

Prescribing Patterns for Postpartum Contraception Among Breastfeeding Patients Insured Under Medicaid in Rhode Island: A PRAMS Analysis

ANNA R. WHELAN, MD; SIRAJ AMANULLAH, MD, MPH; ANNIE GJELSVIK, PhD

ABSTRACT

INTRODUCTION: Disparities in contraceptive counseling are well documented in the United States. People of color, those of lower socio-economic status, and Medicaid insurance are more likely to receive contraception/sterilization counseling than White patients. Postpartum contraceptive choice is an important aspect for pregnant people, especially for those who plan to breastfeed. This study assessed postpartum contraception/sterilization prescription among breastfeeding people in Rhode Island insured under Medicaid compared to other insurance carriers.

METHODS: Secondary analysis of data from the Rhode Island Pregnancy Risk Assessment Monitoring System (PRAMS) from 2016–2019. Participants who answered yes to ‘having ever breastfed’ were included and dichotomized based on insurance into ‘Medicaid’ or ‘other insurance’. Primary outcome was postpartum contraception/sterilization prescription. Stata software version 15 was used to perform multivariable logistic regression accounting for complex survey design and weighting.

RESULTS: Of 3686 participants, 868 (24.4%) were insured under Medicaid. Medicaid participants were younger, had higher BMIs and were more likely to identify as Black or mixed race or Hispanic ethnicity than those with other insurers. Those insured under Medicaid were 1.5 times more likely to be prescribed postpartum contraception than those with other insurers (95% CI 1.26,1.78). After adjusting for race/ethnicity, education level, marital status and preterm delivery, those with Medicaid were 1.28 times more likely to be prescribed contraception (95% CI 1.05,1.57).

CONCLUSION: In this study, breastfeeding participants with Medicaid were more likely to be prescribed postpartum contraception than those with other insurances. Future research should be focused on assessing provider bias, contraception coercion, and initiatives to provide equitable and patient-centered counseling in this population.

INTRODUCTION

Access to contraception is one of the most important aspects of healthcare in reproductive-age people. Contraception is also an important tool in public health.¹ Unfortunately, disparities exist in the United States in regards to the prescription of contraception with examples dating back over a century.² People of color, particularly Black and Latinx individuals, are more likely to be prescribed permanent or long-active reversible contraception (LARC) when compared to White patients.³⁻⁷

These disparities have been amplified by a system focused on metrics and population level outcomes rather than on individual preference. In order to combat the high level of unintended pregnancy, the WHO and CDC developed a “tiered-effectiveness” counseling approach for contraception.⁴ This method consists of health-care providers’ counseling centered on each method’s effectiveness of preventing pregnancy rather than the individual patient’s desires and reproductive plans (i.e., sterilization and LARC are tier 1, the pill and shot are tier 2 etc.). Over the last 2-3 years, the tiered-effectiveness model has been criticized as coercive and experts in reproductive justice have recommended moving away from this widely taught method.⁴

Obstetric-care providers are also trained in using the tiered-effectiveness for patients in the postpartum period.⁸ Postpartum people are a special population, with additional factors that set them apart from other reproductive-age individuals, such as maternal physiology (and increased thrombosis risk), breastfeeding and goals for future child-bearing. By focusing solely on preventing pregnancy, these other factors are often ignored. Despite good intentions, many obstetric-care providers that are trained in the US medical-industrial system inherently pick up on the biases perpetuated by such a system.

To date, there is a paucity of data on the association between race/racism and socio-economic status and the prescription of contraception among breastfeeding postpartum people. Postpartum people who are of lower socioeconomic background and people of color tend to have lower rates of exclusive breastfeeding in general, due to a plethora of factors, including the lack of paid leave, time and space to express breastmilk.^{9,10} Another possible major barrier to success is the choice of contraception. Estrogen-containing methods have been shown to decrease milk supply^{11,12};

however, almost a quarter of patients also report concerns regarding their milk supply after starting a non-estrogen containing contraception method.¹³ For some patients, the effectiveness of a contraceptive may not be the most important factor.⁴ Evidence continues to emerge on the need for more open-ended discussion between patients and providers about the use of contraception during lactation, particularly in the first 6 months postpartum.⁴

For this study, we assessed the association between the prescription of postpartum contraception or sterilization in breastfeeding patients and the socio-economic status, a known risk for disparities in contraception prescription. Specifically, this study looked at these differences based on the Medicaid insurance status of the patient, as Medicaid insurance status is frequently used as a marker for lower socioeconomic status in public health research and all individuals are eligible for Medicaid during pregnancy.

METHODS

Secondary analysis of data from the Rhode Island Pregnancy Risk Assessment Monitoring System (RIPRAMS) from 2016 through 2019¹⁴ was performed. RIPRAMS is a population-based survey of people who have delivered a liveborn infant and is conducted at 2 to 6 months postpartum to assess experiences and behaviors before, during and after pregnancy. Stratified samples of 160 residents of Rhode Island are selected each month, with oversampling of people who delivered low-birth weight infants (less than 2500 grams) in order to better assess risk factors for low-birth weight deliveries.¹⁴ The surveys are conducted both by phone and by mail and are performed in English, Spanish and Mandarin.

In order to capture participants who planned to breastfeed, the eligible population for this study was participants who responded to the RIPRAMS survey and responded “Yes” when asked “did you ever breastfeed or pump breast milk to feed your new baby, even for a short period of time?” Those participants who either responded “No”, did not respond, or had missing or invalid data were excluded.

Medicaid is a publicly funded health insurance program in the United States that is reserved for individuals with limited income and resources, including people with disabilities.¹⁵ All pregnant people are eligible to be covered under Medicaid.¹⁵ For the study purposes, self-reported information related to Medicaid insurance status was utilized, with ‘yes’ response to the question “Is your insurance paid by Medicaid?” If they responded no to this question or responded yes to insurance being paid by private insurer, self-pay, military (Champus/Tricare), or other provider, they were included in the non-Medicaid cohort.

The primary outcome assessed was the prescription of postpartum contraception. This was a self-reported variable in which patients were asked “are you or your husband or partner doing anything now to keep from getting

pregnant?” If a participant responded yes, they were then asked “what kind of birth control are you or your husband or partner using now to keep from getting pregnant?” For this study we converted the responses to this question into a binary variable. If the participant responded with “tubes tied or blocked,” “birth control pills,” “shots or injection,” “contraceptive patch or vaginal ring,” “intrauterine device,” or “contraceptive implant in the arm” this was coded as “prescribed birth control.” If the participant reported not using contraception or using “condoms,” “natural family planning,” “abstinence,” or “withdrawal,” this was coded as “not prescribed birth control.”

Demographic variables assessed were maternal age, BMI, self-reported race as categorized by RIPRAMS (White, Black, American Indian, Chinese, Filipino, Other Asian, Other, and Mixed race and not reported) and ethnicity. Marital status was included as support of the father of the baby has been linked to success of breastfeeding goals, particularly among younger and low-income parents.¹⁶ We additionally included education level (<12th grade vs. 12th grade or higher) as a covariate.

Statistical Analyses

Data from RIPRAMS was analyzed using Stata version 15 (College Station, TX).¹⁷ Weighting for RIPRAMS accounts for oversampling of low-birth weight infants.¹⁴ Demographic, maternal, obstetric, delivery and outcome variables were analyzed according to Medicaid insurance status using Fisher’s exact test for categorical variables and Kruskal-Wallis one-way ANOVA for continuous variables. Odds ratios were calculated using logistic regression, utilizing complex survey design, for the overall prescription of contraception by Medicaid status and adjusted for education level, race, ethnicity, marital status and delivery at term. Due to use of publicly available de-identified data, IRB approval was not required for this study.

RESULTS

During the study time period of 2016-2019, 3686 participants planned to breastfeed; 898 (24.4%) with Medicaid insurance and 2788 (75.6%) with other insurances (**Table 1**). On average, those with Medicaid insurance were younger, of Black and mixed race, of Hispanic ethnicity, and had a higher BMI (**Table 1**). The group with Medicaid were significantly less likely to be married (30.5%) compared to those with other insurance (69.0%)($p<0.001$) and less likely to complete high school (77.4% vs 87.0%, $p<0.001$).

Comparison of obstetric and delivery factors showed that those with Medicaid insurance were more likely to undergo a vaginal birth (72.5%) or repeat cesarean birth (13.4%) as compared to those with other insurance (vaginal birth 63.8%, repeat cesarean 12.2%)($p<0.001$ and $p<0.05$ respectively). Mean gestational age at delivery and birth weight

were also lower among participants with Medicaid (Table 1).

Those with Medicaid were 1.50 times more likely to be prescribed postpartum contraception (95% CI 1.26,1.78) as compared to those with other insurance providers (Table 2). After adjusting for education level, race, ethnicity, marital status and preterm delivery, those with Medicaid were still 1.28 times more likely to receive a prescription for birth control or sterilization as compared to those with

other insurance (95% CI 1.06,1.95). Participants who did not report their race (OR 1.66, 95% CI 1.39,1.59), Hispanic (OR 1.85, 95% CI 1.58, 2.18), unmarried (OR 1.48, 95% CI 1.27, 1.72), and who had a 12th grade education or less (OR 1.41, 95% CI 1.09, 1.83) were more likely to be prescribed contraception compared to their counterparts. Additionally, those participants who had a preterm delivery were more likely to be prescribed contraception than those who had a term delivery (OR 1.45, 95%CI 1.18, 1.78). Ethnicity, marital status and preterm delivery remained significant in the adjusted model as well. (Table 2).

Type of contraception differed between participants with Medicaid and participants with other insurances. Participants with Medicaid were more likely to be prescribed sterilization, shots, patch/ring, or contraceptive implants and less likely to be prescribed pills compared to those with other insurances (Table 3).

Table 1. Demographics and baseline health characteristics of Rhode Island mothers who planned to breastfeed by whether or not they are insured under Medicaid or other insurance

Demographic and Baseline Data	Medicaid (n=898)	Other insurance (n=2788)	p-value
Maternal Age mean (SE)	27.5 (0.2)	30.6 (0.2)	<0.001
Maternal BMI mean(SE)	33.5 (0.3)	31.8 (0.1)	<0.001
Maternal Race			<0.001
White	46.7	66.7	<0.001
Black	11.0	6.0	<0.001
Asian Am. & Pacific	3.1	5.8	0.03
Islander	0.6	0.6	0.31
Indigenous American	4.7	2.9	<0.001
Mixed Race	33.9	18.0	<0.001
Not reported			
Maternal ethnicity			<0.001
Hispanic	43.8	23.9	
Non-Hispanic	54.9	75.6	
Not reported	1.3	0.5	
Marital status			<0.001
Married	27.0	69.0	
Not Married	72.0	30.8	
Not reported	1.0	0.2	
Mode of delivery			<0.001
Vaginal birth	72.5	63.8	<0.001
Vacuum assisted	2.4	3.2	0.32
Forceps assisted	0.3	0.9	0.01
Primary cesarean	11.4	19.9	<0.001
Repeat cesarean	13.4	12.2	0.05
Delivery at term:			0.03
Term (>37 weeks)	92.5	92.2	
Preterm (<37 weeks)	7.5	7.8	
Gestational age at delivery mean (SE)	38.6 (0.05)	38.8 (0.03)	<0.001
Birthweight mean(SE)	3294 (17.4)	3343.1 (9.3)	0.001
Maternal education level			<0.001
<12th grade	14.8	6.8	
12th grade or higher	77.4	87.0	
Missing	7.7	6.2	
Household income			<0.001
<20,000	50.4	16.1	
>20,000	42.2	77.9	
Missing	7.4	6.0	

Data are reported weighted percent unless otherwise noted. Weighted values account for complex survey design and are indicated in italics. Fisher's exact and Kruskal Wallis performed for analysis. Bold indicates significance at p<0.05.

Table 2. Unadjusted and adjusted odds of receiving a prescription for birth control among participants who planned to breastfeed

	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Insurance status		
Medicaid	1.50 (1.26,1.78)	1.28 (1.05,1.57)
Other insurance (reference)	1.00	1.00
Maternal education level		
<12th grade	1.41 (1.09,1.83)	0.92 (0.69,1.23)
12th grade and above (reference)	1.00	—
Annual Household income		
<20,000	1.53 (1.29, 1.83)	
>20,000 (reference)	1.00	
Maternal Race		
Black	1.24 (0.94,1.64)	1.26 (0.92,1.71)
Asian Am. & Pacific Islander	0.53 (0.38,0.75)	0.67 (0.47,0.97)
Indigenous American	1.15 (0.39,3.38)	1.12 (0.35,3.54)
Mixed Race	1.00 (0.64,1.50)	.99 (0.64,1.53)
Not reported	1.66 (1.39,1.59)	1.21 (0.92,1.59)
White (reference)	1.00	—
Maternal ethnicity		
Hispanic	1.85 (1.58,2.18)	1.45 (1.15,1.85)
Non-Hispanic (reference)	1.00	—
Marital status		
Not Married	1.48 (1.27,1.72)	1.19 (1.00,1.43)
Married (reference)	1.00	—
Gestational age at delivery		
<37 weeks	1.45 (1.18,1.78)	1.38 (1.11,1.72)
≥37 weeks (reference)	1.00	—
Mode of delivery		
Vaginal birth (reference)	1.00	
Vacuum assisted	0.99 (0.65,1.53)	
Forceps assisted	0.54 (0.21,1.39)	
Primary cesarean	0.91(0.76,1.10)	
Repeat cesarean	1.74 (1.40,2.17)	

Adjusted model accounts for Medicaid status, race, ethnicity, maternal education, marital status and preterm delivery. Bold indicates significance at p<0.05.

Table 3. Postpartum Contraception and Breastfeeding Outcomes

	Medicaid (n=898)	Other insurance (n=2788)	p-value
Prescribed Contraception			<0.001
Yes	50.8	40.9	
No	49.2	59.1	
Pills	16.1	21.8	0.001
Sterilization	15.0	11.5	0.01
Shot	10.4	3.6	<0.001
Patch/Ring	3.8	1.7	<0.001
IUD	21.2	19.7	0.30
Implant	15.6	6.9	<0.001
Breastfeeding Outcomes			
Breastfeeding time (weeks)			0.01
Mean (SE)	8.0 (0.3)	8.7 (0.2)	
Breastfeeding at time of survey?			<0.001
Yes	39.4	60.2	
No	60.6	39.8	

Data are reported weighted percent unless otherwise noted. Weighted values account for complex survey design and are indicated in italics. Fisher's exact and Kruskal Wallis performed for analysis. Bold indicates significance at $p < 0.05$.

DISCUSSION

Among breastfeeding participants in the 2016–2019 RIPRAMS survey, Medicaid insurance status was significantly associated with the prescription of postpartum contraception, even when accounting for race, ethnicity and marital status and preterm delivery. Additionally, those who identified as Hispanic ethnicity and were unmarried were significantly more likely to be prescribed contraception.

The results of this current study are concordant with prior research on disparity of the prescription of contraception. In 2010, Dehlendorf et al conducted a survey of obstetric and gynecologic care providers using standardized patient videos portraying individuals of different racial and ethnic backgrounds.¹⁸ This survey revealed that the standardized patients who were Black or Latina or were from lower socioeconomic status were more likely to be recommended IUDs for contraception as compared to white patients.¹⁸ Similarly, Dude et al in 2018 reported in their observational study of postpartum contraception counseling that patients who were non-Hispanic Black received contraceptive counseling more frequently and had higher rates of postpartum LARC utilization.^{8,19} A further study by Ngendahimana et al in 2021 evaluating the rates of prescription of patient-desired contraceptive method by race and ethnicity discovered that Black and Hispanic women were less likely to receive their chosen method and more likely to receive LARC.²⁰

These findings highlight that the discrepancies in contraception prescribing are likely due to provider bias than patient preference. Since the early 2000s, tiered-effectiveness counseling has been the standard of care when

discussing postpartum contraception with patients.⁴ This model, which promotes the use of IUD/implants to prevent pregnancies, has recently come under criticism as it focuses more on national statistics (preterm birth and unintended pregnancy) than on a patient's priorities. In order to continue to strive for true reproductive justice, which centers that all individuals should decide when, how and where they want to grow their families, contraceptive counseling needs to center the individuals' desires.

The current study which focused on breastfeeding postpartum people adds an important variable to understanding trends around postpartum contraception prescription. While the majority of patients do intend to use contraception in the postpartum period (in one study >91%), less than 25% of patients consider the timing and effects of contraception on breastfeeding.¹⁹ As the field of obstetrics and gynecology moves toward creating more patient-focused contraceptive counseling, it is important that we share and discuss the timing and effects of contraception on lactation with our patients who plan to breastfeed.

PRAMS respondents included in our study who were insured under Medicaid were less likely to breastfeed and breastfed for less time, despite reporting that they planned to breastfeed while they were pregnant. The same group was also more likely to be prescribed any contraception and had higher rates of contraceptive implant use and sterilization. Contraceptive implants are a form of LARC, which require a provider to place and/or remove, barring the ability of individuals to self-discontinue the method. In a country with a long history of forced sterilizations and contraceptive coercion (including coercion to use LARC devices such as implants), this study demonstrates that continued presence of these inequities. While this study was not designed to find causal relationships, these findings highlight the urgent need to understand the differences delineated here and to design interventions aimed at improving access to lactation resources and patient-centered postpartum contraception.

Limitations

As with any survey there are limitations to how the data can be evaluated and generalized. In Rhode Island, the PRAMS survey is conducted both as a mailed survey and over the phone. It is conducted in English, Spanish and Mandarin. Participants who do not speak or read these languages would be excluded from participating. Participant report of current contraception use also is limited in that it does not account for prior prescription with discontinuation of use. We were unable to correlate reported prescription with medical or pharmacy records and we may have misclassified some participants. Because we did not have information on counseling we are also unable to assess patient and provider factors. We are also unable to make any assumptions regarding counseling between providers and participants as this was not discussed in detail as part of the PRAMS survey.

In regards to breastfeeding, there are many factors which lead to early cessation, many of which could not be assessed

with this survey. Lack of access to paid parental leave, child-care and time/space for breastmilk expression have been shown to limit length of breastfeeding.^{10, 21, 22} These are also issues that patients of lower socioeconomic status face at higher rates. Lastly, this study also only assessed data from one state, Rhode Island, and therefore cannot be generalized to other states where healthcare practices may differ.

Future work should focus on how providers counsel their patients and the link between patients' understanding of breastfeeding and their choice of contraception should be performed. More detailed qualitative work in this area will be instrumental for advancing equity for postpartum individuals.

CONCLUSION

In this state-based study, breastfeeding patients insured under Medicaid were prescribed postpartum contraception at higher rates than those with other insurance providers, even when accounting for race, ethnicity, marital status and preterm delivery. In order for our country to move toward true reproductive justice, the inequalities in contraceptive trends in postpartum individuals must be further evaluated.

References

- Committee opinion no. 615: Access to contraception. *Obstet Gynecol.* Jan 2015;125(1):250-255. doi:10.1097/01.AOG.0000459866.14114.33
- Kathawa CA, Arora KS. Implicit Bias in Counseling for Permanent Contraception: Historical Context and Recommendations for Counseling. *Health Equity.* 2020;4(1):326-329. doi:10.1089/heq.2020.0025
- Moniz MH, Spector-Bagdady K, Heisler M, Harris LH. Inpatient Postpartum Long-Acting Reversible Contraception: Care That Promotes Reproductive Justice. *Obstet Gynecol.* Oct 2017;130(4):783-787. doi:10.1097/AOG.0000000000002262
- Brandi K, Fuentes L. The history of tiered-effectiveness contraceptive counseling and the importance of patient-centered family planning care. *Am J Obstet Gynecol.* Apr 2020; 222(4S):S873-S877. doi:10.1016/j.ajog.2019.11.1271
- Harris LH, Wolfe T. Stratified reproduction, family planning care and the double edge of history. *Curr Opin Obstet Gynecol.* Dec 2014;26(6):539-44. doi:10.1097/GCO.0000000000000121
- Goulding AN, Bauer AE, Muddana A, Bryant AG, Stuebe AM. Provider Counseling and Women's Family Planning Decisions in the Postpartum Period. *J Womens Health (Larchmt).* Jun 2020;29(6):847-853. doi:10.1089/jwh.2019.7872
- Thiel de Bocanegra H, Braughton M, Bradsberry M, Howell M, Logan J, Schwarz EB. Racial and ethnic disparities in postpartum care and contraception in California's Medicaid program. *Am J Obstet Gynecol.* Jul 2017;217(1):47 e1-47 e7. doi:10.1016/j.ajog.2017.02.040
- Dude A, Matulich M, Estevez S, Liu LY, Yee LM. Disparities in Postpartum Contraceptive Counseling and Provision Among Mothers of Preterm Infants. *J Womens Health (Larchmt).* May 2018;27(5):676-683. doi:10.1089/jwh.2017.6561
- Mercier RJ, Burcher TA, Horowitz R, Wolf A. Differences in Breastfeeding Among Medicaid and Commercially Insured Patients: A Retrospective Cohort Study. *Breastfeed Med.* May 2018;13(4):286-291. doi:10.1089/bfm.2017.0228
- Shumbusho DI, Kucera CW, Keyser EA. Maternity Leave Length Impact on Breastfeeding and Postpartum Depression. *Mil Med.* Dec 30 2020;185(11-12):1937-1940. doi:10.1093/milmed/usaa137
- Bryant AG, Bauer AE, Muddana A, et al. The Lactational Effects of Contraceptive Hormones: an Evaluation (LECHE) Study. *Contraception.* Jul 2019;100(1):48-53. doi:10.1016/j.contraception.2019.03.040
- Goulding AN, Wouk K, Stuebe AM. Contraception and Breastfeeding at 4 Months Postpartum Among Women Intending to Breastfeed. *Breastfeed Med.* Jan/Feb 2018;13(1):75-80. doi:10.1089/bfm.2017.0064
- Stanton TA, Blumenthal PD. Postpartum hormonal contraception in breastfeeding women. *Curr Opin Obstet Gynecol.* Dec 2019;31(6):441-446. doi:10.1097/GCO.0000000000000571
- Shulman HB, D'Angelo DV, Harrison L, Smith RA, Warner L. The Pregnancy Risk Assessment Monitoring System (PRAMS): Overview of Design and Methodology. *Am J Public Health.* Oct 2018;108(10):1305-1313. doi:10.2105/AJPH.2018.304563
- Services CfMM. Medicaid.gov. <https://www.medicaid.gov/medicaid/index.html>
- Alexander A, O'Riordan MA, Furman L. Do breastfeeding intentions of pregnant inner-city teens and adult women differ? *Breastfeed Med.* Dec 2010;5(6):289-96. doi:10.1089/bfm.2009.0083
- Stata Statistical Software: Release 15.* StataCorp LLC; 2017.
- Dehlendorf C, Ruskin R, Grumbach K, et al. Recommendations for intrauterine contraception: a randomized trial of the effects of patients' race/ethnicity and socioeconomic status. *Am J Obstet Gynecol.* Oct 2010;203(4):319 e1-8. doi:10.1016/j.ajog.2010.05.009
- Clare CA, Young M, Nash J, Long S. Contraception Utilization in Black Women via a Reproductive Justice Lens. *Breastfeed Med.* Dec 2021;16(12):935-937. doi:10.1089/bfm.2020.0391
- Ngendahimana D, Amalraj J, Wilkinson B, et al. Association of race and ethnicity with postpartum contraceptive method choice, receipt, and subsequent pregnancy. *BMC Womens Health.* Jan 7 2021;21(1):17. doi:10.1186/s12905-020-01162-8
- Kapinos KA, Bullinger L, Gurley-Calvez T. Lactation Support Services and Breastfeeding Initiation: Evidence from the Affordable Care Act. *Health Serv Res.* Dec 2017;52(6):2175-2196. doi:10.1111/1475-6773.12598
- Santacruz-Salas E, Aranda-Reneo I, Hidalgo-Vega A, Blanco-Rodriguez JM, Segura-Fragoso A. The Economic Influence of Breastfeeding on the Health Cost of Newborns. *J Hum Lact.* May 2019;35(2):340-348. doi:10.1177/0890334418812026

Authors

Anna R. Whelan, MD, Department of Obstetrics and Gynecology, Division of Maternal-Fetal Medicine, University of Massachusetts Chan Medical School, Worcester, MA.

Siraj Amanullah, MD, MPH, Department of Emergency Medicine, Pediatrics and Health Services, Policy and Practice. Hasbro Children's Hospital/Rhode Island Hospital, Alpert Medical School of Brown University and Brown University School of Public Health, Providence, RI.

Annie Gjelsvik, PhD, Brown University School of Public Health, Providence, RI.

Disclosures

The authors report no conflicts of interest.

Manuscript presented as a poster titled "Prescription of Postpartum Contraception among Breastfeeding Patients with and without Medicaid Insurance" at the American College of Obstetrician and Gynecologist's Annual Clinical and Scientific Meeting, May 19, 2023, Baltimore, MD.

Correspondence

Anna R. Whelan MD

119 Belmont St., Jaquith Building level 2, Worcester, MA, 01605
508-334-1000

anna.whelan.md@gmail.com