

**Postpartum Preeclampsia: Implementing a Standard Treatment Parameter on Greenwich
Hospital's Maternity Unit**

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Background and Significance

Greenwich Hospital has a high incidence of maternity patients diagnosed with preeclampsia, even after delivery. Postpartum preeclampsia is a condition concerning high blood pressure, which can lead to multi-system organ involvement (Redman et al., 2019, p. 998). Although it is a condition most identified during pregnancy, it can still appear within six weeks of giving birth. On the postpartum unit at Greenwich Hospital, there are discrepancies among the healthcare team on when to initiate treatment for preeclampsia, which can lead to impaired patient safety and confusion among the staff.

Preeclampsia is “defined by the American College of Obstetricians and Gynecologists (ACOG) criteria as blood pressure greater than or equal to 140 mm Hg systolic or 90 mm Hg diastolic on two or more occasions more than 6 hours apart accompanied by proteinuria or end organ dysfunction, or a blood pressure greater than or equal to 160 mm Hg systolic or 110 mm Hg diastolic” (Redman et al, 2019, p. 998). It is common, occurring in 1 out of 25 pregnant women (CDC.org). Preeclampsia is a very serious condition that, if it progresses and is not treated in time, the results could be fatal: “In the United States, [preeclampsia] is a leading cause of maternal death, severe maternal morbidity, maternal intensive care admissions, cesarean section, and prematurity” (Rana et al., 2019, p. 1094). Because of both the high prevalence and patient risk, even the minimum diagnostic blood pressure of 140/90 mm Hg indicates a need for treatment to prevent progression into more serious conditions or even death.

Preeclampsia affects multiple systems in the body. Common complications of preeclampsia include hemolysis, elevated liver enzymes, and low platelets, otherwise known as HELLP syndrome, renal impairment, pulmonary edema, cerebral hemorrhage, and eclampsia (Townsend et al., 2016, p. 82). Although any system affected can lead to dangerous conditions

for the patient, neurologic involvement, such as eclampsia (32%-44% of which occurs in postpartum) and cerebral hemorrhage, contribute to the highest mortality rate (Townsend et al., 2016, p. 91). Cerebral complications were the cause of 14 out of 22 maternal deaths reported by the Centre for Maternal and Child Enquiries from 2006-2008, and accounted for 10% of maternal morbidity (Townsend et al., 2016, p. 83). Table 1 provides additional complications of preeclampsia categorized by each system (Townsend et al., 2016, p. 83).

Table 1

Complications of preeclampsia by organ system

Cardiorespiratory	Neurological	Renal	Hepatic	Hematological
ARDS	Eclampsia	Acute tubular necrosis	Periportal inflammation	Thrombocytopenia
Pulmonary edema	Cerebral thrombosis or hemorrhage	Acute kidney injury	Hepatic dysfunction	DIC
Cardiomyopathy	PRES	Glomerular endotheliosis	Hepatic hematoma/rupture	Microangiopathic hemolysis
Generalized edema	Altered mental status		Acute fatty liver of pregnancy	Venous thromboembolism

Abbreviations: ARDS, adult respiratory distress syndrome; DIC, disseminated intravascular coagulopathy; PRES, posterior reversible leukoencephalopathy syndrome.

Note. From “Current best practice in the management of hypertension in pregnancy” by R. Townsend, P. O’Brien, & A. Khalil, 2016, *Integrated Blood Pressure Control*, 9(1), p. 83 (<https://doi.org/10.2147/IBPC.S77344>). Copyright 2016 by Dove Medical Press Limited.

Because preeclampsia can develop up to 6 weeks after delivery, it is very important to monitor all postpartum patients’ blood pressure for any changes (Redman et al., 2019, p. 995). Some additional common preeclampsia symptoms to assess for include changes in vision, headache, nausea and vomiting, shortness of breath, seizures, pedal edema (Hauspurg & Jeyabalan, 2021, p. 1215). However, these symptoms are not always specific to early preeclampsia: “For example, nausea, vomiting, and right upper abdominal pain are common in hemolysis, elevated liver enzymes, and low platelets syndrome (HELLP syndrome); persistent headaches, consciousness, and visual disturbances are common prodromal symptoms of hypertensive brain disease and eclampsia; and excessive weight gain and hyperreflexia may also be the first signs of eclampsia” (Wang & Yang, 2021, p. 84). Because the symptoms are non-specific, they could either indicate early preeclampsia, or severe preeclampsia that has progressed to some of the complications mentioned earlier. For example, eclampsia is a severe complication of preeclampsia: “Seizures can arise with no or minimal preceding symptoms and signs, or in a woman who has had stable ‘mild’ disease for several weeks” (Townsend et al. 2016, p. 84). The patient’s condition can progress rapidly without the healthcare team realizing. Because of this, early preeclampsia treatment is essential for the patient’s safety, and should be initiated as soon as these symptoms become present.

Although there have been several studies on preeclampsia, the etiology of the condition is still unknown. However, some common risk factors have been determined: “Major risk factors

include a history of preeclampsia, chronic hypertension, pregestational diabetes mellitus, antiphospholipid syndrome, and obesity, among others. Other risk factors include advanced maternal age, nulliparity, history of chronic kidney disease, and use of assisted reproductive technologies” (Rana et al., 2019, p. 1094). It is important for the healthcare team to recognize these risks both throughout the pregnancy, during, and after delivery so that they have a plan of care in case symptoms do develop.

Postpartum preeclamptic patients should be treated when blood pressure is at or above 140 mm Hg systolic and/or 90 mmHg diastolic. When asymptomatic, the patient can be treated orally with medications such as Nifedipine XL, labetalol, methyldopa, or enalapril, as these are also safe to be given to breastfeeding mothers (Powles & Ghandi, 2017, p. E913). For severe preeclampsia, or when the patient’s blood pressure is at 160 mm Hg systolic and/or 110 mm Hg diastolic or higher, the patient should be treated with magnesium sulfate for seizure prophylaxis, as well as IV antihypertensives: “If any new features of severe disease develop, mothers should be moved to a higher level of care and consideration given to administering at least 24 hours of magnesium sulfate as eclampsia prophylaxis. Any woman with a new onset severe headache, with or without neurological symptoms, should be assessed to evaluate the possibility of postpartum stroke or venous thrombosis” (Townsend et al., 2016, p. 88). It is recommended that the blood pressure is kept below 150/100 mm Hg when on medication.

As mentioned earlier, the providers at Greenwich all have different personal preferences on when to treat the patient with preeclampsia. Because of this, the nurses should contact the provider when the patient has a blood pressure at 140/90 mm Hg or above to discuss a plan of action. Depending on the provider assigned to the patient, some may prescribe oral antihypertensives at this time, while others would instruct the nurses to continue to monitor the

patient without any additional interventions. Because of this inconsistency, if a nurse is assigned to a patient under a doctor that tends to wait until the patient receives a more severe blood pressure reading, it has been acknowledged their hesitancies to report a reading at or slightly above 140/90 mm Hg. This discrepancy is causing a rift in the healthcare team, as well as delaying treatment for patients. Therefore, it is recommended for the Greenwich Hospital Maternity Unit to implement a standard protocol stating that treatment is indicated for a preeclamptic patient with a blood pressure of 140/90 mm Hg or higher. This standard parameter would allow the nurses and doctors to be on the same page regarding each patient's plan of care if preeclamptic symptoms arise. The doctor can therefore place a PRN order for this specific blood pressure parameter, allowing the nurse to administer the prescribed medication immediately. This protocol would ensure patient safety, as well as decrease staff confusion.

Role and Responsibility of the Professional Nurse

Nurses are the ones that are constantly with their patients. They will be the first to notice a change in the patient's condition. With this in mind, it is imperative that the nurse knows what they can do in an emergency situation to keep the patient safe. If a preeclamptic patient's blood pressure is at or above 140/90, the patient should be given oral antihypertensives to prevent further elevation and complications. When the preeclamptic patient's blood pressure changes to 160/110, the patient should be given IV antihypertensives and be started on magnesium sulfate for seizure prophylaxis. However, with current protocols in place, some doctors will not treat a patient at all until their blood pressure is over 160/110 mm Hg. With a standard protocol for early preeclampsia treatment, the nurse will be able to administer medication in a timely manner, as well as prevent complications from occurring.

This standard will give nurses a guideline of when to escalate concerns regarding their patient's condition, however they are still able to use their nursing judgement. For example, even if the patient's blood pressure is slightly lower than 160/110 mm Hg and they are symptomatic, the nurses should still use critical thinking to advocate for the patient to prevent further disease progression. Nurses also need to advocate for the patient if the blood pressure is at or above 140/90 mm Hg. This is a safety concern for the patient and interventions are needed to prevent further complications. Treating the patient in alignment with evidence-based practice, as well as treating them as soon as possible, demonstrates that the nurse is upholding the principles of beneficence and nonmaleficence. Also, without a standard protocol in place, each patient on the floor is receiving a different quality of care due to the different administration parameters among the providers. With the protocol of medication intervention at or above a blood pressure of 140/90 mm Hg, the nurse would demonstrate the principle of justice, as each patient would receive an equal quality care. Finally, by utilizing critical thinking skills, the nurse would uphold the ethical principle of fidelity, as they remain dedicated to the safety of their patient. Fidelity would also be demonstrated through proactive advocating for their patients.

To address the current issue on the Greenwich Hospital Maternity Unit, a pamphlet was provided to the floor that included the definition of preeclampsia, statistics of its prevalence, specific populations more at risk, signs and symptoms to look for, and evidence of when and how to treat. The pamphlet also addresses the discrepancy within the unit regarding when it is the appropriate time to provide treatment. This pamphlet serves as an educational tool for the nurses on the floor to recognize that their current actions, although not intentional, are leading to an increase risk to patient safety. By realizing that the current actions are problematic for both the outcomes of the patients and the working relationships of the healthcare team and providing

the recommendation of a set protocol on when to provide antihypertensives to preeclamptic patients, a change can be made.

This protocol will change healthcare policy by creating a standard for all providers to follow. In terms of regulating the environment, the standard would allow for mutual understanding between all members of the healthcare team. The nurses at Greenwich stated their hesitancy to report when a patient has a blood pressure above 140/90 mm Hg depending on which doctor is caring for her because they assume that the doctor would not provide an order for any medication if the blood pressure has not reached 160/110 mm Hg. With this protocol in place, however, it will create a more positive environment for the staff, as nurses would not be as hesitant in voicing their concerns of their patients' conditions to the doctors, since doing so would be the proper action in accordance with the policy change. This positive environment would benefit both the staff and the patient, as communication would be more effective, which enhances teamwork and collaboration to create the best care plan for the patient. Finally, in terms of finance, although there will be more money spent by the hospital and charged to the patients for more medications, it is in the best interest of the patient for their safety. Keeping the patient safe and improving their condition throughout her stay at the hospital follow the nursing principles of beneficence and nonmaleficence. Therefore, it is necessary financially to provide the medications for these patients.

Developmental, Age Appropriate, and Culturally Sensitive Considerations

The target audience for the recommended audience are mainly the nurses and doctors at the Greenwich Hospital Maternity Unit. Because they already understand preeclampsia, a brief refresher definition was provided in the pamphlet, as well as common signs and symptoms to be aware of to introduce the topic. Since they are all at a high education level and well-versed in the

specialty of maternity, medical terminology was appropriately used in the pamphlet as well. Although the nurses and doctors are of different ages and cultural backgrounds, they are around the same level developmentally. Because of this, although medical terminology was utilized, the content provided was brief and at a basic level for healthcare educated individuals to endure all healthcare team members would understand the intervention.

Culture and age, however, do play a large role in the patient population. Although there is a certain child-bearing age range for women, this is still a very wide age range of mothers that present to Greenwich Hospital. Similarly, there is also a wide range of cultures among the patients at Greenwich Hospital. Information regarding how the patient's culture and age put her more at risk for developing preeclampsia and the appropriate way to treat her was provided when the pamphlet was presented to the unit, as it is very important for nurses to be aware of increased risks associated with various patient populations.

Although anyone can develop preeclampsia, there are certain demographics that are proven to be more at risk for preeclampsia. For example, Non-Hispanic, and Alaska Native women are at a higher risk of developing preeclampsia compared to White, Hispanic, and Asian women (Johnson & Louis, 2020, p. 876). African American women also have case fatality rates related to preeclampsia 3 times higher than rates among white women (U.S. Preventative Task Force, 2017, p. 1661).

A study involving “women admitted to the hospital with delayed-onset postpartum preeclampsia (defined as a new diagnosis of preeclampsia presenting between 48 hours and 6 weeks postpartum) compared with women with full-term, uncomplicated pregnancies without a hypertensive diagnosis or diabetes” was carried out from 2014 to 2018. The results indicated that “compared with women in the control group (n=26,936), women with delayed-onset postpartum

preeclampsia (n=121) were significantly more likely to be of non-Hispanic black race (31.4% vs 18.0%), obese (39.7% vs 20.1%), and deliver by cesarean (40.5% vs 25.8%)". (Redman et al., 2019, p. 995).

It is also extremely important to understand the medications that are typically given to help lower blood pressure in preeclampsia patients as the race of the patient could affect the action of the medication: "There is some evidence outside of pregnancy that beta blockers are less effective in controlling hypertension in Afro-Caribbean patients, who may have elevated renin levels even at a young age. This leads some to argue that, as these patients are likely to be resistant to labetalol, nifedipine should be the first line drug for them. Nifedipine may be more effective in controlling blood pressure than labetalol or hydralazine..." (Townsend et al., 2016, p. 88). Providers need to be aware of this, especially since this population is at a higher risk in developing preeclampsia to begin with and are more likely to need treatment.

Several risks are also higher in mothers of advanced maternal age. Greenwich Hospital considers advanced maternal age to be women above the age of 35. Some common complications in this age group include cesarean delivery, postpartum hemorrhage, gestational diabetes, thrombosis, hysterectomy, as well as preeclampsia (Sheen et al., 2018, p. e1). There was a particularly high advanced maternal age population at Greenwich Hospital, therefore this is very important for Greenwich nurses to recognize this.

It is important for the healthcare to be aware of and understand the risks that may be higher due to their patient's demographic. A standard protocol that instructs the healthcare team members to intervene when the patient has a blood pressure above 140/90 mm Hg on more than one occasion at least 6 hours apart would benefit populations such as black women and women

of advanced maternal age since they are already at a high risk, therefore early intervention is especially important to prevent a poor outcome.

Patient Centered Care Principles

Many of the nurses on the Greenwich Hospital maternity unit expressed concern regarding the discrepancies between the preeclampsia treatment preferences among different doctors. One concern is that some patients may be put at risk for complications related to preeclampsia if they are not treated as early as the evidence states is necessary. Another concern includes confusion among the nurses as the plan of care is different depending on the doctor assigned to their patient. Because of the lack of standard protocol, the nurse would, in theory, be required to contact the doctor anytime the patients' blood pressure rises, yet there is further hesitation to contact the doctor as the nurses don't believe they would express concern for any blood pressure reading lower than 160/110 mm Hg. However, with a standard protocol, the doctor can place an order upon admission to the postpartum unit for medications to be given if a specific blood pressure is reached. Therefore, the nurse will be prepared to administer the necessary medication in case of a rapid change of condition. Although communication would still be maintained between the doctor and nurse, the communication would be more efficient and collaborative since the protocol would establish a mutual understanding of the plan of care for the preeclamptic patient.

After working on the unit, even on the overnight shift, it is easy to see the nurses at Greenwich Hospital develop strong, healthy relationships with each of their patients. Through therapeutic communication techniques, the relationship is built on trust. With this trust, the patient feels comfortable with putting both her and her baby's life in that nurse's hands. It is the responsibility of both the nurse and all other healthcare team members assigned to the patient to

maintain that trust by providing the best quality of care and ensure the safety of her and her baby. When the patient starts showing signs of preeclampsia, such as a blood pressure at or above 140/90 mm Hg, the standard protocol should be to treat the patient's high blood pressure before further complications, such as seizures and stroke, become evident, especially since the progression of the condition is so rapid: "The emergence of early warning signs should invoke an investigation. Attention should be paid to tracking down subtle discrepancies despite the absence of adverse clinical manifestations" (Wang & Yang, 2021, p. 83). Because of the high maternal morbidity rate from severe preeclampsia and eclampsia, early treatment will provide the patient and their family with the best outcome, which is to return home healthy without delivery-related complications and transition into caring for their newborn baby.

Professional Nursing Competencies: Teamwork and Collaboration, Quality Improvement, and Safety

The Quality and Safety Education for Nurses (QSEN) identified a list of competencies that serve as a guide for nurses in their practice. These competencies also act as goals for nursing students to achieve before licensure. Among these are Teamwork and Collaboration, Quality Improvement, and Safety.

The Teamwork and Collaboration competency is defined as "functioning effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision-making to achieve quality patient care" (QSEN.org). This open communication is vital to provide patients with the best care possible, especially when there is a change in their condition, as there are various members of the healthcare team involved in the treatment of each patient. One of the nurses' concerns at Greenwich Hospital is the discrepancy between the treatment process of postpartum preeclampsia among the doctors. This has led to confusion

among the nurses as they may be worried for a patient with a blood pressure at or above 140/90 mm Hg. In this situation, some doctors are not concerned enough with that reading to prescribe medication, while others may decide to prescribe oral antihypertensives. Because of these inconsistencies, the nurses have two options: escalate and further voice their concerns by stating they are concerned for the patient and uncomfortable with their current status, or obey the doctor and monitor the patient closely without medication. However, with a treatment protocol indicating a standard blood pressure reading for postpartum preeclamptic patients, the uncertainty of the care plan and need for interprofessional debates will be eliminated. Instead, the nurse and doctors would be able to communicate efficiently as both would have a clear understanding of the plan of care if this situation would arise.

The Quality Improvement competency is defined as “using data to monitor the outcomes of care processes and use improvement methods to design and test changes to continuously improve the quality and safety of health care systems” (QSEN.org). This competency is congruent with the Evidence-Based Practice competency as the evidence is applied in the clinical setting to improve patient outcomes. By implementing a protocol corresponding with the evidence of the benefits of early treatment, it can prevent poor patient outcomes related to postpartum preeclampsia.

The Safety competency is defined as “minimizing risk of harm to patients and providers through both system effectiveness and individual performance.” (QSEN.org). This is the most important aspect of healthcare; the patient’s safety is always the highest priority and the driving force for all healthcare decisions. Due to the many risks associated with untreated postpartum preeclampsia, such as seizure, stroke, pulmonary edema, organ failure, or even death, early treatment of the condition is required to ensure patient safety. As mentioned above, a protocol in

place for the parameters of early treatment would prevent confusion among the healthcare team by minimizing the time it takes for the doctor and nurse to make a decision on a treatment, and therefore allowing the patient to receive proper treatment in a timelier manner.

References

- Centers for Disease Control and Prevention. (2021, May 6). High blood pressure during pregnancy. Centers for Disease Control and Prevention.
<https://www.cdc.gov/bloodpressure/pregnancy.htm#:~:text=Preeclampsia%20happens%20in%20about%201%20in%2025%20pregnancies%20in%20the%20United%20States.&text=Some%20women%20with%20preeclampsia%20can,which%20is%20a%20medical%20emergency.>
- Hauspurg, A. & Jeyabalan, A. (2022). Postpartum preeclampsia or eclampsia: Defining its place and management among the disorders of pregnancy. *American Journal of Obstetrics and Gynecology*, 226(2). <https://doi.org/10.1016/j.ajog.2020.10.027>
- Johnson, J., & Louis, J.M. (2020). Does race or ethnicity play a role in the origin, pathophysiology, and outcomes of preeclampsia? An expert review of the literature. *American Journal Obstetrics and Gynecology*, 226(2), 876-885.
<https://doi.org/10.1016/j.ajog.2020.07.038>
- Powles, K., & Gandhi, S. (2017). Postpartum hypertension. *CMAJ : Canadian Medical Association Journal = Journal de l'Association Medicale Canadienne*, 189(27), E913.
<https://doi.org/10.1503/cmaj.160785>
- QSEN competencies. (2020, October 29). Retrieved April 20, 2022, from
<https://qsen.org/competencies/pre-licensure-ksas/>
- Rana, S., Lemoine, E., Granger, J. P., Karumanchi, S. A., & Al., E. (2019). Preeclampsia. *Circulation Research*, 124(7), 1094-1112.
<https://www.ahajournals.org/doi/full/10.1161/CIRCRESAHA.118.313276>

Redman, E. K., Hauspurg, A., Hubel, C. A., Roberts, J. M., & Jeyabalan, A. (2019). Clinical Course, Associated Factors, and Blood Pressure Profile of Delayed-Onset Postpartum Preeclampsia. *Obstetrics and Gynecology*, 134(5), 995–1001.

<https://doi.org/10.1097/AOG.0000000000003508>.

Sheen, J. J., Wright, J. D., Goffman, D., Kern-Goldberger, A. R., Booker, W., Siddiq, Z., D’Alton, M. E., & Friedman, A. M. (2018). Maternal age and risk for adverse outcomes. *American Journal of Obstetrics and Gynecology*, 219(4).

<https://doi.org/10.1016/j.ajog.2018.08.034>

Townsend, R., O’Brien, P., & Khalil, A. (2016). Current best practice in the management of hypertensive disorders in pregnancy. *Integrated Blood Pressure Control, Volume 9*, 79–94. <https://doi.org/10.2147/ibpc.s77344>

US Preventive Services Task Force. Screening for Preeclampsia: US Preventive Services Task Force Recommendation Statement. *JAMA*. 317(16):1661–1667.

[doi:10.1001/jama.2017.3439](https://doi.org/10.1001/jama.2017.3439)

Wang, J. & Yang, Z. (2021). Key points to early action for preventing and monitoring the syndrome of preeclampsia. *Maternal-Fetal Medicine*, 3(2), 81-86. doi:

10.1097/FM9.0000000000000100