The Association between High-Deductible Health Plan Transition and Contraception and Birth Rates

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Objective. To evaluate the association between employer-mandated enrollment into high-deductible health plans (HDHPs) and contraception and birth rates among reproductive-age women.

Data Sources/Study Setting. Using data from 2002 to 2008, we examined 1,559 women continuously enrolled in a Massachusetts health plan for 1 year before and after an employer-mandated switch from an HMO to a HDHP, compared with 2,793 matched women contemporaneously enrolled in an HMO.

Study Design. We used an individual-level interrupted time series with comparison series design to examine level and trend changes in clinician-provided contraceptives and a differences-in-differences design to assess annual birth rates.

Data Collection/Extraction Methods. Employer, plan, and member characteristics were obtained from enrollment files. Contraception and childbirth information were extracted from pharmacy and medical claims.

Principal Findings. Monthly contraception rates were 19.0–24.0 percent at baseline. Level and trend changes did not differ between groups ($p = .92$ and $p = .36$, respectively). Annual birth rates declined from 57.1/1,000 to 32.7/1,000 among HDHP members and from 61.9/1,000 to 56.2/1,000 among HMO controls, a 40 percent relative reduction in odds of childbirth (odds ratio = 0.60; $p = .02$).

Conclusions. Women who switched to HDHPs experienced a lower birth rate, which might reflect strategies to avoid childbirth-related out-of-pocket costs under HDHPs.

Key Words. High-deductible, managed care, contraception, childbirth

Over the last decade, U.S. employers have increasingly offered high-deductible health plans (HDHPs) to stem rising health insurance premiums (Claxton et al. 2012). These arrangements increase members' sharing of health care costs. Typically, HDHPs have an annual deductible of at least \$1,000, and below this level employees pay the full cost of care. However, many

preventive services, such as annual primary care office visits, immunizations, and common cancer screening tests have minimal or no cost sharing. HDHPs may be combined with tax-exempt health savings accounts (HSAs) or health reimbursement arrangements (HRAs) to help members cover costs.

HDHP enrollment has grown steadily over the last decade; enrollment quadrupled between 2006 and 2014 and 41 percent of workers now have HDHPs (Claxton et al. 2014). The Affordable Care Act is expected to accelerate HDHP enrollment because of mandates to purchase insurance, the greater up-front affordability of HDHPs, and eventual taxes on employers that purchase more generous “Cadillac” health plans (Fronstin 2010; Kerber 2010; Chicago Tribune 2012; The Henry J. Kaiser Family Foundation 2011, 2013). Within state-based health insurance exchanges, average family deductibles in silver and bronze plans are \$5,100 and \$10,300 (Avalere Health 2013), respectively, and enrollees are required to pay a sizeable percentage even after exceeding their deductible limit (Avalere Health 2013; Rosen and Wood 2013; Cover Oregon 2013).

Approximately 25 percent of HDHP enrollees are women of childbearing age (Fronstin 2012). Childbirth is the most frequent reason for hospitalization in the United States, accounting for nearly one quarter of all hospitalizations (Merrill and Elixhauser 2005). Almost 4 million women in the United States give birth each year (Martin et al. 2011). The cost of childbirth varies by payer, delivery mode, and the presence of complications. In 2010, the average cost of vaginal and cesarean deliveries among privately insured women were \$18,329 and \$27,866, respectively (Truven Health Analytics 2013). Previous studies show that HDHPs provide less financial protection from out-of-pocket costs than traditional plans for maternity care (Verick 2009; Kozhimannil et al. 2011; Pew Research Center 2011).

Studies have linked economic distress to reduced birth rates in the United States (Verick 2009). For example, birth rates decreased from 69.6 to 64.7 per thousand women between 2007 and 2010 as the economy entered a recession (Pew Research Center 2011). The birth rate decline was correlated with decreasing per capita income and with increasing unemployment (Pew

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Research Center 2011). HDHPs may similarly be associated with decreased birth rates. Potential mechanisms for this change include taking steps to avoid unintended pregnancy (e.g., by use of contraception), reconsidering planned family size, or switching out of HDHPs to give birth under more generous plans, minimizing potentially large out-of-pocket costs.

We test the hypothesis that transition to an HDHP is associated with birth rate declines due to strategies to avoid high out-of-pocket costs such as increased contraception.

STUDY DATA AND METHODS

Setting

Harvard Pilgrim Health Care is a not-for-profit health plan serving approximately 1 million individuals in New England. In April 2002, Harvard Pilgrim began offering HDHPs with annual deductibles of \$500 to \$2,000 for individuals and \$1,000 to \$4,000 for families. Members of family plans also had individual deductibles equal to half of the family deductible. Full coverage began for individual members if they exceeded their individual deductible, or for families if combined family expenses exceeded the family deductible. Hospital childbirth charges were subject to the deductible but were covered in full after the deductible had been met. Routine prenatal and postpartum care were exempt from the deductible for HDHP plan members. Out-of-pocket maximums (including copayments and deductibles) were \$2,000 to \$4,000 for individuals and \$4,000 to \$8,000 for families.

The HDHPs we studied were not eligible to be paired with HSAs; all were eligible to be combined with HRAs. While we could not account for HRAs obtained from other companies, only 3 percent of the HDHPs we studied had HRAs purchased through Harvard Pilgrim. Nationally, fewer than one-third of HDHPs with deductibles over \$1,000 are paired with HSAs or HRAs, and some state health insurance exchanges might not offer HSA-compatible plans (Claxton et al. 2010; Cover Oregon 2013; Covered California 2014), so our analysis should be relevant for common HDHP arrangements.

In contrast to HDHPs, Harvard Pilgrim health maintenance organization (HMO) plans include full coverage of maternity care, with a median hospital copayment of \$250 in our study population. Provider networks for women in HDHPs and HMO plans were identical.

Study Population

Using previously established methods (Wharam et al. 2007), we created a cohort of health plan members enrolled through employers that exclusively offered insurance through Harvard Pilgrim Health Care. We defined two groups: an HDHP group and an HMO control group. The HDHP group included members enrolled in traditional HMO plans during a 1-year baseline period prior to an employer-mandated switch to an HDHP. The employer-mandated switch constrained members to HDHP enrollment and thus prevented members from selecting into other plan types. The switch date, defined as the index date, varied by employer and occurred between 2002 and 2007. For each HDHP member, we identified eight members who were continuously enrolled in traditional HMO plans during the same time period. The HMO control group included only HMO members whose employers did not offer an option to enroll in an HDHP or any other plan types, to minimize self-selection into preferred health insurance benefits structures. Women in the HMO group faced lower out-of-pocket costs for maternity hospitalizations both before (median, \$250) and after (median, \$250) the index date.

From the cohort containing HDHP and HMO members, we identified women age 15–44 years (Jones, Mosher, and Daniels 2012) residing in Massachusetts and having at least 1 year of follow-up after the index switch date ($n = 13,380$). We then created a propensity score for each woman by calculating the probability of being in the HDHP group (detail included in Appendix), and we used the propensity score to match two HMO members to each HDHP member without replacement using caliper matching. Our final matched analytic cohort contained 4,352 (1,559 HDHP and 2,793 HMO) members.

Study Outcomes

We used pharmacy and medical claims to identify all available clinician-provided contraceptive mechanisms including oral contraceptives, long-acting reversible contraceptives (LARCs) such as intrauterine devices (IUDs), injectable contraceptives, and subdermal/implanted contraceptives, and sterilization procedures including hysterectomy, tubal ligation, and bilateral oophorectomy. To identify oral contraceptives, we first combined FDA hormonal contraceptive medication codes with Harvard Pilgrim pharmacy claims (detail included in Appendix). We used dispensing date and days of supply to create a daily indicator for oral contraceptive coverage for each individual. Women were considered to be using oral contraceptives on each dis-

dispensing date and on each subsequent day until the end of the daily supply associated with the dispensing date. For example, we consider a woman with a dispensing date of January 1, 2004, and 28 days of supply to be covered by oral contraceptives between January 1 and January 28, 2004.

LARCs and sterilization were captured in medical claims using International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnoses, ICD-9-CM procedures, and/or Current Procedural Terminology codes (see Appendix for additional coding and methodological detail). We used a combination of claims dates and contraceptive effectiveness time periods to create a daily indicator for LARC coverage for each individual. IUDs and subdermal/implantable contraceptives provided contraceptive coverage from insertion date until removal date or end of study. Injections provided coverage from injection date until 12 weeks postinjection or end of study. Sterilization provided contraceptive coverage from date of procedure until end of study.

We then generated monthly indicators of contraception for each woman if a woman had at least 1 day of any form of contraceptive coverage in the monthly period. The first month in the baseline period was excluded from analysis because of our inability to capture contraception prior to the study period.

We identified childbirth using Harvard Pilgrim inpatient medical claims. We defined childbirth in a given year if a claim within that year contained any ICD-9-CM diagnosis code 650 or V27.x.

Covariates

Covariates identified from Harvard Pilgrim administrative data included age at index date, family versus individual insurance plan type, employer size (number of employees), baseline inpatient copayment, baseline outpatient copayment, and baseline emergency department copayment. In addition, we linked members' residential addresses to their 2000 U.S. Census block group and created measures of neighborhood education levels (percent with less than high school education), racial composition (percent African American), and poverty status (percent under the poverty level).

Statistical Analysis

We estimated patterns of all clinician-provided contraceptives after controlling for the covariates listed above using an individual-level interrupted time

series with comparison series design and multivariable logistic regression of monthly provision of any contraceptive. From our model, we estimated baseline slope as well as level change after the index switch date and slope change between baseline and follow-up periods for both the HDHP and HMO groups. As a sensitivity analysis, we performed an identical individual-level interrupted time series with comparison series analysis using only 30-day oral contraceptive dispensing from pharmacy claims. We used multivariable logistic regression with a differences-in-differences interaction term between study group (HDHP vs. HMO) and year (follow-up vs. baseline) to assess the association between switching to an HDHP and birth rate after controlling for our listed covariates.

In both models, we entered covariates (age, baseline inpatient copayment, percent with less than high school education, percent African American, and percent below the poverty level) categorically. In addition, we used generalized estimating equations (GEE) with robust variance estimation to allow for the repeated measures on women both before and after switching (Zeger, Liang, and Albert 1988). The equation for our GEE model is included in the Appendix.

All statistical analyses were conducted using R version 3.0.2 (<http://www.R-project.org>) and SAS 9.3, and *p*-values below 0.05 were considered statistically significant. The Harvard Pilgrim Health Care Institute Institutional Review Board approved this study.

RESULTS

Table 1 presents baseline characteristics of reproductive-age women in the HDHP and control groups. Overall, characteristics were similar across groups. Mean age was 31.7 years, 70.6 percent were enrolled in family plans, and the majority of women were insured through small employers (43.2 percent with 2–50 employees whose employers purchased insurance through an association and 31.0 percent with 2–50 employees whose employers did not purchase through an association). About half of women lived in neighborhoods where the median household income exceeded \$62,695, and the mean baseline inpatient copayment was \$257. In both groups, nearly 30 percent of women were dispensed an oral contraceptive in the baseline year. Approximately, 95 percent of oral contraceptive dispensings were for a 1-month supply and 5 percent were for a 3-month supply. Fewer than 2 percent of women

Table 1: Baseline Characteristics of Study Population

<i>Characteristic</i>	<i>HDHP</i> <i>N = 1,559</i>	<i>HMO</i> <i>N = 2,793</i>
Mean age	31.7	31.7
Family plan (%)	70.3	70.8
Members per employer (%)		
Association,* 2–50	41.3	44.2
Non-association, 2–50	33.0	29.9
Non-association, 51–250	18.1	16.9
Non-association, 251–999	6.0	6.4
Non-association, ≥1,000 (%)	1.5	2.5
Mean percent African American [†]	3.2	3.4
Mean percent low education [†]	11.1	11.0
Mean percent below poverty level [†]	6.5	6.5
Median household income [†]	\$61,279	\$63,518
Mean baseline inpatient copayment	\$267	\$252
Baseline emergency room copayment (%)		
\$25–\$35	7.6	9.5
\$50	83.6	81.3
\$75	5.5	5.5
\$100	3.3	3.7
Baseline outpatient copayment (%)		
\$5	3.7	5.8
\$10	21.8	23.7
\$15	41.4	39.2
\$20–\$25	33.0	31.3
Mean days between index start and end dates	730.2	721.2
Contraceptive provision (%)		
Oral	28.8	28.2
Intrauterine device	1.9	1.8
Injection	0.0	0.6
Implant	0.1	0.1
Hysterectomy	0.4	0.5
Bilateral oophorectomy	0.0	0.1
Tubal ligation	0.4	0.8
Oral contraceptive days of supply (%)		
1 month supply	95.6	95.1
3 months supply	4.4	4.9
Pregnancy termination (%)		
Elective	0.7	0.9
Spontaneous	0.8	1.1
Ectopic	0.1	0.2

*Association plans are sold by independent brokers to businesses with fewer than 10 employees.

[†]Variable measured at census block group level.

HDHP, high-deductible health plan; HMO, health maintenance organization.

had IUDs in the baseline year. Other forms of contraception and sterilization were very rare in the study population.

Figure 1 displays predicted monthly clinician-provided contraceptives in the HDHP and matched HMO group. Both groups had similar trends of predicted contraceptives during the baseline period, increasing from 19.0 to 24.0 percent in the HDHP group and from 20.1 to 23.6 percent in the HMO controls. Baseline trends did not differ by study group ($p = .24$). At the HDHP transition, both groups experienced a slight level increase in predicted contraceptives, from 24.0 to 24.3 percent in the HDHP group and from 23.6 to 23.7 percent in the HMO group. Again, there were no significant differences in level change between the groups ($p = .92$). After the HDHP transition, predicted contraceptives among HDHP members increased slightly from 24.3 to 24.9 percent, and HMO members increased from 23.7 to 24.3 percent. Trend changes in the follow-up relative to baseline periods between the HDHP and HMO groups (-4.4 and -2.9 percent, respectively) were not statistically significant ($p = .36$). A sensitivity analysis assessing only oral contraceptives was

Figure 1: Predicted Probability of Monthly Contraception by Study Group before and after Employer-Mandated Switch to High-Deductible Health Plan (HDHP)

not substantially different from our primary analysis of all clinician-provided contraception captured in claims (Appendix Figure S1).

Figure 2 displays annual birth rates in the HDHP and HMO groups before and after transition to an HDHP. The crude birth rate in the HDHP group was 57.1/1,000 preswitch and decreased to 32.7/1,000 postswitch. Among HMO controls, the crude birth rate was 61.9/1,000 preswitch and 56.2/1,000 postswitch in the HMO group. Compared with the decrease of 5.7/1,000 detected among HMO controls, the HDHP group experienced an additional decline of 18.7/1,000. After adjustment for relevant covariates, the

Figure 2: Annual Birth Rate by Study Group before and after Employer-Mandated Switch to High-Deductible Health Plan (HDHP)

odds of giving birth in the HDHP group decreased 40 percent relative to controls (odds ratio = 0.60; 95 percent confidence interval 0.39, 0.92; $p = .02$).

DISCUSSION

Women whose employers transitioned from offering a traditional HMO to an HDHP did not have detectable changes in use of clinician-provided contraceptives but experienced reduced birth rates compared with similar women who remained in HMO plans over the same time period. Reduced birth rates suggest potential price sensitivity in anticipation of increased out-of-pocket costs under HDHPs (Kozhimannil et al. 2011), but the mechanism generating this change is unlikely to be related to contraception. Other potential mechanisms include reduced financial risk-taking behavior due to perceived employer financial pressure, increased use of nonprescription contraceptive methods, pregnancy termination, or—for women with more than one option for health insurance coverage—switching to a health plan with more generous maternity care coverage. The latter is possible in the context of pregnancy and could entail either a switch to public coverage or to a more generous benefit design within private coverage. Medicaid programs finance nearly half of all U.S. births (Markus et al. 2013), and income eligibility levels are higher for pregnancy (185–300 percent of the Federal Poverty Level) than for other Medicaid eligibility categories (less than 133 percent of the Federal Poverty Level) (The Henry J. Kaiser Family Foundation 2011, 2013). In the face of high cost sharing and experiencing a qualifying life event that allows for open enrollment, women may choose to opt out of HDHPs and into either a spouse's plan or Medicaid ("crowd-out") for pregnancy-related and child health coverage (Currie and Gruber 1997; Dubay and Kenney 1997; Gruber and Simon 2008).

Consideration of these mechanisms requires recognition that follow-up year birth rates represent a portion of pregnancies that began during the baseline year and might therefore reflect anticipation of the pending HDHP shift. Our study could not measure the number of women who had additional insurance coverage options or those who opted out of their current health plan and into more generous plans. An "intention-to-treat" analysis that could also capture such births might demonstrate a lesser reduction in birth rate. Although we are unable to determine the extent of opting out of HDHPs, such results remain consistent with the hypothesis that women may use available options and strategies to avoid high cost sharing under HDHPs because of price sensi-

tivity. Future research should examine the extent of “crowd-out” among reproductive-age women and families facing a switch to HDHPs and whether such switching promotes higher quality of care and better outcomes for child-bearing women and their infants.

Our results are generalizable primarily to smaller employers, as most of the employers who adopted HDHPs in this analysis had fewer than 50 employees. The deductible levels we studied were typical of the \$503–\$1,812 national averages in 2008 (Claxton et al. 2012). The contraceptive provision patterns we detected might be even more pronounced under recent plans that have higher deductibles. The HDHP benefits arrangement we studied (exempting preventive tests, medications, and physician office visits but subjecting most other services to the deductible) is typical of the most common current types of HDHPs; a recent study concluded that “The majority of covered workers with a deductible are in plans where the deductible does not have to be met before certain services, such as physician office visits or prescription drugs, are covered” (Claxton et al. 2012).

Contribution of Findings

We are not aware of previous studies examining the association between HDHP transition and contraception or birth rates. Several studies have examined effects of copayments on contraceptive methods. One European study found a sharp decrease in female sterilization rates after the introduction of an increased copayment (Bakken et al. 2007), and other studies found associations between higher cost sharing and decreased contraceptive utilization (Eisenberg, McNicholas, and Peipert 2013; Pace et al. 2013). While some studies have investigated the effect of insurance-related cost sharing on utilization of maternity care (Karen et al. 2007; Kozhimannil et al. 2011) and infant outcomes (Currie and Gruber 1994; Oleske et al. 1998), none evaluated the association with birth rates. Our study adds the important finding that transition to an HDHP, with greater out-of-pocket costs, may be associated with efforts to avoid childbirth under HDHPs.

Limitations

We were unable to determine whether women opted out of employer-mandated HDHPs to join another plan in anticipation of a birth. However, as above, such results would be consistent with the hypothesis that women strategize to avoid high cost sharing under HDHPs. Employers that selected

HDHPs might be somewhat unusual in that they were early adopters of HDHPs or experiencing greater cost pressures than the overall pool. Furthermore, employers that switch to offering only HDHPs may do so as a cost-saving measure, which may indicate employer financial distress. Women employed by these businesses may perceive a narrowing of benefits as evidence of reduced employee value or employer financial pressure, which could lead to more conservative financial and family planning or possibly to change in employment. We were unable to account for employer financial distress in this study.

A broad spectrum of methods to prevent pregnancy and childbirth exist, including abstinence, contraceptive methods, and pregnancy termination. We included all contraceptive methods that we were able to capture in pharmacy and medical claims data, including oral contraceptives, IUDs, injectable contraceptives, subdermal/implanted contraceptives, and sterilization methods including hysterectomy, tubal ligation, and bilateral oophorectomy. Despite including many contraceptive methods observable in pharmacy and medical claims data, we were unable to capture some commonly used contraceptive methods not available in our data such as condom use.

We hypothesized that dispensing of 30-day oral contraceptives, which are used by 27.5 percent of all contraceptive women in the United States (Guttmacher Institute 2013), would be more sensitive to plan change due to their short-acting nature. Results from a sensitivity analysis including 30-day oral contraception from pharmacy claims (Appendix Figure S1) were nearly identical to our primary analysis.

We defined oral contraceptive provision as days of supply during and after dispensing date using pharmacy claims data and insertion and removal dates or periods of assumed effectiveness in medical claims for other contraceptive and sterilization mechanisms. While our definitions do not perfectly capture contraceptive provision, differences are unlikely to exist between study groups.

Although a limitation of our study is the examination of a regional population, the demographics of the women we examined and their range of benefits are reasonably generalizable to privately insured women of childbearing age over the last decade. If we assume a conservative estimate in the privately insured U.S. population at the lower limit of our 95 percent confidence interval (8 percent reduction in births), this would translate to 5,280 fewer births under HDHPs per year given that approximately 1.1 million women per year transition to HDHPs (Claxton et al. 2014; American Community Survey 2013).

We believe that for both the contraceptive and the birth rates analyses, the propensity score matching approach is the most rigorous method available to maximize internal validity with likely minimal detriment to external validity compared with other approaches. The HDHPs examined were not eligible to be linked to HSAs, and it is likely that very few had HRAs, but the majority of workers with HDHPs at small firms in the United States have no savings account (Claxton et al. 2012).

Policy Implications and Potential Responses

Costs related to maternity and newborn care are a major burden on many families (Truven Health Analytics 2013) and prior research indicates that out-of-pocket costs are substantially higher for women with HDHPs compared with women who have other types of health plans (Karen et al. 2007; Kozhimannil et al. 2011). Currently, approximately 60 percent of workers at small employers have HDHPs (Claxton et al. 2014), and throughout full implementation of ACA coverage provisions, HDHP enrollment through small employers is likely to grow substantially (Fronstin 2010; Kerber 2010; Chicago Tribune 2012; Wharam, Ross-Degnan, and Rosenthal 2013; The Henry J. Kaiser Family Foundation 2011, 2013). Although the ACA mandates that health insurers cover routine prenatal and childbirth care, there are no provisions to reduce out-of-pocket costs for such care. Thus, the ACA is unlikely to lower childbirth-related cost sharing for most women insured through small businesses.

Beginning in August 2012, the ACA required that all nongrandfathered health insurance plans provide first dollar contraceptive coverage. Contraceptive coverage is classified as a primary preventive service under the ACA, and FDA-approved contraceptives must be covered by health plans with no patient cost sharing. Certain employers with religious views that oppose the use or cross-subsidization of contraception are exempt from the contraceptive coverage mandate, including some churches. More recently, for-profit corporations with religious opposition were granted exemption from this mandate following the Supreme Court ruling on *Burwell v. Hobby Lobby* in June 2014. As more women enroll in HDHPs that are subject to the ACA's contraception and preventive care coverage requirements, research should assess longer term trends in contraceptive provision and birth rates as well as the impact of increased premiums and deductibles due to mandated first dollar coverage of preventive services and contraceptives.

In an environment of rising out-of-pocket childbirth costs, our results imply that women might increasingly adopt strategies to avoid such expendi-

tures. This further implies a need to study birth rates, financial burden, and cost avoidance strategies as HDHPs expand. The possibility that women shift out of HDHPs when anticipating childbirth also has policy implications. If pregnant women who are eligible for employer-sponsored insurance preferentially enroll in Medicaid or subsidized coverage through exchanges, ACA-related federal and state health care spending might increase (Wharam, Graves, and Kozhimannil 2015). In addition, “churning” between different plan types (e.g., private insurance and Medicaid) around the time of childbirth could lead to lapses in coverage and reduced continuity of care, and future research should also examine this issue.

Although further research is needed to clarify impacts of high cost sharing on birth rates and contraception, it is clear that many women and families will experience increased out-of-pocket childbirth costs over the coming decade, which will disproportionately affect lower income women. Several policy changes could increase the effectiveness of the use of HDHPs by childbearing women including information on maternity coverage and out-of-pocket costs that is personalized and clearly communicated to women and their families, decision support tools for women with HDHPs, mechanisms such as HSAs or other incentives to encourage women to save toward childbirth costs, and subsidization to assist financially vulnerable women (Wharam, Graves, and Kozhimannil 2015).

CONCLUSIONS

Women whose employers mandated a health insurance switch to an HDHP experienced a lower birth rate, which could reflect efforts to avoid childbirth-related out-of-pocket costs under HDHPs. Future studies should clarify whether these associations result from contraceptive methods, delaying or foregoing childbearing, or switching to plans with more generous coverage. Policy makers should provide more clarity about coverage and prices, build decision support tools that assist in financial planning for childbirth, and adopt mechanisms to help financially vulnerable women pay for childbirth.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Appendix SA1: Author Matrix.

Appendix SA2: (a) Study Cohort Construction; (b) Statistical Programming Software; (c) Oral Contraceptive Identification in HPHC Pharmacy Claims Data; (d) Contraceptive and Sterilization Identification in HPHC Medical Claims Data; (e) Pregnancy Termination Identification in HPHC Medical Claims Data; (f) Definitions and Statistical Modeling of All Clinician-Provided Contraceptives; (g) Definitions and Statistical Modeling of Monthly Oral Contraceptives (Sensitivity Analysis); and (h) Definitions and Statistical Modeling of Childbirth.