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Hormonal contraceptive method choice among young, low-income women: How important is the provider?

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Abstract

Objectives—Several new methods are available, but we know little about successful integration of contraceptive technologies into services. We investigated provider factors associated with the initiation of new hormonal methods among women at high-risk of unintended pregnancy.

Methods—This cohort study enrolled 1,387 women aged 15–24 starting hormonal contraception (vaginal ring, transdermal patch, oral contraceptive, or injectable) at four family planning clinics in low-income communities. We measured provider factors associated with method choice, using multinomial logistic regression.

Results—Ring and patch initiators were more likely than women starting oral contraceptives to report that they chose their method due to provider counseling ($p<0.001$). Contraceptive knowledge in general was low, but initiation of a new method, the ring, was associated with higher knowledge about all methods after seeing the provider ($p<0.001$). Method initiated varied with provider site ($p<0.001$). These associations remained significant, controlling for demographics and factors describing the provider-patient relationship, including trust in provider and continuity of care.

Conclusion—Women's reports of provider counseling and of their own contraceptive knowledge after the visit was significantly associated with hormonal method initiated.

Practice Implications—More extensive counseling and patient education should be expected for successful integration of new hormonal methods into clinical practice.

Keywords

hormonal contraception; adolescents; high-risk women; providers influences; contraceptive choice

1. Introduction

Unintended pregnancy rates have remained persistently high in the United States, particularly among low-income, young women.[1] The clinical visit is the only way for

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women to obtain highly effective hormonal methods, and for many low-income women is a primary source of reliable information. Contraceptive services are provided to low-income populations in the US at more than 4,400 Title X clinics nationwide, which provide a wide range of contraceptives and patient education.[2,3] New contraceptive technologies can offer some advantages over existing methods and help to expand the range of methods. However, patient education and counseling may be insufficient for young women to make informed voluntary choices among all methods, particularly new or unfamiliar ones. Very few studies have measured the role of the provider in a young woman's choice to initiate a new contraceptive method.

In a national survey, contraceptive providers considered counseling to be the most important thing they could do for their patients' successful contraception, although the providers varied widely in their contraceptive counseling practices.[4] Little consensus or evidence exists to show the ways that providers influence patients in the contraceptive visit.[5] A few studies have shown that providers can help with the selection of a method that meets patient needs, [6,7] and a recent study has linked satisfaction with provider and continuity of care with more consistent use of oral contraceptives.[8] However, little is known about the woman's interaction with the provider, or her knowledge level and decision-making about hormonal methods. Furthermore, how much information providers give and the degree to which they assist with method selection has not been adequately studied. While the provider may have a beneficial role in method selection, there is also the possibility of undue influence or bias that might undermine patient preferences or needs. Research has shown distrust of medical institutions, hormonal contraception, and new methods among African-Americans.[9,10,11,12] Provider practices that help to build trust with patients, and help them to make voluntary and informed contraceptive choices are important, but few high-quality evaluations exist.[13,14] Most research on method selection has focused on method attributes or socio-demographic, personal or relationship characteristics. [15,16,17,18,19,20,21]

The focus of this analysis is to identify provider factors that are associated with selection of hormonal contraceptive methods by young women at high risk of unintended pregnancy, in the context of two newly available methods: the vaginal ring and the transdermal patch. We examine a series of provider factors, including contraceptive education and the provider-patient interaction in decision-making, to measure how provider factors may influence hormonal method choice. We hypothesize that the education required and role of the provider may intensify to successfully integrate newer contraceptive technologies into clinical practice.

2. Methods

Women were enrolled in the study after they chose to initiate one of four hormonal contraceptives: the vaginal ring, the transdermal patch, the oral contraceptive pill or the injectable, Depot medroxyprogesterone acetate (DMPA). To be eligible, participants had to be starting their method for the first time ever, although they could have used another hormonal method in the past. Women from four Planned Parenthood clinic sites in low-income communities outside of San Francisco (Oakland, Vallejo, Hayward and Richmond), were eligible if they were 15–24 years old, English- or Spanish-speaking, not married, and not planning to get pregnant within 12 months. The study was approved by the Committee on Human Research at the University of California, San Francisco.

Method selection was made by participants after receiving standard care at a study site. At the sites, Planned Parenthood medical assistants function as health educators/counselors for women seeking contraception and undergo training in contraceptive counseling with a

standardized evidence-based curriculum. Health educators provide information on contraceptive options (whether offered or not at site), as well as advantages and disadvantages of each method. The session lasts 10–15 minutes. An advanced practice clinician (NP, PA, CNM), reviews the woman's choice with her, reviews health history for contraindications, and dispenses the method or prescription. Abortion clients received the same contraceptive counseling prior to the procedure and method choice is reviewed and provided by the physician as part of post-abortion procedure orders. Though clinic sites follow standardized procedures which emphasize offering women a range of options and informed consent, counseling varies depending on patient interests and needs as well as clinic factors, such as time constraints, and provider training and preferences. Eighty-nine providers staffed the clinic sites; 21% were African-American, 30% Latina and 40% white.

While cost is likely to be an important determinant of contraceptive method choice in most settings, in California women within 200% of the Federal Poverty Level are provided a full range of contraceptives by the state-sponsored program Family PACT.[22] The participating sites serve a low-income patient population; clinic data during the study period reveals that most patients had income levels below 100% of the Federal Poverty Level."

Trained research assistants from the University of California, San Francisco recruited patients at study sites from September 2005 to May 2007. After the patient's clinic encounter, clinic staff referred potential participant to research assistants, who screened them for eligibility. Out of the women screened, 40 refused to participate, largely for reasons of no interest (n=30) or time (n=16). Eligible participants completed an informed consent, followed by a self-administered web-based, interactive survey, in English or Spanish, on a laptop computer. The survey was pilot tested for comprehension and took 45–60 minutes to complete. Participants were given $30 for completing the survey.

The survey included items on socio-demographic and relationship characteristics, reproductive history, contraceptive attitudes and knowledge, and the provider visit. Items were selected from national reproductive surveys[23,24] and previous research on hormonal contraception.[25,26,27] Survey items were also developed in formative qualitative research.[28] The survey instrument was informed by the theory of reasoned action, in which an individual's intentions and behavior, in this case contraceptive method choice, are influenced by attitudes on costs and consequences of that behavior, as well as by social expectations.[29] We posit that in the contraceptive clinic visit, the provider influences a women's perceptions of method benefits as well as of the costs of not using contraception and helps to strengthen her intentions for preventive behaviors. Ideally, given a patient's medical history and preferences, a provider would help to strengthen intentions to choose a contraceptive method, through positive interaction with the patient and appropriate education and counseling.

2.1 Outcome measure

The outcome measure is contraceptive method initiated, with the response categories as the four study methods: ring, patch, pill or injectable.

We used a series of measures related to method provision to understand the role of providers in women's method choice. The measures fall into three larger domains of education and counseling information, provider-patient interaction, and clinic site. The provider(s) was defined as the doctor, nurse, or counselor in the survey, with the exception of the items in the Physician Trust scale, in which the provider was defined as the "the nurse or doctor who gave you your birth control."

2.2 Education and counseling information

We asked many items about the contraceptive knowledge of participants after the visit with the provider, to assess what was discussed in the visit and knowledge retained. We asked which methods the provider ("doctor, nurse, or counselor") discussed with the patient, and constructed a variable to measure the range of choices ("which of the following methods did the health care providers talk to you about before you were given the baseline study method?") We constructed a contraceptive knowledge scale, including survey items that asked whether the women knew what each method (the pill, vaginal ring, patch, Depo-Provera® or "shot") is; whether each method has hormones to prevent pregnancy; if the ring/patch prevents pregnancy by blocking sperm like a condom; how often each method has to be taken to work; if the shot may make periods stop; if a provider must put in the vaginal ring.

We also asked women what they thought about method characteristics, and coded their attitudes about the methods. The items (5-point from strongly agree to strongly disagree) included whether they thought it was hard to take the pill every day, whether the pill disturbs menstrual periods, whether it is effective, leads to weight gain, makes it harder to get pregnant later, whether the patch is too visible, falls off easily, is messy on the skin, and hard to remember to use. For the ring, it asks whether it might get lost in the body, is dirty to insert, hard to use, looks like it would not work. For DMPA, items included attitudes about effectiveness, weight gain, and menstrual periods.

2.3 Provider-patient interaction

We asked women about provider influences in contraceptive decision-making. We asked whether women made the decision to choose their method by themselves, together with the provider, or whether the provider made the decision. We also asked whether the woman's decision to choose her method was due to what the provider told her about the method, and her responses were on a 5-point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree). To measure provider-patient trust and the nature of the interaction, we used a modified version of a previously validated Trust in Physician scale [30], with the following 8 items (using a 5-point scale strongly agree to strongly disagree): My provider cares about me; I trust my provider so much I always try to follow his/her advice; If my provider tells me something is so, then it must be true, I trust my provider's judgments about my medical care; I feel my provider does not do everything he/she should for my medical care; My provider is a real expert in taking care of medical problems like mine; I trust my provider to tell me if a mistake was made about my treatment; I sometimes worry that my doctor may not keep the information we discuss totally private.

2.4 Provider site and continuity of care

We included clinic site, to measure whether women who initiated particular methods were more likely to come from specific clinic sites potentially reflecting differences in counseling practices, methods favored, or even which ones are offered. We determined if participants were continuing care or whether it was a first visit to that site.

In our models, we included a set of control measures for method choice based in the literature, including socio-demographic variables, age (measured continuously), race/ethnicity, union status (main partner), as well as previous use of hormonal contraception and previous pregnancy.

2.5 Analysis

We used contingency table analysis and Chi-square statistics to measure the association of the series of provider factors with hormonal method selected at baseline. For the

construction of scale variables for contraceptive knowledge and attitudes of hormonal methods and provider-patient trust, we coded all items in a similar direction (low to high), and measured the scale reliability coefficient for this patient population using a Cronbach's alpha. A value of 0.80 was considered highly reliable. We also assessed scale validity through its correlation with other patient characteristics, including age and race/ethnicity. The scales were standardized. We conducted multinomial logistic regression analysis to measure the association of provider variables with method selected, controlling for patient socio-demographic and reproductive variables. For the outcome variable, hormonal method initiated, the oral contraceptive pill was the referent method of comparison. All analyses were performed with Stata 10.0, and significance levels were presented at the $p \leq 0.050$ level.

3. Results

This analysis assessed a total of 1,385 women selecting one of four hormonal methods for first time use: the pill (n=432), patch (n=401), ring (n=259), and DMPA (n=295) (Table 1). Participants had a mean age of 19.2 years, and were from diverse racial/ethnic groups. Almost half (49%) of participants had a previous pregnancy and 48% had used hormonal contraception.

Table 2 shows highly significant differences in method choice by most provider variables assessed in bivariate analysis. Participants reported whether their providers talked about each of the available methods, and recollections of each method was low: 52% said providers discussed the pill, 41% the patch, 27% the ring, and 35% DMPA. As expected, a greater proportion of women recalled discussions of their own method initiated. However, counseling that included a range of methods was infrequent: 75% of participants said providers talked about 1–2 methods, and only 14% reported that their provider discussed all study methods. A limitation of the survey question is that participants may have neglected to check off their own method, but even if participants just responded about the other methods discussed, only 11% responded that 3 of the 4 study methods were discussed. Recollections of other effective methods were rare; 10% reported that providers discussed the intra-uterine device (IUD).

We assessed a series of survey items on contraceptive knowledge after the provider visit, and created an overall knowledge scale of 17 items. Frequencies of some of these individual items show knowledge was low, particularly how the methods worked to prevent pregnancy. While over 90% of participants had heard of the patch, pill, and DMPA, only 71% had heard of the ring. Fewer than half (47%) of participants knew that the ring contained hormones to prevent pregnancy, although 80%–82% knew that the other study methods contained hormones. While women tended to know more about the method that they chose, still over 10% did not know that their own method contained hormones. Only 22% of all women, and half of ring initiators, knew that the ring does not block sperm like a condom. Half of patch initiators knew that the patch does not prevent pregnancy by blocking sperm like a condom. The contraceptive knowledge scale from our survey items had a high scale reliability coefficient of 0.81, as measured by Cronbach's alpha.

Negative attitudes towards methods were common, as recorded after the clinical encounter. We constructed an attitudes scale from a series of individual items, which show skepticism about hormonal methods. For example, 30% responded that the ring does not look like it would work and 68% thought that it might get lost somewhere in the body (or did not know). Forty-two percent responded that the patch is too visible and 32% that it is messy. Over half of participants (56%) see the pill as hard to take everyday and 41% as leading to weight gain. For the items measuring women's attitudes about the methods, the highest

reliability coefficient contained 13 items, but had a Cronbach's alpha of 0.66, not sufficiently high to include in the multivariable analysis. More negative attitudes were reported by patch and DMPA initiators.

For direct provider influence on decision-making, a surprisingly large proportion of participants reported they chose the method for themselves (89%), while 11% said they chose together with the provider. Fewer than 1% reported that the provider chose the method. However, when looking at factors that influenced the participants' method choice, over half (51%) reported that they chose they method because of what the provider told them. Ring or patch initiators were more likely to report choosing the method together with their provider ($p \leq 0.001$), and that their choice was due to what the provider told them about the method ($p \leq 0.001$). Over three-quarters of ring (76%) and half of patch (52%) initiators reported they chose the method due to what their provider said, as compared to 38% of pill and 45% of DMPA initiators.

The Provider Trust scale, a standardized measure of provider-patient interaction, had high internal consistency in the study sample, with a Cronbach's alpha of 0.82. Participants tended to rank the relationships with their providers as positive. Close to 80% agreed on most items: that their provider cares, that they have trust, tell the truth about health and contraception, make good decisions for health and contraception, do everything they should, and that they are experts. About 18–20% answered neutral to the items, and very few (1–2%) answered negatively. However, the positive interaction with the providers, as exhibited by trust, caring, expertise, truthfulness and confidentiality, was not associated with the specific hormonal method selected: greater trust in provider was not associated with initiation of newer methods. Scores on the provider trust scale did not vary by race/ethnicity.

Significant differences in method initiated existed by clinic site and by continued care at a clinic site. Some sites were far less likely than others to have ring and patch initiators. Ring or patch initiators were more likely to be returning clients, as compared to pill initiators ($p=0.001$), and were also more likely to have used hormonal contraception previously, to have been pregnant previously and to be relatively older ($p \leq 0.001$).

Results from multinomial logistic regression analysis allowed us to assess the different provider variables together, including controls, for women initiating each method, with pill initiators as the reference group (see Table 3). These results show that clinic site differences persist, as do the relatively greater influence of the provider in method choice for the newer methods, the ring and the patch. Both ring and patch initiators were significantly more likely than pill initiators to report that they chose their method due to what the provider said ($p \leq 0.001$). The greater the number of hormonal study methods that women reported were discussed by the provider in counseling, the less likely the women was to select DMPA ($p=0.004$). Ring initiators also continued to have higher knowledge levels about the hormonal contraceptives than pill initiators ($p \leq 0.001$). The ring and patch initiators were more likely to have used hormonal contraception in the past than the pill initiators ($p \leq 0.001$). The Provider Trust scale was not associated with a specific method initiated, nor was whether the woman was a returning client at the clinic, controlling for other variables. Results remain unchanged when the contraceptive attitudes scale is included in the model (not shown).

4. Discussion and Conclusion

4.1 Discussion

The vaginal ring and transdermal patch expanded the menu of hormonal contraceptive options, which were previously limited to oral contraceptives and DMPA for young women

not interested in intra-uterine contraception. Results from this study showed a greater role for providers in the uptake of newer hormonal methods, even though these young women tended to have previous experience with contraception. Young women who reported that they chose their method collaboratively with their provider, rather than all by themselves, as well as those who chose it due to what the provider told them were more likely to be ring and patch initiators. More detailed and comprehensive knowledge of methods was also associated with uptake of the ring. The provider role for the newer methods appears consistent with the hypothesis that they influenced patient knowledge of method benefits and the contraceptive choice. While the Provider Trust scale reliably captured multiple aspects of the provider-patient interaction, it was not associated with selection of any methods in particular. However, the scale did show that the women initiating methods reported high levels of trust in their provider's medical care and adherence to patient-centered principles[31].

The hormonal methods in our study are similar in effectiveness and do not inherently hold advantages over the other; they differ in routes of administration, timing of doses, and in patient familiarity. New methods are infrequently developed and introduced, and the existing selection is wide in range, but with different tolerances and acceptability among individual women. Optimally, young women most at risk of unintended pregnancy would learn about the range of choices available to them, and make a selection based upon their knowledge of the method and personal needs and preferences.

In reality, these results show that the participants initiating a hormonal method had very little knowledge of the choices available, many erroneous ideas about how the methods work, and negative impressions of how the methods might be cumbersome and inconvenient. While it is very important for women to learn about the side effects and disagreeable aspects of contraceptives to make an informed choice, each method also carries advantages that should be weighed into the decision. The hormonal component of the methods was not well understood. DMPA initiators heard about few other methods. While these contraceptive choices appear to be highly voluntary, with almost 90% of participants reporting that they selected their method on their own, they do not appear to be highly informed. The basic information about the methods being selected was largely missing. The pill was most frequently used among new contraceptors. A qualitative study of young women preceding this study found very low knowledge of new hormonal methods,[28] and results here also found a dearth of knowledge during times of initiating hormonal methods. The clinic visit may be the most important opportunity for young women to acquire accurate knowledge, but a different educational approach may be needed to accomplish that effectively.

This study has limitations that must be considered in the interpretation of findings. While we found variation at the clinic level in the provision of new hormonal methods, the finding is suggestive; a precise measurement of a clinic effect would require perhaps 10-fold the number of clinics. Furthermore, all clinics were located in California, although that did allow us to examine factors other than cost that might over-shadow method choices in other settings. Our data on the provider-patient interaction, and of the contraceptive knowledge, was collected from the women. Women may be the best data source for these measures because they show what was gleaned and retained, but an assessment of provider practices or participant observation could also help to give a more comprehensive picture of contraceptive counseling that occurred. Documentation of the individual providers seen by each patient would also help to measure with more precision the effect of the provider factors, which may not be as strongly significant in analyses adjusted for individual providers; future research needs to continue in this area.

The focus of this analysis is on method choice, and measures that were not significant for method initiation might be more so for continued use. For instance, trust in provider was not associated with uptake of any particular method, but the high levels suggest that it may be associated with acceptance of hormonal contraception in general. Future research might hypothesize these aspects to be influential in correct use and continuation as well. The hormonal methods studied included an array of methods, but did not include long-acting, reversible methods, an important focus for addressing high unintended pregnancy rates. Results did show intra-uterine contraception was rarely discussed. An area in which providers may improve care could be by including long-acting reversible methods into routine counseling.

4.2 Conclusion

These results point to directions for interventions of integrating new methods into provider practice. Provider interventions to increase the uptake of effective hormonal methods, particularly a range including newly introduced methods, should be focused on the informational aspects of the clinic interaction and the way sites introduce methods. Possible ways to address low knowledge could be through interventions testing newer, perhaps pictorial, or simple materials on method characteristics to determine what patients are more likely to absorb. The waiting room could be a potential time for enhanced education, visual or otherwise. Group contraceptive counseling, followed by the one-on-one visit, might also be a way to spend more time with young women to educate them adequately on available options, particularly those that are unfamiliar to them. To enhance patient choice, it is important to verify that contraceptive information given actually gets across effectively. Also, complementary data from providers on how they perceive new methods and whether they integrate them into practice would shed light on why patients might only remember discussions on a few methods.

These results reveal that even basic contraceptive education is too comprehensive to be taught in a single clinical encounter, or even a few visits with the provider over the adolescent and young adult years. Patients realistically can only absorb so much in a clinic visit.[13] The value of preventive education is high in the case of contraception, where patient preference and choice are important. Information on side effects or the hormonal content of methods, two features that can discourage women from using highly effective methods, should be taught in educational settings outside of clinics. On-going education and specially-designed curriculums are needed to support voluntary and informed contraceptive choices. Providers could spend the limited time available in the clinic visit on improving contraceptive adherence and continuation, and in ensuring on-going contact with patients [32].

4.3 Practice Implications

In this study young women appeared to be initiating contraception by weighing very few of the costs and benefits, since they were not aware of many basic concepts about the methods. The provider’s role in imparting knowledge to the patient, as well as education outside the clinic setting, may need to be augmented, not just for selection of the newer methods, but also for an informed choice of the methods that have existed for a long time. Patient confirmation of basic method information may help to point out when counseling is not yet sufficient.

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Table 1

Baseline characteristics of study participants (N = 1,387)

Socio-demographic factors	
Age, mean years (range)	19.2 (15–24)
Race/ethnicity, n (%)	
Latina	362 (26.1)
African-American	486 (35.1)
White	137 (9.9)
Asian/Pacific Islander	141 (10.2)
Multiracial/Other	259 (18.7)
Union status – Main partner, n (%)	927 (81.5)
Reproductive and contraceptive factors	
Previous Pregnancies, n (%)	679 (49.1)
Previous use of hormonal contraception, n (%)	655 (47.5)
Contraceptive Method Initiated, n (%)	
Vaginal ring	259 (18.7)
Transdermal patch	401 (28.9)
Oral contraceptive pill	432 (31.1)
Injectable DMPA	295 (21.3)

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Table 2

Provider variables, by contraceptive method choice at baseline

Hormonal contraceptive method	Ring n (%)	Patch n (%)	Pill n (%)	DMPA n (%)	Total n (%)
Total	**259 (18.7)**	**401 (28.9)**	**432 (31.1)**	**295 (21.3)**	**1,387 (100)**
Education and counseling information					
Methods discussed at clinic visit					
Ring***	**116 (44.8)**	**101 (25.2)**	**111 (25.7)**	**45 (15.2)**	**373 (26.9)**
Patch***	**113 (43.6)**	**221 (55.2)**	**165 (38.2)**	**74 (25.1)**	**573 (41.4)**
Pill***	**131 (50.6)**	**195 (48.7)**	**270 (62.6)**	**123 (41.7)**	**719 (51.9)**
DMPA***	**84 (32.4)**	**124 (31.0)**	**119 (27.6)**	**162 (54.9)**	**489 (35.3)**
IUD**	**38 (14.7)**	**43 (10.7)**	**39 (9.0)**	**19 (6.4)**	**139 (10.4)**
Condoms	**69 (26.6)**	**123 (30.7)**	**145 (33.6)**	**74 (25.1)**	**411 (29.7)**
Talked about all study methods at visit*	**43 (16.6)**	**60 (15.0)**	**69 (16.0)**	**25 (8.5)**	**197 (14.2)**
Contraceptive knowledge scale, mean(sd)***	**0.33 (0.45)**	**−0.11(0.51)**	**−0.09(0.45)**	**−0.02 (0.46)**	**−0.00 (.49)**
Contraceptive attitudes scale, mean(sd)***	**0.08 (0.46)**	**−0.04(0.43)**	**0.08 (0.43)**	**−0.14 (0.42)**	**0.00 (.44)**
Provider-patient interaction					
Who made decision for method***					
Self	**208 (80.3)**	**353 (88)**	**396 (92.1)**	**270 (91.5)**	**1225 (88.6)**
Self and/or Provider	**51 (19.7)**	**48 (12.0)**	**34 (7.9)**	**25 (8.4)**	**158 (11.4)**
Chose method due to provider counseling***					
Disagree/strongly disagree	**39 (15.2)**	**119 (29.7)**	**166 (38.4)**	**111 (37.8)**	**435 (31.5)**
Neutral	**24 (9.3)**	**72 (18.0)**	**101 (23.4)**	**50 (17.0)**	**246 (17.8)**
Strongly agree/agree	**195 (75.6)**	**209 (52.2)**	**165 (38.2)**	**133 (45.2)**	**701 (50.7)**
Trust in Provider scale, mean(sd)	**−0.04(0.69)**	**0.02 (0.67)**	**0.02 (0.65)**	**−0.02 (0.67)**	**0.001 (.67)**
Provider site					
Provider clinic site***					
Hayward	**53 (20.5)**	**77 (19.2)**	**115 (26.6)**	**99 (33.6)**	**342 (24.7)**
Oakland	**71 (27.4)**	**147 (33.7)**	**112 (25.9)**	**107 (36.3)**	**437 (31.5)**
Richmond	**97 (37.4)**	**134 (33.4)**	**157 (36.3)**	**60 (20.3)**	**448 (32.3)**

Hormonal contraceptive method	Ring n (%)	Patch n (%)	Pill n (%)	DMPA n (%)	Total n (%)
Vallejo	**38 (14.7)**	**43 (10.7)**	**48 (11.1)**	**29 (9.8)**	**158 (11.4)**
Continuing care***					
First visit to clinic	**85 (32.9)**	**161 (40.7)**	**205 (47.8)**	**115 (39.1)**	**565 (41.1)**
Returning client	**173 (67.0)**	**235 (59.3)**	**224 (52.2)**	**179 (60.9)**	**810 (58.9)**

* $p \leq 0.050$;

** $p \leq 0.010$;

*** $p \leq 0.001$

Table 3

Provider factors and hormonal method initiated: Multinomial logistic regression[Y] (n=1,362)

Comparison Method: Oral Contraceptive Pills		
Vaginal ring compared to pill	**coefficient**	**p-value**
Provider talked about all methods	−0.30	0.241
Contraceptive knowledge scale	1.88	0.000***
Chose method due to provider	1.54	0.000***
Provider trust scale	0.02	0.893
Provider clinic site		
Hayward (ref.)		
Oakland	0.10	0.714
Richmond	0.35	0.166
Vallejo	0.34	0.302
Returning client	−0.08	0.681
Transdermal patch compared to pill	**coefficient**	**p-value**
Provider talked about all methods	−0.15	0.466
Contraceptive knowledge scale	−0.15	0.921
Chose method due to provider	0.53	0.001***
Provider trust scale	0.06	0.574
Provider clinic site		
Hayward (ref.)		
Oakland	0.46	0.031*
Richmond	0.31	0.129
Vallejo	0.37	0.174
Returning client	.04	0.795
DMPA compared to the pill	**coefficient**	**p-value**
Provider talked about all methods	−0.81	0.002**
Contraceptive knowledge scale	0.22	0.204
Chose method due to provider	0.15	0.394
Provider trust scale	−0.11	0.358
Provider clinic site		
Hayward (ref.)		
Oakland	−0.015	0.945
Richmond	−0.78	0.000***
Vallejo	−0.22	.431
Returning client	−0.107	.921

LR Chi2(48df) = 493.09;

* p ≤ 0.050;

** p ≤ 0.010;

$^{***}p \leq 0.001$

^{Y}All models control for age, race/ethnicity, main partner, previous hormonal contraception, prior pregnancy