

LONG-ACTING REVERSIBLE CONTRACEPTIVES

SURVEY RESULTS FROM MISSISSIPPI HEALTH CARE PROVIDERS



IZZY PELLEGRINE
LINDA SOUTHWARD

MAY 2018

Table of Contents

Introduction	1
Key Findings	2
Methods.....	3
Research Advisory Committee.....	3
Survey Recruitment	3
Survey of Providers	3
Results.....	5
About Health Providers and their Patients	5
About Contraception	9
About LARCs.....	12
References	22
Appendix A: Survey Instrument	23
Appendix B: Scale Construction Sources	36

Introduction

The research is clear on the negative associations of both child and maternal health outcomes of unintended pregnancies. The Guttmacher Institute notes that “Unintended pregnancy has a public health impact: Births resulting from unintended or closely spaced pregnancies are associated with adverse maternal and child health outcomes, such as delayed prenatal care, premature birth, and negative physical and mental health effects for children” (Guttmacher Institute, 2013, p. 1).

The challenges posed by unintended pregnancy underscore the importance of women’s access to the range of expanding family planning possibilities as well the importance of policy makers and health providers understanding any barriers and/or challenges in offering these additional options. A recent report released by the Center for Mississippi Health Policy (CMHP) finds that more than one third (36%) of pregnancies to women in Mississippi are intended pregnancies (Center for Mississippi Health Policy, 2018).

One of the ways through which other states have been successful in decreasing the percentage of unintended pregnancies is to increase the availability of Long Acting Reversible Contraception (LARCs). Both the American Congress of Obstetricians and Gynecologists (ACOG) and the American Academy of Pediatrics (AAP) are supportive of the use of Long-Acting Reversible Contraception (LARC). The ACOG is clear in its support for LARCs in the prevention of unintended pregnancy, noting: “improving access to and knowledge of LARC methods increases method uptake and may decrease unintended pregnancy, abortion, repeat abortion, and adolescent birth rates” (Committee on Gynecologic Practice, 2015, p. 3). Further, the ACOG finds that LARCs are more effective than other, shorter-term contraception methods (Committee on Gynecologic Practice, 2015). The AAP recommends LARCs as the “first-line” contraceptive choice in counseling adolescents who chose to be sexually active (Committee On Adolescence, 2014, p. e1251).

In order to learn more about the practices about the use of LARCs in Mississippi and inform potential policy decisions, the Center for Mississippi Health Policy contracted with Mississippi State University’s Social Science Research Center (SSRC) to conduct a survey of health providers (obstetricians-gynecologists, Family Practice Physicians and Nurse Practitioners). The research was carried out through the Family & Children Research Unit of SSRC.

Key Findings

- On average, health providers report that 10% of patients in an average week are seeking contraceptive services. Among types of contraceptives used, oral contraceptives are the highest at almost one half (47%). The next highest included: injectables (15%), implants (8%) and IUDs (8%).
- Ob/Gyns report the highest favorability toward LARCs and the highest rates of LARC insertion and removal. Nurse Practitioners report higher rates of LARC insertion and removal than do Family Practice Physicians. Family Practice Physicians, however, report higher overall LARC favorability and higher rates of LARC insertion and removal during medical training than do Nurse Practitioners.
- Ob/Gyns reported significantly higher percentages of patients using IUDs and implants than did Family Practice Physicians and Nurse Practitioners.
- Health providers report moderate variation regarding patient characteristics that qualify patients as ‘good candidates for LARC devices.’ These differences are significant by provider type.
- The degree of favorability by health providers toward using LARCs is the strongest predictor of the number of LARCs inserted over the provider’s entire career, when controlling by health provider type.
- The amenability of the health provider’s practice setting is the strongest predictor of the number of LARCs inserted over the past year, when controlling by health provider type.

Methods

Research Advisory Committee

The SSRC research team assembled an advisory committee of health professionals (comprised primarily of OB-GYNs and Nurse Practitioners) in Mississippi. The committee's tasks were to: 1) assist the research team to discern best ways to enhance participation rates among providers; 2) serve as a liaison to professional health groups to promote awareness and participation of the survey; 3) provide guidance & feedback on the survey instrument and 4) review study findings and 5) provide suggestions on dissemination of the report, in concert with the Center for Mississippi Health Policy.

Survey Recruitment

Data collection was also augmented through the assistance of twelve medical students from the University of Mississippi Medical Center who acted as survey recruiters and aided the research team in gaining entrée to communities of medical providers. In addition, two of these twelve survey recruiters assisted with data collection.

Survey of Providers

The SSRC research team conducted a multi-modal survey of reproductive health care providers currently practicing in Mississippi. The study was reviewed and classified as exempt by the Mississippi State University Institutional Review Board. Data collection modalities included pen and paper instruments and web-administered instruments distributed via email and links. The final dataset (n=606) includes 592 web-administered cases and 14 pen and paper administered cases.

The sampling frame for the study included licensed obstetrician-gynecologists, Family Practice Physicians, and Nurse Practitioners in practice across a wide array of practice venues (i.e., private practice, medical center-based, public health and federally-qualified health clinics). Initial data collection included 98 responses from Ob/Gyns, 99 response from Family Practice Physicians, and 435 responses from Nurse Practitioners. Of these, usable cases included 79 from Ob/Gyns, 92 from Family Practice Physicians, and 435 from Nurse Practitioners.

The study's initial sampling strategy was informed by estimates from the Mississippi State Board of Medical Licensure (2016) and the Bureau of Labor Statistics (2016). Over the course of data collection, the sampling strategy was modified to account for low response rates from this traditionally difficult to access population. This modification shifted the study design from a probability to a convenience sample. Note: Future research may consider triangulating the findings from this research with those from a probability sampling method. Despite the lack of a probability sampling frame, the final sample size for each practitioner type resulted in relatively low margins of error and relatively high coverage across each sample strata. The margins of error (MoE) for each strata are as follows:

Table 1: Sample Size by Strata

Provider Type	Sample Size	Population Size	MoE*
Ob/Gyns	79	333	9.64%
Family Practice	92	918	9.70%
Nurse Practitioners	435	8,404	4.58%
Full Sample	606	9,655	3.85%

* All margins of error are reported for a dichotomous response item at a 95% confidence level

The survey instrument for the study was developed by the SSRC research team in concert with the Mississippi Center for Health Policy staff and the Research Advisory Committee. The instrument also drew on existing literature on healthcare provider's LARC opinions and practices (Espey, Ogburn, Espey, & Etsitty, 2003; Harper et al., 2008; Kavanaugh, Frohwirth, Jerman, Popkin, & Ethier, 2013; Kavanaugh, Jerman, Ethier, & Moskosky, 2013; Rubin, Fletcher, Stein, Segall-Gutierrez, & Gold, 2011). The instrument assessed health providers' LARC training and practices, perceived barriers to LARC provision and services, and health providers' opinions on promoting LARC provision and access.

Results

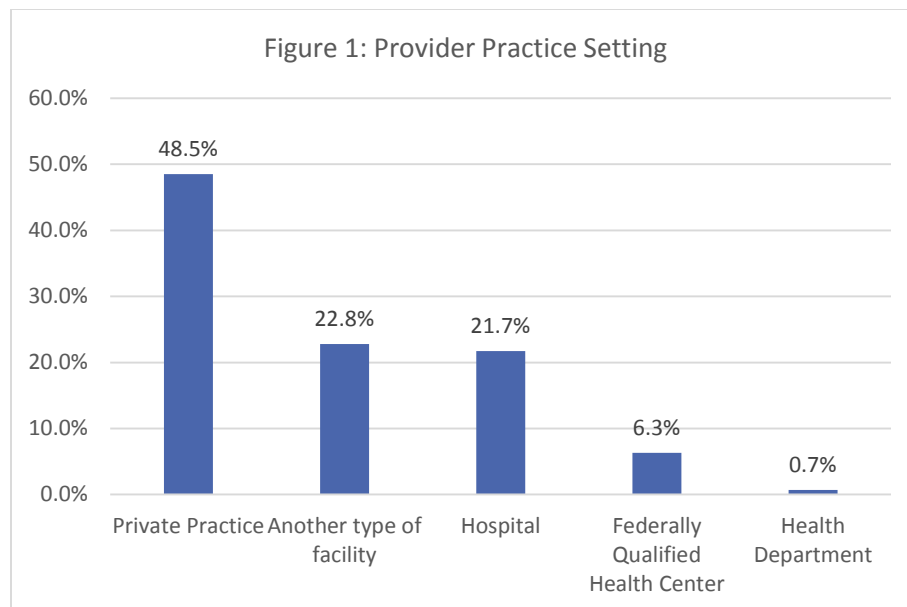
About Health Providers and their Patients

The largest share of respondents reported being in private practice. Respondents reporting 'another type of facility' constituted the second largest share of respondents, followed by those practicing in hospitals. Of the overall sample, 7% of all health providers reported that their practice is funded by Title X and 8% of all providers reported that their practice is part of a religiously affiliated health care institution.

Provider practice setting for the overall sample is as follows:

Table 2: Provider Practice Setting

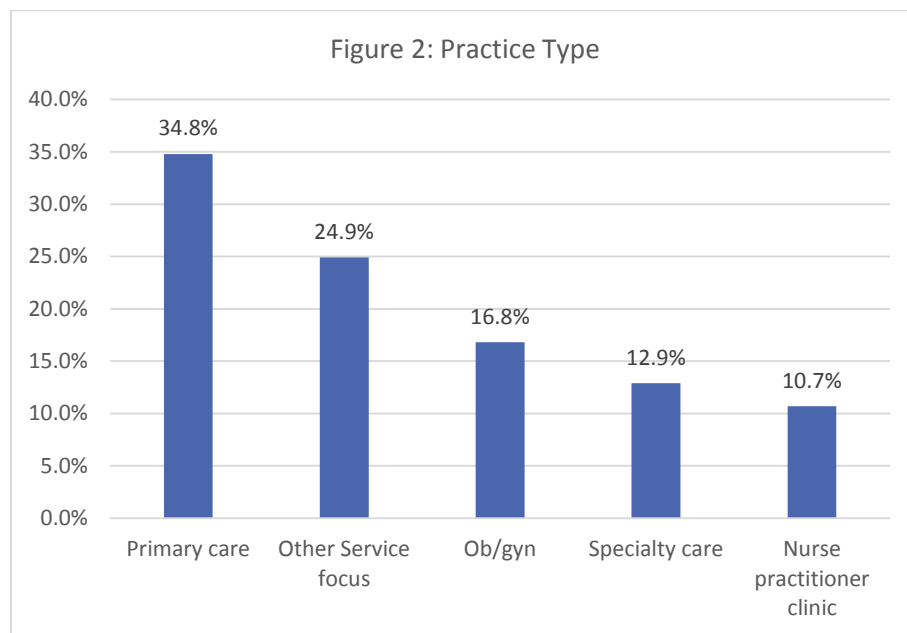
Private Practice	48.5%
Another type of facility	22.8%
Hospital	21.7%
Federally Qualified Health Center	6.3%
Health Department	0.7%



Provider practice type for the overall sample is as follows:

Table 3: Provider Practice Type

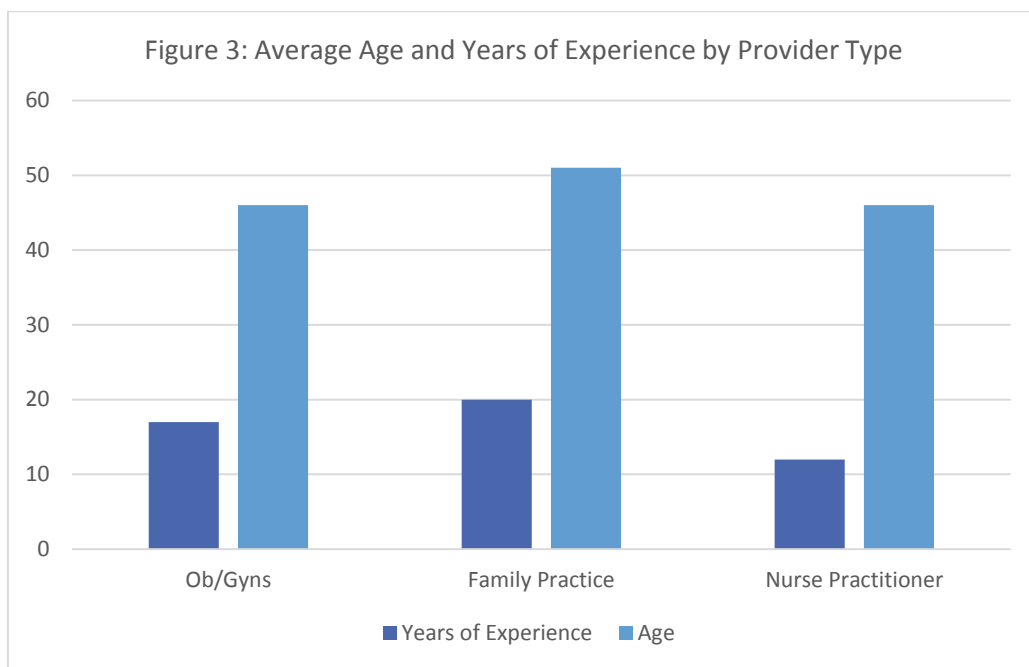
Primary care	34.8%
Other Service focus	24.9%
Ob/Gyn	16.8%
Specialty care	12.9%
Nurse practitioner clinic	10.7%



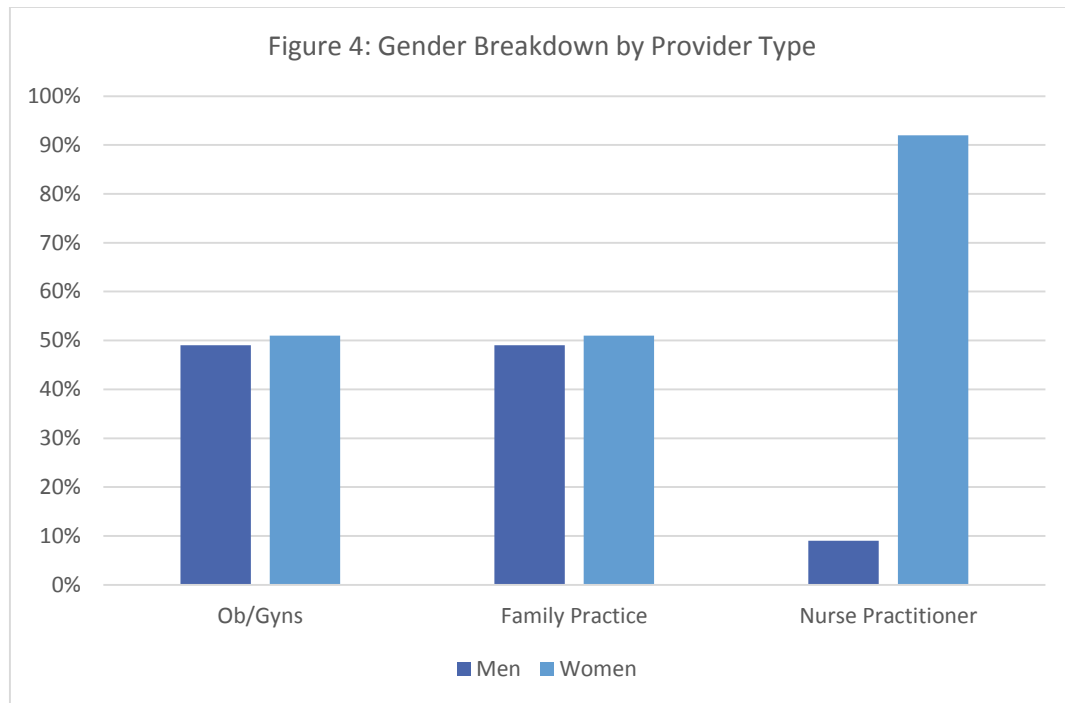
The average provider in the sample had 14 years of practice experience. Practice experience varied significantly according to provider type, with Family Practice Physicians reporting the highest number of years in practice, on average ($M = 20$, $SD = 13.784$), followed by Ob/Gyns ($M = 17$, $SD = 12.708$), with the lowest average number of years in practice reported by Nurse Practitioners ($M = 12$, $SD = 8.902$) [$F(2,509)=26.153$, $p=0.000$].

Provider Demographics

The average provider in the sample was 47 years of age. Age varied significantly according to provider type, with Family Practice Physicians reporting a marginally higher age ($M = 51$, $SD = 13.837$) than Ob/Gyns ($M = 46$, $SD = 12.799$) and Nurse Practitioners ($M = 46$, $SD = 10.555$) [$F(2,499)=6.404$, $p=0.002$].



The gender breakdown in the overall sample resulted that 20% of providers are men and 80% are women. A statistically significant relationship exists between gender and provider type [$\chi^2 (2, n=511) = 106.534$, $p = 0.000$]. Among Ob/Gyns, 49% of respondents were men and 51% of respondents were women. Among Family Practice Physicians, 49% of respondents were men and 51% of respondents were women. Among Nurse Practitioners, 9% of respondents were men and 92% of respondents were women.



In the overall sample, 87% of providers identified as White, 10% of providers identified as Black, 1% of providers identified as Asian, 1% of providers identified as multiracial, and 1% of providers reported 'other' as their racial category. There was no statistically significant relationship between race and provider type. Among respondents, 1% of providers report identifying as Hispanic or Latino/a. There was no statistically significant relationship between ethnicity and provider type.

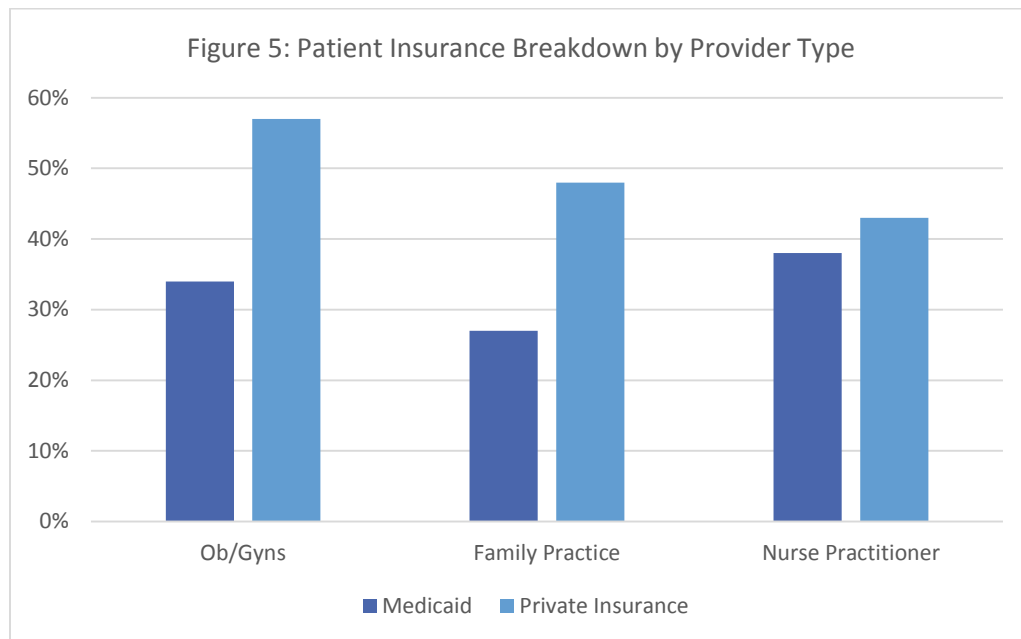
In the overall sample, 85% of providers report subscribing to a religious identity or faith tradition and 15% report not subscribing to a religious identity or faith tradition. A statistically significant relationship exists between religious identity subscription and provider type [χ^2 (2, n=509) = 13.696, p = 0.001]. Among Ob-Gyns, 93% report subscribing to a religious identity or faith tradition, 95% of Family Practice Physicians report subscribing to a religious identity or faith tradition, and 81% of Nurse Practitioners report subscribing to a religious identity or faith tradition.

Patient Characteristics

On average, providers reported seeing 78 patients per week. The number of patients seen per week on average varied significantly by provider type [$F(2,586)=4.823$, $p=0.008$]. Ob/Gyns reported seeing an average of 87 patients per week ($SD = 35.849$). Nurse Practitioners also reported seeing an average of 87 patients per week ($SD = 41.145$), while the family practice physician reported seeing an average of 75 patients per week ($SD=52.285$).

On average, providers reported that 46% of their patients had private insurance and 36% of their patients had public insurance through Medicaid. Both insurance types differed significantly by provider type. Within percentage of patients with private insurance [$F(2,468)=7.254$, $p=0.001$], Ob/Gyns reported the highest average percent of patients with private insurance ($M = 57\%$, $SD = 28.391$), followed by Family Practice Physicians ($M = 48\%$, $SD = 24.162$), then Nurse Practitioners ($M = 43\%$, $SD = 28.541$). Within percentage of patients with Medicaid [$F(2,467)=6.223$, $p=0.002$], Nurse Practitioners reported the highest average percent of patients with Medicaid ($M = 38\%$, $SD = 27.850$), followed by Ob/Gyns (M

= 34%, SD = 28.449), then Family Practice Physicians (M = 27%, SD = 22.347).



Among both Ob/Gyns and Family Practice Physicians, 6% reported no patients with Medicaid. Among Nurse Practitioners, 11% reported no patients with Medicaid.

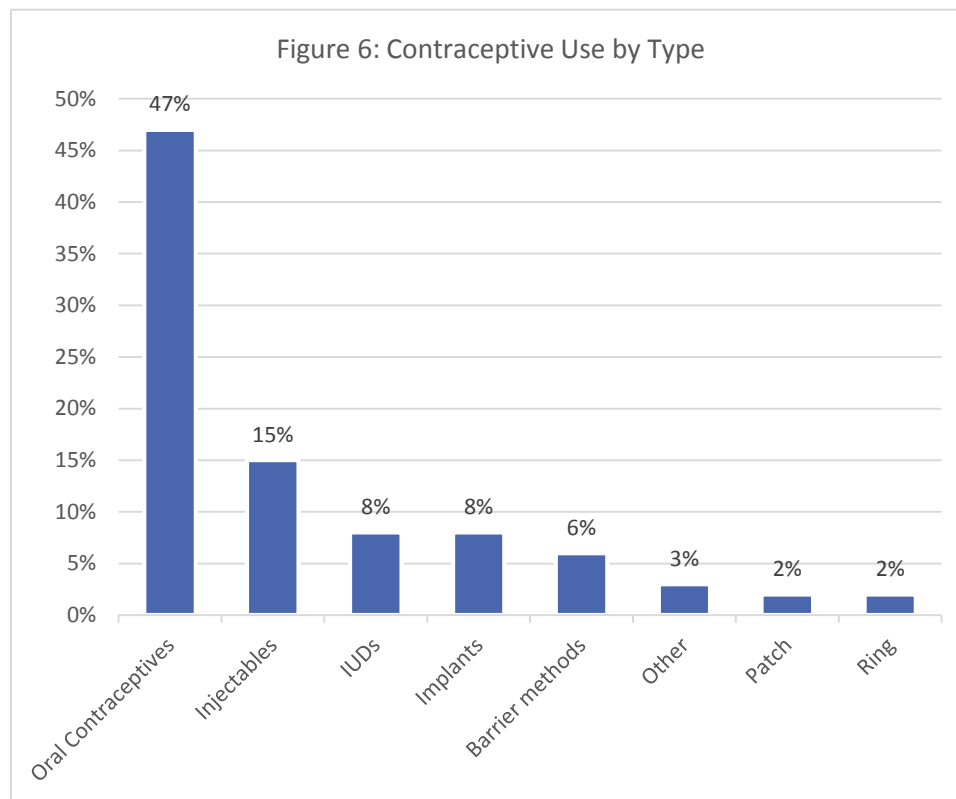
About Contraception

On average, providers report that 10% of patients in an average week are seeking contraceptive services. The percent of patients seeking contraceptive services in an average week varies significantly by provider type [$F(2,557) = 45.340$, $p = 0.000$] with Ob/Gyns seeing the highest percent of patients seeking contraception (M = 26%, SD = 16.164), followed by Nurse Practitioners (M = 8%, SD = 17.394), then Family Practice Physicians (M = 5%, SD = 8.933).

For the total sample, the average breakdown of contraception type (among patients using contraception) is as follows:

Table 4: Contraceptive Use by Type

Oral Contraceptives	47%
IUDs	8%
Implants	8%
Injectables	15%
Patch	2%
Ring	2%
Barrier methods	6%
Other*	3%
* Due to averaging, total percent does not sum to 100	



The percent of patients using oral contraceptives did not vary significantly by provider type [$p > 0.05$], though clinical differences in percent of patients using oral contraceptives may be meaningful. Family Practice Physicians reported the highest percentage of oral contraceptive use among patients using contraception ($M = 53.0\%$, $SD = 24.830$), followed by Nurse Practitioners ($M = 46.4\%$, $SD = 27.367$), then Ob/Gyns ($M = 44.2\%$, $SD = 21.028$).

The percent of patients using injectable contraceptives did not vary significantly by provider type [$p > 0.05$], though clinical differences in percent of patients using injectable contraceptives may be meaningful. Nurse Practitioners reported the highest percentage of injectables use among patients using contraception ($M = 16.0\%$, $SD = 17.092$), followed by Family Practice Physicians ($M = 13.6\%$, $SD = 13.675$), then Ob/Gyns ($M = 12.5\%$, $SD = 12.157$).

The percent of patients using IUDs varied significantly by provider type [$F(2,281)=32.175$, $p=0.000$]. Ob/Gyns reported the highest percentage of IUD use among patients using contraception ($M = 15.4\%$, $SD = 9.917$), followed by Nurse Practitioners ($M = 7.0\%$, $SD = 7.764$), then Family Practice Physicians ($M = 5.1\%$, $SD = 5.991$).

The percent of patients using implants varied significantly by provider type [$F(2,279)=4.917$, $p=0.008$]. Ob/Gyns reported the highest percentage of implant use among patients using contraception ($M = 10.0\%$, $SD = 7.200$), followed by Nurse Practitioners ($M = 7.1\%$, $SD = 8.581$), then Family Practice Physicians ($M = 5.6\%$, $SD = 5.942$).

The percent of patients using the birth control patch varied significantly by provider type [$F(2,281)=3.331$, $p=0.037$]. Ob/Gyns reported the highest percentage of birth control patch use among patients using contraception ($M = 3.3\%$, $SD = 3.076$), followed by Nurse Practitioners ($M = 2.0\%$, $SD = 3.708$), then Family Practice Physicians ($M = 1.7\%$, $SD = 4.396$).

The percent of patients using the birth control ring varied significantly by provider type [$F(2,281)=5.278$, $p=0.006$]. Ob/Gyns reported the highest percentage of birth control ring use among patients using contraception ($M = 3.2\%$, $SD = 3.009$), followed by Nurse Practitioners ($M = 2.0\%$, $SD = 3.406$), then Family Practice Physicians ($M = 1.4\%$, $SD = 2.530$).

The percent of patients using barrier methods without other contraceptives did not vary significantly by provider type [$p>0.05$], though clinical differences in percent of patients using barrier methods as contraceptives may be meaningful. Nurse Practitioners reported the highest percentage of barrier method use among patients using contraception ($M = 6.1\%$, $SD = 9.163$), followed by Family Practice Physicians ($M = 5.8\%$, $SD = 9.963$), then Ob/Gyns ($M = 5.7\%$, $SD = 4.980$).

The percent of patients using other contraceptives did not vary significantly by provider type [$p>0.05$], though clinical differences in percent of patients using other contraceptives may be meaningful. Ob/Gyns reported the highest percentage of other contraceptive use among patients using contraception ($M = 4.3\%$, $SD = 10.096$), followed by Nurse Practitioners ($M = 2.9\%$, $SD = 7.815$), then Family Practice Physicians ($M = 2.8\%$, $SD = 7.057$).

About LARCs

LARC Insertion and Removal Frequencies:

For the total sample, the mean number of LARCs inserted in the past year is 32.54. The mean number of LARCs removed in the past year is 20.64. The mean number of LARCs inserted over the total career is 105.44 and the mean number of career LARC removals is 73.33. Respondents reported inserting 39.88 LARCs during residency/practicum and removing 25.70 LARCs during residency/practicum, on average. LARC provision frequencies varied significantly by provider type for all six measures of provision frequency:

- LARCs inserted in the last year[F(2,163)= 25.479, p=0.000]
- LARCs removed in the last year[F(2,173)= 8.507, p=0.000]
- LARCs inserted over entire career[F(2,344)= 69.964, p=0.000]
- LARCs removed over entire career[F(2,343)= 53.467, p=0.000]
- LARCs inserted during residency/practicum[F(2,145)= 17.379, p=0.000]
- LARCs removed during residency/practicum[F(2,156)= 10.723, p=0.000]

Table 5: Average Number of LARCs Inserted and Removed by Practice Type

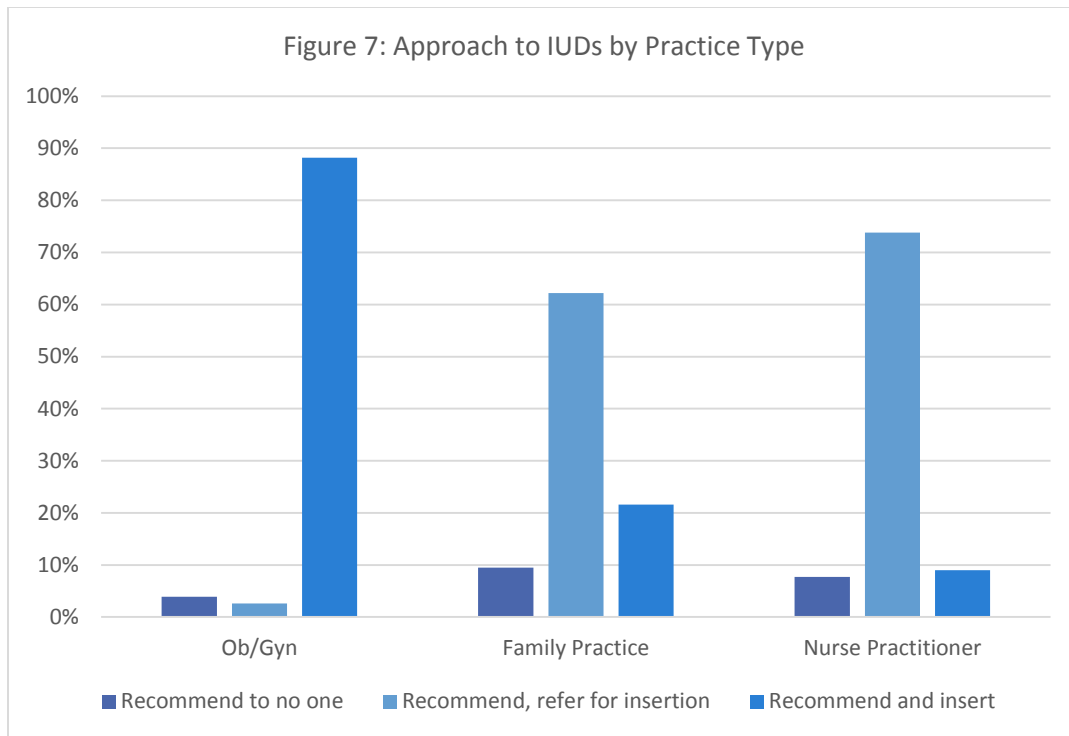
	LARCs Inserted			LARCs Removed		
	<i>Last Year</i>	<i>Career</i>	<i>Residency</i>	<i>Last Year</i>	<i>Career</i>	<i>Residency</i>
Ob/Gyns	62.16 (54.746)	507.96 (572.260)	97.74 (147.914)	39.19 (68.924)	354.16 (480.173)	71.37 (148.679)
Fam. Pract.	4.90 (11.500)	23.58 (55.966)	12.22 (20.442)	2.86 (4.567)	15.96 (33.225)	12.22 (20.442)
NPs	19.79 (43.527)	35.83 (186.106)	4.78 (10.094)	15.03 (34.490)	27.38 (125.084)	3.75 (9.522)

Note: Standard deviation included in parentheses

A statistically significant relationship exists between provision practices around IUDs and provider type [χ^2 (6, n=383) = 187.284, p = 0.000]. Compared to other groups, Ob/Gyns reported much higher frequencies of recommending and inserting IUDs for patients.

Table 6: Approach to IUDs by Practice Type

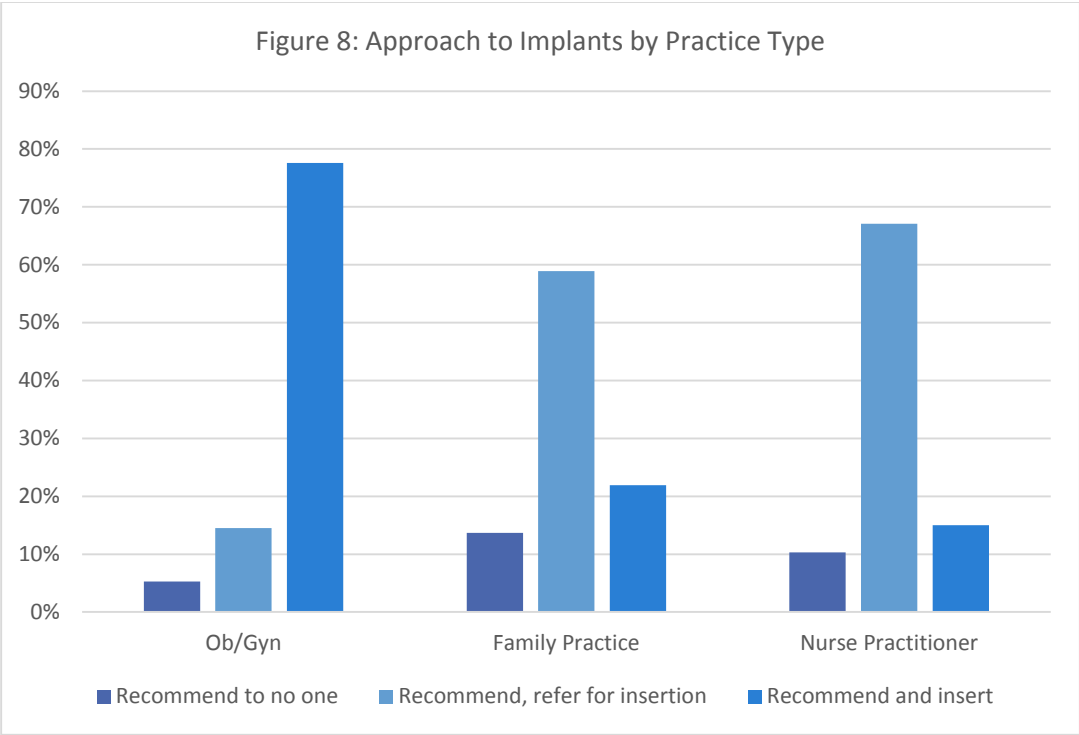
	Ob/Gyn	Family Practice	Nurse Practitioner
Recommend to no one	4%	10%	8%
Recommend, refer for insertion	3%	62%	74%
Recommend and insert	88%	22%	9%
Other	5%	7%	9%
<i>Total</i>	100%	100%	100%



A statistically significant relationship exists between providers' practices around implants and provider type [χ^2 (6, n=383) = 114.157, $p = 0.000$]. Compared to other groups, Ob/Gyns reported much higher frequencies of recommending and inserting IUDs for patients.

Table 7: Approach to Implants by Practice Type

	Ob/Gyn	Family Practice	Nurse Practitioner
Recommend to no one	5%	14%	10%
Recommend, refer for insertion	15%	59%	67%
Recommend and insert	78%	22%	15%
Other	3%	6%	8%
<i>Total</i>	100%	100%	100%



LARC Favorability

Scale construction allows for the quantification of a series of related variables. Two scales were constructed to measure provider favorability toward LARC provision. Provider favorability toward LARCs require multiple variables to measure; scale construction allows for comparisons across this set of items, taken together, rather than relying on single-measure analyses. The first scale measures a provider's personal opinions and practices toward LARCs and is constructed by averaging scores across 13 items. The second measures the provider's perception of her/his practice setting's capacity to provide LARC services and is constructed by averaging scores across 8 items. Both scales were constructed using items drawn from existing scholarship and items constructed to address the specific research questions at hand. Sources for extant items are available in Appendix B.

Table 8: Providers' LARC Opinions and Practices (13 items, $\alpha=0.847$)

Item:	Respondents reporting agreement			Total
	Ob/Gyns	Fam. Pract.	NPs	
I have sufficient experience in inserting LARCs***	97.3%	29.0%	22.0%	38.6%
I have sufficient information to counsel patients about LARCs***	100.0%	80.0%	68.5%	77.3%
I was formally trained in LARC counseling***	86.3%	49.3%	40.6%	51.7%
I was formally trained in LARC insertion***	97.3%	54.8%	29.2%	47.9%
I was formally trained in LARC removal***	94.5%	53.4%	32.4%	49.0%
I have sufficient experience in removing LARCs***	98.6%	45.7%	29.5%	46.7%
LARCs are medically safe for patients*	100.0%	97.1%	93.0%	95.3%
The side effects of LARCs [do not] make them too problematic to recommend ^{‡**}	100.0%	78.4%	80.9%	84.1%
The liability associated with LARC insertion [does not] make them too problematic to recommend ^{‡***}	100.0%	81.1%	72.9%	79.8%
My patients are generally receptive to LARCs***	95.8%	75.4%	71.1%	77.4%
I am comfortable discussing LARCs with my patients***	100.0%	90.1%	78.6%	85.2%
I am willing to insert LARCs immediately following delivery for postpartum patients***	56.5%	33.9%	19.8%	30.2%
I [do not] have personal concerns or objections to providing LARC services ^{†***}	98.6%	75.7%	81.3%	83.6%
* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$				
‡ Indicates that an item was reverse coded. Reverse coded items were administered without bracketed language and reverse coded following data collection to protect instrument validity				
† This item featured an open-ended follow-up question, the results of which appear in the following section.				

The Provider Opinions Scale ranged from 0 to 1 with higher values indicating increased favorability for LARC provision. The mean score for all respondents was 0.656 (SD = 0.280). Favorability for LARC provision as measured by this scale varied significantly by provider type [$F(2,366) = 72.793$, $p = 0.000$]. Ob/Gyns demonstrated the highest average favorability for LARC provision ($M = 0.948$, $SD = 0.079$), followed by Family Practice Physicians ($M = 0.656$, $SD = 0.258$), then Nurse Practitioners ($M = 0.561$, $SD = 0.263$).

Table 9: Providers' Perception of Setting Amenability to LARCs (8 items, $\alpha = 0.805$)

Item:	Respondents reporting agreement or strong agreement			
	Ob/Gyns	Fam. Pract.	NPs	Total
My practice is able to provide same-day insertion for patients interested in LARCs***	61.2%	7.1%	15.8%	24.9%
My practice is able to provide LARC removal services for patients***	100.0%	62.1%	34.4%	56.1%
My practice stocks an adequate amount of LARC devices to meet demand***	73.5%	18.5%	15.7%	30.5%
LARC insertion [does not] require too much staff time to be practical in our practice****	91.2%	42.4%	40.4%	51.6%
Our clinic has adequate staff to address potential complications from LARC insertion***	100.0%	47.3%	35.0%	54.1%
Reimbursement practices from private insurance are acceptable for LARC services**	59.6%	48.3%	48.6%	52.5%
Reimbursement practices from Medicaid are acceptable for LARC services**	45.8%	24.0%	43.1%	40.6%
LARCs are [not] too costly for our practice to offer†***	83.8%	28.8%	33.0%	42.9%

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

† Indicates that an item was reverse coded. Reverse coded items were administered without bracketed language and reverse coded following data collection to protect instrument validity.

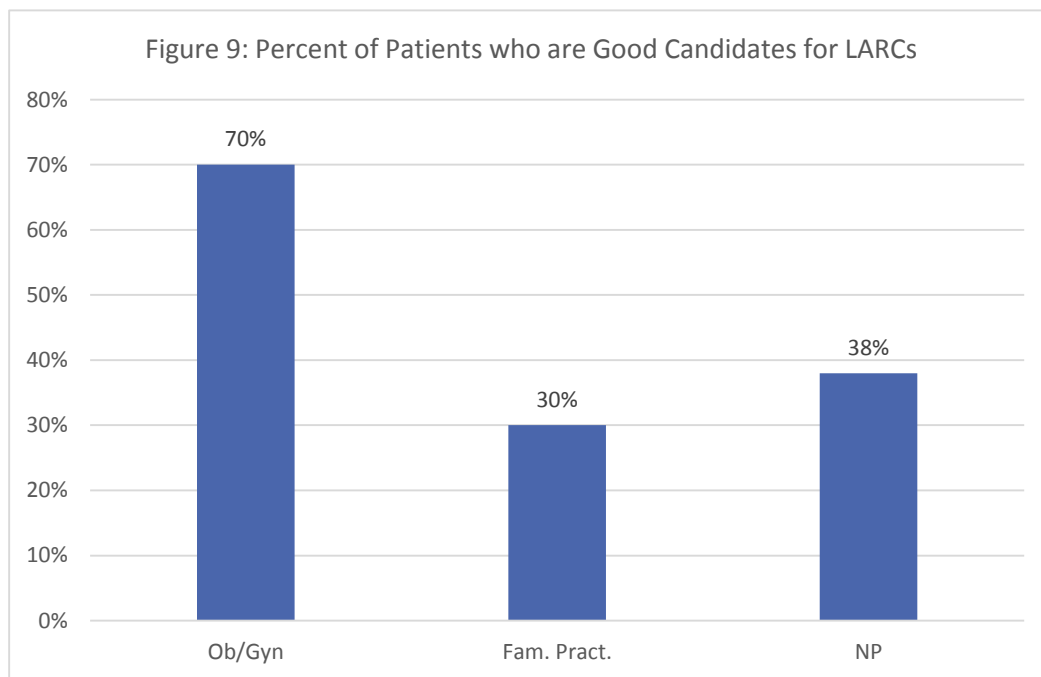
The Setting Amenability Scale ranged from 1 to 5 with higher values indicating increased favorability for LARC provision. The mean score for all respondents was 2.835 (SD = 1.325). Favorability for LARC provision as measured by this scale varied significantly by provider type [$F(2,295) = 69.884$, $p = 0.000$]. Ob/Gyns demonstrated the highest average favorability for LARC provision ($M = 4.214$, $SD = 0.603$), followed by Family Practice Physicians ($M = 2.513$, $SD = 1.077$), then Nurse Practitioners ($M = 2.400$, $SD = 1.243$). Scores on the Provider Opinions Scale and Setting Amenability Scale were strongly positively correlated $r(297) = 0.646$, $p = 0.000$.

Provider Objections

As noted in Table 8, very few providers report personal objections to providing LARC services. Among providers who report offering any contraception services, (n=40) 11.4% report personal objections to providing LARCs. A statistically significant relationship exists between provider type and holding personal objections to LARCs [χ^2 (2, n=351) = 11.707, p = 0.003]. The majority of those with objections are Nurse Practitioners (n=30) followed by Family Practice Physicians (n=10). No Ob/Gyns report personal objections to LARCs. Based on the results of qualitative analyses of the open-ended follow up response to this item, among the small percentage with personal objections, the most commonly reported opposition to LARCs was due to personal lack of training or access to facilities.

Appropriateness of LARCs for Patients

On average, providers report that 44% of patients are good candidates for LARCs. The percent of patients that are good candidates for LARCs varies significantly by provider type [F(2,277)= 33.064, p=0.000] with Ob/Gyns seeing the highest percent of patients who are good candidates (M = 70%, SD = 26.098), followed by Nurse Practitioners (M = 38%, SD = 32.240), then Family Practice Physicians (M = 30%, SD = 29.634).



Respondents were asked to identify patient qualities associated with LARC provision via open ended responses to the following prompt: “Please describe a patient for whom you would be most likely to recommend a LARC device.” The final dataset contains 279 valid responses which produced 547 coded segments. The most frequently reported patient characteristic associated with LARC candidacy was desire for long term contraception (14% of coded segments). The second most commonly reported patient characteristic associated with LARC candidacy was that a patient have experienced at least one prior pregnancy (11% of coded segments). Finally, noncompliance with other forms of contraceptives was the third most commonly reported patient characteristic associated with LARC candidacy (10% of coded segments). Patient age was a prevalent theme in respondents’ descriptions of patients who are LARC candidates, with reference to specific age groups appearing in 30% of coded segments. While age was frequently reported as a consideration, there was some disagreement within the sample as to the preferred ages for LARC candidates. Code frequencies suggest a clear provider preference for younger patients as LARC candidates, but also suggest some polarization between teenage patients vs. patients 20-30 years old as the typical ‘young’ LARC candidate. Emergent codes and their frequencies within the sample are as follows:

Table 10: Code Frequencies – Reference to Age

Young (Not otherwise specified)	51
Teens	44
Over 16	4
Over 18	6
20 – 29 y/o	36
30 – 39 y/o	14
40 – 49 y/o	5
Older (Not otherwise specified)	2

Recommendation patterns by patient subgroup varied significantly by provider type. Coupled with results from qualitative analysis of open-ended responses, the data suggest that healthcare providers frequently recommend LARCs to younger patients, but that recommendation of LARCs for teen patients varies widely. Ob/Gyns, specifically, more frequently report recommending LARCs to patients under 18 than do other provider subgroups. Note that none of the patient subgroups listed in Table 11 constitute a medical contraindication to LARCs. Patient subgroups with lower rates of ‘recommend routinely’ reflect provider opinion rather than medical indication as per ACOG (Committee on Gynecologic Practice, 2015).

Table 11: LARC Recommendation Patterns by Patient Subgroup

Item:	Respondents who would recommend LARCs routinely			
	Ob/Gyns	Fam. Pract.	NPs	Total
A patient who has never had children***	81.7%	51.7%	52.6%	59.2%
A patient who has had at least one child**	97.2%	79.0%	76.8%	81.9%
A patient with one exclusive sexual partner*	94.4%	84.4%	79.4%	83.8%
A patient with multiple sexual partners***	67.6%	44.4%	44.9%	50.0%
A patient planning to have children at some point in the future***	91.5%	61.3%	62.9%	69.2%
A patient who has had an ectopic pregnancy***	83.1%	30.0%	25.2%	41.2%
A patient who has had an abortion***	94.3%	78.9%	71.1%	78.2%
A patient under 18 years of age***	72.9%	30.0%	41.4%	46.4%
A patient between 19 and 25 years of age***	90.1%	65.1%	70.2%	73.7%
A patient between 25 and 39 years of age***	97.2%	81.3%	72.5%	79.9%
A patient 40 years of age or older***	90.1%	54.2%	50.0%	60.4%

* p < 0.05; ** p < 0.01; *** p < 0.001

Patient Concerns

Patient concerns with LARCs were assessed through open-ended provider responses to the item: “When discussing contraception options, what concerns (if any) do your patients generally express about LARCs?” The final dataset contains 297 valid responses which produced 527 coded segments.

The most frequently reported patient concerns about LARCs were concerns with the insertion or removal of the device itself (22% of coded segments). Frequently reported concerns within this theme included concern of pain with insertion and fear of being unable to easily discontinue use of the device. The second most commonly reported type of patient concern included breakthrough bleeding or menstrual irregularity as a result of the device (20% of coded segments). Finally, discomfort with the presence of a foreign body or with the potential for the device to migrate constituted the third most frequently reported category of patient concerns (14% of coded segments)

Table 12: Regression Analysis of Predictor Variables on Career LARC Insertion

Predictor Variables	B	SE	β
Family Practice Physician [†]	-68.641 (-1.526)	44.967	-0.081
Ob/Gyn [‡]	410.483*** (7.310)	56.154	0.435
Years in Practice	4.032* (2.475)	1.629	0.127
Provider Opinion Scale	223.161** (3.083)	72.395	0.177
Constant	-131.415* (-2.569)	51.158	
N	276		
Adj. R-squared	0.334		

Note: t-values are reported in parentheses
 *p<.05; **p<.01; ***p<.001 (two-tailed tests)
[†] 1 = Family Practice Physician
[‡] 1 = Ob/Gyn

Provider type was a significant predictor of career LARC insertion numbers for Ob/Gyns ($p < 0.001$) but not for Family Practice Physicians ($p > 0.05$). Compared to the reference category of Nurse Practitioners, Ob/Gyns inserted 410 more LARCs on average over the course of their careers, controlling for all other variables. Provider Opinion Scale score was also a significant predictor of career LARC insertion numbers ($p < 0.01$), with each one point increase on the Provider Opinion Scale associated with an average increase of 223 LARCs inserted over the career, controlling for all other variables. Comparison of the standardized coefficients in the model indicates that provider type as an Ob/Gyn is the strongest predictor of the number of career LARCs inserted, followed by the score on the Provider Opinion Scale. The adjusted R-squared value of 0.334 indicates that the predictor variables included in the model explain approximately one third of the variance in career LARCs inserted. Note that this model applies only to providers with a non-zero average number of patients seeking contraception.

Provider type was a significant predictor of LARC insertion numbers in the past year for Ob/Gyns ($p < 0.01$) but not for Family Practice Physicians ($p > 0.05$). Compared to the reference category of Nurse Practitioners, Ob/Gyns inserted 26 more LARCs on average over the past year, controlling for all other variables. The Setting Amenability Scale score was also a significant predictor of past year's LARC insertion numbers ($p < 0.001$), with each one point increase on the Setting Amenability Scale associated

with an average increase of 15 LARCs inserted over the past year, when controlling for all other variables. The comparison of the standardized coefficients in the model indicates that Setting Amenability Scale score is the strongest predictor of number of LARCs inserted in the past year, followed by provider type as an Ob/Gyn. The adjusted R-squared value of 0.268 indicates that the predictor variables included here explain approximately 27% of the variance in LARCs inserted in the past year. Note that this model applies only to providers with a non-zero number of career LARCs inserted.

Table 13: Regression Analysis of Predictor Variables on LARC Insertion in Past Year

Predictor Variables	B	SE	β
Family Practice Physician [†]	-13.926 (-1.398)	9.964	-0.115
Is Ob/Gyn [‡]	25.730** (2.780)	9.254	0.247
Setting Amenability Scale	14.601*** (3.587)	4.070	0.297
Constant	-23.572 (-1.588)	14.847	
N	143		
Adj. R-squared	0.268		
Note: t-values are reported in parentheses			
*p<.05; **p<.01; ***p<.001 (two-tailed tests)			
† 1 = Family Practice Physician			
‡ 1 = Ob/Gyn			

References

- Bureau of Labor Statistics. (2016). Employment, Hours, and Earnings from the Current Employment Statistics survey (State & Metro Area) Home Page. Retrieved November 21, 2016, from <http://www.bls.gov/sae/>
- Bureau of Labor Statistics. (2016). Employment, Hours, and Earnings from the Current Employment Statistics survey (State & Metro Area) Home Page. Retrieved November 21, 2016, from <http://www.bls.gov/sae/>
- Center for Mississippi Health Policy. (2018). *Preventing Unintended Pregnancy in Mississippi*. Retrieved from <http://www.mshealthpolicy.com/wp-content/uploads/2018/05/Unintended-Pregnancy-Brief-May-2018.pdf>
- Committee On Adolescence. (2014). Contraception for Adolescents. *Pediatrics*, 134(4), e1244–e1256. <https://doi.org/10.1542/peds.2014-2299>
- Committee on Gynecologic Practice. (2015). *Increasing Access to Contraceptive Implants and Intrauterine Devices to Reduce Unintended Pregnancy* (Committee Opinion No. 642). The American College of Obstetricians and Gynecologists. Retrieved from <https://www.acog.org/Clinical-Guidance-and-Publications/Committee-Opinions/Committee-on-Gynecologic-Practice/Increasing-Access-to-Contraceptive-Implants-and-Intrauterine-Devices-to-Reduce-Unintended-Pregnancy>
- Espey, E., Ogburn, T., Espey, D., & Etsitty, V. (2003). IUD-Related Knowledge, Attitudes and Practices Among Navajo Area Indian Health Service Providers. *Perspectives on Sexual and Reproductive Health*, 35(4), 169–173. <https://doi.org/10.1363/3516903>
- Greenberg, K. B., Makino, K. K., & Coles, M. S. (2013). Factors Associated With Provision of Long-Acting Reversible Contraception Among Adolescent Health Care Providers. *Journal of Adolescent Health*, 52(3), 372–374. <https://doi.org/10.1016/j.jadohealth.2012.11.003>
- Guttmacher Institute. (2013). *Unintended Pregnancy in the United States*. Retrieved from <http://www.guttmacher.org/pubs/FB-Unintended-Pregnancy-US.html>
- Harper, C. C., Blum, M., De Bocanegra, H. T., Darney, P. D., Speidel, J. J., Policar, M., & Drey, E. A. (2008). Challenges in translating evidence to practice: the provision of intrauterine contraception. *Obstetrics & Gynecology*, 111(6), 1359–1369.
- Kavanaugh, M. L., Frohwirth, L., Jerman, J., Popkin, R., & Ethier, K. (2013). Long-acting Reversible Contraception for Adolescents and Young Adults: Patient and Provider Perspectives. *Journal of Pediatric and Adolescent Gynecology*, 26(2), 86–95. <https://doi.org/10.1016/j.jpbg.2012.10.006>
- Kavanaugh, M. L., Jerman, J., Ethier, K., & Moskosky, S. (2013). Meeting the Contraceptive Needs of Teens and Young Adults: Youth-Friendly and Long-Acting Reversible Contraceptive Services in U.S. Family Planning Facilities. *Journal of Adolescent Health*, 52(3), 284–292. <https://doi.org/10.1016/j.jadohealth.2012.10.276>
- Mississippi State Board of Medical Licensure. (2016). Statistical Reports - > 2016 Statistical Information. Retrieved November 21, 2016, from http://www.msbsml.ms.gov/msbsml/web.nsf/webpages/Stats_Stat2016?OpenDocument
- Rubin, S. E., Fletcher, J., Stein, T., Segall-Gutierrez, P., & Gold, M. (2011). Determinants of intrauterine contraception provision among US family physicians: a national survey of knowledge, attitudes and practice. *Contraception*, 83(5), 472–478. <https://doi.org/10.1016/j.contraception.2010.10.003>

Survey of Medical Professionals

Despite recent positive trends, unintended and adolescent pregnancies remain major public health concerns across Mississippi. In order to strengthen efforts to address these disparities, the Family and Children Research Unit (FCRU) at MSU's Social Science Research Center is conducting a study to better understand the availability of contraceptive care in Mississippi. The findings from the study will be used to guide policy directions in maximizing access to contraceptive care across Mississippi. As a healthcare provider, we are requesting your participation in this survey.

All of your answers will be confidential and not linked with you in any analysis. You will be asked to provide your name, which will be used to verify your status as a licensed healthcare provider. After verification, **your name will be removed from the dataset and will not be connected to your responses in any way.** You may discontinue the survey at any time and you may skip any questions that you prefer not to answer. The survey will take about 10 minutes.

1. What is your full name as it appears on your medical license?

Please note that your name will be used to verify that you are a medical professional practicing in Mississippi but will not be associated in any way with your survey responses.

2. Which of these best describes your role in your practice?

☐ Ob/Gyn

☐ Family practice physician

☐ Another type of physician: _____

☐ Nurse practitioner

☐ Nurse

☐ Administrator

☐ Other: _____

3. Approximately how many patients do you see in an average week? _____

4. Approximately what percentage of your patients have private insurance? _____

5. Approximately what percentage of your patients have Medicaid? _____

6. Have you received any medical training specific to Ob/Gyn care?

- ☐ Yes
- ☐ No
- ☐ Don't Know

7. In an average week, approximately how many of your patients are seeking contraceptive services?

8. The following questions are about Long Acting Reversible Contraceptives, or LARCs, such as birth control implants and intrauterine devices. Which of the following best describes your approach to intrauterine devices (such as Mirena or Paraguard)? Do you...

- ☐ Recommend the IUD to no one
- ☐ Recommend to selected patients and refer for insertion
- ☐ Recommend to selected patients and insert
- ☐ Other: _____
- ☐ Don't Know

9. Which of the following best describes your approach to contraceptive implants (such as Nexplanon)? Do you...

- ☐ Recommend the implant to no one
- ☐ Recommend to selected patients and refer for insertion
- ☐ Recommend to selected patients and insert
- ☐ Other: _____
- ☐ Don't Know

10. Over the course of your career, approximately
how many total LARCs have you inserted? _____
11. In the last year, approximately how many total LARCs have you inserted? _____
12. During your residency or practicum, approximately
how many total LARCs did you insert? _____
13. Over the course of your career, approximately
how many total LARCs have you removed? _____
14. In the last year, approximately how many total LARCs have you removed? _____
15. During your residency or practicum, approximately
how many total LARCs did you remove? _____

16. Please indicate whether you agree or disagree with each of the following statements about LARCs:

	Agree	Disagree	Don't Know
I have sufficient experience in inserting LARCs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have sufficient information to counsel patients about LARCs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was formally trained in LARC counseling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was formally trained in LARC insertion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was formally trained in LARC removal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have sufficient experience in removing LARCs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LARCs are medically safe for patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The side effects of LARCs make them too problematic to recommend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The liability associated with LARC insertion makes them too problematic to recommend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My patients are generally receptive to LARCs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am comfortable discussing LARCs with my patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to insert LARCs immediately following delivery for postpartum patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have personal concerns or objections to providing LARC services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. Please describe your personal concerns or objections to providing LARC services.

18. Approximately what percentage of your patients are good candidates for LARCs? _____

19. When discussing contraception options, what concerns (if any) do your patients generally express about LARCs?

20. Please describe a patient for whom you would be most likely to recommend a LARC device.

21. Assuming no contraindications for use of a LARC and all other factors are favorable for use, please indicate if you would recommend a LARC for each of these patients. For each patient, please select either "recommend routinely," "recommend only if other methods are unacceptable," or "never recommend."

	Recommend Routinely	Recommend only if other methods are unacceptable	Never recommend	Don't Know
A patient who has never had children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A patient who has had at least one child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A patient with one exclusive sexual partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A patient with multiple sexual partners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A patient planning to have children at some point in the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A patient who has had an ectopic pregnancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A patient who has had an abortion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A patient under 18 years of age	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A patient between 19 and 25 years of age	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A patient between 25 and 39 years of age	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A patient 40 years of age or older	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. Next, are a few questions about your practice. Which of the following best describes your practice?

- ☐ Ob/Gyn
- ☐ Nurse practitioner clinic
- ☐ Specialty care
- ☐ Primary care?
- ☐ Other Service focus: _____
- ☐ Don't Know

23. Which of the following options best describes your practice?

- ☐ Health Department
- ☐ Hospital
- ☐ Federally Qualified Health Center
- ☐ Private Practice
- ☐ Another type of facility (please specify): _____
- ☐ Don't Know

24. Approximately what percent of your patients are under 18 years of age? _____

25. In what zip code is your practice located? _____

26. Does your practice receive any Title X funding?

- ☐ Yes
- ☐ No
- ☐ Don't Know

27. Is your practice part of a religiously affiliated health care institution?

- ☐ Yes
- ☐ No
- ☐ Don't Know

28. Below is a list of types of contraceptive methods. Please indicate what percent of your patients that use contraceptives use each of these methods.

Oral Contraceptives : _____

IUDs : _____

Implants (such as nexplanon) : _____

Injectables : _____

Birth control patch : _____

Birth control ring : _____

Barrier methods used without other forms of contraception : _____

Other methods : _____

Total : _____

29. Please rate your level of agreement with the following statements on a scale of 1 to 5 with 1 meaning "Strongly Agree" and 5 meaning "Strongly Disagree."

	1 - Strongly Agree	2	3	4	5 - Strongly Disagree	Don't Know	Prefer Not to Answer
My practice is able to provide same-day insertion for patients interested in LARCs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My practice is able to provide LARC removal services for patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My practice stocks an adequate amount of LARC devices to meet demand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LARC insertion requires too much staff time to be practical in our practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our clinic has adequate staff to address potential complications from LARC insertion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reimbursement practices from private insurance are acceptable for LARC services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reimbursement practices from medicaid are acceptable for LARC services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LARCs are too costly for our practice to offer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

30. Overall, are there any other advantages or disadvantages to offering LARC services in your practice?

31. Thinking about your patients overall, what would be the most important factor in improving their access to contraception?

Finally, we have a few questions about your background.

32. In what year did you complete your medical training? _____

33. Did you complete a residency training program or practicum in obstetrics and gynecology?

- ☐ Yes
- ☐ No
- ☐ Don't Know

34. In what year were you born? _____

35. Do you subscribe to any religious identity or faith tradition?

☐ Yes

☐ No

☐ Prefer Not to Answer

36. What is your religious identity or faith tradition? _____

37. Do you consider yourself Hispanic or Latino?

☐ Yes

☐ No

☐ Don't Know/Not Sure

38. What is your race? Please check all that apply.

☐ White

☐ Black or African American

☐ American Indian/Alaska Native

☐ Asian or Pacific Islander

☐ Multi-racial

☐ Other: _____

☐ Don't Know

39. What is your gender?

☐ Man

☐ Woman

☐ Other: _____

Appendix B: Scale Construction Sources

		Item Source
Setting Amenability Scale	My practice is able to provide same-day insertion for patients interested in LARCs	Item constructed by research team based on findings from (Committee on Gynecologic Practice, 2015)
	My practice is able to provide LARC removal services for patients	Item constructed by research team to address specific data gap on LARC provision
	My practice stocks an adequate amount of LARC devices to meet demand	Item constructed by research team based on findings from (Kavanaugh, Frohwirth, et al., 2013)
	LARC insertion require too much staff time to be practical in our practice	Item constructed by research team based on findings from (Kavanaugh, Frohwirth, et al., 2013)
	Our clinic has adequate staff to address potential complications from LARC insertion	Adapted from (Kavanaugh, Jerman, et al., 2013)
	Reimbursement practices from private insurance are acceptable for LARC services	(Kavanaugh, Jerman, et al., 2013)
	Reimbursement practices from Medicaid are acceptable for LARC services	(Kavanaugh, Jerman, et al., 2013)
	LARCs are too costly for our practice to offer	(Espey et al., 2003; Kavanaugh, Jerman, et al., 2013)
	I have sufficient experience in inserting LARCs	(Espey et al., 2003)
	I have sufficient information to counsel patients about LARCs	(Espey et al., 2003; Harper et al., 2008)
Provider Opinion Scale	I was formally trained in LARC counseling	Adapted from (Greenberg, Makino, & Coles, 2013)
	I was formally trained in LARC insertion	Adapted from (Greenberg et al., 2013)
	I was formally trained in LARC removal	Adapted from (Greenberg et al., 2013)
	I have sufficient experience in removing LARCs	Item constructed by research team based on findings from (Harper et al., 2008)
	LARCs are medically safe for patients	(Harper et al., 2008; Rubin et al., 2011)
	The side effects of LARCs make them too problematic to recommend	Item constructed by research team based on findings from (Kavanaugh, Frohwirth, et al., 2013)
	The liability associated with LARC insertion makes them too problematic to recommend	Item constructed by research team based on findings from (Espey et al., 2003)
	My patients are generally receptive to LARCs	(Harper et al., 2008; Rubin et al., 2011)
	I am comfortable discussing LARCs with my patients	(Rubin et al., 2011)
	I am willing to insert LARCs immediately following delivery for postpartum patients	Item constructed by research team based on findings from (Committee on Gynecologic Practice, 2015; Harper et al., 2008)
	I have personal concerns or objections to providing LARC services	Item constructed by research team to address specific data gap on LARC provision