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

By Christine Dehlendorf, Kevin Grumbach, Eric Vittinghoff, Rachel Ruskin and Jody Steinauer

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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.


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.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
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 examined 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.
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 general 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

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Pill</th>
<th>Ring</th>
<th>Levonorgestrel</th>
<th>Patch</th>
<th>Injectable</th>
<th>Copper IUD</th>
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<td>West</td>
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<td>81</td>
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<td><strong>Inserts IUDs</strong></td>
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<tr>
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<td>88</td>
<td>82*</td>
<td>70***</td>
<td>54</td>
<td>46*</td>
<td>49***</td>
</tr>
<tr>
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<td>92</td>
<td>71</td>
<td>41</td>
<td>63</td>
<td>60</td>
<td>29</td>
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</tbody>
</table>

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

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**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**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Pill</th>
<th>Ring</th>
<th>Levonorgestrel IUD</th>
<th>Patch</th>
<th>Injectable</th>
<th>Copper IUD</th>
</tr>
</thead>
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<td></td>
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<tr>
<td>Male (ref)</td>
<td>1.0</td>
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<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Female</td>
<td>1.0 (0.6–1.7)</td>
<td>2.1 (1.3–3.6)**</td>
<td>0.9 (0.5–1.4)</td>
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<td>0.6 (0.4–1.0)*</td>
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<td>1.0</td>
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<td>0.3 (0.1–0.6)**</td>
<td>0.9 (0.4–2.0)</td>
<td>0.6 (0.3–1.4)</td>
<td>1.2 (0.5–2.6)</td>
<td>1.5 (0.7–3.3)</td>
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<td>Hispanic</td>
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<td>0.3 (0.1–0.8)*</td>
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<td>3.0 (1.0–8.7)*</td>
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<td>0.4 (0.2–0.9)*</td>
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<td>36–45</td>
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<td>2.6 (1.6–4.4)**</td>
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<tr>
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<td>2.9 (1.7–5.0)**</td>
<td>2.4 (1.4–4.2)**</td>
<td>0.6 (0.4–1.0)†</td>
<td>1.5 (0.9–2.5)</td>
<td>0.9 (0.6–1.6)</td>
<td>0.5 (0.3–0.9)*</td>
</tr>
<tr>
<td>HMO</td>
<td>1.5 (0.6–3.7)</td>
<td>2.1 (0.8–5.4)</td>
<td>0.6 (0.2–1.4)</td>
<td>2.0 (0.8–4.0)</td>
<td>0.4 (0.2–1.1)</td>
<td>0.5 (0.2–1.2)</td>
</tr>
<tr>
<td>Other†</td>
<td>2.0 (0.9–4.5)†</td>
<td>1.1 (0.5–2.3)</td>
<td>0.5 (0.2–1.0)†</td>
<td>1.9 (0.9–3.8)†</td>
<td>1.4 (0.7–2.8)</td>
<td>0.8 (0.4–1.6)</td>
</tr>
<tr>
<td><strong>Region</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast (ref)</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Midwest</td>
<td>1.2 (0.6–2.4)</td>
<td>0.6 (0.3–1.2)</td>
<td>1.0 (0.5–1.8)</td>
<td>1.3 (0.7–2.5)</td>
<td>0.8 (0.4–1.5)</td>
<td>1.3 (0.7–2.5)</td>
</tr>
<tr>
<td>South</td>
<td>1.3 (0.6–2.5)</td>
<td>0.8 (0.4–1.5)</td>
<td>0.6 (0.4–1.2)</td>
<td>2.6 (1.4–4.9)**</td>
<td>0.6 (0.3–1.1)</td>
<td>0.7 (0.4–1.4)</td>
</tr>
<tr>
<td>West</td>
<td>0.7 (0.3–1.5)</td>
<td>0.6 (0.3–1.4)</td>
<td>0.8 (0.4–1.5)</td>
<td>1.3 (0.7–2.7)</td>
<td>1.2 (0.6–2.4)</td>
<td>1.6 (0.8–3.2)</td>
</tr>
<tr>
<td><strong>Inserts IUDs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>0.4 (0.2–0.8)*</td>
<td>0.8 (0.4–1.4)</td>
<td>2.2 (1.2–4.1)*</td>
<td>1.0 (0.6–1.9)</td>
<td>0.8 (0.4–1.4)</td>
<td>1.7 (0.9–3.4)</td>
</tr>
<tr>
<td>No (ref)</td>
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<td>1.0</td>
<td>1.0</td>
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<td>1.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

*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.
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 rec-
ommendations 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 con-
traceptives 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 intro-
duced levonorgestrel IUD, is of interest because no previ-
ous survey has investigated whether clinicians’ opinions
differ between the two devices. We postulate that our find-
ings reflect providers’ assessment of the acceptability of
the devices’ different bleeding side effect profiles13–15 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 organiza-
tions.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 pro-
viders 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 margin-
ally significant trend in the same direction for the levonor-
gestrel IUD, suggests that physicians working in private
offices are less comfortable or familiar with IUDs in gen-
eral than are those in academic settings. Although recom-
mendations 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 sev-
eral physician characteristics; respondents who were male,
nonwhite, practicing family medicine or working in an aca-
demic 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 intro-
duced 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 rec-
ommending 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 levonor-
gestrel 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 physi-
cians 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, differ-
ences may exist between attendees at meetings of national
specialty organizations and the general physician popula-
tion, 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 med-
ical 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. Future research can address physicians’ reasons for recommending specific methods, as well as the influence of these recommendations on patient contraceptive choice.

**REFERENCES**


**Acknowledgments**

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