

A Study of Physician Recommendations for Reversible Contraceptive Methods Using Standardized Patients

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CONTEXT: Health care providers may influence patients' choice of contraceptive method, yet little is known about the recommendations they make to their patients.

METHODS: In 2007–2008, a total of 468 physicians at four family medicine and obstetrics and gynecology meetings were randomly assigned to view one of 18 videos of a patient seeking contraceptive advice; the patients were standardized for most relevant behaviors and characteristics, but differed by race and ethnicity, socioeconomic status and gynecologic history. Participants provided their demographic and practice characteristics and completed a survey about their contraceptive recommendations for the patient. Multivariate logistic regression analyses were conducted to identify associations between physician characteristics and recommendations for specific contraceptive methods.

RESULTS: The most frequently recommended methods were the pill (89%) and ring (80%), followed by the levonorgestrel IUD (64%), patch (56%), injectable (49%) and copper IUD (45%). Oral contraceptives were more likely to be recommended by private practice physicians than by academic physicians (odds ratio, 2.9). Recommendations for the ring were less common among family physicians and those 56 or older than among obstetrician-gynecologists and those 35 or younger (0.6 and 0.3, respectively), and more common among physicians in private practice than among those in academia (2.4). The patch and injectable were more commonly recommended by family physicians than by obstetrician-gynecologists (2.6 and 2.5, respectively). Both IUD types were recommended less often by physicians 36 or older than by younger ones (0.2–0.5).

DISCUSSION: The advice women receive about contraception may vary according to the characteristics of their provider. Research on the reasons for these differences is needed.

Perspectives on Sexual and Reproductive Health, 2011, 43(4):224–229, doi: 10.1363/4322411

All nonbarrier reversible methods of contraception in the United States are available only with the assistance of a health care provider, as they require either a prescription or, in the case of implants and IUDs, a procedural intervention. Although the choice of a method should be a woman's own (barring medical contraindications), clinicians may influence patients' contraceptive choices. However, little is known about clinicians' contraceptive counseling and method recommendations. A 1991 study found that Canadian physicians who had graduated from medical school after 1969 had less positive attitudes about IUDs than did earlier graduates, and that female physicians were more likely than males to perceive the diaphragm positively.¹ A 2008 study, conducted in California, found that obstetrician-gynecologists, younger physicians and those who had received training in IUD insertion were more likely than other clinicians to offer IUDs to their patients.² Still unknown is how recent advances in contraceptive technology—including the introduction of the patch, the ring and the levonorgestrel IUD—have been integrated into clinician recommendations, as well as how physicians' recommendations differ across methods.

Health care providers are slow to adopt new practices related to contraceptive care. A national survey conducted

in 2005 found that substantial proportions of contraceptive providers had not adopted recently developed evidence-based protocols, such as prescribing methods without requiring a pelvic exam, initiating hormonal contraceptive regimens immediately (rather than having women wait until their next menstrual cycle) and providing advance supplies of emergency contraceptive pills.³ In addition, multiple surveys have identified substantial deficiencies in clinicians' knowledge about methods in general,⁴ and IUDs in particular.^{2,5,6}

Understanding clinicians' recommendations about contraception is important, especially given that half of U.S. pregnancies are unintended;⁷ furthermore, it can provide information about their adoption of new contraceptive technologies. To investigate physicians' recommendations about reversible contraceptives, we analyzed recommendations from doctors who viewed a video portraying a patient seeking contraceptive advice.

METHODS

This is a secondary analysis of a study designed to investigate whether and how clinicians' recommendations for intrauterine contraception differ by patients' race and

ethnicity, socioeconomic status and gynecologic history. Between September 2007 and May 2008, a convenience sample of health care providers was recruited in the exhibit halls of four medical society meetings: two regional and one national meeting of the American College of Obstetricians and Gynecologists (ACOG), and a national meeting of the American Academy of Family Physicians (AAFP). Each participant was randomly assigned to view one of 18 videos of a patient seeking contraceptive advice; in each video, a woman indicated that she was in a monogamous relationship, that she did not want to become pregnant for at least a few years and that her insurance covered all methods. The script, the patient's appearance and speech patterns, and other verbal and nonverbal factors were standardized across videos, with three exceptions: The videos varied by the patient's race and ethnicity (white, black or Hispanic), socioeconomic status (low or high) and gynecologic history (the woman either had had a vaginal delivery and had no history of STDs; had had a vaginal delivery and had pelvic inflammatory disease; or was nulliparous and had no history of STDs). A panel of five health care providers previewed all 18 and confirmed that the only substantial variations were by the three study factors. Results of analyses examining differences in provider recommendations by patient characteristics have been published.^{8,9}

After viewing one of the videos, each participant completed a computerized survey that included the following question: "Assuming that all methods were covered by the patient's insurance and were provided in your practice, and that the patient had no strong preference, please indicate for each method what your recommendation for this patient would be." For each of the six most commonly used reversible nonbarrier methods (the pill, injectable, patch, ring, copper IUD and levonorgestrel IUD), the clinician provided a rating ranging from -3 to 3; a rating of -3 indicated "strongly recommend against," 0 indicated "neither recommend for nor against" and 3 indicated "strongly recommend for." The order in which the methods were listed was randomly selected for each participant to avoid any sequence effect.

Participants also provided information on their demographic and practice characteristics. These included sex, race and ethnicity (white, black, Hispanic, Asian/Pacific Islander or other), age (35 or younger, 36-45, 46-55, or 56 or older), specialty, professional degree, and board certification (yes or no). Respondents also reported how often they prescribed contraceptives (frequently, occasionally, rarely or never), whether they inserted IUDs (yes or no), and their practice type (academic, private, HMO, or family planning clinic or community health center) and region (Northeast, Midwest, South or West).

To focus our analysis on providers who were most involved in prescribing contraceptives, we limited our sample to clinicians specializing in obstetrics and gynecology or family medicine, as these specialties provide the majority of contraceptive care in the United States.¹⁰

For the same reason, we excluded providers who indicated that they rarely or never prescribed contraceptives. In addition, we excluded nurse practitioners and physician assistants; because they constituted only 4% of our sample, our analysis would not have had sufficient statistical power to enable us to draw meaningful conclusions about these providers' contraceptive recommendations. In total, we excluded 21 nurse practitioners or physician assistants, seven physicians who listed a specialty other than family medicine or obstetrics and gynecology, and 28 family physicians or obstetrician-gynecologists who rarely or never prescribed contraceptives. Our final sample consisted of 468 physicians.

We used chi-square tests to identify overall group differences in associations between physician characteristics and contraceptive recommendations. In these analyses, we

TABLE 1. Percentage distribution of physicians participating in a study of contraceptive recommendations for standardized patients, by selected characteristics, 2007-2008

Characteristic	% (N=468)
Sex	
Male	55
Female	45
Race/ethnicity	
White	77
Black	8
Hispanic	4
Asian	10
Other	2
Age	
≤35	18
36-45	33
46-55	31
≥56	18
Specialty	
Obstetrics-gynecology	62
Family medicine	38
Frequency of prescribing contraceptives	
Frequently	83
Occasionally	17
Board-certified	
Yes	92
No	8
Practice type	
Academic	25
Private	54
HMO	8
Other‡	13
Region	
Northeast	18
Midwest	32
South	31
West	19
Inserts IUDs	
Yes	79
No	21
Total	100

‡Family planning clinic or community health center. Note: Percentages may not total 100 because of rounding.

classified a participant as recommending a method if he or she gave the method a score of 1 or higher on the –3 to 3 scale.

Next, we used multivariate logistic regression models to assess associations between physician characteristics and recommendation of each method. In these models, we included as covariates the three varying patient characteristics (race and ethnicity, socioeconomic status and gynecologic history), as well as all interactions between patient characteristics with a p value of less than .10. In the multivariate analyses, we considered a physician to have recommended a method if his or her score for that method was higher than the physician's mean score for all six methods. This approach avoids potential confounding by the association of physician characteristics with a gen-

eral propensity to recommend contraceptive methods, and focuses the analysis on whether the provider considers a specific method more or less appropriate than others.

To assess whether the use of standardized patients with varying characteristics affects the generalizability of our findings, we performed sensitivity analyses examining the relationship of patient characteristics with overall frequency of recommending each method, as well as interactions between patient and provider characteristics. All analyses were performed using STATA 9.2.

The Committee on Human Research at the University of California, San Francisco, approved this study. All participants provided informed consent using a computerized consent form. They received a food item with a value of approximately \$5 for their participation.

RESULTS

We enrolled 69 physicians at regional ACOG meetings, 220 at the national ACOG meeting and 179 at the national AAFP meeting. Slightly more than half of the physicians were male, three-fourths were white and half were aged 45 or younger (Table 1, page 225). Sixty-two percent were obstetrician-gynecologists, and 54% worked in private practice. All four census regions of the United States were represented in the sample. Seventy-nine percent of participants inserted IUDs as part of their practice.

The pill was the contraceptive method most frequently recommended by participants (89%), followed by the ring (80%), levonorgestrel IUD (64%), patch (56%), injectable (49%) and copper IUD (45%—Table 2). The physician characteristics most frequently associated with recommendations were specialty, frequency of providing contraceptive care, practice type and IUD insertion; the ring, levonorgestrel IUD and copper IUD were the methods most commonly associated with physician characteristics.

In multivariate regression analyses, where the outcome of interest was whether the physician recommended an individual method more highly than his or her average recommendation for all methods, the only physician characteristics associated with recommendations for oral contraceptives were practice type and whether the respondent inserted IUDs (Table 3). Private practitioners were more likely than academic physicians to recommend the pill (odds ratio, 2.9), while physicians who inserted IUDs were less likely to make such recommendations than were those who did not do insertions (0.4). The ring was more likely to be recommended by female physicians than by their male counterparts (2.1), and by private practice physicians than by those working in an academic setting (2.4). In addition, recommendations for the ring were less common among physicians older than 55 than among those 35 or younger (0.3), and among family physicians than among obstetrician-gynecologists (0.6); moreover, the odds of recommending this method were lower among black (0.3), Hispanic (0.3) and Asian (0.4) physicians than among white physicians.

TABLE 2. Percentage of physicians recommending specific contraceptive methods, by selected characteristics

Characteristic	Pill	Ring	Levonorgestrel IUD	Patch	Injectable	Copper IUD
All	89	80	64	56	49	45
Sex						
Male	87	73***	62	54	50	44
Female	91	89	66	58	49	46
Race/ethnicity						
White	89	81	66*	56	48	44
Black	90	82	71	45	58	55
Hispanic	88	59	71	65	59	59
Asian	89	78	49	60	49	40
Other	70	60	30	50	60	30
Age						
≤35	91	89**	79**	58	42	57
36–45	91	84	67	56	52	44
46–55	85	77	56	57	54	41
≥56	88	67	58	51	44	41
Specialty						
Obstetrics-gynecology	89	83*	70***	50**	43***	49*
Family medicine	88	74	54	66	60	38
Frequency of prescribing contraceptives						
Frequently	90*	84***	68***	55	47*	47*
Occasionally	81	58	47	61	60	33
Board-certified						
Yes	90**	79	64	55	49	45
No	76	87	70	65	49	49
Practice type						
Academic	82*	79	78**	52	47	57**
Private	93	83	61	57	47	38
HMO	83	78	64	58	50	53
Other†	87	70	51	56	60	44
Region						
Northeast	88	85	63	50	50	44
Midwest	89	79	68	51	50	48*
South	90	76	59	61	42	35
West	87	81	67	60	58	56
Inserts IUDs						
Yes	88	82*	70***	54	46*	49***
No	92	71	41	63	60	29

*p<.05. **p<.01. ***p<.001. †Family planning clinic or community health center. Note: All p values represent overall group differences.

TABLE 3. Odds ratios (and 95% confidence intervals) from logistic regression analyses examining associations between physicians' characteristics and their likelihood of recommending specific contraceptive methods

Characteristic	Pill	Ring	Levonorgestrel IUD	Patch	Injectable	Copper IUD
Sex						
Male (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Female	1.0 (0.6–1.7)	2.1 (1.3–3.6)**	0.9 (0.5–1.4)	1.0 (0.6–1.5)	0.7 (0.4–1.1)†	0.6 (0.4–1.0)†
Race/ethnicity						
White (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Black	0.6 (0.2–1.4)	0.3 (0.1–0.6)**	0.9 (0.4–2.0)	0.6 (0.3–1.4)	1.2 (0.5–2.6)	1.5 (0.7–3.3)
Hispanic	0.9 (0.2–3.0)	0.3 (0.1–0.8)*	2.1 (0.6–6.5)	1.3 (0.5–3.8)	0.9 (0.3–2.9)	3.0 (1.0–8.7)*
Asian	0.5 (0.2–1.2)	0.4 (0.2–0.9)*	0.5 (0.3–1.1)†	1.2 (0.6–2.4)	0.8 (0.4–1.7)	1.0 (0.5–2.2)
Other	0.3 (0.1–1.2)†	0.6 (0.1–2.6)	0.3 (0.1–1.4)	1.4 (0.3–5.3)	2.2 (0.6–8.4)	0.2 (0.03–2.1)
Age						
≤35 (ref)	1.0	1.0	1.0	1.0	1.0	1.0
36–45	0.9 (0.4–2.0)	0.5 (0.2–1.2)	0.4 (0.2–0.7)**	1.1 (0.6–2.1)	1.9 (0.9–3.9)†	0.5 (0.2–0.9)*
46–55	0.7 (0.3–1.6)	0.5 (0.2–1.1)†	0.3 (0.1–0.6)***	1.1 (0.6–2.2)	1.8 (0.9–3.9)	0.3 (0.2–0.7)**
≥56	1.0 (0.4–2.5)	0.3 (0.1–0.6)**	0.2 (0.2–0.5)**	1.1 (0.5–2.3)	1.9 (0.8–4.4)	0.4 (0.2–0.9)*
Specialty						
Obstetrics-gynecology (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Family medicine	0.8 (0.4–1.5)	0.6 (0.3–1.0)*	0.8 (0.5–1.3)	2.6 (1.6–4.4)***	2.5 (1.5–4.3)**	0.9 (0.5–1.6)
Frequency of prescribing contraceptives						
Frequently (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Occasionally	0.7 (0.4–1.4)	0.6 (0.3–1.0)†	0.6 (0.3–1.1)	1.4 (0.8–2.6)	1.7 (0.9–2.9)†	0.6 (0.3–1.2)
Board-certified						
Yes	2.1 (0.9–5.0)†	0.9 (0.3–2.5)	1.2 (0.5–3.0)	0.6 (0.3–1.5)	0.6 (0.2–1.4)	1.8 (0.8–4.4)
No (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Practice type						
Academic (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Private	2.9 (1.7–5.0)***	2.4 (1.4–4.2)**	0.6 (0.4–1.0)†	1.5 (0.9–2.5)	0.9 (0.6–1.6)	0.5 (0.3–0.9)*
HMO	1.5 (0.6–3.7)	2.1 (0.8–5.4)	0.6 (0.2–1.4)	2.0 (0.8–4.6)	0.4 (0.2–1.1)	0.5 (0.2–1.2)
Other†	2.0 (0.9–4.5)†	1.1 (0.5–2.3)	0.5 (0.2–1.0)†	1.9 (0.9–3.8)†	1.4 (0.7–2.8)	0.8 (0.4–1.6)
Region						
Northeast (ref)	1.0	1.0	1.0	1.0	1.0	1.0
Midwest	1.2 (0.6–2.4)	0.6 (0.3–1.2)	1.0 (0.5–1.8)	1.3 (0.7–2.5)	0.8 (0.4–1.5)	1.3 (0.7–2.5)
South	1.3 (0.6–2.5)	0.8 (0.4–1.5)	0.6 (0.4–1.2)	2.6 (1.4–4.9)**	0.6 (0.3–1.1)	0.7 (0.4–1.4)
West	0.7 (0.3–1.5)	0.6 (0.3–1.4)	0.8 (0.4–1.5)	1.3 (0.7–2.7)	1.2 (0.6–2.4)	1.6 (0.8–3.2)
Inserts IUDs						
Yes	0.4 (0.2–0.8)*	0.8 (0.4–1.4)	2.2 (1.2–4.1)*	1.0 (0.6–1.9)	0.8 (0.4–1.4)	1.7 (0.9–3.4)
No (ref)	1.0	1.0	1.0	1.0	1.0	1.0

*p<.05. **p<.01. ***p<.001. †p<.10. ‡Family planning clinic or community health center. Notes: A physician was considered to have recommended a method if his or her score for that method was higher than the physician's mean recommendation score for all six methods. All models control for the standardized patient's race and ethnicity, socioeconomic status and gynecologic history; the model for the levonorgestrel IUD also includes an interaction term between patient's race and ethnicity and socioeconomic status. ref=reference group.

Physicians aged 36 or older were less likely than younger physicians to recommend the levonorgestrel IUD (odds ratios, 0.2–0.4), and those who inserted IUDs as part of their practice had twice as high odds as other physicians of recommending this method (2.2). In addition, we found nonsignificant trends toward academic physicians' recommending the levonorgestrel IUD more often than physicians in private practice and those working at family planning clinics or community health centers. Specialty was not associated with recommendations for this method.

Recommendations for the patch were associated with specialty and region. Family physicians and those practicing in the South were more likely to recommend this method than were obstetrician-gynecologists and those practicing in the Northeast, respectively (odds ratio, 2.6 each). Family physi-

cians were also more likely than obstetrician-gynecologists to recommend the injectable (2.5). The odds of recommending the copper IUD were elevated among Hispanic physicians (3.0); they were reduced among physicians 36 or older (0.3–0.5) and those in private practice (0.5).

Overall, age, specialty and type of practice were the physician characteristics most often associated with method recommendations. Frequency of providing contraceptives and board certification were not associated with recommendations for any methods.

In the sensitivity analyses, the only patient characteristic that affected the relative frequency of method recommendations was gynecologic history (not shown). Parous women with no history of STDs were more likely to receive recommendations for the copper IUD (53%) than for the patch (51%) or the injectable (44%); the copper

IUD was the least recommended method for the other two gynecologic profiles. No interactions between variables altered our findings.

DISCUSSION

Our results suggest that the pill is recommended more often than other contraceptive methods, and that recommendations for methods—especially the ring and IUDs—vary by physicians' demographic characteristics. Age, practice type and specialty were the most common predictors of recommendations. These differences indicate that the recommendations that patients receive may vary depending on their physician.

The overall ranking of birth control methods merits notice, as the method that has been available the longest—the pill—is also the most highly recommended one, despite the introduction of three new methods in the past decade. Similar findings have been reported in the United Kingdom, where both the patch and the levonorgestrel IUD have been available for several years.¹¹ However, the high average rankings for the ring, levonorgestrel IUD and patch suggest that new contraceptive technologies are being integrated into the practice of many physicians. The ranking of the patch ahead of the injectable is somewhat surprising, as data from the 2006–2008 National Survey of Family Growth (NSFG) indicate that women are more likely to use the latter than the former.¹²

By contrast, the popularity of the levonorgestrel IUD is consistent with the increase in IUD use found in the most recent NSFG; 6% of women who were using contraceptives reported using some type of IUD, compared with 2% in 2002.¹² The low ranking of the copper IUD, particularly in comparison with the more recently introduced levonorgestrel IUD, is of interest because no previous survey has investigated whether clinicians' opinions differ between the two devices. We postulate that our findings reflect providers' assessment of the acceptability of the devices' different bleeding side effect profiles^{13–15} or the effectiveness of marketing of the levonorgestrel IUD.

The prominent differences in IUD recommendations by physician age, practice type and specialty are notable, given recent attention to these methods, and attempts to dispel commonly held misconceptions about them, by family planning experts and medical specialty organizations.^{16–18} That younger physicians were more likely than older ones to recommend both types of IUD is consistent with findings from a 2008 study of contraceptive providers in California,² suggesting that acceptance of these methods is highest among physicians who have recently completed their training. Physicians in private practice were less likely than academic physicians to recommend the copper IUD; this finding, together with the marginally significant trend in the same direction for the levonorgestrel IUD, suggests that physicians working in private offices are less comfortable or familiar with IUDs in general than are those in academic settings. Although recommendations for IUDs were lower among family medicine

physicians than among obstetrician-gynecologists in the bivariate analyses, these differences were eliminated in multivariate analyses that adjusted for confounders, such as IUD insertion; this suggests that family physicians who receive appropriate training are willing to recommend this method to their patients.

Recommendations for the vaginal ring differed by several physician characteristics; respondents who were male, nonwhite, practicing family medicine or working in an academic setting (as opposed to private practice) had a reduced likelihood of recommending this method. Male physicians' lower odds of recommending the ring raise the question of whether barriers to counseling women about this method and providing it to them may exist among men.

Notably, although the ring and the patch were introduced at approximately the same time in the United States, the associations of physician characteristics with recommendations for these methods were quite different. Specialty was the only characteristic associated with recommending both methods; family physicians were more likely than obstetrician-gynecologists to recommend the patch, but less likely to recommend the ring. The black box warning¹⁹ placed on the label for the patch in 2005—which noted that blood estrogen levels are higher with this method than with oral contraceptives, and that users may be at increased risk for deep venous thrombosis—may have influenced these results, and may help explain why the recommendation rate for the patch is lower than that for the ring. Specifically, this may be the reason why recommendations for the patch were not linked to age in the same manner as was seen for the ring and the levonorgestrel IUD, both of which were, like the patch, introduced relatively recently in the United States.

Limitations

One limitation of our study is the use of a convenience sample. Nonetheless, the age, sex, and racial and ethnic distributions of our sample are similar to those of both obstetrician-gynecologists and family medicine physicians in the United States,^{20,21} which reassures us that our sample is in many respects representative of the national physician population in these specialties. However, differences may exist between attendees at meetings of national specialty organizations and the general physician population, as well as between attendees who participated in our study and those who did not; either of these could have biased our results. We believe such bias would likely result in our finding higher levels of recommendations for the ring, patch and IUD, as attendance at national meetings would likely expose physicians to information about medical advances, including new contraceptive technologies.

An additional limitation is that each physician was asked to make recommendations specifically for one standardized patient. However, our sensitivity analyses indicate that patient characteristics had minimal association with the relative frequency of recommendations for particular methods, and did not modify the associations between

physician characteristics and method recommendations. Therefore, our results were likely minimally affected by the use of multiple standardized patients, and may be generalizable to broader patient populations.

Because of small sample sizes, we may not have been able to detect differences in recommendations within some demographic subgroups, including nonwhite physicians. In addition, our results cannot be generalized to nurse practitioners and physician assistants. We also acknowledge that by focusing on the provider perspective, we neglected the roles of the patient and of the interaction between the provider and the patient in the choice of a contraceptive method.

Conclusion

Overall, our results suggest that physician recommendations for specific methods, most notably IUDs and the ring, vary by provider characteristics. The differences in recommendations may affect both the experiences of patients receiving family planning care and these patients' choice of methods.²² Future research can address physicians' reasons for recommending specific methods, as well as the influence of these recommendations on patient contraceptive choice.

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Acknowledgments

This project was supported by a grant from an anonymous foundation, as well as by NIH/NCRR/OD UCSF-CTSI grant KL2 RR024130. All analyses, interpretations and conclusions in this article are the responsibility solely of the authors. The authors thank Allison Perencevich for assistance with data collection. The data presented in this article were presented in preliminary form at the annual meeting of the Association of Reproductive Health Professionals, Sept. 30–Oct. 3, 2009, Los Angeles.

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