Examining Postpartum Contraception Choices among Teens

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Abstract

Objectives: To assess how effectively we provide adolescents with adequate prenatal care and postpartum contraception, particularly long-acting reversible contraception (LARC), and to identify factors that prevent intended postpartum LARC initiation. In addition, we sought to understand how effectively we help prevent repeat, unintended pregnancies.
Methods: We conducted a retrospective chart review of 155 MAHEC Ob/Gyn Specialists' patients, ages 15-19, who delivered at Mission Hospital between 3/2013-8/2014. We examined prenatal care utilization, birth outcomes, and postpartum contraception using Chi square and binary logistic regression.
Results: The majority (74.2%) was 18-19yrs old, white (77.4%), and nulliparous (87.1%). Fifty-four (34.6%) had a mood disorder. Many (37.2%) entered prenatal care late; 14.1% had inadequate prenatal care. Only 30 (19.2%) received prenatal care in a teen-specific clinic. There were 162 babies born. Twenty-nine (17.9%) babies were preterm; 26 (16.0%) had low birth weight. Most women (76.3%) attended their postpartum visit. Many teens intended postpartum LARC (74.4%); 69 (59.5%) of these received LARC. Significant predictors of not receiving intended postpartum LARC were late entry to prenatal care and multiparty. Of the 156 deliveries, 10 (6.4%) women experienced a repeat pregnancy in <10 months.
Conclusions: Teens may benefit from immediate postpartum LARC placement prior to hospital discharge or same day placement of LARC at the postpartum visit, especially if they are multiparous and/or initiate prenatal care late.

Keywords: Teen, LARC, Postpartum contraception, Repeat pregnancy

Introduction

Although teen pregnancy rates have been declining nationally over the last two decades,[1-3] Western North Carolina rates remain above the national average.[4] Studies have shown that teen moms and infants of teen moms are more likely to experience short term and long term negative outcomes, including poverty.[5-12]

Teen moms experience high rates of rapid and unintended repeat pregnancies.[13-15] Within 18 months of an index pregnancy, 28-63% of teen moms have a repeat pregnancy.[13,16] In 2006, more than 4 out of 5 pregnancies among women ≤ 19 years of age were unintended.[17] Many teens have unintended pregnancies due to lack of access to healthcare and inaccurate information about contraception.[18] Such rapid repeat pregnancies are related to adverse maternal and fetal outcomes.[19-22]

Of the teens that use contraception, the majority use hormonal methods.[23] However, studies have shown that teens are less likely to be satisfied with hormonal methods and continuation rates are low ($<50.0\%$).[24-25] Long-acting reversible contraception (LARC) such as contraceptive implants and intrauterine devices (IUDs), are highly effective forms of birth control for teens. LARC continuation rates among adolescents are much higher at 81.0%.[24] The American College of Obstetricians and Gynecologists supports offering LARC to all sexually active teens as the top-tier method.[26] Nevertheless, LARC use among teens still remains low (7.1% in 2013).[27]

There are many barriers that prevent LARC initiation and use in teens. The main barriers are cost and misconceptions among patients and providers.[28-33] Other barriers are access obstacles, fears

and concerns of peers, families, and partners, shifting birth control preferences of adolescents,[34] and providers' skill and confidence.[35]

Programs around the country are implementing interventions to try to overcome these barriers. In the Contraceptive CHOICE project, when financial barriers were removed, 62% of adolescents chose to use LARC over other free methods.[36] In North Carolina, when two clinics provided free IUDs to uninsured, low income women, the risk of pregnancy was 11% compared to 32% in women using alternative or no contraception.[37] A school-based health center in Seattle promoted LARC access through educating providers on LARC insertion and removal as well as effective counseling techniques.[35] A different study emphasized the importance of adolescents' perceptions of provider-patient communication. Teen patients whose providers talked in a way they could understand and listened to them had more confidence in their ability to prevent unintended repeat pregnancies.[38] An economic projection estimated that providing an immediate postpartum implant could save $4.5 million at 36 months of continuation.[39] Furthermore, teens who initiate LARC within 8 weeks of delivery are less likely to have repeat pregnancies.[40]

At Mountain Area Health Education Center OB/GYN Specialists (MOGS), there is a special clinic (MOGS Teen Clinic) that focuses on addressing the age-specific needs of pregnant adolescents. MOGS Teen Clinic provides integrated services emphasizing self-confidence, education, parenting skills, support services, and contraception counseling throughout prenatal care. However, since this is an optional clinic many teens choose to participate in traditional OB prenatal care. In order to optimize interventions in all OB clinics at MOGS, we sought to understand how effectively we provide pregnant adolescents with adequate prenatal care, appropriate contraceptive counseling, planning, and delivery, especially regarding LARC, and prevent unintended repeat pregnancies. In addition, we sought to determine what factors prevent intended postpartum LARC use.

Methods

We conducted a retrospective chart review of pregnant teenage patients age 15-19 years old with deliveries between March 2013 and August 2014 (n = 174). We excluded all teen patients seen at MOGS for a consultation only (n = 19). Adolescents who were MOGS patients ages 15-19 and delivered at Mission Health Hospital were eligible for the study. We included 155 teens and 156 pregnancies in our statistical analysis; one patient had two pregnancies within the study period. This retrospective, medical chart review was approved by the Mission Institutional Review Board.

We reviewed maternal outpatient records and inpatient discharge summaries between July 2012 and June 2015 to include 8 months of prenatal care, delivery, and up to 24 months of postpartum records. We extracted five patient characteristics for 155 adolescents from their most recent pregnancy (see Table 1). All other data besides patient characteristics were extracted on 156 pregnancies. Other data included: six prenatal health utilization variables, three pregnancy characteristics, six delivery characteristics and infant outcomes, nine postpartum variables, and two repeat pregnancy variables (Appendix A).

Prenatal healthcare utilization variables focused on care at MOGS, but also included, if available, some information about prenatal care from other clinics prior to care at MOGS. The postpartum variables included data from hospital discharge through 8 weeks postpartum. All teens were recommended to come to a 4-6 week postpartum visit (postpartum visit #1); many teens had to return for a second postpartum visit (postpartum follow-up) to initiate contraception. We collected at least 10 months of postpartum data on all deliveries. Due to delivery dates and timeframe for data collection, we were not able to collect 24 months of postpartum data on all deliveries. If patients did not return to care, we assumed they did not have a repeat pregnancy.

Variables created were late entry into prenatal care defined as $\geq$14 weeks[41] and inadequate prenatal care defined as $<$5 visits for deliveries $<$37 weeks and $<$8 visits for deliveries $\geq$37 weeks.[42] The primary outcome was receiving intended postpartum LARC by 8 weeks postpartum. We defined

intended postpartum LARC use as any plan for LARC in the postpartum period whether stated at hospital discharge or the 4-6 week postpartum visit.

We defined postpartum contraception use as any contraception used during the postpartum period, whether initiated in the hospital prior to discharge, at the 4-6 week postpartum visit, or at the postpartum follow-up visit (within 8 weeks postpartum). We included the postpartum follow-up period because MOGS office policies regarding LARC placement are continuously changing based on insurance reimbursement policies. At the beginning of our study period, MOGS office policy did not allow same day LARC placement so a follow-up visit was required to receive LARC. This policy changed twice during the study period: first to allow for same day intra-uterine device (IUD) and contraceptive implant placement, and subsequently to allow for only same day IUD placement. Contraceptive implant placement required a follow-up visit.

We grouped the different contraceptive methods into five categories based on the three tiered effectiveness chart from Contraceptive Technology:[43] 1) most effective (LARC); 2) moderately effective (hormonal methods lasting for ≤ 3 months); 3) least effective (barrier methods and natural family planning); 4) abstinence; and 5) none.

Statistical Analyses

All variables were summarized and reported as frequency (percent), mean $\pm$ standard deviation, or median (minimum-maximum score). We used Chi square to examine relationships between the primary outcome, two socio-demographics (age and parity), and four healthcare utilization indices (late entry into prenatal care, inadequate prenatal care, prenatal discussion of contraception, and MOGS Teen Clinic patient). Variables with a $p < 0.2$ were entered into a binary logistic regression model to examine predictors of the primary outcome: receiving intended postpartum LARC. All data analyses were conducted using IBM SPSS® (Armonk, NY).

Results

Characteristics of Teen Patients

The 155 adolescents were predominately white, nulliparous and between the ages of 18-19 years old (see Table 1).

Table 1. Characteristics of Teen Patients during Pregnancy

Patients		N = 155 N (%)
Age at Delivery	15-17 years	40 (25.8)
	18-19 years	115 (74.2)
Race	White	120 (77.4)
	Black	23 (14.8)
	Native American, Multiracial, Other	3 (1.9)
	Not Documented	9 (5.8)
Ethnicity	Hispanic	10 (6.5)
	Non-Hispanic	142 (91.6)
	Not Documented	3 (1.9)
Gravity	1	121 (78.1)
	2-3	34 (21.9)
Parity	0	135 (87.1)
	1-2	20 (12.9)
Use of Birth Control at Conception		
	Yes	19 (12.3)
	No	136 (87.7)

Note. Data reported from most recent pregnancy.

Prenatal Healthcare Utilization

Most adolescents tended to start prenatal care in the first trimester whether at MOGS or at another clinic [94 (60.3%)]. On average, teens attended 12 ± 4 prenatal visits, including visits at MOGS and other clinics. One (0.6%) patient had no prenatal care; 58 (37.2%) women entered prenatal care late, and 22 (14.1%) women received inadequate prenatal care. Nearly all the women [142(91%)] had a documented prenatal discussion about postpartum contraception (see Table 2). Thirteen of the 126 (10.3%) teens who received prenatal care in the regular OB clinic did not have a postpartum contraception discussion. Eighty-nine (70.6%) teens who received care in the regular OB clinic intended postpartum LARC.

MOGS Teen Clinic Participation

Thirty women (19.2%) received prenatal care in the MOGS Teen Clinic (see Table 2). One (3.3%) of those teens did not receive a prenatal discussion about postpartum contraception.

Table 2. Adolescent Prenatal Healthcare Utilization

	N = 156 N (%)
Documentation of Prenatal Care Elsewhere prior to MOGS	32 (20.5)
Gestational Age at Intake	
0-12weeks	18 (56.3)
13-28 weeks	13 (40.6)
> 28weeks	1 (3.1)
# of prenatal care visits [median (min-max)]	3.5 (1-13)
Prenatal Care at MOGS	155 (99.4)
Gestational age at first prenatal care visit in MOGS	
0-12weeks	79 (50.6)
13-28 weeks	56 (35.9)
> 28weeks	20 (12.8)
# of MOGS office visits [median (min-max)]	11 (0-25)
MOGS Prenatal Clinic	
Teen Clinic	30 (19.2)
Regular OB Clinic	126 (80.8)
Entry to Care	
No prenatal care	1 (0.6)
Late entry to prenatal care (intake ≥ 14weeks)	58 (37.2)
Adequacy of Prenatal Care	
Inadequate prenatal care (< 5visits for < 37week delivery; < 8visits for ≥ 37week delivery)	22 (14.1)
Discussed postpartum birth control during MOGS prenatal care	142 (91.0)

Note. Abbreviations: MOGS - MAHEC OB/GYN Specialists.

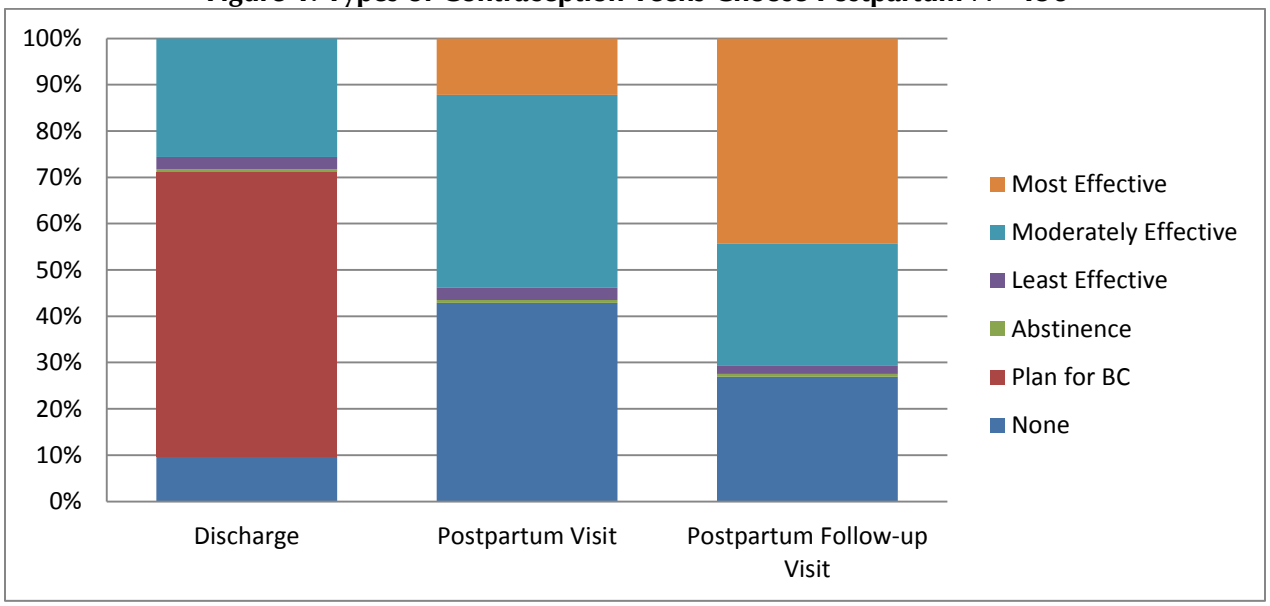
Postpartum Contraception

Forty-four teens (28.2%) were using moderate or least effective methods of contraception when discharged from the hospital. Of these, 22 (50.0%) were using these methods as a bridge until they could receive LARC. Another 96 (61.5%) had a documented plan to initiate postpartum contraception at the 4-6 week postpartum visit (see Figure 1). The teen who had two pregnancies during the time

frame planned to initiate contraception at the postpartum visit after the first delivery and received moderately effective contraception at discharge as a bridge to LARC after her second delivery.

The majority of women attended their postpartum visit [118 women over 119 deliveries; (76.3%)] at MOGS. At their postpartum visit, an additional 44 (28.2%) women initiated contraception. The teen who had two pregnancies initiated contraception at the postpartum visit after the first delivery. The most common form of contraception obtained from a postpartum visit was a moderately effective method (41.7%) followed by most effective method (12.2%). By the end of the postpartum follow-up period (discharge through 8 weeks), 112 teens (over 113 deliveries; 72.4%) were on contraception, and the most common form was LARC (44.2%) (see Figure 1).

Figure 1. Types of Contraception Teens Choose Postpartum N = 156



Note. "None" in the "Postpartum Visit" and "Postpartum Follow-up Visit" columns includes the patients who were not using any contraception at hospital discharge and did not come to their postpartum appointments. All BC methods included were being utilized postpartum except in the "plan for BC" category. Abbreviations: BC - birth control.

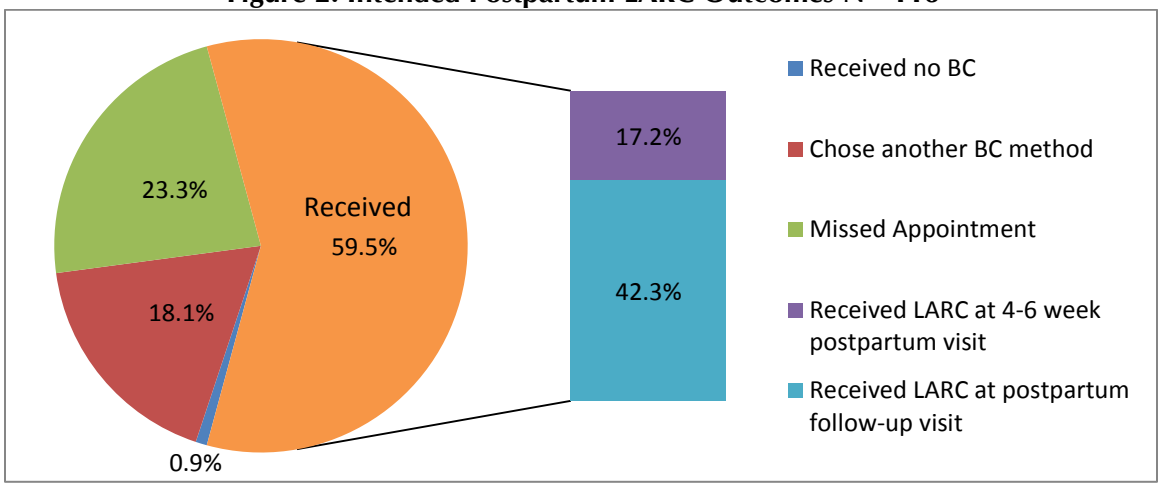
Postpartum LARC

Overall, 116 (74.4%) women planned to receive LARC at some point in the postpartum period [107 (68.9%) at discharge and 9 (5.8%) at the postpartum visit]. Eighty-nine (70.6%) teens who received care in the regular OB clinic intended postpartum LARC; 48 (53.9%) of these received LARC. Twenty-seven (90.0%) of the teens who received care in the MOGS Teen Clinic intended postpartum LARC; 21(77.8%) of these received LARC.

Of those who planned LARC, 69 (59.5%) received LARC by the end of the postpartum follow-up visit (see Figure 2). Twenty-seven (23.3%) teens who planned to use LARC did not attend their scheduled appointment to receive LARC [19 (70.4%) missed the 4-6 week postpartum visit and 8 (29.6%) missed the postpartum follow-up visit].

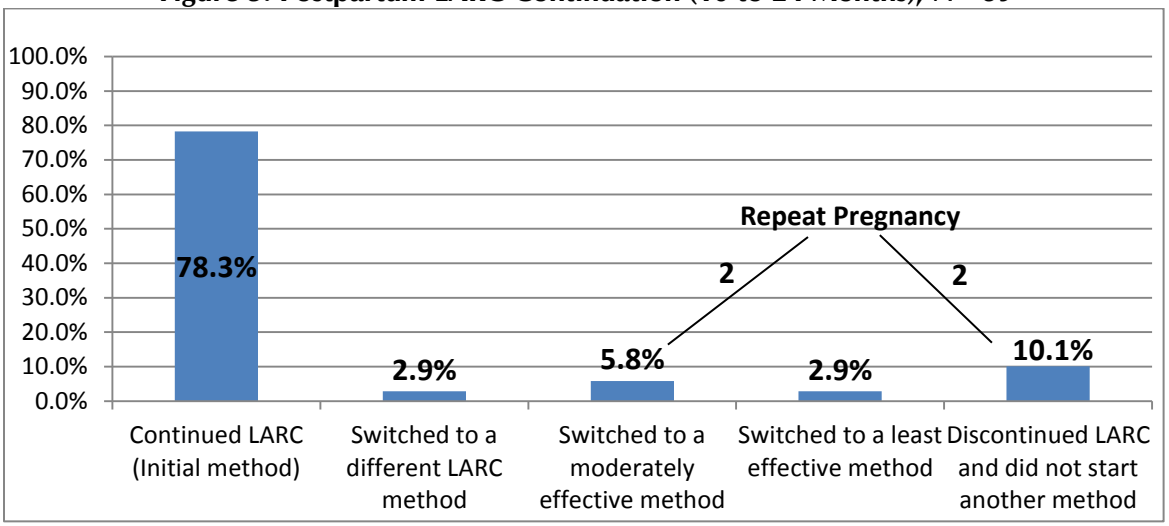
Fifteen (21.7%) of the women who began LARC discontinued it within 20 months of insertion. The ≥10 month LARC continuation rate was 78.3% (see Figure 3). The most common reasons for discontinuation were irregular bleeding [4 (28.6%)] and IUD expulsion [3 (21.4%)]. Other reasons reported included hair loss, weight gain, discomfort, and desire for pregnancy.

Figure 2. Intended Postpartum LARC Outcomes N = 116



Note. Abbreviations: LARC - long-acting reversible contraception; BC - birth control.

Figure 3. Postpartum LARC Continuation (10 to 24 Months), N = 69



Repeat Pregnancy

We collected 10 months of postpartum data on all 156 deliveries. Of the 156 deliveries, 10 women experienced a repeat pregnancy in < 10 months. While duration of follow up varies after 10 months, we identified an additional eight adolescents who had experienced a repeat pregnancy in < 20 months. As shown in the table of cases (see Table 5), half of the teens who had a repeat pregnancy at any time [9 (50.0%)] had received moderately effective postpartum contraception. Four (22.2%) of the teens who had a repeat pregnancy had received the most effective method of postpartum contraception but subsequently discontinued use or switched to a less effective method.

Table 5. Repeat Pregnancy Case Table

Patient #	Birth Control at End of 8-week Postpartum Period	Months to Repeat Pregnancy
1	None	<1
2	OCP	3
3	Condoms	3
4	None	4
5	OCP	5
6	Depo-Provera Shot	6
7	OCP	6
8	Implant	8
9	OCP	10
10	IUD	10
11	OCP	11
12	Implant	11
13	Nuvaring	13
14	Nuvaring	13
15	Depo-Provera Shot	14
16	None	14
17	None	16
18	Implant	19

Note. Abbreviations: OCP - oral contraceptive pills; IUD - intrauterine device.

Predictors of Not Receiving Intended Postpartum LARC

Analysis included all women who intended postpartum LARC (n = 116). In univariate analysis with Chi square, late entry into prenatal care (p = 0.001), multiparity (p = 0.002), and attending at the MOGS Teen Clinic (p = 0.027) were significantly related to *not* receiving intended postpartum LARC. None of the other characteristics were significant: age (p = 0.406); mood disorder (p = 0.766); inadequate prenatal care (p = 0.299); prenatal discussion of contraception (p = 0.896); route of delivery (p = 0.809); preterm delivery (p = 0.544); twins (p = 0.981); or contraception plan for LARC at discharge (p = 0.244).

Late entry into prenatal care, multiparity, and attending the MOGS teen clinic were entered into the binary logistic regression model. The significant predictors of *not* receiving intended postpartum LARC identified were: entering prenatal care late and multiparity (see Table 6).

Table 6. Predictors of Not Receiving Intended Postpartum LARC among Teen Patients

Predictor Variables	Reference	OR	95% CI	P
Late to/No PNC	Start PNC during 1st Trimester	3.933	1.688-9.165	0.002
Multiparous	Primiparous	7.059	1.726-28.869	0.007
MOGS Teen Clinic Patient	Regular OB Clinic Patient	0.361	0.122-1.070	0.066

Note. Abbreviations: PNC - prenatal care. Statistical analysis: binary logistic regression

Discussion

The prenatal and immediate postpartum periods are opportune times to intervene with teen mothers to stop the cycle of repeat, unplanned pregnancies and to ensure appropriate birth spacing.[9] Of our 156 pregnancies, nearly all (91.0%) had a documented prenatal discussion about postpartum contraception, and the majority (76.3%) attended their postpartum visit. Nevertheless, our rate of postpartum contraception use of 72.4% was lower than the 2010 national rate among teens (82.0%).[23]

However, our overall rate of LARC use of 44.2% was much higher than the 7.1% in the US in 2013.[27] Those who received LARC in our study had a 78.3% continuation rate at 10 months, which is comparable to the continuation rates in other studies.[24]

Still, LARC initiation is an area for improvement for our teen patients, considering that of the 116 (74%) teens who planned LARC, 47 (40.5%) did not receive it. The only significant predictors of *not* receiving intended postpartum LARC identified in this study were multiparity and late entry into prenatal care. We hypothesize multiparous mothers were less likely to receive intended postpartum LARC because they have more time constraints with multiple children at home and a history of repeat pregnancy. Literature suggests presenting late to prenatal care might be indicative of barriers to getting to the clinic, both emotional and logistical.[44] We speculate these same barriers prevent women from attending their scheduled 4-6 week postpartum and postpartum follow-up visits to receive intended postpartum LARC. Patients who are multiparous or initiate prenatal care late may benefit from extensive provider counseling and immediate postpartum follow-up to help ensure placement of intended postpartum LARC.

Another challenge we identified was poor visit attendance for LARC placement during the postpartum period. Although more than 3 in 4 women attended their postpartum visit, 27 (23.3%) women did not attend their scheduled appointment to receive LARC at the clinic. Nineteen (70.4%) of these women missed their 4-6 week postpartum visit and eight (29.6%) missed their postpartum follow-up visit, and therefore did not initiate LARC. Same day placement of LARC at the postpartum visit would likely help address this issue. However, insurance reimbursement is a continual barrier for same day LARC placement, in both inpatient and outpatient settings.

Consideration of an alternative prenatal care model such as CenteringPregnancy®, group prenatal care visits that combine health assessment, education, and support,[45] may be beneficial to teens as it has been shown to encourage high postpartum attendance rates (87%).[46] These reported rates are higher than our overall postpartum visit attendance rate (76.3%).

Additionally, the MOGS Teen Clinic is another form of prenatal care that is designed to provide integrated services to teens throughout pregnancy and emphasize the importance of planning postpartum contraception. We identified a trend that MOGS Teen Clinic patients who intended postpartum LARC were more likely to receive it (77.8%) than those who received regular OB care (53.9%). Based on these results, we need to evaluate the barriers preventing teens from participating in the MOGS Teen Clinic.

Other potential interventions to increase LARC initiation rates include immediate postpartum placement prior to hospital discharge;[47] more intensive communication with patients to increase follow-up; referral to a more accessible clinic for follow-up; and financial assistance for LARC if it is not covered by insurance.[28,31] There is potential for follow-up studies in this population examining how these interventions could increase access to postpartum contraception including LARC and in turn, reduce unplanned repeat teen pregnancy.

Generalizability of our results is limited by the retrospective design, which constrained the variables available for examination. The MOGS clinic policy regarding LARC placement changed multiple times during the study period which may have influenced postpartum LARC initiation rates. Many of our patients travel a significant distance for prenatal care at our clinic or are transferred to our care because of a high-risk pregnancy. Data for these patients prior to establishing care at MOGS is limited [32(20.5%)]. Furthermore, it is possible that patients from outlying communities sought

postpartum care closer to home; thus, they were not captured in our postpartum data with regards to postpartum visit attendance, contraception initiation and discontinuation, or repeat pregnancy.

Conclusions

LARC is an effective method to help adolescents prevent repeat, unintended pregnancies. Teens may benefit from immediate postpartum LARC placement prior to hospital discharge or same day placement of LARC at the 4-6 week postpartum visit, especially if they are multiparous and/or initiate prenatal care late. Interventions to help provide these services need to be explored.

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Appendix A - Examining Postpartum Contraception Choices among Teens

MRN:_____ **Study ID #:** _____

Race: White Black Asian Native Other: _____

Ethnicity: Hispanic Non Hispanic

GA at intake to MAHEC: _____ weeks **G** | **P** | | | | |

 # MAHEC prenatal visits: _____ **Delivery date of last pregnancy:** _____

GA at intake to outside clinic: _____ weeks

 # outside prenatal visits: _____

Tobacco Use During Pregnancy? Yes No **Quit?** Yes No

Pregnancy/Medical Complications:

Feelings about pregnancy: _____

Contraception use on conception? Yes No

If yes, type of contraception:

OCPs Nuvaring Depo Condoms Mirena IUD Paragard IUD Nexplanon

Other _____

Teen clinic pt? Yes No

Discussed postpartum birth control during prenatal care: YES NO

Contraceptive choice at prenatal visits:

OCPs Nuvaring Depo Condoms Mirena IUD Paragard IUD Nexplanon

Other _____

Age at Delivery: _____ **Date of Delivery:** _____

GA at delivery: _____ **Delivery Route:** SVD - IOL / Spontaneous

Birth weight: _____ VBAC Foceps Vacuum

NICU admission: Yes No **Csection:** Primary Repeat

Scheduled Reason: _____

Delivery Complications: _____

Planned contraceptive choice at discharge?

OCPs Nuvaring Depo Condoms Mirena IUD Paragard IUD Nexplanon

Other _____ None

Recieved contraceptive choice at discharge?

OCPs Nuvaring Depo Condoms Mirena IUD Paragard IUD Nexplanon

Other _____ None

Scheduled postpartum visit? Yes No **Attended postpartum visit?** Yes No

Contraceptive choice at postpartum visit?

OCPs Nuvaring Depo Condoms Mirena IUD Paragard IUD Nexplanon

Other _____ None

Need a postpartum follow-up visit to get contraception? Yes No

Schedule a postpartum follow-up visit? Yes No **Attend the postpartum follow-up visit** Yes No

Date of last follow up visit : _____

Contraception at last follow-up:

OCPs Nuvaring Depo Condoms Mirena IUD Paragard IUD Nexplanon

Other _____ None

Discontinued contraception: Yes No

Why did they discontinue? _____

Repeat pregnancy within 2 years: Yes No **EDD of pregnancy:** _____