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Improving Postpartum Follow-Up with Telehealth:

Did the Pandemic Nudge Us in a Better Direction?

Kathryn Vollum Woodroof, MD;[1] Melanie Chichester, BSN, RNC-OB, CPLC, RNC-IAP, FAWHONN;[2] Karen Antell, MD, MPH, FAAFP;[3] Diana Wohler, MD[4]

1. Department of OB/GYN, ChristianaCare Health System

2. Department of OB/GYN, ChristianaCare Health System

3. Director of Maternity and Women's Health Education, Family Medicine Residency, Faculty Physician, Obstetrics and Gynecology Residency, Christiana Care Health System

4. Department of Family Medicine, Warren Alpert Medical School at Brown University

Abstract

Objective: To investigate if a telehealth option as the initial postpartum visit would increase postpartum visit attendance. **Methods:** This was a retrospective cohort study of women receiving prenatal care through a federally qualified health center, Westside Family Health in Delaware, comparing attendance at a postpartum visit before telehealth was an option (2018) versus after the onset of the pandemic (2021). Representative random samples were taken from one year of deliveries pre- and post-implementation of the telehealth visit option. The primary outcome of this study was attendance of any postpartum visit before and after the option of a telehealth visit. **Results:** A total of 700 subjects were enrolled, with 349 subjects pre-telehealth and 351 subjects post-telehealth implementation. Our population was >50% Hispanic/Latina and >40% Spanish-speaking. The post-implementation group had a significantly higher attendance of the postpartum visit (83.95% vs. 90.60%, p-value 0.0092, OR 1.887, 95% CI 1.171-3.043). **Conclusion:** There was a significant increase in the rate of postpartum visit attendance with the addition of a telehealth visit option. Postpartum depression screening was negatively impacted by the introduction of the telehealth visit. **Public Health Implications:** The recommendation for all women post-delivery is to see their obstetric provider within the first 3 weeks postpartum. This includes assessing for complications, postpartum wellness and interconception care planning before 12 weeks post-delivery. We found that there was a significant increase in the rate of postpartum visit attendance with the addition of a telehealth visit option. Telemedicine has increased dramatically with the COVID-19 pandemic, and patients are satisfied with telehealth as an option for care. Telemedicine offers the convenience of portable health care. However, those in underserved populations may or may not be able to access care through telemedicine, as telehealth requires reliable internet service, a smartphone or computer, and digital literacy. Lack of access to any of these may create health care disparities, especially in disadvantaged or vulnerable populations.

Introduction

According to the American College of Obstetricians and Gynecologists (ACOG), “The weeks following birth are a critical period for a woman and her infant, setting the stage for long-term health and well-being… It is recommended that all women have contact with their obstetrician-gynecologists or other obstetric care providers within the first 3 weeks postpartum.”[1] Often called the “fourth trimester,” after giving birth, the recommendation for all mothers is a visit with

their provider not only for postpartum wellness and assessing for postpartum complications, but also for life course planning and interconception care before 12 weeks post-delivery.[1] It is also an opportunity for long-term discussions about interconception planning, contraception, dietary habits, exercise, and risk assessment,[2] yet at most only 50-60% of women attend this well-woman office visit.[3]

Some interventions have been shown to improve the attendance rate of postpartum visits, in particular, programs which foster a sense of connection. One program that created an ongoing education program throughout the prenatal course for low-income, immigrant Latina mothers in 2010 found that the rate of postpartum visits showed a significantly higher number of patients returning for a postpartum clinic visit.[4] Family medicine has long been an opportunity to improve postpartum care to the underserved,[5] especially in those practices that combine a newborn well-child check with the postpartum visit. Additionally, there are some federal funding assistance programs for qualified health care centers that subsidize healthcare costs on a sliding scale system for patients from underserved populations.[6] Another study from 2013 found that women were amenable to postpartum depression screening when bringing their newborns for well-baby office visits, indicating there are many opportunities for increasing women's access to care in the fourth trimester,[7] as mother and infant care can become fragmented when they are separately addressed by different providers.[1] However, these interventions are not widespread.

The COVID-19 pandemic dramatically changed the delivery of healthcare. Telemedicine, while making slow inroads into standard clinical practice over the past 20 years, has become a standard option since the COVID-19 pandemic,[8] and patients are satisfied with telehealth as an option for routine care visits.[9] The COVID-19 pandemic required many postpartum visits to become virtual initially. A recent study looked at postpartum visit attendance at the onset of the pandemic and noted a 90% increase in postpartum visit attendance when the visit was required to be virtual.[10] According to a study by Hirshberg, Downes, & Srinivas, nearly twice as many women attended their primary care visits when the provider allowed for remote contact as opposed to in-person office visits.[11]At our institution post-COVID-19, we now include telehealth as an option for the postpartum visit, as opposed to a requirement. We aimed to investigate if offering a telehealth visit as the initial postpartum visit would increase the attendance of at least one postpartum visit, and thus care in the fourth trimester.

Methods and Materials

We performed a retrospective cohort study of women receiving prenatal care through Westside Family Health (a federally qualified health center with multiple clinics throughout New Castle and Kent Counties in Delaware) to determine how many women attended a postpartum visit before telehealth was a routine option, versus after the onset of the COVID-19 pandemic when low-risk patients were routinely offered the option of either a traditional or telehealth visit for their postnatal care. This study was approved by the ChristianaCare Institutional Review Board and the Westside Family Health Review Board with waiver of informed consent.

Westside Family Health is a federally qualified health center in which family medicine providers manage pregnancy and postpartum care for women with low-risk pregnancies. Standard practice for this office is to schedule 2- and 6-week postpartum visits. Prior to the COVID-19 pandemic, all visits were performed in-person. In the initial days of the pandemic, all visits were converted to telehealth; however, as we progressed through the pandemic, telehealth postpartum visits became an option instead of a requirement. Representative random samples were taken from one

year of deliveries pre-implementation of the option for telehealth postpartum visit (2018) and from one year of deliveries post-implementation of the option for telehealth postpartum visit (2021). We defined attendance of a postpartum visit as any visit discussing postpartum care within 8 weeks of delivery date. Subjects who did not complete their prenatal care with the office were excluded from the study. Based on prior studies, we estimated a 60% rate of attendance of the postpartum visit prior to implementation of the telehealth postpartum visit option. A hypothesized 10% increase in attendance was selected as a likely clinically significant difference. In order to determine this difference with an alpha of 0.05 and power of 80%, 356 subjects would be required per group.

The primary outcome of this study was rate of attendance of a postpartum visit before and after the option of a telehealth visit. The secondary outcomes included postpartum depression screening (defined as completion of a Patient Health Questionnaire-2 (PHQ-2) or Patient Health Questionnaire-9 (PHQ-9)).

Data collected included demographics (including race, ethnicity, and language), labor and delivery information (including parity, gestational age at delivery, mode of delivery, complications including gestational diabetes, hypertensive disorders of pregnancy, intra- or post-partum infection, preterm prelabor rupture of membranes, preterm labor, postpartum hemorrhage, cholestasis, twin gestation, intrauterine fetal demise, $3^{rd}/4^{th}$ degree or cervical laceration, shoulder dystocia, bladder injury, retained placenta). Ages were compared using *t* tests, whereas the remainder of the categorical demographic factors were compared using chi-square tests. The primary and secondary outcomes were analyzed using both chi-square tests and multivariable logistic regression.

Results

A random, representative sample from each cohort was selected, with 349 subjects in the pre-implementation group and 351 subjects in the post-implementation group for a total of 700 subjects. Our population was largely Hispanic or Latina (60.7% in 2018 cohort and 56.1% in 2021 cohort) and over 40% Spanish speaking (48.7% in 2018 cohort and 41.9% in 2021 cohort).

The two groups had significantly different demographic data, which can be seen in Table 1. Average age between the groups was statistically, but not clinically, significantly different, at 29.0 and 30.4 in the pre- and post-implementation groups. There were additionally statistically significant differences between the ethnicities, races, and preferred languages, but again, these differences were likely not clinically significant. There was not a significant difference between the gestational age at delivery or the mode of delivery between the cohorts. The post-implementation group had significantly more complications than the pre-implementation group; however, documentation changes were made regarding this aspect of care between the years studied, increasing the available information about pregnancy and delivery complications in the 2021 cohort.

Table 1. Characteristics and Comparison of Pre- and Post-Telehealth Visit (THV) Implementation Cohorts

	Pre-THV (n=349)	**Post THV (N=351)**	**p value**
Patient Demographics			
Age	29.0 (15-44)	30.4 (19-45)	0.0011

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Race White Black or African American Other	205 (58.7%) 101 (28.9%) 43 (12.3%)	175 (49.86%) 98 (27.9%) 78 (22.2%)	0.0019
Ethnicity Hispanic or Latina Not Hispanic or Latina Not reported	212 (60.7%) 137 (39.3%) 0 (0%)	197 (56.1%) 145 (41.3%) 9 (2.56%)	0.0043
Language Spanish English Other	170 (48.7%) 171 (49.0%) 8 (2.3%)	147 (41.9%) 176 (50.1%) 28 (8.0%)	0.0016
Delivery Demographics			
Parity Primiparous Multiparous	65 (18.6%) 284 (81.4%)	106 (30.2%) 244 (69.7%)	0.0003
Gestational Age Preterm Term	37 (10.6%) 312 (89.4%)	41 (11.7%) 309 (88.3%)	0.6404
Mode of Delivery Vaginal[1] Cesarean	256 (73.4%) 93 (26.6%)	236 (67.2%) 115 (32.8%)	0.0767
Complications[2] Yes No	113 (32.4%) 236 (67.6%)	141 (40.2%) 210 (59.8%)	0.0320

[1]Vaginal delivery includes spontaneous, forceps-assisted, and vacuum-assisted vaginal deliveries, as well as vaginal delivery after cesarean. [2]Complications include gestational diabetes, hypertensive disorders of pregnancy, intra- or post-partum infection, preterm prelabor rupture of membranes, preterm labor, postpartum hemorrhage, cholestasis, twin gestation, intrauterine fetal demise, 3rd/4th degree or cervical laceration, shoulder dystocia, bladder injury, retained placenta.

In regard to the primary outcome, Table 2 shows that the post-implementation group had a significant increase in the attendance of the postpartum visit (83.95% vs. 90.60%, p-value 0.0092). The odds ratio between the two cohorts was 1.887 (95% CI 1.171-3.043). Of the post-implementation group, 106 of the 318 subjects that attended a postpartum visit were telehealth visits (33.3%).

Table 2. Rate of Postpartum Visit Attendance Pre- and Post-Telehealth Visit Implementation

	Pre-THV (n=349)	**Post THV (N=351)**	**p value**
Attendance			
Attended	293 (83.95%)	318 (90.6%)	0.0092
Did Not Attend	56 (16.05%)	33 (9.4%)	
Type of Visit			

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In Person	293 (100%)	212 (66.67%)	N/A
Telehealth	0 (0%)	106 (33.33%)	

The secondary outcome analyzed was the rate of postpartum depression screening (Table 3). In 2018, 95.92% of subjects received a formalized screening for postpartum depression. In comparison, only 64.62% of subjects in 2021 received this screening, which was significantly different (p-value <0.0001). The odds ratio of postpartum depression screening between 2018 and 2021 was 0.065 (95% CI 0.034-0.123).

Table 3. Rate of Postpartum Depression Screening Pre- and Post-Telehealth Visit

	Pre-THV (n=294)	**Post THV (N=317)**	**p value**
Screening Performed	282 (95.92%)	208 (65.62%)	<0.0001
Screening Not Performed	12 (4.08%)	109 (34.38%)	

Discussion

Attendance of the postpartum visit is an essential part of maternal healthcare. Despite this, it has often been shown that attendance of these visits is less than ideal, with as many as 40% of women not attending the recommended postpartum visit.[11] Fortunately, in the centers observed in this study, we found that there was a high rate of attendance of at least one postpartum visit within eight weeks postpartum at baseline, with the rate of attendance when only in person visits were available in 2018 of 83.95%. This is likely related to the long-standing goal of family-centered healthcare. Even with this extraordinarily high attendance rate at baseline, after the implementation of the option for a telehealth postpartum visit, we found that there was a significant increase in the rate of postpartum visit attendance. Especially given the extremely high rate of maternal mortality in the United States, this lends credence to adding the convenience of telehealth visits as a welcome addition to optimizing maternal healthcare.

Unlike seen in previous studies regarding telehealth postpartum visits, postpartum depression screening was negatively impacted by the introduction of the telehealth visit (Table 4). The post-implementation cohort saw an odds ratio of 0.065 for rate of screening for postpartum depression, with only 65.62% of women being screened as opposed to 95.92% pre-implementation. When looking specifically at the rate of screening for those who had a telehealth postpartum visit, only 10.38% of women received screening for postpartum depression. As the overall rate of postpartum depression of over 10% and absolute risk reduction with screening shown to be approximately 9%, this screening is an important part of the postpartum visit. With maternal suicide as a leading cause of maternal death in the postpartum period, outnumbering hemorrhage and hypertensive disorders, the clinical implication of failure to screen for postpartum depression is significant.[12] In this particular set of offices, the responsibility to screen falls on different providers depending on the type of visit. For instance, for in person visits, a medical assistant ensures completion of the questionnaire, whereas for telehealth visits, the provider is responsible for administering the survey. A future direction for quality improvement in this area could include implementation of a pre-visit virtual intake that includes a postpartum depression screening tool to standardize the process and increase the likelihood that patients are being screened.

Table 4. Rate of Postpartum Depression Screening by Type of Visit

	In Person (n=504)	Telehealth (n=106)	p value
Screening Performed	478 (94.84%)	11 (10.38%)	<0.0001
Screening Not Performed	26 (5.16%)	95 (89.62%)	

Telemedicine offers the convenience of portable health care,[13] which may be of particular help to new parent, or when transportation is a challenge. However, those in underserved populations may or may not be able to access care through telemedicine. Telehealth requires reliable internet service, a smartphone or computer, and digital literacy. Lack of access to any of these may create health care disparities, especially in disadvantaged or vulnerable populations.[14] Demographics associated with lack of technological access may include Black or African American race, rural locations, public or no insurance, limited English proficiency, or immigrant status.[14–16] While use of smartphones is fairly widespread, to assume all persons have the ability to conduct a telemedicine visit is at the very least insensitive and at the worst, biased.

Many limitations of this study stem from the retrospective nature of the study. The number of subjects needed to power this study was 356 per arm; this number was close but unfortunately did not meet the desired number of subjects, which does serve as a significant limitation. The change in the documentation between cohorts limited the data that were able to be extracted, making desired study secondary outcomes unavailable for review. As the rate of postpartum visit attendance is already high in this setting likely related to joint mother-baby visits, the inability to determine which women had these joint-visits to determine this as a possible confounder is a limitation. In this study, we only examined telehealth visits in 2021, when this form of visit had been available for approximately onw year. Next steps after this study include comparison of the number of telehealth visits in 2020 and 2022 to see if the rate of postpartum attendance visits correlates with the rate of telehealth postpartum visits. Lastly, we were unable to determine if those that did not attend a visit had missed a scheduled visit or had never scheduled a postpartum visit. A next step could include determining those that had missed a scheduled visit and comparing the rate of missed in-person visits to missed telehealth visits. Another point which merits further investigations would be the difference in new pregnancy visits within two years of the studied delivery: this could be a future direction to examine.

In conclusion, the addition of the option for a telehealth postpartum visit can increase the attendance at the post-delivery visit, but this may come at the expense of postpartum depression screening.

Ms. Chichester may be contacted at MLCobnurse@gmail.com.

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