



Launching a Remote Maternal Blood Pressure Monitoring into an Established Telehealth System

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INTRODUCTION

Severe maternal hypertension is a leading cause of maternal death in the U.S. with delays in diagnosis and treatment acting as significant contributors. Remote home blood pressure (BP) monitoring shows promise in maternal health, but requires integrated resources, accessible staff and patient engagement.

AIM

This study aims to demonstrate the *feasibility, acceptability, and safety* of integrating a home BP monitoring program for pregnant patients at elevated risk of hypertensive disorders through 8 weeks postpartum into an established nurse-monitored telehealth system.

METHODS

Study design: Prospective cohort study

Participants: Adult patients with an intrauterine pregnancy, receiving prenatal care at the University of Mississippi Medical Center (UMMC) and affiliated practices, proficient in English, having reliable internet access, and diagnosed with moderate to high risk of developing a hypertensive complication in pregnancy as defined by the U.S. Preventive Task Force .

Figure 1. RPM workflow:

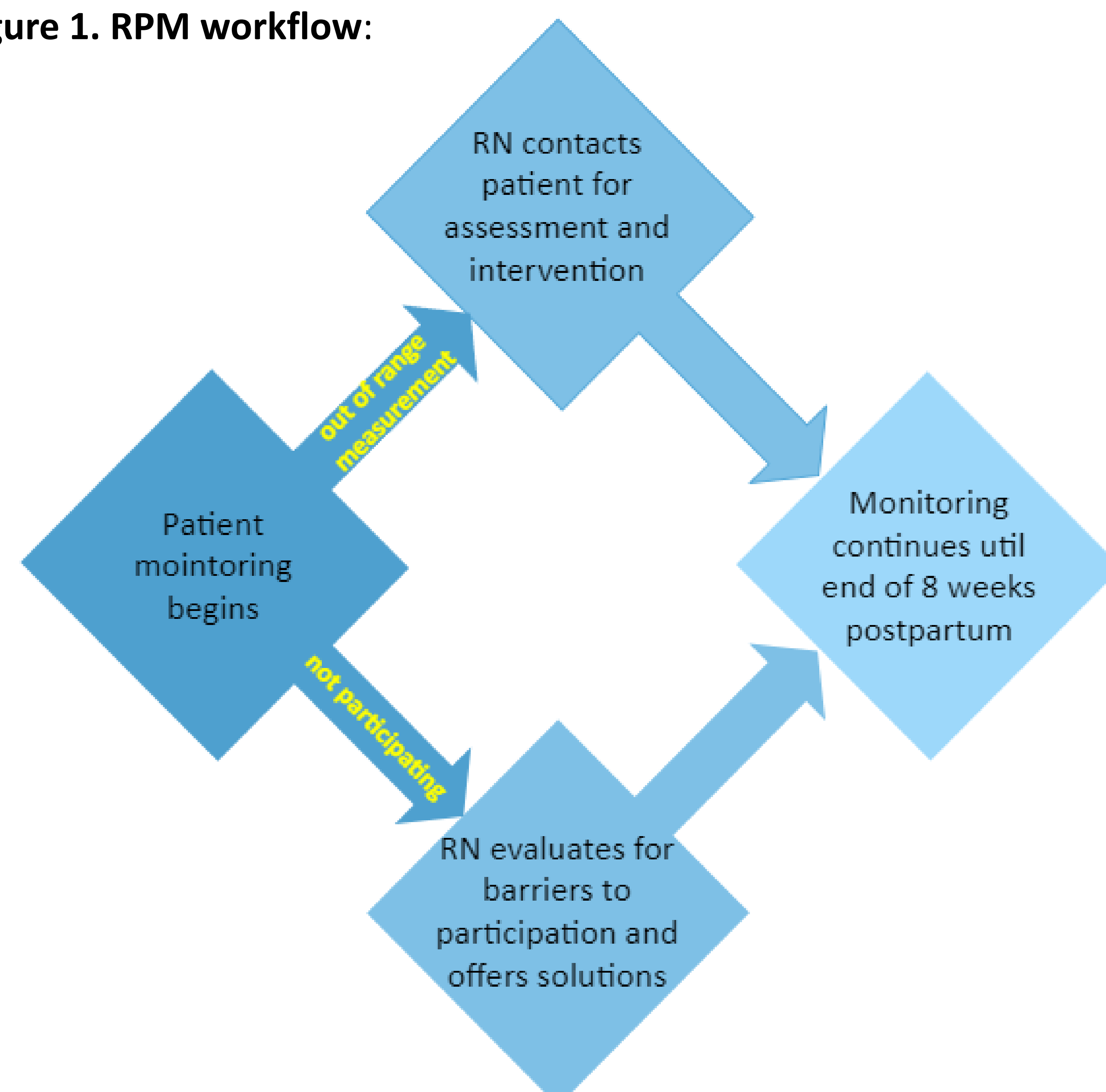
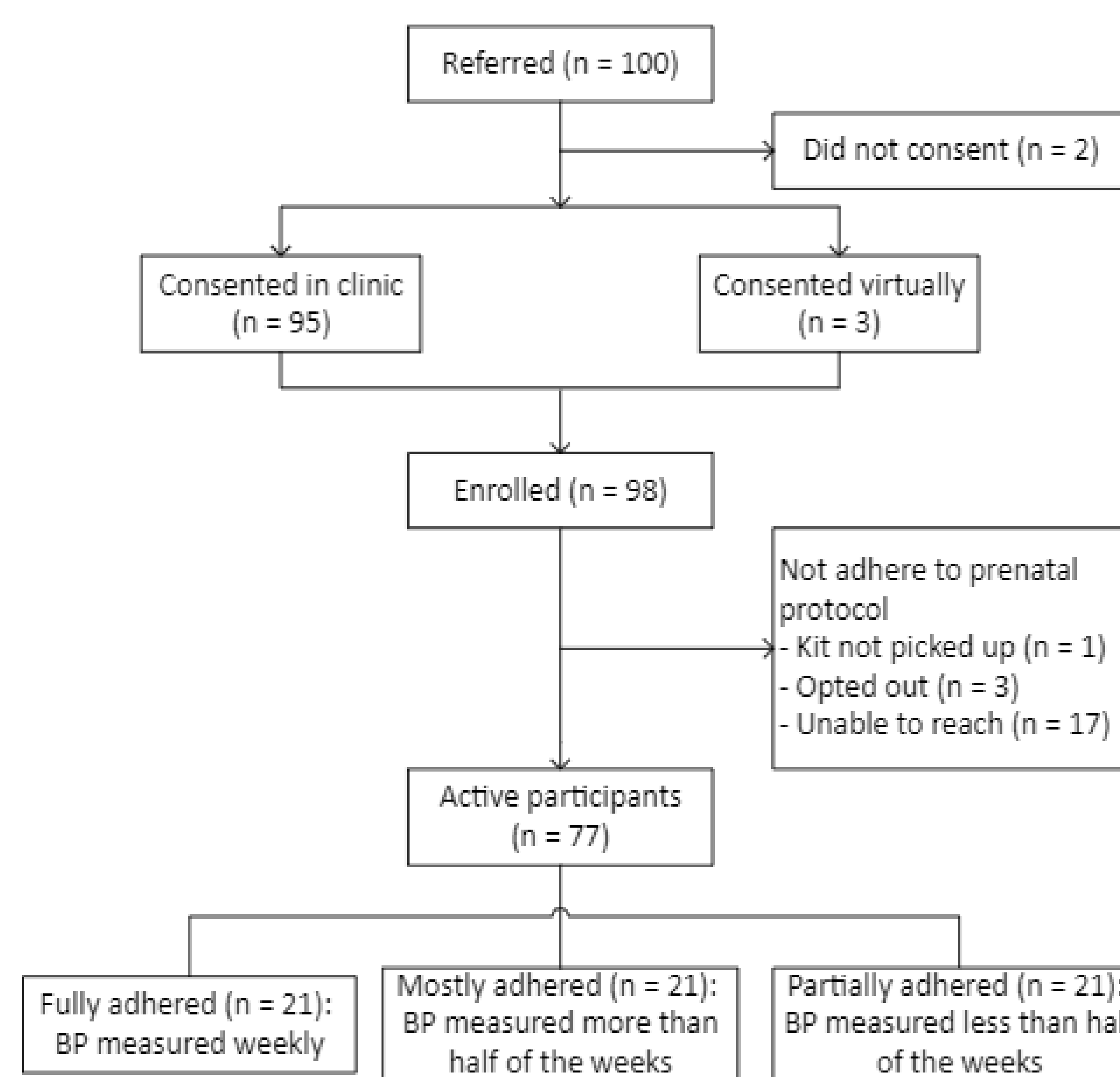


Figure 2. Study workflow



RESULTS

Table 1. Participant characteristics

	All enrollees (N = 98)	Fully adhere (n = 21) ^a	Mostly adhere (n = 35) ^b	Partially adhere (n = 21) ^c	Not adhere (n = 21) ^d	P-value
Age, year, Mean (SD)	30.53 (5.95)	31.19 (5.74)	31.63 (5.75)	29.67 (6.26)	28.90 (6.09)	0.329
Gestational age at enrollment, week, Mean (SD) ^{ab, ac}	23.57 (6.91)	27.63 (6.92)	22.27 (5.20)	21.05 (7.22)	24.22 (7.64)	0.008
Race, no. (%)						0.068
Black/African American	84 (86.60)	17 (85.00)	34 (97.14)	17 (80.95)	16 (76.19)	
White/Caucasian	13 (13.40)	3 (15.00)	1 (2.86)	4 (19.05)	5 (23.81)	
BMI at initial prenatal care, no. (%) ^{bc}						0.016
Normal weight (18.5 ≤ BMI < 25.0)	6 (6.38)	1 (4.76)	4 (12.50)	0 (0.00)	1 (4.76)	
Overweight (25.0 ≤ BMI < 30.0)	14 (14.89)	1 (4.76)	8 (25.00)	0 (0.00)	5 (23.81)	
Obese (BMI ≥ 30.0)	74 (78.72)	19 (90.48)	20 (62.50)	20 (100.00)	15 (71.43)	
Insurance, no. (%)						
Medicaid	89 (90.82)	19 (90.48)	31 (88.57)	19 (90.48)	20 (95.24)	0.962
Commercial	25 (25.51)	6 (28.57)	10 (28.57)	1 (4.76)	8 (38.10)	0.079
Others	6 (6.12)	1 (4.76)	2 (5.71)	2 (9.52)	1 (4.76)	0.942
Rural, no. (%)	57 (58.16)	13 (61.90)	20 (57.14)	10 (47.62)	14 (66.67)	0.633
Number of current pregnancy gravity, Median (Min, Q1, Q3, Max)	2 (0, 1, 4, 9)	3 (0, 1, 4, 9)	3 (0, 1, 3, 6)	2 (0, 1, 3, 6)	2 (0, 0, 4, 9)	0.299
Participants with past living births, no. (%)	65 (90.28)	14 (87.50)	25 (92.59)	15 (93.75)	11 (84.62)	0.777
Participants with prior preterm birth, no. (%)	30 (58.82)	8 (66.67)	9 (52.94)	5 (55.56)	8 (61.54)	0.904
Participants with prior SAB, ectopic pregnancy or TAB, no. (%)	40 (71.43)	9 (64.29)	17 (85.00)	8 (80.00)	6 (50.00)	0.172
Participants with medical history of preeclampsia, no. (%)	21 (21.43)	7 (33.33)	7 (20.00)	2 (9.52)	5 (23.81)	0.315
Participants with medical history of gestational hypertension, no. (%)	54 (55.10)	12 (57.14)	18 (51.43)	12 (57.14)	12 (57.14)	0.961

Table 2. Participant feedback

I enjoyed the program n hope to do it Again one day
Absolutely love this program!!
They a very efficient communicators
I was very pleased with the program. I highly recommend it and I was very happy with nurses. They were very courteous and helpful during the program.
I love it! Everyone that's pregnant needs to join.
I already referred the program to a friend.
This Care program is vital and important to maternity health and well-being. I would not have known the severity of my health and having pre-eclampsia with this program! Thank you for this proactive health measure!

REFERENCES

Bibbins-Domingo K, Grossman DC, Curry SJ, et al. Screening for Preeclampsia: US Preventive Services Task Force Recommendation Statement. JAMA 2017;317(16):1661-1667, doi:10.1001/jama.2017.3439

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KEY FINDINGS

- Demographic profile reflects the challenges faced by **vulnerable** mothers, particularly those who are Black/African American, obese, covered by Medicaid, residing in rural areas, contributing to healthcare disparities.
- The high enrollment rate indicates a **strong interest** within the study population.
- Non-adherence issues** emerged, warranting strategies for patient engagement, such as comprehensive patient education and patient-family advisory councils in future work.
- Hospital utilization (hospitalization and ED) was similar across adherence groups, but the **timely triage** assisted patients in avoiding unnecessary visits and prompting necessary visits.
- The fully adhered group displayed higher postpartum visit completion and telemonitoring use, indicating the potential benefits of consistent adherence in promoting **patient engagement** and facilitating monitoring and detection in postpartum care.
- No maternal or neonatal deaths were identified within 60 days postpartum, highlighting the overall safety and positive outcomes associated with this program.
- The patient satisfaction survey responses echoed **strong contentment**, reinforcing the value and relevance of the program in improving maternal health and well-being among the vulnerable population.