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# Continuity of Care in the Post-Partum Period

Ashley Quezada
agreen17@patriots.uttyler.edu

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Ashley Nichole Quezada

The University of Texas at Tyler, School of Nursing

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Dr. Pamela Lake

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**Contents**

**Acknowledgments**

I want to begin by thanking my husband, Lance and our two children, Camryn, and Chole for being my top supporters throughout my journey to pursue a higher level of education. To my family and close friends, thank you for encouraging me to never give up and offering to help when the help was greatly needed. I will be forever grateful for the support. I want to thank my maternal health colleagues for participating in my change project, working hard to implement the change, and assisting in data collection. Thank you, Dr. Christopher Mason, my maternal medical director, for fostering an environment where evidenced based practice is accepted and utilized to deliver high quality care. The passion you all have to improve outcomes for our maternal population has been extremely motivating throughout this journey. I want to thank all my professors here at UT Tyler. I have had a remarkable experience at this University and feel that I owe this experience to you all for being accommodating, professional, and exceptional educators.

## Executive Summary

Maternal mortality rates in the United States have been a growing concern over the past decade, with rates continuing to climb as recent studies have been published. The total maternal mortality rate in the United States in 2018 was 17.4 and has increased to 32.9 as of 2021, while other developed countries continue to decline (Hoyert, 2023). The maternal mortality rate is the number of deaths per 100,000 live births. More than 50% of pregnancy-related deaths in the United States occur after delivery, in the post-partum period (Melillo, 2020). The purpose of this report is to not only bring light to this nationwide health crisis, but to test solutions to that will fill the gap between our postpartum mothers and the high-quality care that should be available and provided to all.

The change project in this report addresses continuity of care in the postpartum period. Specifically, post-partum follow up recommendations for mothers diagnosed with a hypertensive disorder of pregnancy and mothers who screen positive on their post-partum depression screen prior to discharge. The American College of Obstetrician and Gynecologists (ACOG), recommends that women who experience any hypertensive diagnosis in pregnancy, should follow up for a blood pressure visit no later than 7-10 days after discharge (2018). ACOG also recommends that mothers who experience a severe hypertensive episode during their admission, should follow up for a blood pressure visit no later than 2-3 days post discharge. Appointments will also be scheduled with a local psychiatric mental health nurse practitioner, PMHNP, within 2 weeks of discharge for mothers who screen positive on their Edinburgh Postnatal Depression Scale, EPDS. These efforts are focused on improving continuity of care in the postpartum period and decreasing maternal morbidity and mortality cases related to hypertension and mental health

disorders. Improving quality of care in the postpartum period should also reveal a decrease in postpartum readmissions.

In review of data collected during the 6-week project period, it is evident that tailoring post-partum visits to the specific needs of postpartum patients is a successful and proactive approach to improving outcomes for this population. During these visits, if findings weren't within expected limits, providers were able to either initiate treatment or alter treatment for hypertensive patients and patients with mental health disorders. Although findings revealed improved continuity of care, there needs to be a larger population and more time spent to determine if these interventions will decrease the maternal mortality and morbidity rates.

## Continuity of Care in the Post-Partum Period

More than half of pregnancy-related deaths occur during the year after delivery, and many women also have postpartum complications such as pain and bleeding, high blood pressure, lactation difficulties, and pelvic-floor dysfunction (Horwitz et al., 2018).

The United States, in recent years, has taken steps to improve the lack of care for postpartum women, one is moving away from the single postpartum visit at six weeks. Pregnant women are typically assessed in the clinic monthly, then bimonthly, and eventually weekly leading up to delivery. Once mothers are admitted to labor and delivery, their hospital stay consists of a rough one to two-day stay based on the route of delivery along with complicating factors. After a high-intensity visit for delivery, tired, overwhelmed mothers are sent home with a printed-out packet of postpartum instructions along with any verbal education they may retain from their stay. At this point, most postpartum women are expected to follow up at one 6-week visit. With increasing mortality and morbidity rates in our nation, it is imperative that we as healthcare providers, take initiative to innovate new processes and policies to improve the quality of care and continuity of care for our postpartum mothers and especially our high risk postpartum mothers.

## Rationale for the Project

The gap in care for post-partum mothers is recognized by not only medical staff, and quality improvement departments, but also the patients themselves. Women in the United States are recognizing the growing concern of increased mortality rates in our nation, as it becomes more published. Women affected by morbidity related to pregnancy were interviewed through the Hear Her Maternal Health Campaign, supported by Texas DSHS, and speak on the empowerment women and their support networks need to recognize warning signs and speak up

when they have concerns. This project will focus on improving outcomes and quality of care for postpartum women by asking; In postpartum patients (P), how does continuity of care (I) compared to a single six-week postpartum visit (C) affect postpartum mortality and morbidity (O) within the first 6 weeks after delivery (T)?

## Literature Synthesis

In a review of the literature, outcomes measured focused on improved health or improved client satisfaction, or both. Out of the twelve studies reviewed, six evaluated improved health in postpartum women. All six showed an increase in improved health for postpartum women using the interventions provided in the study. Related to postpartum depression, Liu et al (2021) discovered that postpartum depression rates were cut in half with adding a cognitive behavioral intervention to the standard, routine postpartum care model. As revealed by McKean et al. (2017), postpartum depression can lead to morbidity and mortality not only in the immediate postpartum period, but also up to one year after giving birth. Two studies concluded that improved mental health was related to continuity of care, even starting in the prenatal period (D'haenens et al., 2019; Bahrami et al., 2013). In review of an article published by ACOG, evidence shows that one half of postpartum strokes occur within 10 days of discharge. This evidence leads to the ACOG recommendation that all patients with a hypertension diagnosis should have a follow-up blood pressure appointment within 7 days of discharge. And all patients with a severe hypertension or preeclampsia diagnosis should have a follow up blood pressure appointment within 3-5 days of discharge. A focus on home blood pressure monitoring related to improved health, as studied by Steele et al. (2023), revealed that there is improved compliance with obtaining and reporting timely blood pressures within the timeframe recommended by

ACOG and a significant decrease in the likelihood of hypertension related hospital readmissions with home blood pressure monitoring compared with usual care.

Three of the twelve studies revealed an increase in improved client satisfaction with postpartum care when comparing interventions to the standard of care. When considering improved satisfaction among postpartum patients, studies conducted by Morris et al. (2021) and Hoppe et al. (2019) conclude that not only were patients satisfied with a postpartum text messaging program lead by a postpartum nurse navigator, but patients also demonstrated satisfaction with using telehealth for their postpartum blood pressure appointments. Researchers even feel that this strategy used for postpartum hypertension management is feasible to help reduce maternal morbidity and hospital readmissions related to hypertension.

Two of the twelve revealed an increase in improved health during the postpartum period along with improved satisfaction. One study revealed that not only were patients satisfied with remote monitoring of blood pressures versus in person visits, but 92% of patients were compliant with reporting their home blood pressure within the recommended time frame stated by ACOG (Hirshberg et al., 2018). A significant improvement compared to a 40% compliance rate for in person postpartum visits. Lastly, key findings also discovered that home visits in the postpartum period led to improved patient satisfaction and improved health. Quite significantly, home visits were found to contribute to the reduction of maternal morbidity and mortality cases, increase the bond between the mother and her newborn, and contribute to comprehensive, holistic, and continuous care (Mederios & Costa, 2016). Out of the twelve studies, one study revealed that although postpartum care is critically important, more research needs to be conducted on when

appointments should take place, as there were disagreements between physicians and midwifes in the study.

## Project Stakeholders

Stakeholders in this project include maternal patients that are experiencing a diagnosis of hypertension in pregnancy and maternal patients that screen high risk for postpartum depression prior to discharge from the hospital. Nurses and obstetrical providers are stakeholders in this project that will implement change, collect data on compliance, and monitor outcomes with a goal to improve continuity of care for the maternal patient stakeholders.

## Implementation Plan

For this project, over the course of 6 weeks, postpartum women who deliver at a hospital in northeast Texas, ages 18 years and older will be part of this project. Necessary criteria for women to be included in this project include a diagnosis of a hypertensive disorder of pregnancy or a positive post-partum depression Edinburgh screen. If diagnosed with any hypertensive disorder of pregnancy (chronic hypertension, gestational hypertension, or preeclampsia), women will be scheduled for a 7-day postpartum blood pressure check prior to being discharged. For women who are severely preeclamptic, requiring activation of the severe hypertension protocol while an inpatient, will be scheduled for a blood pressure check 2-3 days postpartum prior to being discharged. For women who score positive on the Edinburgh postpartum depression screen, a 2-week post-partum appointment will be scheduled with our PMHNP. This continuity of postpartum care is recommended by the American College of Obstetricians and Gynecologist. This project will be conducted with a goal to decrease the maternal mortality and morbidity rates for women receiving care in the northeast Texas region.

## Timetable/Flowchart

The first step in this project, is ensuring that all OBGYN providers understand the need for this intervention and have complete buy in with the project. Postpartum patients scheduled for blood pressure checks will follow up at their OBGYN office for a nurse appointment. There are two groups of providers, who have both agreed to accommodate time slots for nurse visit blood pressure checks.

Once a patient is admitted to labor and delivery, if she has a hypertensive disorder of pregnancy diagnosis, she will be added to the required postpartum BP/PMHNP appointment flowsheet for a 7-day nurse blood pressure visit. During the inpatient stay, if a woman becomes severely preeclamptic, requiring activation of the severe hypertension protocol, she will be added to the required postpartum BP/PMHNP appointment flowsheet for a 2- or 3-day blood pressure nurse visit. If a woman scores positive on her Edinburg screen, the nurse who completed the screen will notify the OBGYN, who will consult the PMHNP to schedule a 2-week post-partum appointment. This patient will also be added to the required postpartum follow up appointment flowsheet.

At discharge, it will be an added component to the discharge checklist that the nurse discharging the patient will check the required postpartum BP/PMHNP flowsheet and ensure that the appropriate follow up appointments have been made and that the patient is educated on exactly when and where to follow up for her appointment.

Weekly, the postpartum clinical coordinator will communicate with the OBGYN clinics to determine if scheduled patients presented to their BP or PMHNP appointment, what the follow up BP was, and if treatment had to be initiated or altered. This information will be presented monthly at maternal QAPI meetings for team leaders and providers to review.

## Data Collection Methods

This benchmark project will require data collection in several aspects. A report within the electronic medical record system was built to identify all patients with a hypertensive diagnosis of pregnancy based on ICD-10 codes. This report can also apply filters, to identify the exact hypertensive diagnosis assigned to each medical record number. This feature will help identify which patients should have been scheduled for a 2–3-day blood pressure visit and which patients should have been scheduled for a 7-day blood pressure visit. I will run this report weekly to identify compliance with appointment scheduling. This concludes the first step of data collection regarding postpartum blood pressure visits. Secondly, I will continue to run a report on 30-day postpartum readmissions and 1-year postpartum readmissions. The medical record numbers in this data report will be compared to the medical record numbers in the hypertensive diagnosis of pregnancy report. The goal of this change project is to recognize high risk patients and provide continuity of care in the postpartum period, to prevent postpartum morbidity or even mortality that would lead to a postpartum readmission. I project that there will be a decrease in postpartum readmissions related to severe hypertension.

Another report built within the electronic medical record, includes all medical record numbers with postpartum depression Edinburgh screens that result as high risk. This report will run monthly to identify medical record numbers that should have been scheduled for a 2-week postpartum visit with our psychiatric mental health nurse practitioner. Medical record numbers in the postpartum readmission reports will also be compared to the medical record numbers in the high-risk Edinburgh screen report. The goal of tracking this data is to monitor compliance with appointment scheduling and all postpartum maternal morbidity and mortality cases that present as readmits within the hospital system.

## Evaluation

Statistics on postpartum readmissions and postpartum morbidity and mortality cases in this northeast Texas hospital prior to this project will be compared to statistics collected during this continuity of care project. Percentage rates of readmissions for postpartum women within 30 days of discharge are projected to decrease, along with mortality and morbidity cases related to postpartum hypertension and postpartum depression. Evaluation of this project will be conducted using quantitative data.

This data will be collected and organized in excel spreadsheets and presented monthly using a bar graph within power point to offer a visual understanding of the results being collected. A goal of 100% compliance has been set for all visits that need to be scheduled for hypertensive disorders of pregnancy and positive Edinburgh screens. The bar graph will display a monthly percentage of compliance related to appointment scheduling. A linear dotted line will be added to the graph, with hopes to see a positive incline of compliance. There will also be a bar that will reveal the actual number of postpartum morbidity and mortality cases that are readmitted related to hypertensive disorders and postpartum mental health disorders.

## Cost/Benefit Analysis

This benchmark project was developed with a goal to provide continuity of care for postpartum patients and decrease the strikingly high morbidity and mortality rates that continue to rise. Although the focus of this project is to improve quality of care, it in turn delivers a positive return of revenue to the healthcare system. In 2018, the average cost per hospital readmission was $15,200 (Weiss & Jiang, 2021). Hospital systems are penalized financially by the Hospital Readmissions Reduction Program, HRRRP, through CMS for unplanned

readmissions that take place within 30 days of discharge (HRRP, 2023). The efforts of this project will further implement continuity of care in the postpartum period, which in turn should lead to fewer postpartum readmissions that occur within the first 30 days after discharge. The cost of implementation for this project is zero dollars, resulting in a positive return on investment 100% of the time.

## Discussion of Results

Several key steps were needed to maintain sustainability within this project. To start, creating a focused group within the women's unit with nurses, leadership, and the maternal medical director was essential. Members within this group served as leaders throughout the unit to provide encouragement, promote compliance, and offer feedback to be discussed in monthly maternal quality assurance and performance improvement, QAPI, meetings. Monthly data was collected on compliance and outcomes of patients who met criteria for postpartum blood pressure appointments and postpartum appointments with our PMHNP. This data was presented monthly at our maternal QAPI meetings. These meetings serve to promote accountability, reveal areas where more education may be needed, and in turn, sustainability. Reviewing data collection in monthly maternal QAPI meetings; it is evident that continuity of care in the postpartum period strongly correlates to improved outcomes and improved patient satisfaction. Over the course of six weeks, 18 patients met criteria to be included in this project. All 18 patients were scheduled for the appropriate postpartum appointment, based on their medical need, and all 18 patients were compliant with returning to this appointment. It was found that out of the 18 cases, 5 of them either needed implementation of pharmacological treatment or needed adjustments in their current regimen. It can be expected that there would have been potential for any of these 5 cases to return to the hospital for a postpartum readmission due to worsening

symptoms if continuity of their care would not have been conducted. Success would not have been possible without creating a culture in which all team members felt safe and comfortable, felt encouraged to learn about new evidence and best practices, and were supported and praised for stepping up as champions to deliver quality improvement for our maternal patients (AHRQ, 2018).

## Conclusions/Recommendations

In conclusion, I strongly recommend developing a continuity of care project for your health system or clinic. As medical professionals, we must devote our focus and skill to improving outcomes for the patients we serve. Living in the middle of a maternal health crisis has sparked the interest of not only health professionals, but the patients and families themselves. I recommend using those patient experiences to aid in developing provider buy in and administrative buy in within your project. It has been evident throughout this project that offering a more continuative, patient centered approach to maternal care not only improves outcomes but improves patient satisfaction with their care. I recommend adding results of this project to monthly quality meetings for up to two years after implementation. Collaboration between meeting team members will not only hold accountability for all involved in ensuring the process is followed through, but will offer recommendations on improvement pieces to enhance the project for the specific population.

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# Appendix A

## Evidence Table

| Citation: (i.e., author(s), date of publication, & title) | Conceptual Framework | Design/ Method | Sample/ Setting | Major Variables Studied and Their Definitions | Measurement of Major Variables | Data Analysis | Study Findings | Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses]) |
|---|---|---|---|---|---|---|---|---|
| 1.<br><br>D'haenens, 2019, The effects of continuity of care on the health of mother and child in the postnatal period: A systematic review. | | Systematic review of studies with quantitative designs | Healthy mothers + infants<br><br>Gestation btwn 37-42 wks.<br><br>10 studies: 3 Australia, 3 Canada, 1 Japan, 1 UK, 1 USA, 1 Sweden | IV1=COC provided to postnatal mothers in experimental group<br><br>DV = health status of mother/child in PP period. | STROBE and CONSORT checklists used to assess quality of observational & randomized trial studies<br><br>2 blinders reviewed quality of each paper; overall quality score was given to each paper | Mothers & children present w/ better health/ have less health complaints + present a better mental | P=0.03; Women in COC pathway had better general health at 4-6 weeks postpartum compared to standard care pathway.<br><br>P<0.05; Women in COC pathway report a very good/excellent maternal health status<br><br>Mothers & children present w/ better health/ have less | LOE: Level I, studies with qualitative designs. Grade B.<br><br>Quality: Strengths = similar gestation, uncomplicated prenatal and neonatal history; multiple studies<br><br>Weakness = Socioeconomic status, parity, age, internal motivation<br><br>No risk or harm with intervention<br><br>I recommend analyzing the COC pathways and integrating management, information, and relational models into standard care pathways. The goal is to decrease women's high level of dissatisfaction with hospital-based postnatal care and to increase |

Legend: BP = blood pressure; COC = continuity of care; HTN = hypertension; LOE = level of evidence; PP = postpartum; PPNN = postpartum nurse navigator C/S = cesarean section; M&M = mortality and morbidity; EPDS = Edinburgh Postpartum Depression Scale; HAMA = Hamilton Anxiety Scale; HAMD = Hamilton Depression Scale; PSQI = Pittsburgh Index Scale; STROBE = strengthening the reporting of observational studies in epidemiology; CONSORT = consolidated standards of reporting trials; WHOQOL-BREF = World Health Organization's Quality of Life Questionnaire; QOL = quality of life; ACOG = American College of Obstetricians and Gynecologists; f/u = follow up; HDP = hypertensive disorders of pregnancy; AHRQ = Agency for Healthcare Research and Quality; HBPM = home blood pressure monitoring; ED = emergency department; AOM = association of Ontario midwifes; CHIPS control of hypertension in pregnancy study; d/c = discharge.

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|---|---|---|---|---|---|---|---|---|
| | | | | | | | health complaints + present a better mental health status when 3 types of COC are offered. | maternal and neonatal health. This is feasible in my healthcare setting. |
| 2.<br><br>Hirshberg, 2018, Comparing standard office-based follow-up | | RCT | 206 PP women w/ pregnancy related HTN. 103 office BP check. 103 text-surveillance | IV1 = Need for effective & reliable BP surveillance for high-risk PP women.<br><br>IV2 = Compare the | "Text-based surveillance using a home blood pressure cuff and previously tested automated platform or usual care | T-test & Mann-Whitney U tests used to compare variable | 92.2% took BP in 1st 10 days PP<br><br>43.7% took BP in 1st 10 days PP | LOE: Level II – Single randomized control trial<br><br>Quality: Strengths = Randomization; met all criteria. Grade B.<br><br>Weaknesses = Text-based group relied on patient ascertainment of BP and entry of their BP reading into their cellphone. |

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|---|---|---|---|---|---|---|---|---|
| with text-based remote monitoring in the management of postpartum hypertension: A randomized | | | Over 18 yrs.<br><br>Able to speak/read English<br><br>Access to cellphone w/ unlimited text | effectiveness of text-based strategy vs usual care w/ in-person office visits in HTN women in immediate PP period.<br><br>DV = management of PP HTN | blood pressure check at their prenatal clinic" (See Abstract) | | 84% of text-based surveillance met ACOF criteria | No risk or harm discovered with intervention<br><br>I recommend use of a similar medical grade BP monitoring system that enables providers to track BP for at risk PP mothers at a closer time interval as well as convenience for the PP mother of a newborn. COC is significantly increased w/ this intervention. Improved ACOG recommendations were also met. Attendance to PP office visits was increased in the text-based group as well as no hypertensive readmissions, compared to the 4 readmissions in the usual care group. This is feasible for my healthcare setting. |
| 3.<br><br>Morris, 2021, A nurse-navigated | | RCT | 92 participants. 43 were randomly assigned to text | IV= Participant experience using a daily, interactive, | Evaluation survey completed by participants, included 2 Likert-scale | Basic qualitative content analysis to | 93% (n=40) of study participants rated the overall experience with text messaging intervention as | LOE = Level II, single RCT. Grade B.<br><br>Strengths = perinatal expertise to offer knowledge, guidance, encouragement, and reassurance in |

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|---|---|---|---|---|---|---|---|---|
| , postpartum support text messaging intervention. | | | message intervention. Primiparious. Age 18-34. Unplanned c/s birth. Single fetus at term gestation. Discharged home w/in 2-4 days post delivery. | person-centered text messaging intervention from a PPNN to bridge the gap in lack of continuity of care for PP women after c/s delivery.<br><br>DV = PP women's satisfaction | questions and 4 open ended questions.<br><br>Majority of participants expressed satisfaction with text messaging intervention. Participants expressed having good informational resources, easy access, individualized needs, prompt replies, enhanced confidence, reliable guidance, and | identify themes related to satisfaction with the text messaging intervention | outstanding/good. 95% indicated they would likely choose to receive daily text messages from a PPNN following a subsequent birth. | real time via convenient text messaging. Daily access to professional nurse support while in comfort of their own home. Person-centered care by addressing participants' specific needs.<br><br>Weakness = Cost to deliver daily text messaging. Difficulty establishing optimal time frame window for delivery of the intervention. Homogenous sample. 2/3 of the sample identified as white/Caucasian, married and college educated.<br><br>No risk or harm discovered from implementation of intervention<br><br>This intervention is deemed feasible for use in practice.<br><br>I conclude that daily communication to PP women after an unplanned cesarean delivery via text message is convenient for the |

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| | | | | | reassuring advice. | | | client, offers reassurance, provides educated recommendations, including when to seek medical treatment, and improves client satisfaction during the immediate PP period. |
| 4.<br><br>Liu, 2021, Effects of psychological nursing intervention on prevention of anxiety and depression in the postpartum period: a | | RCT | 843 primiparous women recruited. 260 patients met critieria and remained in the research. Criteria included:Primiparous women w/ full term delivery, | IV1= Psychological eval. Establishment of self-activity plan. Nurse communication to establish a good "nurse patient relationship." Enhanced care for PP mothers. | PPD identified via EPDS<br><br>Anxiety symptoms assessed by HAMA scale.<br><br>Depression symptoms assessed by HAMD scale.<br><br>Sleep quality assessed using PSQI | The proportion of participants with PPD in the intervention group was significantly lower than the control group after the | Control group; N=115<br><br>Depressed 23.3%<br><br>Intervention group; N=113<br><br>Depressed 11.5%<br><br>P=0.015 | LOE=Level II, Single RCT<br><br>Strengths = Random allocation, clear measurments, strict criteria<br><br>Weaknesses = Only mothers considered at risk for PP depression were considered.<br><br>No risk or harm discovered w/ implementation of psychologic intervientionn<br><br>This intervention is very feasible to execute in any care setting.<br><br>I conclude that this study proves pertinent intervention to decrease PP depression and anxiety, which further decreases other health |

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| randomized controlled trial | | | no obstetric diseases, normal communication ability, propensity for PP depression (EPDS score >or= to 9 but <13.) Cangzou Central hospital in China. | Actively commun. w/ family members and spouses for improved support of mothers.<br><br>DV = PPD diagnoses | Nursing satisfaction evaluated using the nursing satisfaction questionnaire | 6-week intervention.<br><br>Participants in the intervention group were significantly more satisfied with the care than those in the control group. | | complications in the PP period. I would recommend this intervention in my practice to alleviate PP depression in at risk patients. |

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| 5.<br><br>ACOG, 2018, Committee Opinion *Optimizing Postpartum Care* | | N/a | N/a | N/a | N/a | N/a | All PP women should have a follow up visit within the first 3 weeks after discharge.<br><br>Women diagnosed with a HDP should follow up for a BP check within 7 days post d/c.<br><br>Women with severe hypertension should follow up for a BP check within 2-3 days post d/c. | Strengths = recommendations from medical research teams composed of OBGYN's that care for maternal patients every day.<br><br>Limitations = Committee opinion statement, article does not have any quantitative data to support opinion.<br><br>No risk of harm discovered with implementation of intervention<br><br>Deemed feasible in my unit and surrounding clinics<br><br>LOE = Level VII |

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| 6.<br><br>Steele, 2023, Postpartum Home Blood Pressure Monitoring | | Systematic Review | 13 studies: 3 RCTs, 2 nonrandomized comparative studies, 8 single-arm studies<br><br>3,867 Participants with a diagnosis of HDP | IV1= PP home BP measurement compared with clinic monitoring BP checks<br><br>DV = Improved clinical outcomes and reduced existing disparities | Using AHRQ methods, articles were rate as high, moderate, or low on strength-of-evidence. Number of studies, study participants, limitations, consistency of study results were considered. | Surveillance or BP reporting<br><br>Treatment initiation<br><br>Unplanned health care utilization | HBPM improves reporting of BP = RR - 95%<br><br>63.3-84.7% met ACOG rec. for BP reporting<br><br>No evidence of difference in initiation<br><br>HBPM reduced HTN-relate admissions: RD – 3.5% | Strengths = Large study with multiple design methods. Each eligible study was extracted and assessed for risk of bias or quality by one researcher and confirmed by a second.<br><br>Weakness = evidence for the effectiveness of home BP monitoring was sparse. Insufficient evidence to assess whether home BP monitoring reduces severe maternal morbidity or mortality.<br><br>No risk or harm discovered from implementation of intervention<br><br>Implementation of home BP monitoring is feasible in my practice. In rural hospitals, there are grants and resources to purchase |

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| | | | | | | | | home BP cuffs, to assign to PP patients with HDP.<br><br>LOE: Grade B |
| 7.<br><br>Hoppe, 2019, Telehealth with remote blood pressure monitoring for postpartum hypertension: a prospective single-cohort | | Single-cohort feasibility study | 1413 deliveries, 263 (19%) had HTN in pregnancy. 124 of these women were approached for the study, 55 consented. Retention was 95%.<br><br>Inclusion criteria: | IV1 = Equipment provided to patient for home BP monitoring, all home vitals synced to a central platform via Bluetooth<br><br>IV2 = Telehealth visits with a research nurse 48h | Outcomes analyzed using a descriptive analysis with mean, and frequency where appropriate. All data was analyzed using SAS version 9.4 | N=55<br><br>81% response rate for satisfaction survey<br><br>% of total participants with severe HTN after | 84% prefer telehealth to going to a hospital or clinic. 93% would recommend telehealth<br><br>16% developed severe HTN PP. | Strengths = Demonstrated feasibility of telehealth monitoring for PP HTN disorders.<br><br>Limitations = Small sample size, single clinical site. Limited racial/ethnic diversity<br><br>No risk or harm discovered from implementation of intervention<br><br>Telehealth for PP BP surveillance and treatment of HTN is feasible, as assessed by recruitment, consent, and retention. |

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| feasibility study | | | >18 years old, hypertension-related pregnancy disorder diagnosis | after discharge<br><br>DV1= Reduction in readmissions w/in 6 weeks PP<br><br>DV2 = Decreased maternal morbidity | | discharge<br><br>SD+/- for time to first PP Day severe HTN<br><br>% Referred to ED<br><br>% Hospital readmission | Severe HTN developed at a mean of 5.7+/- 1.7 days post d/c.<br><br>11% referred to ED for symptomatic severe HTN<br><br>0 hospital readmissions | LOE = Grade B. |

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| 8.<br><br>Punkkinen, 2019, Reviewing Postpartum Follow Up in Two Models of Care | | Discussion article with qualitative recommendations | N/A | IV1 = Postpartum care as essential<br><br>IV2= Timing/frequency of postpartum visits<br><br>DV= Overall reduction in maternal and infant morbidity and mortality | N/A | Deaths from pregnancy related complications occur during the PP period.<br><br>% of women do not attend their pp visit with a physician | 50-71%<br><br>40% | Strengths = Review and comparison using research from nationally recognized organizations (WHO, AOM, ACOG).<br><br>Weaknesses = Limited evidence. Qualitative study.<br><br>No risk discovered<br><br>It is feasible for all maternal healthcare units to offer and provide postpartum care that is consistent with either ACOG, WHO, or AOM recommendations.<br><br>LOE = Grade B |

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| 9.<br><br>McKean, 2017, Postpartum Depression: When Should Health Care Providers Identify Those at Risk? | Recommended screening for PPD | Secondary data analysis of a RCT | 152 eligible mother-infant families. | IV = Screening for PPD every month up to 12 months PP<br><br>DV= Initial positive screen for PPD can occur any time during the 1st 12-month PP period | T Test – to compare variables<br><br>$\chi 2$ test -to compare same groups<br><br>CES-D-10 scale used for PPD screening<br><br>STATA statistical software, version 14.2 used to conduct all analysis | T Test – to compare variables<br><br>$\chi 2$ test - to compare same groups | P= .017, mothers in households earning 50k or less significantly more likely to test positive<br><br>P= .006, mothers in households earning 50k or less significantly more likely to test positive<br><br>15% had their 1st positive PPD screen in months 6-12 | Strengths = quantitative RCT, strong evidence that PPD can occur at any time during first postpartum year and thereafter.<br><br>Limitations = Results report the frequency of positive screen for PPD but not the frequency of diagnosis. Mothers in the study were older, higher median income, more educated than typical populations.<br><br>Adding a brief screening tool to the EMR and providing physician education on PPD screening significantly increased the rate and feasibility of PPD screening in primary care pediatrics. This would be deemed feasible on my unit.<br><br>LOE = Grade B |

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| | | | | | | | Positive PPD screen at 6 mo. (n=28)<br><br>Positive PPD screen at 12 mo. (n=29)<br><br>Depression months (n=75) | |
| 10.<br><br>Vidler, 2016, Women's views and postpartum follow-up I the | | Quantitative and qualitative analysis is<br><br>International | 94 sites<br><br>15 countries<br><br>911 women were | IV1 = "tight" treatment<br><br>IV2 = "less tight" treatment | Questionnaires for qualitative data<br><br>thematic analysis of | Quantitative analyses were Chi-square or Fishers exact test | 488<br><br>IV1 = p=.02 | Strengths = large numbers, randomization, high response rate, inclusion of open-ended questions.<br><br>Weaknesses = questionnaire administered by the CHIPS coordinators, who respondents knew from data collection. Potential error introduced by translation as study conducted in 15 countries. |

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| CHIPS Trial<br><br>https://doi-org.ezproxy.uttyler.edu/10.1016/j.ejogrb.2016.07.509 | | l randomized trial | randomized | DV= Willingness to have the same treatment in another pregnancy or recommend treatment to a friend | women's views | Thematic analysis of women's views | IV2 = p=.005<br><br>Satisfaction remained high among women with an adverse outcome, those in 'tight' control who suffered an adverse outcome (vs. those who did not) were not consistently less satisfied, whereas this was not the case among women in 'less tight' control among whom satisfaction was consistently lower for the CHIPS primary outcome (p < 0.001), severe hypertension (p —— | No risk discovered implementing either intervention<br><br>As women in both tight vs less tight control were equally satisfied with their care, this proves to be feasible to provide 'tight' treatment with a goal to decrease maternal mortality in the postpartum period.<br><br>LOE = Grade B |

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| | | | | | | | 0.01), and pre-eclampsia ($p < 0.001$) | |
| 11.<br><br>Bahrami, 2013, The Effect of Prenatal Education on Mother's Quality of Life during First Year Postpartum among Iranian Women: A | | RCT | 160 primiparous women; age 18-35; w/o history of medical, psychological & infertility diseases; at least 8 prenatal visits. 80 intervention group; 80 control group | IV1 = Received prenatal education classes; 8 daytime session for 90 minutes x 3 months (2-3 sessions per month)<br><br>IV2 = No prenatal education classes | Mothers at 6-8 weeks PP rated their QOL using WHOQOL-BREF. Which is a 26 item instrument including 4 domains: physical health, psychological health, social relationships, & environmental health. | T test; chi-square, Mann-Withney are used to determine the significance of the intervention. | Differences were statistically significant at 6-8 weeks PP and also 1 yr PP with a $p<0.05$. Interventional group more likely to demonstrate higher scores for different domains of QOL. | LOE= Level II, single RCT. Grade B<br><br>Strengths = Random allocation, clear measurements, strict criteria<br><br>Weaknesses = Location of study, convenience of the education, length of classes<br><br>No risk/harm discovered with implementation of educational intervention<br><br>Offering two classes/month to promote education, guidance, QOL for our maternal population is very feasible.<br><br>In conclusion, this study proves to be significant in improving |

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| Randomized Controlled Trial | | | | DV = Quality of life for 1st year PP Iranian women | Mothers rated QOL at 1 year PP using WHOQOL-BREF | | | maternal satisfaction, QOL, and happiness which is worth the effort to implement. I would recommend additional educational opportunities for expecting mothers based off of the study findings and do find this feasible for my unit. |

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| | | | | | | | | |
| 12.<br><br>Medeiros, 2016, Postpartum period: the importance of home visits given by the nurse in primary health care. | | Qualitative study | 53 nurses.<br><br>38 of the 53 nurses agreed to participate free & spontaneously<br><br>Urban + Rural area in Caxias, MA, & Brazil | IV1 = Importance of PP home visits, & effect the visits have on maternal M&M. | Interviews | Home visits contribute to the reduction of cases of M&M, increase bond with mother and newborn, contribute to comprehensive, holistic & | Majority of interviewees considered the home visit a tool that brings the health unit to reality experienced by the mother | LOE: Level VI, Single qualitative study. Grade B.<br><br>Quality: Strengths= Interviewees working in primary care with PP women<br><br>Weaknesses = Nurses reporting no continued education on their unit.<br><br>No harm determined using intervention.<br><br>Any evidence that proves to provide a reduction in maternal morbidity and mortality is worth further research and implementation. This |

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| | | | | | | continuous care | | is feasibly with the appropriate support services. |



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# Appendix B

## Flowchart