

# Changes in Prescription Contraceptive Use, 1995–2002

## *The Effect of Insurance Status*

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**OBJECTIVE:** To examine changes in prescription contraceptive use between 1995 and 2002 by insurance status among women at risk for unintended pregnancy.

**METHODS:** Data from the National Survey of Family Growth, including 4,767 women at risk of unintended pregnancy in 1995 and 3,569 in 2002, were used to evaluate changes in primary contraception methods by health insurance status and year of survey. Logistic regression models tested differences in the likelihood of prescription contraceptive use among privately insured, publicly insured, and uninsured women in each year, after controlling for age, race and ethnicity, education, income, employment, marital status, number of children, religion, and self reported overall health.

**RESULTS:** Overall prescription contraceptive use increased between 1995 and 2002 by 3% (48.9% to 51.9%,  $P=.049$ ). Nonuse of contraception also increased (11.6% to 16.1%,  $P<.001$ ). The change in the likelihood of prescription contraceptive use was greatest and only significant among privately insured women (+5.5%,  $P=.002$ ). In multiple regression analysis, women in 1995 were 10% less likely to report use of prescription contraceptives compared with women in 2002 (relative risk 0.90, 95% confidence interval 0.82–0.98), and uninsured women were more than 20% less likely to report prescription contraceptive use compared with privately insured women (relative risk 0.78, 95% confidence interval 0.67–0.90).

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**CONCLUSION:** Prescription contraceptive use increased most significantly among privately insured women between 1995 and 2002, potentially reflecting state mandates enacted during that period requiring contraceptive coverage by private insurers. It is important for clinicians to understand these differences and address issues of insurance coverage with patients when discussing contraceptive options.

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**LEVEL OF EVIDENCE: III**

The National Survey of Family Growth has been periodically administered by the National Center for Health Statistics (NCHS) since 1973 and is considered the standard source of information on contraceptive use patterns in the United States. The time period between the most recent two cycles of the National Survey of Family Growth, 1995 to 2002, was a very interesting and important time for contraception and family planning. During that period, many novel contraceptive medications and devices were introduced, including the levonorgestrel intrauterine system, the contraceptive patch, and the combined injectable contraceptive. In addition, important family planning policy changes were occurring on the state level. Private insurance coverage of contraceptives increased dramatically in the mid to late 1990s, with nearly 90% of private insurers covering the top five reversible methods of contraception in 2002 compared with only 23% covering those methods in 1993.<sup>1</sup> This coverage increase since the late 1990s has been in large part due to 26 states passing mandates requiring health plans that cover prescription medications to cover contraceptives also. Information on individual state-level policies is available online from the Guttmacher Institute.<sup>2</sup>

In addition to state-level policies that affect the privately insured, since the mid 1990s, 25 states have obtained federal Medicaid waivers extending Medic-



aid eligibility for family planning services.<sup>3</sup> States during this time period were also required to cover contraceptives under Medicaid to obtain federal Medicaid funding.

In light of the important policy changes during this period, this analysis focuses on trends in contraceptive use among privately insured, publicly insured, and uninsured women. In particular, the study examines the association of insurance status with prescription contraceptive use and how that association may have changed between 1995 and 2002.

## MATERIALS AND METHODS

The National Survey of Family Growth is an in-person, nationally representative survey conducted in respondents' homes using both a computer-guided questionnaire as well as a computer-assisted self-interview questionnaire for more sensitive topics. The National Survey of Family Growth surveys respondents about reproductive health, including sexual behaviors, pregnancy, and contraceptive use. The Survey was administered to approximately 10,800 women aged 15–44 years in 1995 and 7,600 women of the same age group in 2002. The response rate was approximately 80% for women in both 1995 and 2002.<sup>4,5</sup> The National Survey of Family Growth was also for the first time administered to men in 2002, but this analysis includes only the female respondents during both survey cycles. Detailed descriptions of the survey design and weighting procedures of the National Survey of Family Growth are available.<sup>4,5</sup> Primary sampling units, based on data from the most recent census and comprising metropolitan areas or groups of counties in all 50 states and the District of Columbia were sampled. After primary sampling units were chosen, each primary sampling unit was stratified into segments or neighborhoods based on percentage of Hispanic or non-Hispanic African-American occupants. Housing units were then selected from each segment, and one person was randomly selected from each household. Groups that were oversampled included Hispanic respondents, non-Hispanic African-American respondents, teenagers aged 15–19 years, and women (in 2002). Each individual was then given a sampling weight (indicating the number of persons in the population that she represents) based on four factors: the inverse of the probability of being selected (correcting for oversampling or undersampling of certain groups); the probability of nonresponse; poststratification adjustment to control totals of persons by age, race, and Hispanic origin from the most recent census data; and trimming to reduce the value of very large or very small

weights. An exemption was granted by the Northwestern University Institutional Review Board for this analysis given the deidentified nature of the National Survey of Family Growth data.

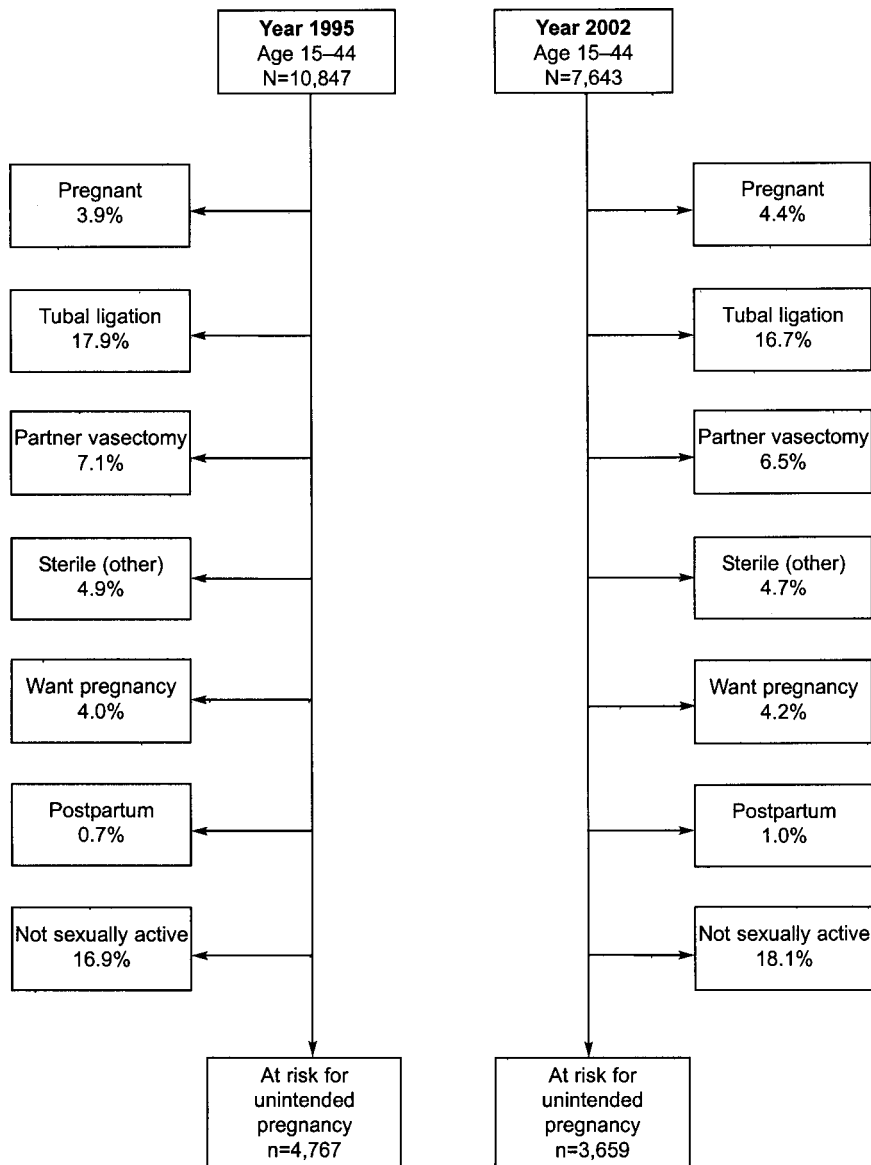
To determine which female respondents aged 15–44 years were at risk of unintended pregnancy and to focus on reversible contraceptive use patterns, we excluded certain groups of women aged 15–44 years from our analysis (Fig. 1). Women were excluded if they were pregnant or reported wanting pregnancy at the time of the survey. Women were also excluded if they reported not being sexually active, either since their first menstrual period or in the 3 months before interview. And finally, women who were within 6 weeks postpartum after delivery or women who reported that they or their partners were surgically sterile from tubal ligation, vasectomy, or noncontraceptive surgery were excluded.

A total of 4,767 (1995) and 3,659 (2002) female respondents age 15–44 met the definition of at risk of unintended pregnancy, representing 45% and 46% of the surveyed female population aged 15–44 years for each of the years, respectively.

Contraceptive use in the National Survey of Family Growth is defined as any use in the month before the interview. The primary contraceptive used was categorized hierarchically, based on the most effective method the respondent reported.

Contraceptive methods were then classified into four categories: prescription, over-the-counter, other methods, and none. Respondents were categorized as using a prescription method if they reported use of pills, implant, progesterone-only injection, emergency contraception, intrauterine device, diaphragm or cervical cap, as well as the patch (2002 only) or combined injectable (2002 only) in the month before interview. Over-the-counter methods included the male and female condom, foam, sponge, suppository, cream, or jelly. Other methods included periodic abstinence (separating those using cervical mucous or temperature from those using calendar method alone), withdrawal, or methods other than those listed. Respondents for both cycles of the National Survey of Family Growth were characterized as nonusers of contraception if they reported sexual intercourse within the three months before the interview but no use of any contraceptive method within the month before interview. Dual method use (reported use of both a prescription method and condoms) was examined separately in addition to the primary contraceptive use statuses.





**Fig. 1.** Defining women at risk of unintended pregnancy, National Survey of Family Growth, 1995 and 2002. *Culwell. Changes in Prescription Contraceptive Use. Obstet Gynecol 2007.*

With the exception of household income discussed below, respondent characteristics used in this analysis were directly available from answers to the questionnaire for greater than 99% of respondents in each year, with less than 1% of the values requiring imputation. Multiple National Survey of Family Growth insurance status questions were coded to be as comparable as possible between the two cycles. Respondents were classified as uninsured, privately insured, or publicly insured in either 1995 or 2002. Age groups were defined as 15–17 years, 18–24 years, 25–34 years, and 35–44 years. Race and ethnicity was coded as “Hispanic,” “non-Hispanic black,” “non-Hispanic White,” and “non-Hispanic Other.” Educational attainment was categorized by having less than

a high school diploma, high school diploma, some college, or a college degree. Employment status was categorized as employed if respondents reported working full time, part-time or employed but temporarily ill or on maternity or family leave or vacation; additional categories included being in school, being a homemaker or caring for family, and being unemployed. The number of children in the household was characterized as no children, one to two children, or three or more children. Marital status was dichotomized from multiple items into single (including those who were single, divorced, separated, and widowed) and not single (including those respondents who were married or living as an unmarried couple).



Self-reported overall health was dichotomized into “poor” or “good” health. In 1995 all respondents reporting “fair” or “poor” health were categorized as in “poor” health and all other respondents as in “good” health. In 2002, no such health status variable was available, and therefore, a question regarding limitations of activities due to health was used to determine health status. Those respondents who stated that they had activity limitations due to a health problem were classified as “poor” health while the rest were included in the “good” health category.

Household income, which was imputed by the National Survey of Family Growth for approximately 11% of the respondents in 1995 and 8% of respondents in 2002, was based on the percent of the federal poverty level of each respondent’s household income, taking into account family size, in categories ranging from less than 100% to more than 500% of the poverty level. Religion in the National Survey of Family Growth was categorized as none, Protestant, Catholic, or other, including Jewish.

All analyses were performed with the Stata 7.0 (StataCorp LP, College Station, TX) survey module to account for the complex survey sampling design and nationally representative weighting of the National Survey of Family Growth. We used  $\chi^2$  tests to test the significance of differences in the associations between contraceptive use types and respondent characteristics by year of survey. Multiple logistic regression analysis of prescription contraceptive use was used to estimate whether there was a significant difference in the likelihood of prescription contraceptive use between 1995 and 2002 and the extent to which prescription contraceptive use was associated with respondents’ insurance status. The significance of survey year and insurance type was tested after controlling for age, marital status at the time of interview, race and ethnicity, educational attainment, household income, employment, religion, self-reported health, and number of children in the household.

To compare separately the likelihood of prescription contraceptive use among publicly insured, privately insured, and uninsured respondents in each year, differences between insurance types by year of survey were tested in the same model. Because of a particular interest in any changes in prescription contraception use among privately insured women, a separate model was run for only the privately insured women at risk of unintended pregnancy in each year. Odds ratios were converted to relative risks (RRs) using a previously published formula.<sup>6</sup>

## RESULTS

Table 1 presents the weighted results for characteristics of women at risk for unintended pregnancy by year of survey. Respondents of the 2002 National Survey of Family Growth were more likely than those of the 1995 Survey to report being uninsured (15.4% compared with 12.9%). A greater percentage of the 2002 National Survey of Family Growth respondents were Hispanic compared with the 1995 Survey (13.9% compared with 10.1%). There were more respondents from 2002 who were in the lowest income level (17.1% compared with 12.2%) with correspondingly fewer respondents in the highest income group (14.6% compared with 21.1%) in 2002 as compared with 1995.

Table 2 shows the changes that occurred in contraceptive use patterns among women at risk of unintended pregnancy between 1995 and 2002. Overall use of prescription contraceptives was 3% greater in 2002 compared with 1995 ( $P=.049$ ). This was accompanied by a 7% lower use of over-the-counter methods as the most effective form of contraception ( $P<.001$ ), but a small but significant greater use of dual methods: hormonal methods and condoms (+2%,  $P<.001$ ). Overall nonuse of contraception was also greater in 2002, with 4.5% more women at risk of unintended pregnancy reporting nonuse of contraceptive methods than in 1995 ( $P<.001$ ).

Privately insured women had a greater increase in their reported use of prescription contraception than other women at risk of unintended pregnancy (+5.5%,  $P=.002$ , Table 3) and a greater decrease in reported use of over-the-counter methods as the most effective contraceptive method (−8.6%,  $P<.001$ ). Change in nonuse of contraception was essentially similar between the privately insured and the full population of women at risk (+3.9% compared with +4.5% overall). Prescription contraceptive use among publicly insured women and uninsured women did not change significantly between 1995 and 2002 (data not shown), although nonuse of contraception increased significantly and to a greater degree than that of privately insured women (+6.9% compared with +3.9%). These findings indicate that virtually all the increase in reported prescription contraceptive use was driven by the increase among privately insured women.

Table 4 shows logistic regression results for prescription contraceptive use. To measure the significance of change over the 6 years, survey year was included as an independent variable. After adjustment for sociodemographic, insurance, and health



**Table 1. Sociodemographic and Health Status Characteristics of Women Aged 15–44 Years at Risk for Unintended Pregnancy, National Survey of Family Growth, 1995 and 2002**

Characteristic	Cycle 5 (1995) (n=4,767)	Cycle 6 (2002) (n=3,659)
Insurance status		
Privately insured	70.4	70.1
Publicly insured	16.7	14.6
Noninsured	12.9	15.4
Age (y)		
15–17	5.1	5.2
18–24	29.6	30.8
25–34	41.1	38.3
35–44	24.2	25.8
Race/ethnicity		
White, non-Hispanic	72.6	67.4
African American, non-Hispanic	13.2	13.0
Hispanic	10.1	13.9
Other, non-Hispanic	4.1	5.6
Education		
Less than high school diploma	14.9	15.5
High school diploma	33.0	26.9
Some college	27.2	31.7
College degree	24.9	25.9
Employment status		
Employed*	71.4	69.9
Unemployed	3.6	5.9
Student	7.6	4.9
Homemaker	17.4	19.3
Religion		
Protestant	49.0	48.4
Catholic	31.4	29.8
Other†	6.2	6.1
No religion	13.5	15.8
Household income (% poverty level)		
Less than 100	12.2	17.1
101–200	19.6	19.2
201–300	20.2	17.8
301–400	13.9	15.9
401–500	12.9	15.3
More than 500	21.1	14.6
Marital status		
Married/cohabitating	57.7	57.8
Single‡	42.4	42.2
Number of children		
None	45.9	45.5
1–2	43.7	42.5
3 or more	10.4	12.1
Self-reported health status§		
Good	94.8	92.6
Poor	5.2	7.4

Data are %.

\* Includes employed full-time, part-time, and employed but temporarily out for vacation, illness, maternity or family leave.

† Includes “other non-Christian religion” (1995, 2002), “Jewish” (1995), or “other no specific denomination” (1995).

‡ Includes never married, divorced, separated, widowed.

§ Coded from different variables in 1995 and 2002. “Fair” and “poor” self-reported overall health from 1995 categorized as “poor” for this combined variable. Respondents from 2002 who stated “yes” to a question regarding activity limitations from health problems were categorized as “poor” for this variable.

factors, women at risk of unintended pregnancy in 1995 were 10% less likely to report current use of prescription contraception than women in 2002 (RR 0.90, 95% confidence interval [CI] 0.82–0.98). Being

uninsured as compared with privately insured was strongly associated with a lower likelihood prescription contraceptive use across both years. Uninsured women were over 20% less likely to report prescrip-



**Table 2. Change in Contraceptive Use Patterns Among Women Aged 15–44 Years at Risk of Unintended Pregnancy, National Survey of Family Growth, 1995 and 2002**

Contraceptive Use	1995 (n=4,767)	2002 (n=3,659)	Percent Change
Prescription	48.9	51.9	3.0*
Pills	38.8	40.3	1.5
Implant	1.9	0.6	-1.3
Injection	4.2	6.9	2.7
EC	<0.1	<0.1	N/A
IUD	1.2	2.7	1.5
Diaphragm/cap	2.8	0.4	-2.4
Patch	N/A	0.8	N/A
Comb injectable	N/A	0.2	N/A
Over-the-counter	31.5	24.3	-7.2†
Male condom	29.4	23.8	-5.6
Female condom	<0.1	<0.1	N/A
Foam/jelly	1.6	0.4	-1.2
Sponge	0.4	<0.1	-0.3
Dual method (prescription+condoms)	4.1	6.3	2.2†
Other	8.0	7.8	-0.2
NFP‡	0.5	0.4	-0.1
Calendar§	2.8	1.6	-1.2
Withdrawal	4.4	5.2	+0.8
Other	0.3	0.6	+0.3
None	11.6	16.1	4.5†

EC, emergency contraception; IUD, intrauterine device; N/A, not available; NFP, natural family planning.

Data are %.

\*  $P = .049$ .

†  $P < .001$ .

‡ Periodic abstinence: natural family planning, cervical mucous test, or temperature rhythm.

§ Periodic abstinence: calendar method only.

tion contraceptive risk (RR 0.78, 95% CI 0.67–0.90). Of note, publicly insured women were no less likely than privately insured women to report use of prescription contraceptives across both years when controlling for all other factors listed in Table 4 (RR 1.08, 95% CI 0.96–1.22).

Being older and African American, non-Hispanic were the other factors most significantly associated with lower use of prescription contraceptives. Other

**Table 3. Change in Contraceptive Use Patterns Among Privately Insured Women Aged 15–44 Years at Risk of Unintended Pregnancy, National Survey of Family Growth, 1995 and 2002**

Method	1995 (n=3,247)	2002 (n=2,449)	Percent Change
Prescription	47.8	53.3	5.5*
Over-the-counter	32.4	23.8	(-8.6)‡
Dual method	4.1	6.7	2.6†
Other method	8.2	7.1	(-1.1)§
No method	10.3	14.2	3.9*

Data are %.

\*  $P = .002$

†  $P = .001$

‡  $P < .001$

§ Not significant.

significant findings include a decreased likelihood of prescription contraceptive use among respondents with lower educational attainment than college graduate, among homemakers when compared with those women employed outside the home, and for women reporting religions other than Protestant.

To better assess the potential interaction of insurance with survey year, a separate regression analysis was performed for only privately insured women in both survey years. The results were very similar to the full model in Table 4, with the exception of an even more significant association of year of survey with current prescription contraceptive use (year 1995 RR 0.84, 95% CI 0.75–0.93), indicating that the increase in prescription contraceptive use between 1995 and 2002 was concentrated among privately insured women. The only other difference was that privately insured Hispanic women were significantly less likely to use prescription contraceptives compared with privately insured non-Hispanic white women (RR 0.8, 95% CI 0.67–0.95). Additional multiple regression analyses, using the same model, analyzed interaction variables for type of insurance and year of survey. These models (data not shown) also found that prescription contraceptive use increased signifi-



**Table 4. Logistic Regression Results for Likelihood of Prescription Contraceptive Use Among 8,426 Women at Risk for Unintended Pregnancy, National Survey of Family Growth, 1995 and 2002**

Characteristics	Adjusted RR (95% CI)*
Year	
2002	Reference
1995	0.90 (0.82–0.98)
Insurance	
Privately insured	Reference
Publicly insured	1.08 (0.96–1.22)
Noninsured	0.78 (0.67–0.90)
Age (y)	
35–44	Reference
25–34	1.93 (1.73–2.13)
18–24	2.33 (2.06–2.61)
15–17	2.53 (1.97–3.15)
Race/ethnicity	
White	Reference
African American, non-Hispanic	0.80 (0.70–0.90)
Hispanic	0.95 (0.82–1.10)
Other, non-Hispanic	0.52 (0.40–0.66)
Education	
College degree	Reference
Some college	0.91 (0.81–1.02)
High school diploma	0.78 (0.69–0.87)
Less than high school diploma	0.70 (0.58–0.84)
Employment	
Employed†	Reference
Unemployed	0.94 (0.76–1.14)
School	0.86 (0.69–1.05)
Homemaker	0.83 (0.74–0.93)
Religion	
Protestant	Reference
Catholic	0.89 (0.79–0.99)
Other religion‡	0.77 (0.64–0.91)
No religion	0.92 (0.82–1.04)

RR, relative risk; CI, confidence interval.

\* Results controlled for percentage of household poverty level, marital status, number of children (parity), and self-reported overall health.

† Includes employed full-time, part-time, and employed but temporarily out for vacation, illness, maternity or family leave.

‡ Includes “other non-Christian religion” (1995, 2002), “Jewish” (1995), or “other no specific denomination” (1995).

§ Includes never married, divorced, separated, widowed.

cantly among privately insured women between 1995 and 2002 (RR 1.19, 95% CI 1.08–1.32), did not change for uninsured women (RR 1.02, 95% CI 0.81–1.28) and decreased, although not significantly, among publicly insured women during this time period (RR 0.89, 95% CI 0.72–1.09).

## DISCUSSION

The results of our analysis suggest that uninsured women were less likely than privately insured or publicly insured women to use prescription contra-

ceptives in either year, and that the increase in use of prescription contraception was concentrated among privately insured women. These findings are consistent with significant financial and logistical barriers to obtaining prescription contraceptives for women who are uninsured, including lack of access to health care providers and the cost of the contraceptive supplies. These barriers are important to consider, because nearly all prescription contraceptives are more effective, both in typical and perfect use, than nonprescription methods.<sup>7</sup>

In addition, prescription contraceptive use seems to have increased between 1995 and 2002, even with a concurrent increase in nonuse of contraceptives. Our univariate analyses suggest that this increase in prescription contraceptive use was seen primarily among the privately insured between 1995 and 2002. After controlling for other sociodemographic factors in the regression analysis including both years, no difference was seen in the likelihood of prescription contraceptive use between respondents who were privately compared with publicly insured.

A woman's choice of contraceptive method depends on many factors other than those covered in this analysis. Prescription contraceptives are not the most appropriate methods for all women. Some women appropriately choose to use condoms for the dual purpose of contraception and prevention of transmission of human immunodeficiency virus (HIV) and other sexually transmitted diseases. Although this analysis focuses on primary contraceptive methods, we were able to define dual-method users with the National Survey of Family Growth and found that dual-method use did in fact increase between 1995 and 2002, indicating that protection against sexually transmitted infection was likely an increasingly important factor in choice of contraceptive method in this time period. Those women who choose condoms as their most effective method may be appropriately considering their risks of acquiring sexually transmitted diseases and may simply be unwilling to adhere to the more complicated and expensive dual-method regimen given the efficacy of condom use alone at preventing pregnancy.

The National Survey of Family Growth is limited to providing national level data and cannot be used to obtain state-level information on contraceptive use patterns due to the survey design. In addition, non-sampling error such as recall bias, or bias toward providing socially desirable answers, as is present in all survey studies, could affect the results. And finally, although this analysis is a trend analysis comparing contraceptive use patterns between two time periods, individual respondents were not followed over time,



and therefore, this analysis cannot be thought of as longitudinal in nature.

Further research can focus on potential policies on the state and federal level that may be associated with prescription contraceptive use. Specifically, the increase in reported prescription contraceptive use among privately insured women between 1995 and 2002 seen in the National Survey of Family Growth analysis deserves further evaluation. Given that this time period is also a time of increasing state mandates requiring private insurance coverage of contraceptives, further analysis of the possible effects of such legislation is needed to determine whether this increase in prescription contraceptive use represents more than just a secular trend in this subgroup. Analyses of the possible associations between Medicaid family planning waivers and prescription contraceptive use may also prove important.

In summary, insurance coverage is a major factor when a woman chooses a contraceptive method and also a factor that determines whether she will continue using that method. It is important that all women, regardless of insurance status, have equal access to a wide variety of contraceptive options to make the appropriate decision regarding contraception for her individual circumstances. Until women have universal access to the full variety of contracep-

tive options, it is important for clinicians to understand the differences in contraceptive use patterns seen in women of differing insurance status and address issues of insurance coverage with patients when discussing contraceptive options.

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