbal informed consent.

Upon discharge, patients will receive evidence-based postpartum education that is part of our MH standard of care. This information on preeclampsia is routinely delivered by discharge nurses. For patients who consent to participate in the clinical trial, the discharge nurse will supplement the education with the postpartum (PP) bracelet and BP cuff.

Participants will be invited to complete a virtual interview via Zoom at 6 weeks post discharge, followed by a second Zoom interview at 10 weeks to inquire whether the access to a BP cuff and visual cue are sufficient to influence self-management behaviors. Each interview session will last approximately 15 minutes (and no more than 30 minutes). During these interviews, data will be collected using pre-determined questions to explore knowledge retention regarding PE education, BP cuff usage, perceived utility of the PP bracelet, and participant demographic information.

Key patient demographics will also be collected to understand the sample demographics (e.g. age group <30yrs, 31-40yrs, 40+, BMI at the time of admission (<30; 30.1-35; 35+), payer source, smoking history or current smoker (yes/no), maternal education completed (<HS, HS diploma, some college, college graduate), race(White, African American/Black, Asian, Other). See

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Appendix 1 for linking log (include patient name, contact information such as email and/or phone, and study identifier). Appendix 2 will have study identifiers and demographic variables and social determinant of health screening data (if applicable). Appendix 3 includes Interview Questions at 6-weeks and 10-weeks.

Each study participant will be contacted 3-4 times at the 6- week time period; if the research team is unable to make contact with the study participant after four attempts, the individual will be dropped from the study. The research team will continue to enroll patients until they have reached saturation.

Consent

The research team consists of Memorial Hermann employees, who have completed CITI training, UT informed consent training and GCP training.

The research team members, who will obtain consent, are highly seasoned nurses with over a decade of experience in nursing. Prior to discharge, a trained team member will approach eligible participants to inquire about their interest in participating in this study. Using a standardized script (See Appendix 4), the team member will explain the purpose, procedures, and expectations of the study, emphasizing that participation is entirely voluntary and that they may withdraw at any time. If the patient agrees, at that time, the team member will collect the participant's contact information, including email and phone number. This patient contact information will be stored securely in a password protected Excel Spreadsheet on a Memorial Hermann protected drive; to preserve confidentiality, personal contact information will be stored with a subject identifier.

A waiver of written consent The Waiver of Consent will not adversely affect the rights and welfare of the subject as this study poses minimal risk which is possible breach of confidentiality. The data collected will be protected by establishing a linking log to each record to protect the privacy of the data . Verbal consent will be obtained by a trained study team member to contact interested potential participants post-discharge. Obtaining written consent creates an unnecessary additional document that ties the patient to the study and adds a burden on the team to find a locked cabinet to store written consent forms (which is difficult for this study team). Study team members will only access medical records after verbal consents have been obtained. Prior to patient discharge, one research team member will remind the patient that she agreed to participate in post-discharge interviews.

At 6 and 10 weeks post discharge, a designated team member will contact participants to schedule interviews and confirm their ability to access Zoom. Interviews can occur immediately or be scheduled for later at the convenience of the participant. *At the start of each scheduled interview, the research team will reaffirm verbal consent prior to initiating the recording.* All Zoom

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recordings and transcriptions will be stored securely on the Memorial Hermann Health System's protected drive.

Analysis

The research team will review interview recordings and transcripts; final transcripts will be edited for clarity and flow and will be de-identified for patient anonymity.

Thematic analysis will be performed using Braun and Clark's inductive, thematic analysis to understand primary, secondary and tertiary outcomes (Braun and Clarke, 2006). At least three members of the research team will independently code and analyze transcripts deriving key themes. The research team will then deliberate and discuss identified themes.

We use descriptive statistics to analyze patient demographics recorded.

Data and Safety Monitoring

Risks include potential breach of confidentiality and emotional distress from discussing health experiences. Unanticipated problems (adverse events, protocol deviations) will be documented and reported to the project lead and UT-IRB. Benefits include improved self-monitoring, health awareness, and reduced readmission rates. Results may guide our future practice for this patient population. If consented participants are not reachable post discharge, they will be eliminated from the study participants. A participant must complete one interview in order for their data to be included in the study.

Data Confidentiality

Data will be stored in a password protected electronic log on Memorial Hermann Health System (MHHS) computers with encrypted information capability. Five years after completion of the project, all data/research/project materials at MHHS will be destroyed. This time frame complies with established federal, state, and local administrative requirements.

Publication Plan

Study findings will be shared internally and externally via poster and podium presentations. A manuscript will be prepared for journal submission. Aggregate results may be shared with participants if requested.

References

Arntzen, E., Jøsendal, R., Sandsæter, H.L., & Horn, J. (2023). Postpartum follow-up of women with preeclampsia: facilitators and barriers - A qualitative study. *BMC Pregnancy and Childbirth, 23*(1), 833. doi:10.1186/s12884-023-06146-8. PMID: 38049716; PMCID: PMC10694896. [https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-023-06146-8]

Cilenti, D., Jackson, A., Hernandez, N.D., Yates, L., Verbiest, S., Michener, J.L., & Castrucci, B.C. (2024). The Practical Playbook III: Working Together to Improve Maternal Health. Oxford University Press. (pp. 379-389). doi:10.1093/oso/9780197662984.001.0001. [https://books.google.com/books?hl=en&lr=&id=Dp_sEAAAQBAJ&oi=fnd&pg=PA379&dq=postpartum+bracelets&ots=N4Hy0uDmWs&sig=2J5l5j4uzQwbmpq8TUZziN6Hcu8#v=onepage&q&f=false

Hoppe, K.K., Thomas, N., Zernick, M., et al. (2020). Telehealth with remote blood pressure monitoring compared with standard care for postpartum hypertension. *American Journal of Obstetrics and Gynecology, 223*(4), 585-588. [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10428007/]

Noble, J., Harper, K.D., Mitchell, K., & McClain, E.K. (2023). "I Gave Birth"—An Initiative to Improve Postpartum Care. *North Carolina Medical Journal, 84*(1). doi:10.18043/001c.67788

Strassberg, E. R., Fisher, S., Mackeen, D., Sun, H., and Paglia, M. (2022). Comparison of different methods of patient education on preeclampsia: a randomized controlled trial. The Journal of Maternal-Fetal and Neonatal Medicine, 35(13): 2507-2511.

ATTACHMENTS/ APPENDICES

1. Linking Log (study ID, patient name, patient contact info)
2. Log with Demographic Variables (study ID and demographics)
3. Interview Questions at 6- weeks and 10-weeks.
4. Verbal Consent Script

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