Annual Report

Planning for Healthy Babies Program® (P4HB®)

1115 Demonstration in Georgia

YEAR 7

Submitted to the Centers for Medicare and Medicaid Services

By:

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And

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Executive Summary

Since its implementation in 2011, the Planning for Healthy Babies Program® (P4HB®), Georgia's section 1115(a) Medicaid Demonstration expanded the provision of family planning services to uninsured women capable of childbirth, ages 18 through 44 years, with family incomes at or below 200 percent of the federal poverty level (FPL) residing in the state. The P4HB program, initially approved for a three-year period from January 1, 2011, through December 31, 2013, has received numerous temporary extensions. The state is currently administering the program under an extension through March 31, 2019.

Enrollment of those eligible in the community had been stable for Program Years (PY) 5 and 6 at just over 5% of the eligible population. If the number of eligible women in the community is adjusted to better reflect those 'in need' of family planning services--those who are sexually active, able to get pregnant and not currently pregnant or trying to get pregnant as estimated by the Alan Guttmacher Institute (AGI)--the percentage enrolled in PY 5 and 6 was nearly 10%. While this represents a decline from the estimated 20% of eligible women 'in need' of family planning services enrolled in PY3, the implementation of the Georgia Gateway integrated system in February 2017, has resulted in a marked increase of eligible women 'in need' of family planning services enrolled in P4HB as of the last quarter of 2017.

In this and prior annual reports, we use data to address the progress on the goals and objectives of P4HB. In prior reports, we included analysis based on the Pregnancy Risk Assessment Monitoring System (PRAMS) data for Georgia and comparison states; these are included in an Appendix in this report. We also present updated analysis of claims data and in some instances, linked claims

and vital records for two PY pre-P4HB (2009 and 2010) and for PY post-P4HB (2012-2017), in this report. We summarize our findings noting tables in the report for further detail:

- **P4HB is associated with several positive outcomes for Georgia's Medicaid population:**
  - a substantial number of averted births *(Table 7)*;
  - decreased unintended pregnancies (*Appendix B tables)*;
  - decreased teen births;
  - decreased very short (< 6 months) interpregnancy intervals; and
  - increased age at first birth *(Table 11).*

- **Analysis did not show the desired effect of P4HB on overall rates of LBW and VLBW births in Georgia:**
  - **When applying a *within-state* control group:** For years 2012-2013 (post P4HB) , multivariate analysis showed no significant differences in the change in rates of VLBW or LBW from the baseline pre P4HB period for the Georgia Medicaid population compared to a control group of privately-insured women with high school or less education based on vital records/claims data. Results for years 2014-2017 (post P4HB), when the Affordable Care Act (ACA) likely changed the composition of women with Medicaid-paid births, actually indicate an increase in LBW and VLBW births for Medicaid *(Table 11).*
  - **When applying an *external control* group:** Descriptive data for years 2012-2013 (post P4HB), show VLBW rates improved from the baseline pre P4HB period in Georgia relative to women in comparison states without a family planning waiver based on PRAMS data. However, multivariate analysis showed no significant effects on VLBW or LBW measures for Medicaid insured (*Appendix B Tables).*

- **P4HB enrollees who utilize covered services have improved outcomes relative to RSM women who do not enroll and to enrollees who do not utilize services:**

  - **Women enrolled in FP only and using birth control are less likely to conceive quickly.** A much lower percentage of P4HB FP only enrollees who use birth control have evidence of pregnancies within 6 months (1.8%) compared to RSM women who do not enroll (7.0%). The difference widens between FP only enrollees and RSM women at 12 months (6.6% vs 14.3%) and persists at 18 months (12% vs. 20%) *(Chart 4).*

  - **FP only users of family planning services have better delivery outcomes than nonusers.** Among enrollees with a live birth conceived within 12 or 18 months of enrollment, users of family planning were more likely to deliver a normal birth weight infant, compared to nonusers of family planning (88.6% vs. 85.3% within 12 months, 88.1% vs. 85.7% within 18 months). *(Issue Brief, Georgia DCH, forthcoming, 2019)*

  - **FP only users of family planning services who use LARCs have better delivery outcomes.** Enrollees with a live birth conceived within 12 months of enrollment who

used LARC birth control methods were substantially more likely to deliver a normal birthweight infant compared to nonusers of family planning services (91.3% vs. 85.3%).*(Issue Brief, Georgia DCH, forthcoming, 2019)*

- **Women enrolled in IPC *and* participating are less likely to have clinically inappropriate interpregnancy intervals than eligible women who do not enroll.** Among IPC users of any family planning services, 9% have a repeat pregnancy by 12 months compared to 19% of the RSM (VLBW) comparison group; among IPC users of birth control, this percentage is 7.9%. By 18 months, 26% of the RSM non-enrollee comparison group have a repeat pregnancy compared to only 12.5% of IPC enrollees using some form of birth control *(Chart 5).*

- **Women enrolled in RM only *and* participating are less likely to have very short, clinically inappropriate interpregnancy intervals than eligible women who do not enroll.** If RM only enrollees do not use services, their cumulative percentage with a repeat pregnancy by the 12th month (19.3%) is virtually the same for the RSM (20.5%) comparison group. Yet, only 8-9% of RM only enrollees who use any family planning or birth control specifically, have evidence of a repeat pregnancy by 12 months. By the 18 months, these differences narrow *(Chart 6).*

- **Compared to women eligible for IPC but who do not enroll, women participating in IPC have statistically significant improved subsequent delivery outcomes**. The probability that IPC enrolled women had a repeat delivery within 18 months was almost 10 percentage points lower than RSM (VLBW) women who did not enroll *(Table 8).* Furthermore, **IPC enrolled women with a repeat delivery were significantly *less likely* to have adverse outcomes (fetal death, stillbirth, VLBW or LBW infant) than RSM women not enrolling** *(Table 9).*

- **P4HB has achieved cost savings each year.** There was an estimated savings (based on the original budget neutrality template) to the federal government from implementation of the P4HB demonstration program of $23 million in the last year (CY2016) alone. *(Appendix C).*

Given the noted importance of enrollment of women into P4HB and their utilization of covered services, patterns of enrollment and utilization are important to track. Key patterns to note include the following:

- **Enrollment in P4HB had been suboptimal.** The relatively low rates of enrollment, representing ~ 9-10% of those in the community, eligible and 'in need' of family planning services during 2014-2016 made it difficult to achieve desired goals. A large increase in enrollment in P4HB *(see Quarterly Report Oct-Dec 2017)* resulted in 19.4% of those 'in need' who were enrolled at the end of 2017. The percentage of women eligible for IPC women enrolled at 59% *(Table 1).*

- Implementation of the Georgia Gateway did result in the increased enrollment of eligible women into P4HB. **However, the increase in enrollment with the Georgia Gateway**

creates concern about appropriate eligibility assignment and understanding of covered benefits. The trends through 2017 likely indicate the effects of cascading women.

- **Use of family planning services by P4HB FP only enrollees within six months of enrolling declined in 2017.** The percentage of P4HB FP only enrollees with any family planning visit in their first 6 months began at a high level in 2011 (~43%), declined to 25% in 2013 (likely due to auto-enrollment) and increased to 46% in 2015 (likely due to the discontinuation of auto-enrollment). While this percentage declined to ~40% in 2016 there was a ***striking decline*** to only 14% of these enrollees using any family planning services within six months of enrolling in 2017, coinciding with Gateway implementation *(Table 2).*

- **Use of any family planning services by IPC enrollees within six months of enrolling also declined in 2017.** Among women enrolled in the IPC/RM only components of P4HB, the use of any family planning or other covered service within six months was fairly stable over the 2011-2015 time period at ~31-32% but declined to 22% in 2016 and declined further to ~19% in 2017 *(Table 2).*

- **Use of LARCS among P4HB FP only enrollees who used any birth control within six months of enrolling, increased.** The percentage of P4HB FP only users of birth control within 6 months who used LARCs was high in 2011 (18.9%) and still stood at 18.4% in 2016. From 2016 to 2017, this percentage increased to 23.4% *(Table 3).*

- **Use of LARCS among IPC/RM only enrollees who used any birth control within six months has been relatively stable 2012-2017.** Among IPC/RM only enrollees who use within six months of enrollment, the percentage using LARCs declined markedly from 2011 (50%) when there were very few enrollees to ~20% in 2012. Since then, the percentage using LARCs within six months has remained rather stable at ~18% *(Table 3).* It is important to note that IPC/RM only women also received birth control services as RSM enrollees during the first three months post-delivery *(Table 5, 6).*

- **Access of family planning services at Title X-funded clinics is beginning to reach former levels.** With the change in the Title X grantee from the Department of Public Health (DPH) to the Georgia Family Planning System (GFPS) in 2014, the total number of users of services at the Title X sites had declined. Recently however, the number of female users served by GFPS clinics in 2017 (104,290) is only slightly below the number of female users served by DPH Title X clinics in 2013 (112,703). In addition, the total men and women users of services at Title X in 2016 and 2017 (143,783) is *higher* than the number of men and women users served by the DPH in 2013 (115,307) *(Table 4).*

- **IPC/RM only women utilize interpregnancy care services, including contraceptive methods and management of hypertensive and diabetes disorders, but rates could be improved.** IPC/RM only women principally receive services related to hypertensive or diabetes disorders immediately after delivery; rates of service receipt as IPC/RM only enrollees could be improved. The receipt of some contraceptive method appreciably

increases (10 to 12 percentage points) after their period of RSM coverage to 360 days post-delivery (*Table 5, 6).*

I. OVERVIEW OF THE PLANNING FOR HEALTHY BABIES PROGRAM (P4HB)

In October of 2010, CMS granted Georgia the authority to expand access to family planning services under the Planning for Healthy Babies® (P4HB®) program. This program was designed for women deemed eligible by meeting the following criteria: 1) U.S. citizens and residents of Georgia who were otherwise uninsured and not eligible for Medicaid; 2) 18 through 44 years of age; 3) not pregnant but able to become pregnant; and 4) with incomes at or below 200% of the Federal Poverty Level (FPL). (With the state's use of the MAGI income measure, this threshold is now 211% FPL). The P4HB program is unique in that it also provides Interpregnancy Care (IPC) services, inclusive of nurse case management/Resource Mother outreach, to women who meet the above eligibility criteria and who delivered a very low birth weight (VLBW) infant (<1500 grams or < 3 pounds 5 ounces) on or after January 1, 2011. In addition, the program offers nurse case management/Resource Mother outreach services to women enrolled in the Georgia LIM (Low Income Medicaid) or ABD (Aged, Blind and Disabled) Medicaid programs who delivered a VLBW infant on or after January 1, 2011. As noted above, DCH identified the following as key outcome goals for the P4HB Demonstration:

- **Primary**: Reduce Georgia's LBW and VLBW rates;
- **Secondary:** Reduce the number of unintended pregnancies in Georgia;
- **Tertiary**: Reduce Georgia's Medicaid costs by reducing the number of unintended pregnancies by women who otherwise would be eligible for Medicaid pregnancy-related services.

These goals point to the quantifiable performance measures that have been assessed pre- and post-implementation of the Demonstration and presented in this and earlier reports. The evaluation of these outcomes as noted, used a quasi-experimental design, where possible, to test for changes pre

and post the Demonstration. This PY7 report contains the pre/post analyses based on six years of data post the P4HB implementation using linked vital records for these years.

II. SUMMARY OF SEVENTH YEAR ACTIVITIES

Communication and Outreach

During PY7, DCH conducted numerous activities to increase awareness of the P4HB program and to encourage participation by both consumers and providers. DCH also conducted activities to prepare for the transition to the new Georgia Gateway integrated eligibility systems and for the transition to the new Georgia Families (GF) CMO contracts. Also, the CMOs and network providers conducted outreach and education to prospective enrollees about the P4HB program. These activities for PY7 are summarized below.

DCH Supported Activities

In PY7, DCH: 1) educated CMOs and Medicaid network providers about P4HB and available services under the program; 2) utilized consumer-based outreach; 3) collaborated with state agencies to enhance outreach and enrollment in P4HB; and 4) participated in readiness reviews for the transition of the one new CMO and three current CMOs to the 2017 GF contract; and 5) made changes to prepare for the transition to the new Georgia Gateway integrated eligibility system; and 6) completed an annual evaluation. The DCH link for the P4HB program is: https://medicaid.georgia.gov/planning-healthy-babies.

1. **Educate Providers.** DCH communicated regularly throughout the year with the CMOs and network providers regarding the P4HB program. Two rounds of provider surveys were completed in PY7. The provider surveys were distributed in April and December 2017 and

focused on providers' knowledge and understanding of the P4HB program as well as potential barriers with the program. In addition, DCH reviewed and approved the CMO P4HB handbooks and other P4HB related member and provider information.

2. **Consumer-Based Outreach**. DCH continued to conduct consumer-based outreach during 2017. DCH provided updates to the P4HB website and the P4HB fact sheets posted on the program website. In addition, DCH issued its "Letter P80," a letter sent to all Medicaid eligible women enrolled in Right from the Start Medicaid (RSM) during their eighth month of pregnancy. This letter provided women with information about the P4HB program, including eligibility, the enrollment process, and details about selecting a CMO. To prepare for the implementation of the new Georgia Gateway system, DCH discontinued these letters in Q1 2017 but resumed issuance of these letters in Q2 2017.

   Education about the P4HB program was also provided by staff members at federally qualified health centers (FQHCs) that participate in the Georgia Title X program and the local county health departments across the state. The P4HB program is a coverage option available to women seeking services from these providers who meet the eligibility requirements for the program. Staff in these agencies assisted women with their P4HB applications.

3. **Agency Collaborations:** During PY7, DCH collaborated with agencies to explore enhancements to the P4HB eligibility, enrollment, and outreach processes. DCH worked throughout the year with staff from GFPS to help promote P4HB for clients of federally qualified health centers (FQHCs) in Georgia. In addition, DCH worked with Healthy Mothers, Healthy Babies of Georgia to provide feedback about their Strategic Plan to Address Infant Mortality in the Atlanta Perinatal Region and to use this platform to explain and promote P4HB

to community leaders. Also, DCH P4HB staff made plans to collaborate with the DCH Communications Team to develop a new communications plan after approval of the extension application.

4. **Readiness Reviews:** DCH conducted readiness reviews for the transition of the CMOs to the new GF contract and to ensure that the CMOs were well versed in the P4HB program to inform their members and potential members about the program. One new CMO, Care Source, joined the GF team effective July 1, 2017, and was required to demonstrate their knowledge and understanding about the program by participating in interviews of key staff and through presentation.
5. **Transition to the new Georgia Gateway integrated eligibility system:** To prepare for the transition to the new Georgia Gateway integrated eligibility system, DCH conducted several activities. First, they temporarily discontinued the 8th month RSM letters until Q2 2017. Second, the RSM team at DCH took primary responsibility for reviewing P4HB eligibility cases and for continuing outreach activities related to P4HB and other medical assistance programs that DCH oversees. Finally, the P4HB website and P4HB fact sheet transition to the DCH website in Q1 2017.
6. **Annual Evaluation:** DCH worked with Emory University to prepare the seventh annual P4HB evaluation.

CMO Supported Activities

Each of the four CMOs working with the P4HB program has their own client and provider education plans relative to the P4HB program. This information is posted on their respective

websites. (https://www.myamerigroup.com/ga/your-plan/planning-for-healthy-babies.html; http://georgia.wellcare.com/member/p4hb; https://www.pshpgeorgia.com/members/planning-for-healthy-babies.html; https://www.caresource.com/ga/plans/planning-for-healthy-babies/).

During PY7, the CMOs continued the following client-related outreach efforts:

- welcome calls to newly enrolled P4HB members;
- home visits and telephone calls to IPC participants to conduct case management and to educate them on the IPC program;
- mailing of program materials (including contraceptive benefit information) to all new and existing P4HB members;
- community baby showers for expecting and new mothers that informed them about the P4HB program;
- on-site visits with high volume delivery hospitals and FQHCs to help educate women about the P4HB program and its IPC component.
- Phone calls by one CMO to emergency department (ED) utilizers to educate them on appropriate use of the ED.

The CMOs took part in local and community education events to discuss the P4HB program with prospective clients and continued provider education and training regarding the P4HB program. They issued provider toolkits about P4HB to new providers and discussed the P4HB program at new provider orientations.

III. ENROLLMENT OF ELIGIBLE WOMEN

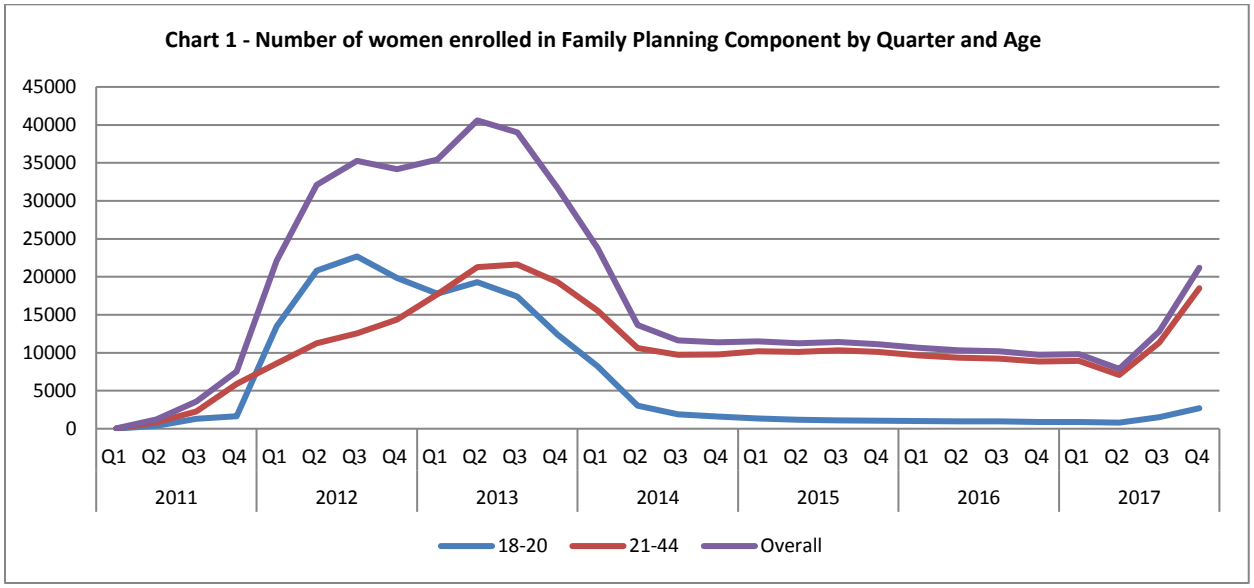
To achieve its goals, the P4HB program must enroll significant portions of women eligible in the community. In our quarterly reports, we have provided summaries of the P4HB enrollment process, barriers to enrollment, and enrollment patterns. In this Annual Report, we report trends in the number/percentage eligible enrolled in the FP only and IPC/RM components through December 2017.

The Georgia Gateway system, now fully implemented, serves six state benefit programs: Medical Assistance,Supplemental Nutrition Assistance Program (SNAP), Temporary Assistance for Needy

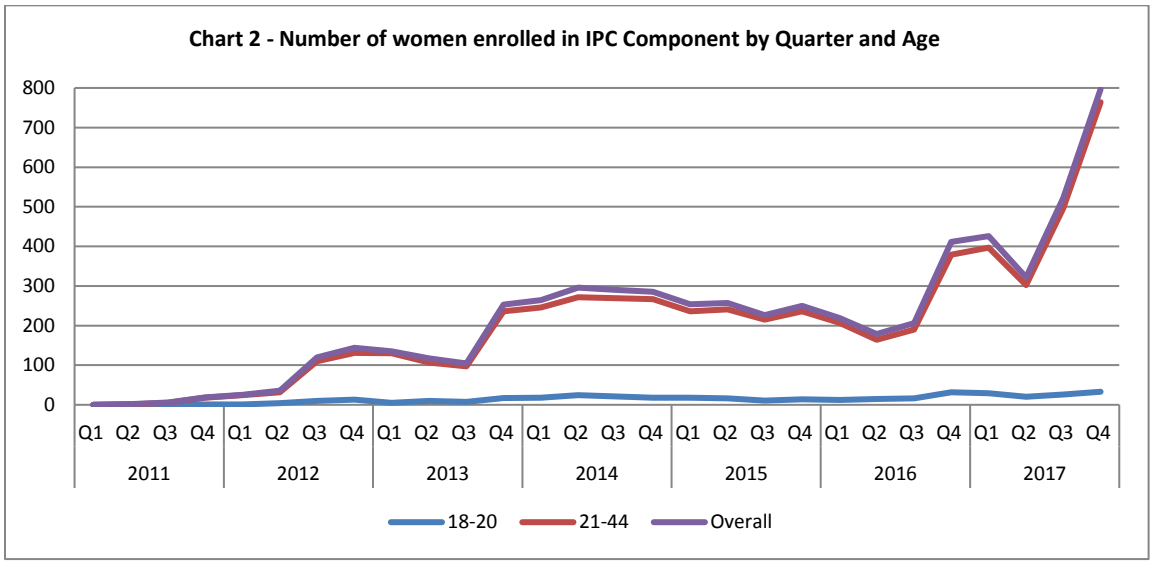
Families (TANF), Low Income Home Energy Assistance Program (LIHEAP), Women, Infants, and Children (WIC), and Child Care and Parent Services (CAPS). This system streamlines the application processes as it allows women to assess their eligibility for any of these programs including P4HB, which is included within the Medical Assistance component of this system.

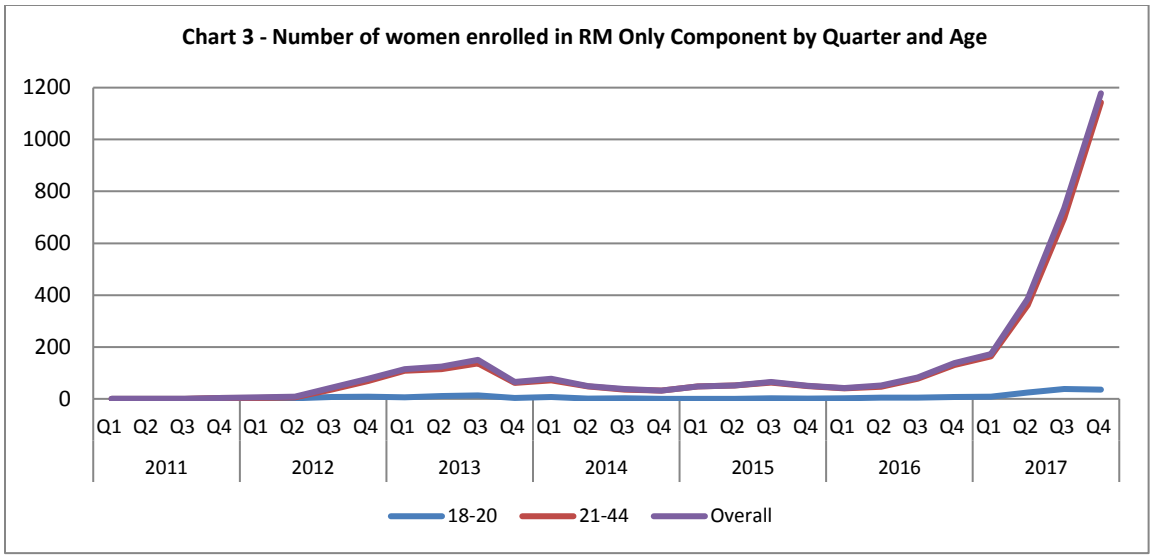
Enrollment Trends

As shown in Chart 1, the implementation of the Gateway system appears to have markedly driven up enrollment in the FP only component of P4HB. Prior to this, total enrollment in the FP only component had fallen from its peak level of 40,593 in Q2 2013 to 9,736 by the 4th quarter of 2016. From there, the number of women enrolled in FP only more than doubled to 21,195 by the 4th quarter of 2017. The composition of these FP only enrollees by age changed slightly as the number of 18-20 year olds enrolled tripled from the end of 2016 (899) to the end of 2017 (2,708) and the number of 21-44 year olds enrolled more than doubled (from 8,837 to 18,487). The growth in numbers enrolled for both age groups (18-20 and 21-44 years) was largely in the last two quarters of 2017.



There have been parallel increases in IPC and Resource Mothers (RM) only enrollments from 2016 to 2017. The trend in IPC enrollment (Chart 2) indicates almost a doubling from the 4th quarter of 2016 (411) to the 4th quarter of 2017 (797). The number of women enrolled in the Resource Mothers (RM) only component of the P4HB program totaled 138 by the end of PY6 but the number enrolled by the 4th quarter of 2017 is almost nine times larger at 1,178. The total number of IPC and RM only women enrolled at the end of PY7 (1,975) is over three times the number enrolled at the end of PY6 (549). This means almost 2,000 women who had delivered VLBW infants have been eligible to receive nurse case management and Resource Mother services, primary care and other IPC services available to them by the end of PY7.





Participation Rates

As in prior reports, we used data from the American Community Survey (ACS) for each year to estimate the number of uninsured, citizen women 18-44 years with incomes at or below 200% FPL (211% as of April 2017) to gauge the percentage of eligible women who have enrolled. Given the implementation of the ACA in 2014, the number of (citizen) women with incomes meeting the 200% FPL P4HB requirement *and* uninsured, declined through 2016. The estimated number of eligible women in the community in 2017 is 200,684, a decline of around 30% from 2013 but a slight increase from 2016. The increase in the percent FPL used in 2017 raised the number eligible from what it would have otherwise been.

As shown below in Table 1, the percentage of those eligible who enroll increased from less than 3% in 2011 to an estimated 12% of the eligible population enrolled in the FP only component in 2012. The percentage eligible who enroll remained fairly stable at 11% in PY3 but beginning in PY4, declined by half to approximately 5%, where it remained until PY6. With the Georgia Gateway system and other outreach efforts, the percent eligible and enrolled in FP only doubled

to 10.6% in PY7. When considering that only an estimated 54.5% of the eligible population may be 'in need' of family planning services (sexually active, able to become pregnant, not currently pregnant or trying to get pregnant), the estimated percentage of eligible women 'in need' who enrolled stood at almost 20% at the end of 2017, which is close to its peak of 22% in PY3.

Table 1. Enrollment of Population Eligible in the Community

Demonstration Group	Enrolled in 4th Quarter	Population Eligible in Community[1,2]	Percent Eligible Enrolled
FP Only 2011	7,543	296,949	2.5%
2012 P4HB Enrollment/Participation			
FP Only 2012[3]	34,184	285,927	12.0%
FP Only 2012	34,184	155,830[4]	21.9%
IPC/Resource Mother Only	221	3,118	7.1 %
2013 P4HB Enrollment/Participation			
FP Only 2013[3]	31,690	287,220	11.1%
FP Only 2013	31,690	156,535[4]	20.2%
IPC/Resource Mother Only	318	3,328	9.6%
2014 P4HB Enrollment/Participation			
FP Only 2014[3]	11,370	232,718	4.9%
FP Only 2014	11,370	126,831[4]	9.0%
IPC/Resource Mother Only	317	3,332	9.5%
2015 P4HB Enrollment/Participation			
FP Only 2015[3]	11,133	207,966	5.4%
FP Only 2015	11,133	113,341[4]	9.8%
IPC/Resource Mother Only	300	3,311	9.1%
2016 P4HB Enrollment/Participation			
FP Only 2016[3]	9,749	187,342	5.2%
FP Only 2016	9,749	102,101[4]	9.5%
IPC/Resource Mother Only	549	3,411	16.1%
2016 P4HB Enrollment/Participation			
FP Only 2017[3]	21,195	200,684[5]	10.6%
FP Only 2017	21,195	109,373[4]	19.4%
IPC/Resource Mother Only	1,975	3,354	58.9%

[1]Those eligible for family planning only benefits are uninsured female citizens ages 18-44 with income ≤ 200% FPL and residing in Georgia. The number of uninsured women in this age and income range was estimated using the ACS 1-year PUMS for 2011 – 2016 as shown in column 3. [2]Those eligible for IPC include uninsured women 18-44 with income ≤ 200% FPL residing in Georgia with a live born infant under 1500 grams at delivery. We use women with a VLBW infant born on Medicaid in the past two years as the denominator for this calculation in each year. Those eligible for Resource Mother only include LIM and ABD Classes of Eligibility women with a VLBW infant. We combine the enrollment counts for IPC and Resource Mother for the numerator and use all Medicaid paid VLBW births in 2016 and 2017 (2016 n = 1,716 and 2017 n = 1,638 in Table A.1 shown later) for example, as the denominator in 2017. [3]We use the numbers enrolled as of the 4th quarter of 2017 (and reported in our 4th Quarter 2017 Report) for consistency with the earlier parts of this report. [4] This denominator adjusts for women in need of family planning services based on a report from the Guttmacher Institute. Their estimate is that 54.5% of women in the age group 13-44 needed family planning services; they count women who are sexually active, able to get pregnant but not currently pregnant or trying to get pregnant. See: http://www.guttmacher.org/pubs/win/contraceptive-needs-2008.pdf. *We multiplied the "in the community" population by .545 to get the 155,830 for 2012, 156,535 for 2013, 126,831 for 2014, 113,341 for 2015 and 102,101 for 2016, 109,373 for 2017 as shown in column 3.[5] This number reflects uninsured female citizens ages 18-44 with*

income below or equal to the 211% FPL eligibility level set by the state as they shifted to the MAGI income measure in April 2017.

We note that the percentages shown for IPC/RM enrollment has been defined differently than in previous years in this report. Due to the implementation of the Georgia Gateway system, more women who had a VLBW infant born in 2011 or later have been enrolling in the IPC/RM only components remote from their qualifying delivery; previously, eligible women with a VLBW infant were principally enrolled after a *recent* delivery.

,The percentage of women with a VLBW infant since the inception of P4HB who enrolled in the IPC or RM only components had remained fairly stable until 2016 when it increased to 16% from 9-10%. A large increase to 58.9% is seen in 2017 perhaps due to the Georgia Gateway system.

IV. USE OF FAMILY PLANNING SERVICES

The key pathway through which the P4HB program can impact the program goals and outcomes is in improvement in access to family planning services for a sufficient number of women $\leq$ 211% FPL in the community. In turn, it is important that women utilize effective family planning services once enrolled. As noted in prior reports, the use of family planning services through the P4HB program should be in addition to those provided through other public programs, such as Title X, for the use of family planning services by *all* women of reproductive age living in Georgia and in the income range targeted by the P4HB program to increase. In the early years of P4HB we saw that services received through the publicly funded family planning delivery system (including both Medicaid and Title X) in Georgia did not increase enough to result in a growing percentage of women with incomes $\leq$ 200% FPL receiving a family planning or birth control visit 2009 through 2013.[1] We continue to monitor trends in the use of effective family planning services in P4HB and Title X as discussed in the following section.

Family Planning and Birth Control Visits by P4HB Enrollees

In this section, we update the data on use of family planning services by P4HB enrolled women and users of Title X clinics, through 2017.

P4HB Usage. We continue to use the detailed Medicaid claims and enrollment files to report on the trends in use of family planning services paid for by Medicaid through the P4HB program, the use of contraceptives and among users, use by relative effectiveness of the contraceptives. We have made some changes in the coding of these services and contraceptive methods due to the introduction of ICD-10 diagnosis codes in October 2015, which have been noted in earlier reports. To assure our ability to examine trends pre and post implementation of the P4HB program, we continue to use the same coding as in earlier years but in this PY7 report, we focus on *'early'* users. We have found this is an important factor in preventing short interpregnancy intervals and repeat pregnancies which occur as quickly as six months after a Medicaid-paid delivery. In the tables that follow we report on use of services within six months of enrollment into P4HB.

Table 2. Use of Family Planning and Birth Control Visits within Six Months of Enrollment among P4HB Family Planning only and IPC/RM Enrollees, 2011-2017

	Use Among P4HB Women FP Only			Use Among P4HB Women IPC / Resource Mother		
	Any Family Planning Visit in First 6 Months	Mean Visits Per User in First 6 Months	Any Visit /Service for Birth Control in First 6 Months	Any Family Planning Visit in First 6 Months	Mean Visits Per User in First 6 Months	Any Visit /Service for Birth Control in First 6 Months
2011	42.8%	2.42	34.1%	33.3%	2.86	28.6%
2012	23.8%	2.48	19.0%	32.5%	2.55	25.9%
2013	25.1%	2.56	19.9%	28.0%	2.69	21.8%
2014	43.9%	2.62	36.7%	30.7%	2.72	25.9%
2015	46.2%	2.65	39.1%	31.5%	2.13	20.4%
2016	40.3%	2.40	32.2%	21.7%	1.98	16.1%
2017	14.0%	1.93	9.8%	18.8%	1.93	13.1%

Denominator is all women ages 18-44 started in P4HB during the year.

The data in Table 2 reflects the percentage of P4HB enrolled women with any Medicaid family planning related visit, including visits for the additional P4HB covered services (e.g. treatment of STIs or primary care provider visits for IPC women) within six months of enrollment (and before evidence of a pregnancy). Among women in P4HB FP only component, the percentage with any family planning visit in their first six months of enrollment began at a high level in 2011 at ~43%, declined to 25% in 2013 (likely due to auto-enrollment) and increased markedly to 46% in 2015 (likely due to discontinuation of auto-enrollment). While this percentage then declined to ~40% in 2016 there was a *striking decline* to only 14% of P4HB family planning only enrollees who used any family planning services in 2017 within six months of enrollment.

The declines in usage over 2012-2013 for the P4HB family planning only women reflected in large part, the increased enrollment of the auto-enrolled as they tended to use services at a lower rate. It now appears that the marked increase in enrollment with the Georgia Gateway system has 'auto enrolled' more women who are unaware and/or not interested in the types of services available to them through P4HB and hence, measures of overall use have again declined. The patterns of any visit for birth control specifically 'mirrors' the overall pattern, showing a disturbing decline from 32% of these women having a visit/service for birth control in their first six months of enrollment in 2016 to only 9.8% with such a visit/service in 2017.

Among women enrolled in the IPC/RM only components of P4HB, the use of any family planning or other covered service within six months was fairly stable over the 2011-2015 time period at ~31-32% but declined to 22% in 2016 and declined further to ~19% in 2017. Their use of any visit/service for birth control in the first six months of enrollment has declined since 2014 with the

largest drop occurring between 2014 and 2015 (~26% to 20.4%). While there is a further decline to 13.1% using any visit/service for birth control in the first 6 months of enrollment in 2017, it is unclear whether the increased enrollment through Georgia Gateway is related to this decline.

Contraceptive Methods Used

Another way the P4HB program could affect usage of family planning services is to move women using some form of contraception toward one of the more effective methods of contraception. In Table 3 below, we show the distribution of the 'early' users of some form of contraceptive by the WHO tiers of effectiveness 1-4 (in which tier 1 represents the highest level of effectiveness); when a tier could not be discerned from the claims code, 'tier not specified' is indicated in the table. We also show the percentage of users of some form of contraceptive who are using long-acting reversible contraceptives (LARCs) in the last column.

Table 3. Distribution of Contraceptive Methods Among Users within Six Months of Enrollment, P4HB Family Planning only and IPC/RM Only Enrollees, 2011-2017

Year	% of Contraceptive Methods by Tier Paid by Medicaid: P4HB – FP Only					% of Contraceptive Methods by Tier Paid by Medicaid: P4HB – IPC/Resource Mother				
	Tier 1	Tier 2	Tier 3/4	Tier Not Specified	LARC	Tier 1	Tier 2	Tier 3/4	Tier Not Specified	LARC
2011	23.13	62.54	2.42	11.91	18.95	50.00	33.33	0.00	16.67	50.00
2012	16.82	68.79	3.12	11.27	14.47	21.57	66.67	0.00	11.76	19.61
2013	21.46	65.19	2.82	10.53	18.70	21.43	69.64	0.00	8.93	17.86
2014	20.84	65.66	2.92	10.58	17.39	24.29	71.43	1.43	2.86	17.14
2015	19.33	73.11	1.53	6.02	17.34	22.81	68.42	0.00	8.77	17.54
2016	19.87	73.14	0.88	6.10	18.36	22.54	74.65	0.00	2.82	18.31
2017	24.33	69.13	1.29	5.25	23.47	23.53	70.59	0.00	5.88	18.38

***N**otes: WHO Tiers of contraceptive effectiveness: Tier 1(High effectiveness): implants, intrauterine devices, sterilization; Tier 2 (Medium effectiveness): injectable methods, patch, pills, and vaginal ring; Tier 3 and 4 (Low effectiveness): condoms, diaphragms, fertility awareness methods, spermicides; Long-acting reversible contraceptive methods (LARC) are a subset of Tier 1 methods that are reversible and include implants and intrauterine devices. Tier not specified indicates that the tier of the method could not be assigned based on the claims codes*

As the data in Table 3 show, the use of Tier 1 contraceptives among FP only users of some form of contraceptive was high in the first year of P4HB at 23% but generally declined through 2016. In 2017, this percentage increased and exceeded the 2011 percentage at 24.3%. Their use of

LARCs was also high in the first year of P4HB (18.9%) and while there were declines in some years this percentage stood at 18.4% in 2016. From 2016 to 2017 there was an increase to 23.5% of all P4HB FP only users of contraceptives who were using LARCs. There was a corresponding decline from 2016 (73%) to 2017 (69%) in the percentage of women/users who used oral contraceptives (Tier 2); this method however, remains the most popular among family planning only P4HB users who used birth control within the first six months.

The patterns of contraceptive use among the IPC/RM only enrollees in P4HB who use within six months of enrollment are somewhat different. For these women, the use of LARCs within the first six months declined markedly from 2011 (50%) to ~20% in 2012. Since then, the percentage using LARCs has remained rather stable at ~18%. For these enrollees, oral contraceptives (Tier 2) are also the dominant form of birth control at 70.6% in 2017.

Use at Title X Clinics

As previously noted, we can no longer track detailed Title X funded use by individual women, but rather use aggregate data available from the Family Planning Annual Report (FPAR), which is the uniform reporting method used by all Title X service grantees. These data are presented in summary form to protect the confidentiality of users. Since July 2015, the new Title X grantee, the Georgia Family Planning System (GFPS), is largely a set of Federally Qualified Health Centers (FQHCs) which serve a broader and different clientele than the prior grantee, the Department of Public Health (DPH). With this change, there was an increase in the amount of 'unknown' data for several of the key data elements required in the FPAR reports. This issue has been addressed by the GFPS, reducing the amount of 'unknown' data in more recent years.

In Table 4 below, we show the FPAR for calendar years 2012 through 2017; data for the years 2012-2013 are all from the Georgia DPH whereas data for years 2015-2017 are all from the GFPS. While we saw a reduction in the number of females getting family planning services beginning in 2014, falling from 112,708 in 2013 to 66,912 in 2015, there has been an increase in both women and men served since then. The number of female users increased to 104,290 in 2017, only slightly below the 112,703 women served by DPH in 2013. In addition, the total men and women family planning users in 2016 and 2017 (143,783) is higher than the number of men and women (115,307) served by DPH in 2013 and the percent of male clients served by the GFPS (22 to approximately 29%) is much higher than at DPH (2% to approximately 5%).

Table 4**. Title X Users of Family Planning Services During 2012-2017**

FPAR DATA	2012[1]		2013[1]		2014[1]		2015[1]		2016[1]		2017[1]	
	#	%	#	%	#	%	#	%	#	%	#	%
Number and % of Family Planning Users by Gender												
Female	123,967	97.6	112,703	97.7	97,483	95.3	66,912	77.5	90,697	71.4	104,290	72.5
Male	3,025	2.4	2,604	2.3	4,840	4.7	19,397	22.5	36,371	28.6	39,503	27.5
Total	126,992		115,307		102,323		86,309		127,068		143,793	
Number and % of Female Family Planning Users at Risk[7] of Unintended Pregnancy (UP)												
At Risk of Unintended Pregnancy	108,449	87.5	98,512	87.4	84,339	86.5	60,745	90.8	72,730	80.2	86,433	82.9
Not at Risk of Unintended Pregnancy	15,518	12.5	14,191	12.6	13,144	13.5	6,167	9.2	17,967	19.8	17,857	17.1
Total	123,967		112,703		97,483		66,912		90,697		104,290	
Number and % of Female Family Planning Users Less than 25 Years with Chlamydia Testing												
Tested for Chlamydia	35,165	59.6	29,478	55.9	16,729	40.1	7,073	32.9	11,401	37.4	13,915	44.7
Not Tested for Chlamydia	23,863	40.4	23,296	44.1	25,025	59.9	14,420	67.1	19,052	62.6	17,208	55.3
Total	59,028		52,774		41,754		21,493		30,453		31,123	
Number and % of Family Planning Users by Income in Relation to Federal Poverty Level (FPL)[2]												
Income <101% FPL	106,751	84.1	98,811	85.7	78,118	85.0	40,103	72.8	77,139	75.3	100,035	72.9
Income 101% to 250% FPL	19,092	15.0	15,745	13.7	12,646	13.8	11,745	21.3	18,323	17.9	25,813	18.8
Income Over 250% FPL	1,149	0.9	751	0.7	1,100	1.2	3,265	5.9	6,990	6.8	11,394	8.3
Total (Known Income Level)	126,992		115,307		91,864		55,113		102,452		137,242	
UK/NR/Missing	0	0.0	0	0.0	10,459	10.2	31,196	36.1	24,616	19.4	6,551	4.6
Total	126,992		115,307		102,323		86,309		127,068		143,793	
Number and % of Family Planning Users by Insurance Status												
Public Insurance	19,716	16.3	20,784	18.8	22,393	23.2	24,719	29.9	37,305	29.4	42,128	29.3
Private Insurance	18,701	15.5	16,311	14.8	14,973	15.5	23,753	28.8	37,717	29.7	45,797	31.9
Uninsured	82,223	68.2	73,313	66.4	59,130	61.3	34,105	41.3	51,914	40.9	55,699	38.8

Total (Known Insurance Status)	120,640		110,408		96,496		82,577		126,936		143,624	
UK/NR/Missing	6,352	5.0	4,899	4.2	5,827	5.7	3,732	4.3	132	0.1	169	0.1
Total	126,992		115,307		102,323		86,309		127,068		143,793	
Number and % of Female Family Planning Users at Risk of Unintended Pregnancy by Effectiveness of Primary BC Method After Visit												
Most Effective Permanent Methods (Tier 1, Non-reversible)[3]	3,095	3.0	1,629	1.7	1,866	2.6	5,345	20.0	9,500	17.0	11,321	21.4
Most Effective Reversible Methods (Tier 1, Reversible)[4]	8,273	7.9	8,711	9.1	6,770	9.5	4,010	15.0	10,261	18.4	8,671	16.4
Moderately Effective Methods (Tier 2)[5]	74,947	71.4	68,699	71.9	53,233	74.9	11,020	41.3	20,334	36.5	15,924	30.1
Less Effective Methods (Tier 3,4)[6]	18,599	17.7	16,567	17.3	9,243	13.0	6,293	23.6	15,631	28.0	16,971	32.1
Total (Known Birth Control Method)	104,914		95,606		71,112		26,668		55,726		52,887	
UK/NR/Missing/None	3,535	3.3	2,906	2.9	13,227	15.7	34,077	56.1	17,004	23.4	33,546	38.8
Total	108,449		98,512		84,339		60,745		72,730		86,433	

[1] Family Planning Annual Report (FPAR) data as reported by the Georgia Title X grantee.
[2] Federal Poverty Level, as determined by reported household income relation to Federal Poverty Guidelines
[3] WHO Tiers of contraceptive effectiveness: Tier 1 (high effectiveness), non-reversible methods include sterilization by any method.
[4] WHO Tiers of contraceptive effectiveness: Tier 1 (high effectiveness), reversible methods include LARC methods, namely implants and intrauterine devices.
[5] WHO Tiers of contraceptive effectiveness: Tier 2 (medium effectiveness) methods include diaphragms, injectable methods, patch, pills, and vaginal ring.
[6] WHO Tiers of contraceptive effectiveness: Tier 3/4 (low effectiveness) methods include condoms, fertility awareness methods, and spermicides.
[7] Women at risk excludes those who are pregnant, seeking pregnancy or abstinent.

The remaining data in Table 4 pertain only to female family planning users. Of those with known income data in the FPAR reports, the percentage of female ≤250% and hence, likely eligible for P4HB, was approximately 92% in 2017**.** We are not able to distinguish P4HB enrollees in this data, but it is likely that the publicly insured women (29% in 2017) are either Medicaid or P4HB enrollees. The percentage uninsured served by the GFPS has been close to 40% for 2015-2017, but this percentage is lower than for clientele served by DPH (> 60% uninsured).

Of all femalefamily planning users seen by GFPS in 2017, approximately 83% were 'at risk' of becoming pregnant; this group excludes those who are already pregnant, seeking pregnancy or abstinent. In the following text we discuss the use of contraceptives by their relative effectiveness only for the 86,433 'at risk' of pregnancy. First, we note that the percentage unknown/not reported group data is almost 39%, an increase from 2016. Based on those with *known* data, the percentage reporting a Tier 1, *non-reversible* (sterilization by any method) increased by about 4 percentage points from 2016 to 2017 while the percent using Tier 1, *reversible* methods (LARCs) decreased

by about two percentage points (18% to 16%). The remaining 62% of women at risk of unintended pregnancy with a known method used moderately effective (Tier 2) or less effective (Tier 3 & 4) methods at similar rates (30 to 32%). Among these women, it appears that GFPS clientele have again reduced their use of Tier 2 methods (from 41% in 2015 to 30% in 2017) while increasing their use of the less effective (Tier 3 & 4) methods. Without knowing the composition of usage among *all* 'at risk' female family planning users, we cannot describe the overall distribution but the decrease in LARCs and Tier 2 methods indicate a decline in the use of more effective methods by GFPS clientele.

In prior reports, we noted a decline in the percentage of female family planning users less than 25 years of age who were tested for chlamydia 2014 to 2015. In the 2016 and 2017 data, there are reported increases and yet, the ~45% receiving this screen in 2017 is still lower than the 56-59% reported as being screened in the DPH data. A decline in this testing is a concern given that the screening of asymptomatic women under age 25 for chlamydia is a long-standing recommendation of the United States Preventive Services Task Force[2] and is included as a HEDIS (Health Plan Employer Data and Information Set) measure since 2000. Screening for *Chlamydia trachomatis*, the most common bacterial sexually transmitted disease in the U.S.[3]

V. USE OF SERVICES BY IPC AND RM ONLY WOMEN

A key goal of the IPC component of the P4HB program is to help women who deliver a VLBW infant maintain or improve their health during the period of time following the birth of the index VLBW throughout the allowable enrollment period by providing access to the expanded set of interpregnancy primary care health services noted earlier. Likewise, a key goal of the Resource

Mother only component of the P4HB program is to offer case management and outreach services to women who deliver a VLBW infant who are already covered by Georgia LIM (Low Income Medicaid) or ABD (Aged, Blind and Disabled) Medicaid following the index delivery. In early years of the evaluation (PY1 through PY4), we focused on capturing the number of encounters for covered services by IPC enrolled women and the types of covered services utilized by IPC enrolled women (such as care for preventive services, acute gynecologic conditions or other gynecologic testing, dental conditions, other acute conditions, contraceptive services, and chronic health conditions). Given the growing interest in the chronic health conditions affecting the IPC and Resource Mother only enrolled women, and the known adverse impact of poorly controlled chronic health conditions on reproductive health outcomes, we shifted the focus of the administrative data for PY5 and PY6 on ascertaining the types of chronic conditions for which these women are seeking and receiving care under the P4HB program. During PY7, we had sufficient enrollment into the IPC and RM only components across the program years to shift to a more analytic approach in which we assessed the continuous enrollment of IPC and RM only enrollees following the index VLBW delivery along with their utilization of services during that follow-up period according to their chronic condition status.

Access to health care before and between pregnancies is recognized as crucial for improving US birth outcomes[4-5] and as especially important for women with chronic health conditions[6] and for women with prior adverse birth outcomes[7]. The aim of interpregnancy care for women with chronic health conditions and those with prior adverse birth outcomes is to reduce risks that may affect the woman's health and any future pregnancy she may have. In particular, experiencing an adverse outcome, such as VLBW delivery, in a previous pregnancy is among the strongest predictors for future adverse pregnancy health outcomes,[8] underscoring the critical importance of

the receipt of interpregnancy care, especially care for chronic health conditions, by women in the IPC and RM only components of the waiver as these women have all had a VLBW delivery. Substance use in the interconception periods predicts substance use in the prenatal period (of a subsequent pregnancy). It is well-recognized that intervention to reduce tobacco, alcohol, and drug use in the interconception period is critical for the health of the woman, any subsequent pregnancy she conceives, and other children living in the home who would be exposed to second-hand smoke.[9]

IPC and RM Only Service Use Postpartum and Interpregnancy

Table 5 shows the number of IPC and RM only women who enrolled in P4HB 2011-2017 following an index VLBW infant, remaining in the program for 90 days under RSM coverage through 180 and 360 days after their delivery date when then are enrolled in IPC or RM only coverage. There was a difference in the percentage who remained continuously enrolled in the RM group compared to the IPC group, with ~69% of IPC enrollees (620 of 896) remaining continuously enrolled through 360 days after delivery versus 83% (499 of 599) remaining enrolled. While a quite low percentage of both groups received an encounter coded as postpartum visit (ascertained based on claims code for postpartum service, which typically fell during the RSM-covered postpartum period), the percentage was higher for IPC compared to RM only women (38.2% compared to 28.9% by 360 days). Rates of cervical cancer screening and family planning counseling were similar for both groups through 360 days. Rates of utilization of contraceptive methods (by WHO tiers of effectiveness) were quite similar for the IPC and RM only women through 360 days, with RM only women slightly favoring Tier 1 vs Tier 2 methods and IPC women slightly favoring Tier 2 vs Tier 1 methods. It is important to note that a large percentage of both IPC and RM only women receive contraceptive services in the first 90 days

following delivery and that over half (55%) of these women have received some method of contraceptives by 360 days post-delivery.

IPC and RM only also receive services related to diabetes, mental health/substance abuse and hypertension starting in the 90 days post-delivery and continuing through 360 days. These are indicative of chronic diseases that need management on an on-going basis. Of all IPC enrollees in 2011-2017, 10% received any diabetes related service, almost 37% received services related to hypertension while 29% received services related to any mental health or substance abuse related condition by 360 days post-delivery. The patterns for RM only women were comparable at almost 14% for diabetes and 35% for both mental health/substance abuse and hypertension.

The receipt of dental care by 360 days post-delivery is relatively low at ~10% for IPC women and 16% for RM only women.

Table 5. Receipt of Postpartum Visit and Interpregnancy Care Services among IPC and RM only Women with VLBW Delivery and Enrolling 2011 through June 2017

	IPC			RM Only		
	Delivery to 90-Days Post (RSM)	**Delivery to 180-Days Post (IPC)**	**Delivery to 360-Days Post (IPC)**	**Delivery to 90-Days Post (RSM)**	**Delivery to 180-Days Post (RM)**	**Delivery to 360-Days Post (RM)**
N Continuously Enrolled in Medicaid	896	761	620	599	585	499
Postpartum care visit	37.8%	37.5%	38.2%	27.0%	27.2%	28.9%
Receipt of cervical cancer screening	13.7%	14.1%	25.5%	11.4%	16.1%	28.9%
Family planning counseling	7.5%	8.9%	12.1%	5.5%	6.7%	11.6%
Dental Care**	5.7%	6.6%	10.2%	5.7%	10.3%	16.4%
Any diabetes related service	6.7%	6.7%	10.0%	6.7%	8.0%	13.8%
Any mental health or substance abuse related service	22.5%	25.5%	29.2%	22.5%	28.0%	35.3%
Any hypertension related service	33.5%	34.4%	36.6%	33.5%	30.6%	35.3%
Contraceptive Method						
Tier 1	20.2%	21.9%	24.2%	21.4%	22.6%	26.9%
Tier 2	23.3%	24.7%	28.2%	22.5%	24.3%	26.1%
Tier 3/4	0.3%	0.4%	0.5%	0.0%	0.0%	0.0%

Tier Unspecified	1.7%	2.0%	2.7%	2.5%	2.2%	2.4%
Any Method	45.3%	48.8%	55.3%	46.4%	49.1%	55.3%
Subsets of Tier 1						
LARC	10.0%	10.8%	14.2%	10.0%	10.8%	13.4%
Sterilization	10.2%	11.2%	10.0%	11.4%	11.8%	13.4%

^<.05, ^^<.01 Chi-Square P-value

Denominator is IPC, RM only women with delivery of VLBW infant and enrolling in demonstration years 2011 through June, 2017. Contraceptive Tiers have been identified in other tables in this report. Tier 1, 2, 3/4, and Unspecified are mutually exclusive. If claims for more than one type during post-partum period, categorized into most effective method.* Dental care includes those services covered for IPC and RM only women.

IPC and RM Only Service Use Postpartum and Interpregnancy among Those with Chronic Conditions

In the following table, we examine service utilization during the enrollment period among women in the IPC and RM only groups that we identified as having evidence of two major chronic conditions--hypertension and diabetes—based on either vital records or claims during their pregnancy. Using vital records or ICD/CPT codes, we discerned that approximately one-third of women in the IPC and RM only groups were affected by hypertension (gestational or pre-gestational) or diabetes (gestational or pre-gestational).

Table 6. Receipt of Post-Partum Visit and Interpregnancy Care Services among IPC and RM only Women with VLBW Delivery Enrolling 2011 through June 2017 and Evidence of Hypertension or Diabetes Pre or During Pregnancy

	IPC			**RM Only**		
	Delivery to 90-Days Post (RSM)	**Delivery to 180-Days Post (IPC)**	**Delivery to 360-Days Post (IPC)**	**Delivery to 90-Days Post (RSM)**	**Delivery to 180-Days Post (RM)**	**Delivery to 360-Days Post (RM)**
N Continuously Enrolled in Medicaid	335	281	223	205	201	178
Postpartum care visit	43.3%	43.8%	44.8%	34.6%	34.3%	34.8%
Receipt of cervical cancer screening	14.3%	14.9%	24.2%	14.1%	18.9%	33.1%
Family planning counseling	7.5%	9.3%	12.6%	5.9%	7.5%	14.0%
Dental care**	6.3%	7.1%	10.8%	7.8%	9.5%	16.3%
Any diabetes or hypertension related service	77.9%	77.9%	82.5%	71.7%	75.1%	77.0%
Any mental health or substance abuse related service	22.7%	26.3%	28.7%	25.9%	28.9%	33.7%
Contraceptive Method						

Tier 1	25.7%	26.7%	29.6%	30.2%	32.8%	34.8%
Tier 2	23.0%	25.6%	28.7%	21.5%	22.9%	26.4%
Tier 3/4	0.3%	0.4%	0.4%	0.0%	0.0%	0.0%
Tier Unspecified	1.2%	1.8%	3.6%	2.4%	2.5%	2.8%
Any Method	50.1%	54.4%	62.3%	54.1%	58.2%	64.0%
Subsets of Tier 1						
LARC	10.4%	10.7%	14.8%	12.2%	13.9%	16.3%
Sterilization	15.2%	16.0%	14.8%	18.0%	18.9%	18.5%

^<.05, ^^<.01 Chi-Square P-value

***Denominator is IPC, RM only women with delivery of VLBW infant and enrolling in demonstration years 2011 through June, 2017. Contraceptive Tiers have been identified in other tables in this report. Tier 1, 2, 3/4, and Unspecified are mutually exclusive. If claims for more than one type during post-partum period, categorized into most effective method.** Dental care includes those services covered for IPC and RM only women.*

For both the RM only and IPC groups there was evidence of differential utilization of contraceptive services and methods for this group of women with one of these two chronic conditions. A greater percentage of those in the RM only and IPC groups with hypertensive or diabetes disorders utilized any method of contraception by 360 days (64% and 62.3%, respectively) compared to IPC/RM only women overall. These differences were principally driven by higher utilization of Tier 1 methods (both LARC and sterilization) among IPC/RM only women with hypertensive or diabetes chronic condition status.

According to data in Table 6, women in both the RM only and IPC groups with hypertensive and diabetes disorders did receive services related to those conditions during the enrollment period and a greater percentage affected by these conditions did receive chronic condition care (including glucose and cholesterol testing) compared to women overall. Notably, there were not differences in the percentages of women who utilized dental services in the enrollment period by chronic condition status.

Important to the goal of the IPC component of P4HB, the data indicate that higher percentages of those with chronic hypertension or diabetes received a postpartum visit at delivery (43% versus

~38%) or 360 days post-delivery (~45% versus ~39%). Almost 83% of IPC women with either hypertension or diabetes received services for one of both of these conditions; this is slightly above the 77% of RM only women receiving these related services through LIM or ABD. Receipt of cervical cancer screening or family planning counseling services were comparable for all IPC and IPC with chronic hypertension or diabetes. For RM only, the percentage receiving all three of these services were higher for those with chronic conditions than for RM only women overall.

The receipt of any mental health or substance abuse related services within 360 post-delivery among IPC women with chronic conditions was ~29%, slightly lower than the almost 34% of RM only with these chronic conditions receiving these services. This indicates that both groups of women with VLBW deliveries have not only the hypertensive/diabetes chronic conditions but also, a wider array of conditions (e.g. smoking/ substance abuse, depression) that need management through their remaining reproductive years.

VI. OUTCOMES AMONG P4HB PARTICIPANTS

Averted Births

Compared to Section 1115 Family Planning waivers in other states, the P4HB program has had a budget neutrality requirement that was not based on averted births but rather on a 'shifting' of the birth weight distribution such that the total costs to the Medicaid program supported by the federal matching rate would be lowered from what it would otherwise be. While the count of 'averted' births is therefore not central to the calculation of budget neutrality on a quarterly or annual basis under the P4HB program, it is a measure that can help gauge the success of the program.

In Table 7 below, we present an estimate of the number of births that the state would have 'expected' to see among participants in the family planning only component of the P4HB program. The expected birth count was based on the projected fertility rate among women 18-44 years of age with incomes at or below 200% FPL and uninsured as reported in the Planning for Healthy Babies' Concept Paper submitted to CMS during the initial application process.[10] The estimated fertility rate was 160 per 1,000 for the fifth program year. We use this 'expected' fertility rate for PY7 since the state is awaiting renewal of P4HB. If this rate is applied to all women enrolled in the FP only plus the IPC/RM program components at the end of PY6 (10,298 from Table 1) and hence, at risk of a delivery in PY7, the number of expected births is 1,648 in PY7 as shown below.

Table 7. An Estimate of Averted Births among the P4HB Demonstration Population

Number of 'Expected' Births Among Participants[1]	Number of Deliveries/Live Births in 2017 to Participants[2]	Number of 'Averted' Births
1,648	410	1,238

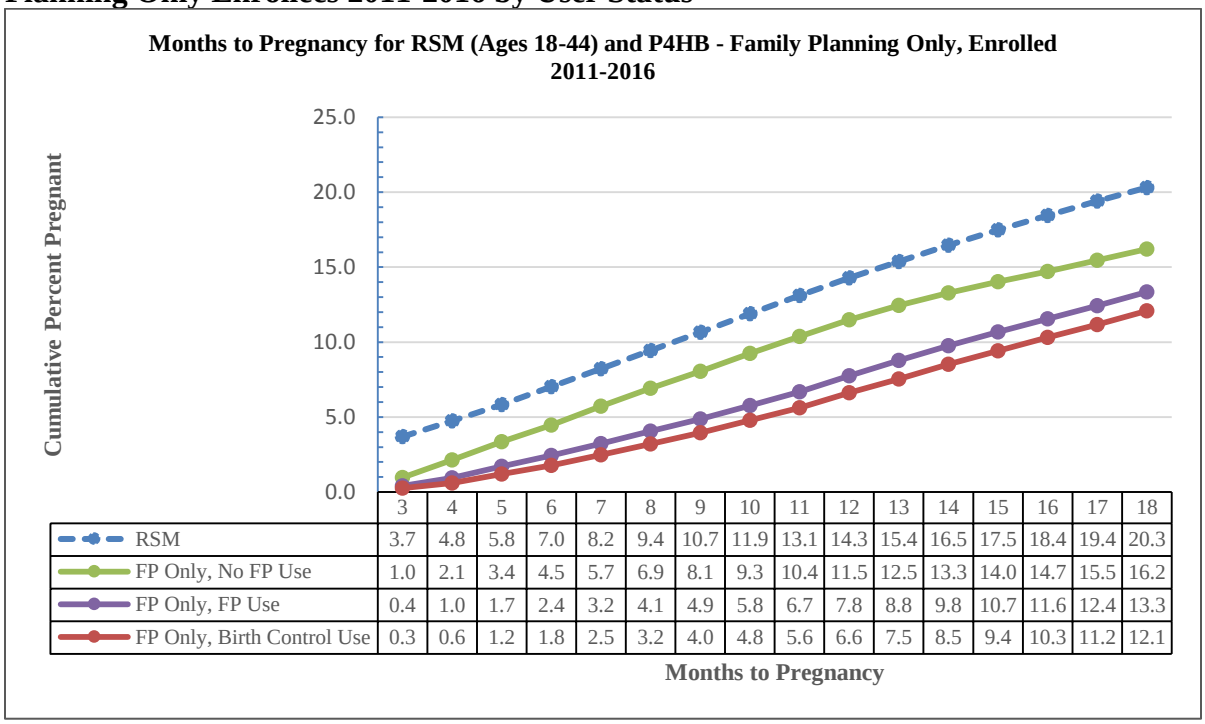
[1]*Based on fertility rates from the concept paper developed in application process: http://dch.georgia.gov/sites/dch.georgia.gov/files/imported/vgn/images/portal/cit_1210/33/52/156793595PlanningforHealthyBabiesProgram121709Final.pdf* [2]*Reflects the count of all deliveries of a live born in all three components in 2017 for women enrolled in Demonstration at the end of 2016, but includes only those counted based on the methods described in prior reports. If stillbirth and fetal deaths to women in all three components of the program are counted the total in 2017 would be 499.*

The above estimates indicate that the number of actual births in PY7 to P4HB participants (410) enrolled at the end of 2016 is less than that expected and the number of 'averted births' is 1,238. We note that the births counted here include births to P4HB enrollees that could be due to a pregnancy after the first 18 months of their enrollment in P4HB. Since an appropriate interpregnancy interval would be one of 18 months or more, the number of 'averted' births could be under counted in the above calculations. The positive number of averted births in Table 7

indicates potential savings to the state from a lower-than-expected birth rate among those enrolled in the P4HB program.

P4HB Participants and Non-Participants. We continue to examine the outcomes of pregnancy or delivery among P4HB women after they enroll. We have organized the data in this section by annual cohorts representing the woman's initial enrollment into the P4HB program as this allows us to follow women from their initiation to a given outcome (e.g. pregnancy). In each of the following charts we show the cumulative percentage of women enrolled in any of the P4HB components with evidence of a new pregnancy by the month we observe the pregnancy in the Medicaid claims data. We chart the data for the 2011-2016 cohorts of P4HB FP only enrollees and for comparison purposes, RSM women with an index birth in 2011-2016 who never enrolled in P4HB.

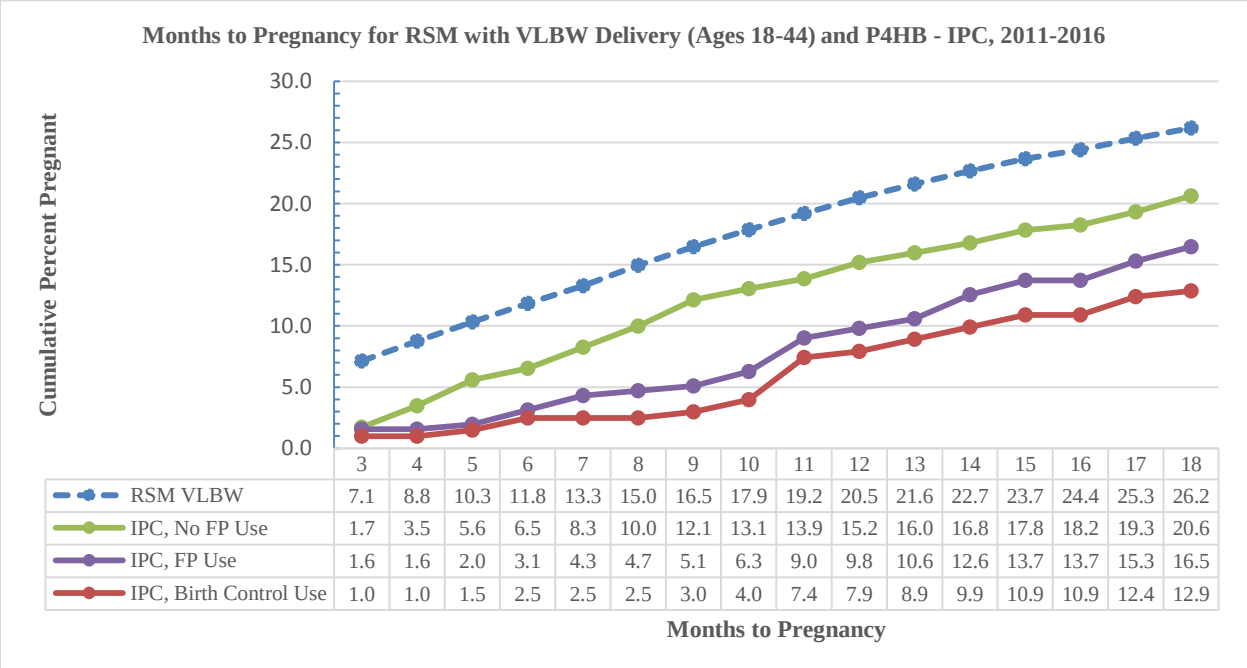
Chart 4. Cumulative Months to Pregnancy for RSM Non-Enrollees and P4HB Family Planning Only Enrollees 2011-2016 by User Status



	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
RSM	3.7	4.8	5.8	7.0	8.2	9.4	10.7	11.9	13.1	14.3	15.4	16.5	17.5	18.4	19.4	20.3
FP Only, No FP Use	1.0	2.1	3.4	4.5	5.7	6.9	8.1	9.3	10.4	11.5	12.5	13.3	14.0	14.7	15.5	16.2
FP Only, FP Use	0.4	1.0	1.7	2.4	3.2	4.1	4.9	5.8	6.7	7.8	8.8	9.8	10.7	11.6	12.4	13.3
FP Only, Birth Control Use	0.3	0.6	1.2	1.8	2.5	3.2	4.0	4.8	5.6	6.6	7.5	8.5	9.4	10.3	11.2	12.1

Data in Chart 4 show the cumulative percentage of P4HB enrollees and RSM women with a delivery who did not enroll for whom we observe a Medicaid paid pregnancy within 18 months following their enrollment (or delivery for RSM women). This percentage is consistently lower for women enrolled in the FP only component of P4HB than for the comparison group of RSM women who do not enroll. By the eighteenth month of their initial month of enrollment, 16% of FP only enrollees, regardless of their use of services, had evidence of a pregnancy compared to 20% of RSM women who were eligible but did not enroll in P4HB. Among FP only enrollees who use *any* family planning services, this percentage drops to 13% and among those using birth control, to 12%. The percentage of FP only enrollees who use birth control and have pregnancies within 6 months (1.8% compared to 7.0% for RSM) or 12 months (6.6% compared to 14.3% for RSM) are markedly lower than for RSM who do not enroll.

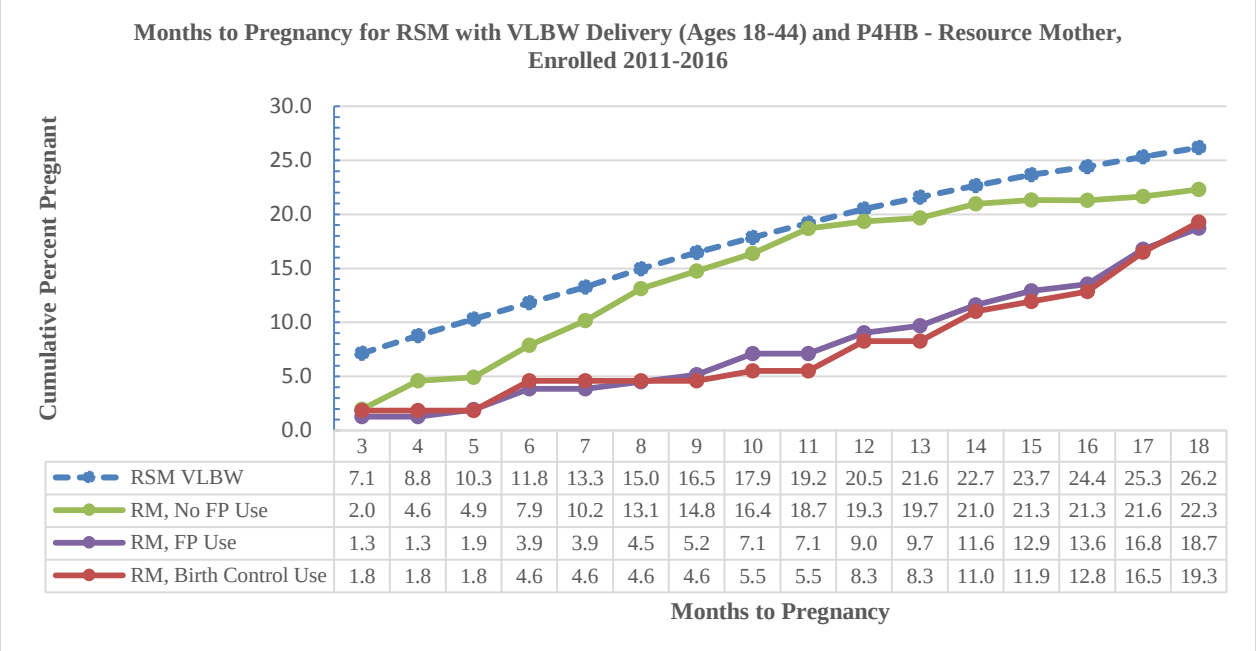
Chart 5. Cumulative Months to Pregnancy for RSM with VLBW Delivery Non-Enrollees and IPC Enrollees by User Status



	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
RSM VLBW	7.1	8.8	10.3	11.8	13.3	15.0	16.5	17.9	19.2	20.5	21.6	22.7	23.7	24.4	25.3	26.2
IPC, No FP Use	1.7	3.5	5.6	6.5	8.3	10.0	12.1	13.1	13.9	15.2	16.0	16.8	17.8	18.2	19.3	20.6
IPC, FP Use	1.6	1.6	2.0	3.1	4.3	4.7	5.1	6.3	9.0	9.8	10.6	12.6	13.7	13.7	15.3	16.5
IPC, Birth Control Use	1.0	1.0	1.5	2.5	2.5	2.5	3.0	4.0	7.4	7.9	8.9	9.9	10.9	10.9	12.4	12.9

The data in Chart 5 also indicate that IPC enrollees have a consistently lower cumulative repeat pregnancy percentage through the entire eighteen-month follow-up period compared to the comparison group of RSM women with a VLBW delivery who did not enroll. For the IPC and RM only women, the pregnancy observed is a new pregnancy following an index birth with a VLBW outcome and the comparison group is RSM women with a VLBW infant but who never enroll in P4HB. Again, utilization of covered services reduces the likelihood of a repeat pregnancy. Among IPC users of any family planning services, 9.8% have a repeat pregnancy by 12 months compared to 20.5% of the RSM comparison group; among users of birth control, this percentage is 7.9. By 18 months, 26% of the RSM non-enrollee comparison group have a repeat pregnancy compared to only 12.9% of IPC using some form of birth control.

Chart 6. Cumulative Months to Pregnancy for RSM with VLBW Delivery Non-Enrollees and RM Only Enrollees by User Status



	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
RSM VLBW	7.1	8.8	10.3	11.8	13.3	15.0	16.5	17.9	19.2	20.5	21.6	22.7	23.7	24.4	25.3	26.2
RM, No FP Use	2.0	4.6	4.9	7.9	10.2	13.1	14.8	16.4	18.7	19.3	19.7	21.0	21.3	21.3	21.6	22.3
RM, FP Use	1.3	1.3	1.9	3.9	3.9	4.5	5.2	7.1	7.1	9.0	9.7	11.6	12.9	13.6	16.8	18.7
RM, Birth Control Use	1.8	1.8	1.8	4.6	4.6	4.6	4.6	5.5	5.5	8.3	8.3	11.0	11.9	12.8	16.5	19.3

In Chart 6, we show the cumulative percentage of RSM with a VLBW delivery but not enrolling with a repeat pregnancy compared to the percentage of RM only women after enrollment in P4HB. The patterns seen here are different from FP only and IPC women in that the cumulative percentage with a repeat pregnancy by the 12th month is virtually the same for RSM (20.5%) with a VLBW index birth/not enrolling and RM only women who use no family planning services (19.3%). Utilization makes a substantial difference for these women; only 8-9% of RM only enrollees who use any family planning or birth control specifically, have evidence of a repeat pregnancy at the 12th month. By the 18th month the differences narrow as 26% of RSM women with a VLBW infant are again pregnant on Medicaid while 19% of RM only women are again pregnant.

Outcomes among IPC Participants versus Non-Participants

A pregnancy conceived before 18 months of enrollment, regardless of outcome, is indicative of a short interpregnancy interval and is an adverse outcome that the P4HB program was designed to prevent, especially among women with VLBW infant deliveries. We compared repeat pregnancies and outcomes of IPC women to RSM women with an index birth of a VLBW infant between 2011-2016 who never enrolled in P4HB; this is a better comparison grout as they would have qualified for IPC but chose not to participate. In Table 8, we test for differences in the percentages of women in the 2011-2016 IPC enrollee cohort versus the RSM comparison cohort with a repeat pregnancy within six, twelve and eighteen months post-enrollment. Among the 2011-2016 IPC enrollee cohort, a significantly smaller percentage experienced a repeat pregnancy within six months (5.7% vs. 10.6%) and twelve months (13.8% vs. 19.6%) of their index VLBW delivery compared to women in the RSM comparison cohort. By 18 months after the index VLBW delivery, a

statistically significant difference persisted, with 19.6% of IPC women having a repeat pregnancy compared to 25.9% of the RSM comparison group.

Table 8. Number and Percent of Women with VLBW Infant with Repeat Pregnancy within Six, Twelve or 18 Months and Repeat Delivery within 18 Months, IPC Waiver Demonstration Participants, Ages 18-44

Timing of Repeat Pregnancy or Delivery	IPC 2011-2016 N = 1,006	RSM – VLBW 2011-2016 N =3,153
Pregnant within 6 months	57 (5.7%)	335 (10.6%) ^^^
Pregnant within 12 months	139 (13.8%)	618 (19.6%) ^^^
Pregnant within 18 months	197 (19.6%)	818 (25.9%)^^^
	N = 768 *	**N = 2,859 ***
Delivery within 18 months	90 (11.7%)	496 (17.4%)^^^
Fetal Deaths	7 (7.8%)	63 (12.7%)
Still Births	7 (7.8%)	22 (4.4%)
Very Low Birth Weight (<1500 g)	10 (11.1%)	43 (8.7%)
Low Birth Weight (1500-2499 g)	12 (13.3%)	89 (17.9%)
Normal Weight (≥2500 g)	50 (55.6%)	245 (49.4%)
Unknown Weight	18 (20.0%)	119 (24.0%)
Adverse Outcomes**	36 (4.7%)	217 (7.6%)^^^

IPC and RSM-VLBW index deliveries through 06/30/2016 **Sum of fetal deaths, still births, and low birth weight deliveries. Chi-Square: ^ P-value < 0.10, ^^ P-value < 0.05, ^^^ P-value <0.01 Notes: Repeat pregnancies were identified using the following set of claims codes: Repeat deliveries were defined as human conceptions ending in live birth, stillbirth (>= 22 weeks' gestation), or fetal death (< 22 weeks). Ectopic and molar pregnancies and induced terminations of pregnancy were NOT included.* ***Deliveries of Live births* *were identified in the claims by using: ICD-9 diagnostic codes 640-676 plus V27.x* ***OR*** *ICD-9 procedure codes 72, 73, or 74 plus V27.x* ***OR*** *CPT-4 codes 59400, 59409, 59410, 59514, 59515,59612,59614,59620, 59622 plus V27.x or Z37.x OR ICD-10 diagnostic codes O0 – O9 plus Z37.x or ICD-10 procedure codes 10A, 10D, or 10E plus Z37. x.* ***Deliveries of Stillbirths*** *were identified by using ICD-9 diagnostic code 656.4x (intrauterine fetal death >= 22 weeks gestation) OR specific V-codes [V27.1 (delivery singleton stillborn, V27.3 (delivery twins, 1 stillborn), V27.4 (delivery twins, 2 stillborn), V27.6 (delivery multiples, some stillborn), V27.7 (delivery multiples, all stillborn)] or ICD-10 diagnostic codes Z37.1, Z37.4, or Z37.7* ***Deliveries associated with Fetal deaths*** *< 22 weeks were identified by using ICD-9 diagnostic codes 632 (missed abortion) and 634.xx (spontaneous abortion) or ICD-10 diagnostic codesO03 or O02.1. In the case of a twin or multiple gestation, the delivery was counted as a live birth delivery if ANY of the fetuses lived. Costs were accumulated over the pregnancy and attributed to the delivery event if there was a fetal death (632) that preceded a live birth.*

In Table 8, we also show the percentage of women in each cohort with a *delivery* within 18 months of their index VLBW delivery along with the outcomes of those deliveries. The percentage of IPC women experiencing a delivery within 18 months of their index VLBW delivery was significantly lower than for the RSM/VLBW comparison cohort (11.7% vs 17.4%). Moreover, the percentage experiencing an adverse birth outcome (fetal death, stillbirth, VLBW or LBW delivery) was

significantly lower (p <0.01) for the IPC enrollees than for the RSM women with an index VLBW infant who did not participate (4.7% vs 7.6%).

Since the characteristics of the participants and non-participants differ, we used regression analysis to assess the adjusted difference in the following among IPC women and RSM women with a VLBW infant who did not participate: 1) probability of a repeat pregnancy within 18 months; and 2) the probability of a delivery within 18 months. In these regressions, we control for age, race, month of index birth, months enrolled in the 18 months over which we follow them and an indicator for urban/rural residence. The regression results are shown in Table 9 below.

Table 9. Estimated Marginal Effects for IPC Compared to RSM Women with VLBW Infants, Ages 18-44

Outcome	Marginal Effect
Repeat Pregnancy within 18 Months after Index Delivery	-12.6^^^
Repeat Delivery within 18 Months after Index Delivery	-9.7^^^

^ *P-value < 0.10,* ^^ *P-value < 0.05,* ^^^ *P-value <0.01*
Estimated effects from logistic models are multiplied by 100 to provide percentage point changes in the dependent variable.
Controlled for age, race, month of index birth, months enrolled in the 18 months over which we follow them and urban/rural residence.

These results indicate that participation in the IPC component of the P4HB program is associated with a significant reduction in the probability of a repeat pregnancy or a repeat delivery within 18 months of an index VLBW delivery (-12.6 vs -9.7 percentage points). We note that there are likely unobserved or unmeasured characteristics of the women with a VLBW infant that affect their decision to participate in IPC or their engagement with the healthcare system that may facilitate their enrollment, that may also affect these outcomes and hence, it is hard to imply causality from these findings.

VII. EFFECTS OF THE P4HB PROGRAM ON GOALS

When the P4HB program was implemented, the state hypothesized that the program would bring sufficient numbers of women into the program such that the overall use of family planning services/supplies among low-income women would increase, and, the more consistent use of effective contraceptive methods among program users would increase. In turn, the goals of reduced VLBW and LBW births would be met. As initially proposed in our evaluation design, we used data from the Pregnancy Risk Assessment Monitoring System (PRAMS) and claims/vital records to assess progress on program goals/outcomes. We used PRAMS data on measures that cannot be measured based on claims data, such as an unintended live birth. We have reported on the findings from the PRAMS analysis in prior reports and in the Executive Summary to this report. We include the tables showing those results in Appendix B.

Claims/Vital Records Analyses

We have updated our prior analysis of the linked claims and vital records data to include data on births from 2017, the seventh program year. Descriptive data on the outcomes for 2009/2010, 2012/2013, 2014/2015, and 2016/2017 for RSM and other Medicaid paid births and for a comparison group of women delivering a live birth in Georgia over the study period are presented in Table 10. The comparison group should be women whose coverage of family planning services was not likely affected by the implementation of P4HB. In the analysis that follows, we again used privately insured women with a high school or less level of education as a comparison group. We chose a lower education level to identify women expected to have incomes more comparable to the RSM and other Medicaid insured women.

Overall Patterns

We note that the analysis shown in the following tables includes three 'post P4HB' time periods: 2012-2013 before the ACA, and 2014-2015 and 2016-2017 after the ACA. While Georgia did not expand Medicaid, many women who would be eligible for the P4HB program (women with incomes between 100% and 200% FPL) could obtain subsidized private insurance through the federal Marketplace exchange post ACA. As this occurs among women, it confounds our control group in 2014 and beyond. We also note that the linkage of mothers and their babies within the claims data has improved over the study period and this means we have a larger percentage of VLBW infants being included in the analytic sample.

We assessed the effects of the P4HB program on: 1) age at first birth; 2) teen births; 3) repeat births; 4) maternal smoking; 5) interpregnancy intervals; 6) preterm birth; and 7) birth weight distribution. The descriptive data in Table 10 below indicate that between 2009 and 2017, some of the outcomes of interest improved favorably for the RSM and other Medicaid eligible women versus the private insured, lower educated group of women.

Table 10. Maternal Health and Birth Outcomes for Medicaid and Private Insured Women

Data for RSM and Private Insured Comparison Group on Targeted Maternal Health and Birth Outcomes, * All Live Births								
	Private Insured ≤ High School				**Medicaid Women**			
Maternal Health Outcomes	**2009/ 2010**	**2012/ 2013**	**2014/ 2015**	**2016/ 2017**	**2009/ 2010**	**2012/ 2013**	**2014/ 2015**	**2016/ 2017**
Age at First Birth[1]	27.1	26.8	27.2	26.8	22.8	23.2	23.7	23.7
Age 18-19 at First Birth[1]	6.5%	7.6%	6.3%	6.0%	26.3%	21.4%	18.6%	17.7%
Teen Birth[2]	2.8%	3.3%	2.8%	2.5%	13.2%	10.1%	8.5%	7.6%
Repeat Birth[3]	64.9%	65.4%	61.4%	62.8%	62.3%	63.4%	63.6%	65.6%
MaternalSmoking[4]	4.6%	3.9%	4.0%	3.2%	10.3%	9.2%	9.3%	7.8%
Interpregnancy Interval ≤ 6 months[5]	6.0%	5.9%	5.3%	6.4%	12.9%	10.9%	11.4%	11.2%
Interpregnancy Interval ≤ 12 months[5]	16.6%	15.8%	14.7%	16.5%	27.2%	23.7%	24.0%	24.1%
Interpregnancy Interval ≤ 18 months[5]	28.1%	26.1%	25.0%	27.2%	39.9%	35.5%	35.4%	35.7%

Birth Outcome								
Preterm (<37 weeks)[6]	9.8%	9.2%	7.8%	8.8%	11.6%	11.5%	9.9%	10.5%
Low Birth Weight (< 2500 grams)[7]	6.9%	6.2%	5.9%	6.3%	8.9%	8.9%	9.2%	9.6%
Very Low Birth Weight (< 1500 grams)[8]	1.5%	1.1%	1.0%	1.1%	1.6%	1.6%	1.7%	1.7%

**All outcomes are measured using linked Medicaid and vital records data. [1]Age at first birth was determined based upon age and parity (parity = 0) as reported on the birth certificate; [2] Teen birth was defined as those ages 18-19 years at the time of the index birth as reported on the birth certificate; [3] Repeat birth was defined as those for which the birth certificate indicated that the birth event was the second or more (MBTHEVOR ≥ 2); [4] Maternal smoking was defined as those with tobacco use indicated on the birth certificate; [5] Interpregnancy interval ≤ 6 months was determined based upon the interbirth interval as indicated on the birth certificate minus the gestational age of the subsequent birth; [6] Preterm birth was determined based upon a gestational age < 37 weeks on the birth certificate; [7] Low birth weight was determined based upon an infant birth weight < 2500 grams on the birth certificate; [8] Very low birth weight was determined based upon an infant birth weight < 1500 grams on the birth certificate.*

For example, age at first birth was higher for the private insured comparison group prior to P4HB and remained stable in the follow-up P4HB periods at 27 years, but in contrast age at first birth for Medicaid insured increased by almost 1 (0.9) year, from the pre (2009-2010) to post-P4HB periods. Moreover, the increase in age at first birth for the Medicaid women appears related to a large decrease in the percent teen births. Whereas the percentage of teen births (18-19 at time of index birth) among privately insured declined by .03 percentage points (from 2.8% to 2.5%), there was a decline of 5.2 percentage points (13.2% to 7.63%) among the Medicaid insured. There were declines in maternal smoking for both the private and Medicaid groups from 2009/2010 to 2016/2017 and declines in very short interpregnancy intervals of 6 months or less for Medicaid but not private insured from 2009/2010 to 2016/2017.

The declines pre and post-P4HB seen in the maternal risk factors (teen pregnancy, smoking, short interpregnancy intervals) that are associated with poor birth outcomes were all slightly greater for the Medicaid versus the private insured and could correlate with favorable changes in preterm, LBW and VLBW rates. While we see slight improvements in the percentage preterm births for both groups, the declines in LBW and VLBW pre and post the P4HB seen for the privately insured do not hold for the Medicaid insured women. Indeed, the percentage LBW actually increases from the 2009/2010 to the 2016/2017 time-period for the Medicaid insured women.

Regression Analysis of Medicaid versus Private Insured

The estimated effects shown in Table 11 can be interpreted as the change in the probability of the outcomes (except for age at first birth, which is a continuous measure) for the RSM and other Medicaid women affected by the P4HB program versus the control group (private insured, lower education) of women, controlling for the above covariates and a monthly time trend. This provides one measure of the 'effect' of the demonstration on the outcomes analyzed. In our discussion of the results we focus on the effects which are significant at p <.05 or greater.

Table 11. Estimated Effects of P4HB Implementation on Targeted Maternal Health and Birth Outcomes, All Live Births 18-44 and by Age Group

	Ages 18-44			Ages <18			Ages 18-19			Ages 18-24		
Maternal Health Outcomes												
	Post12_13*RSM	Post14_15 *RSM	Post16_17*RSM	Post12_13*RSM	Post14_15*RSM	Post16_17*RSM	Post12_13*RSM	Post14_15*RSM	Post16_17*RSM	Post12_13*RSM	Post14_15*RSM	Post16_17*RSM
Age at First Birth[1]	0.51^^^	0.54^^^	0.93^^^	--	--	--	--	--	--	--	--	--
Age 18-19 at First Birth[1]	-1.71^^	-1.61^^	-0.89	--	--	--	--	--	--	--	--	--
Teen Birth[2]	-0.60^^^	-0.60^^^	-0.33	--	--	--	--	--	--	--	--	--
Repeat Birth[3]	-1.60^	2.54^^^	1.31	-5.39^	1.57	3.48	-2.29	1.05	2.80	-2.40	1.67	1.43
MaternalSmoking[4]	-0.08	0.32	0.13	--	--	--	0.43	-1.59	0.56	0.13	0.13	-0.19
Interpregnancy Interval ≤ 6 months[5]	-0.95^	0.43	-0.45	--	--	--	1.27	-13.33	-6.43	0.54	0.13	-0.48
Interpregnancy Interval ≤ 12 months[5]	-1.28	1.00	0.32	--	--	--	5.75	4.93	-11.99	-0.69	-0.27	0.54
Interpregnancy Interval ≤ 18 months[5]	-0.77	1.34	0.73	--	--	--	5.39	2.14	-3.51	0.76	-1.28	-0.92
Birth Outcomes (Live born infants)												
Preterm (<37 weeks)[6]	0.26	0.16	-0.39	-1.80	-1.23	0.74	1.83	-1.33	-2.47	1.38	0.59	0.07

Low Birth Weight (< 2500 grams)[7]	0.44	1.19^^^	1.05^^^	-6.70	-0.30	-1.29	2.55	1.82	3.31	1.20	1.62^^	1.45^
Very Low Birth Weight (< 1500 grams)[8]	0.23	0.44^^^	0.36^^	-4.74	-2.32	-0.77	0.60	1.12	0.52	0.42	0.39	0.17

^ *P-value < 0.10,* ^^ *P-value < 0.05,* ^^^ *P-value <0.01*

For the post compared to pre P4HB period (2009/2010), we found significant ($p<0.05$): 1) increases in the age at first birth; 2) reductions in births at ages 18-19; 3) reductions in all teen births; and 4) reductions in very short interpregnancy (<6 months) intervals. These results held for both the 2012/2013 and 2014/2015 post P4HB periods. The result on age at first birth suggests a half-year increase in the age at which Medicaid women have their first birth relative to the privately insured control group in the 2012/2013 and 2014/2016 post periods and larger at almost one year of age, in the 2016/2017 post period. The results indicate a reduction of approximately two percentage points in the likelihood of a first birth at ages 18-19. The probability of a interpregnancy interval < six months for the Medicaid versus low-income private insured sample was lower by almost 1 percentage point in the 2012-2013 post versus pre-P4HB period.

The effects on reducing repeat (second-order) births are only significant at $p < 0.10$ and only indicate a lower probability that Medicaid insured women were having a second baby relative to the private insured comparison group in the 2012-2013 post P4HB period. There are no significant effects on this outcome in the second post-P4HB period. It may be that the ACA mandate and the implementation of the Marketplace exchange in Georgia is associated with a change in the *composition* of the Medicaid and/or different comparison groups need to be considered in future analyses. Perhaps related to this issue, there are unexpected positive effects on the probability of

LBW and VLBW infant outcomes for the Medicaid women compared to the privately insured sample in the 2014/2016 and 2016/2017 post P4HB periods; this unexpected effect holds only for the 18-24 age group. As we approach a journal submission we will focus on the data prior to the ACA as so many changes took place for women in the income range targeted by P4HB as the ACA unfolded. We will consider the use of propensity scoring, using only RSM women as the treatment group and including younger teens in the overall analysis.

Thus, while the combined PRAMS and vital records/claims analysis indicates effects of P4HB on increasing access to pregnancy prevention, reducing unintended births, reducing teen births, increasing age at first birth and reducing very short interpregnancy intervals we do not yet find evidence that the P4HB program affected birth outcomes for all Medicaid enrolled women.

VIII. MEDICAID PAID BIRTHS IN 2017

We continue to track the total number of Medicaid paid births and births to P4HB program participants as in prior annual reports to CMS. We placed these large summary tables for 2016 in Appendix A to focus on other components of the evaluation in this report. As noted in the Appendix (Table A.1), the number of Medicaid paid births, including stillbirths, declined from 85,370 in 2009 to 81,463 in 2010 and to a low of 75,087 in the first year (2011) of the P4HB program; these declines may only mirror downward trends seen nationally, possibly due to the financial conditions imposed on families during the recession. Birth counts increased from the 2011 level to approximately 79,000 in 2012 and 2013 but have declined since then. The total number of births, including stillbirths, paid by Georgia Medicaid in 2017 equaled 74,391.

As the data in Table A.1 also indicate, the percentage of all Medicaid births that are VLBW has been remarkably stable at about two percent over the pre/post P4HB time-period. We also previously reported that the birth weight distribution using claims data is very close to that using

the linked vital records for the percentage of VLBW infants, at about 2%, but differs from the vital records on the percentage of LBW infants and hence, on the percentage of normal birth weight infants. Whereas the claims data indicate that approximately 91% of Medicaid paid births were normal birthweight, the vital records data indicate a lower rate, approximately 89%.

We ultimately treat the vital records as the 'gold standard' when measuring birth weight and work with the linked records when completing the evaluation of P4HB. We note that the linkage rate, while close to 90% in 2009-2010, fell to nearly 82% in 2011 but has increased since then. Based on the linked records, the percentage of VLBW infants paid for by Medicaid has increased slightly from 1.9% in 2009 to 2.0% in 2017. A larger increase is seen in the percentage of LBW infants, climbing from 8.3% in 2009 to 9.2% in 2017.

Data in Table A.3 show that the Medicaid costs for the mother across all deliveries (including deliveries of both live born and stillborn infants) totals slightly over $336 million and the average costs per mother was $4,644. The total costs for the 74,391 infants (including stillborn) delivered to Medicaid enrolled women in 2017 was approximately $326 million, leading to a total maternal and infant cost of approximately $662 million to the state Medicaid program. As in prior years, the average costs at delivery for the infant born VLBW was significantly higher at an estimated $79,120 in CY 2017, compared to the costs for an infant of normal birthweight, which equaled $1,979 in CY 2017.

The costs to Medicaid for the care of infants born VLBW continued to be high throughout their first year of life. As shown in Table A.5, the costs for the full first year of life for these infants born in the first six months of CY 2017 averaged $12,650 and totaled nearly $22 million. The average costs for VLBW infants is higher (16%) than the average in CY 2016 ($10,862).

In comparison, the average costs to Medicaid for the first year of life for a normal birth weight infant in CY 2017 was $2,951. The bulk of the total cost for all infants in their first year is for these infants of normal weight, at $204 million, with a total cost for all infants of $254 million. While nearly 90% of all infants born under Medicaid coverage are of normal birth weight, the more the P4HB program can 'shift' the birthweight distribution toward these normal birth weight infants, the more successful it will be in terms of improving the health of the newborns as well as reducing the costs to the Medicaid program.

IX. CONCLUSIONS AND RECOMMENDATIONS

The data and conclusions reported within this PY7 Annual Report show the patterns of outcomes of a more mature program than earlier reports. Using administrative and survey data over this longer period provides significant information regarding the success of the program on its stated goals. As the state seeks an extension of the P4HB demonstration it is important to take stock in the strengths and weaknesses of the program. This is particularly important as the Georgia Gateway systems cascade women who are less aware and/or less interested in the services offered in P4HB. In the introduction to this report, we organized our findings around the program goals and objectives. Here, we provide a summary conclusion from the analysis, challenges to achieving the stated goals of the P4HB, and a set of recommendations for the program as it matures further in the coming years.

Conclusions

Overall, the progress on key P4HB goals and related program objectives is mixed. The combined pre/post analysis using PRAMS and vital records/claims indicates effects of P4HB on 1) increasing access to pregnancy prevention, 2) reducing unintended births, 3) reducing teen

births, 4) increasing age at first birth and 5) reducing very short interpregnancy intervals. However, there is less evidence to indicate that the P4HB program has had significant effects on the state's infant birth outcomes. As noted in the descriptive data on low and very low birth weight there is an upward trend and the analysis based on the quasi-experimental design showed no significant effects. However, it is very difficult to find within-state control groups to test for these effects and the post-P4HB study period was interrupted by ACA policies that provided other sources of subsidized insurance for near-poor women. Notably, P4HB enrollees in the IPC and RM only components did experience a significant decrease in subsequent adverse birth outcomes compared to RSM women with a VLBW delivery.

While the P4HB initially enrolled a significant portion of eligible women in the community, enrollment dropped significantly when the auto-enrollment process ended and as other options for obtaining insurance perhaps moved some near-poor women onto the Marketplace exchange participation dropped further. While the Georgia Gateway system is now increasing enrollment for P4HB eligible women, it cascades women who are unaware of or less interested in, the services P4HB offers them. The Gateway program does ask if the women wants to be considered for P4HB, however she might not understand what the program can provide. Use of family planning and contraceptive services dropped markedly from 2016 to 2017 among the FP only enrollees. Yet, as the current reports notes, the use of any family planning services and, in particular, the use of the more effective contraceptive methods markedly reduces the probability of pregnancies within short periods after enrollment and clinically inappropriate interpregnancy intervals among women who have recently delivered a VLBW infant. This further substantiates the need to enroll and retain larger numbers of eligible women in the P4HB components and once enrolled, to increase the percentage using effective family planning services.

Threats to Success

There are numerous reasons the P4HB has not attained some of its stated goals. While some of these may be beyond the control of the state, there are some key threats that have been noted in prior reports and that still apply:

- Low levels of enrollment and penetration of the eligible population in the community;
- Low retention of enrollees in both the FP only and IPC components of the program beyond the one-year mark;
- Limited understanding of the program itself – including the enrollment process and the program's eligibility criteria and covered services – by women and their providers;
- Increased confusion among prospective enrollees with the Georgia Gateway system
- Limited marketing or large-scale outreach to eligible women and prospective providers in the community;
- Lack of focus on how the FP only and IPC components must work together to decrease the probability of a VLBW infant born to first-time mothers;
- Disruption of the Title X provider system, a potential source of care for many women in the income range targeted and paid for by P4HB, that only now appears to be returning to prior levels of serving men and women;
- Lack of adequate promotion of the most effective contraceptive methods.

Our analysis of the chronic conditions for which the IPC and RM women are receiving services highlights that, while utilization of IPC care is not as high as it could be for these women, women with chronic health conditions are indeed utilizing services for a variety of chronic conditions that are linked to adverse reproductive health outcomes if the conditions are not under control with proper management. This highlights the importance of the IPC services for promoting subsequent reproductive health outcomes. The leading chronic conditions for which services were utilized were similar in order of importance for IPC and Resource Mother only

women, although the percent utilizing the chronic health condition services were substantially higher for women in the Resource Mother only group. This may highlight their better understanding of the availability of covered services or their worse underlying health status. obstetrical and other providers in the Medicaid system. Women with chronic health conditions need access to primary health care providers and appropriate follow-up care, which they may not be receiving consistently. Similarly, those with chronic health conditions need not only the care important to their chronic health conditions but also access to family planning services to help in avoiding repeat pregnancies before the chronic conditions are better managed and pregnancies with short intervals.

Recommendations

Currently, the state is providing services under a temporary extension of the P4HB program through March 2018. This allows the state to continue providing needed family planning and related services to women with incomes at or below 211% FPL who remain uninsured. Even if the number of uninsured women in the targeted income range drops in Georgia, the P4HB program remains an important safety net program for women of reproductive age.

Specific recommendations are as follows:

1. Continue to enhance education and outreach to Medicaid participating providers (especially those serving the target population, including those in public health departments, federally-qualified health centers, and safety-net providers and hospitals) regarding P4HB. New and existing Medicaid providers should be engaged on a regular basis regarding P4HB eligibility, benefits, enrollment procedures as well as recertification of eligibility procedures (to promote enrollment beyond the initial 12-month period).

2. Such communication must now address CMO and providers' knowledge of the Georgia Gateway system and how it may affect the knowledge new enrollees have. DCH should clarify the renewal status of the P4HB program as some providers may not be aware that the P4HB program continues to operate in the state. Outreach and education of Medicaid providers should also incorporate information about the availability of post-partum LARC insertion during their delivery hospitalization; while not paid for under P4HB, this aspect of Medicaid dovetails with the goals and objectives of the P4HB program.
3. Initiate another round of outreach to the neonatal intensive care units (i.e, the site of care for newborn VLBW infants), particularly the Regional Perinatal Centers, throughout Georgia to inform the social workers, nurse case managers, and physicians of the availability of the IPC and RM components of P4HB and the benefits it provides to eligible women who enroll. Increasing their role in helping eligible women enroll into the IPC/RM program component could reinforce the upward trend in enrollment in this component which is key to the goal of reducing LBW and VLBW infant outcomes.
4. Reinforce the success of outcomes seen in the Demonstration by continuing to work with the CMOs to increase enrollees' awareness of benefits, use of family planning services and if desired, contraceptive services. Reaching out to enrollees in the first few months should be encouraged or incentivized for the CMOs and their network of providers as early engagement has been shown to be effective.
5. To promote retention of enrollees in both the FP only and IPC components of the program, review both current processes for recertification of women for continued P4HB program eligibility to assure that barriers for continued enrollment are minimized as well as

processes for outreaching to, and educating, women about the need for and importance of recertification to maintain their enrollment and benefits.

6. Monitor the means by and intensity with which the Resource Mothers of the four CMOs are outreaching to engage IPC enrollees to fully participate in the benefits available to them. Encourage the Resource Mothers across the CMOs to share best practices and lessons learned in interfacing with the IPC enrollees to engage in family planning and preventive services as well as services for the care of chronic conditions.
7. Consider obtaining funds for and implementing a new, state-wide, multi-strategy marketing campaign designed to enhance consumer and provider awareness of the P4HB program. This campaign should include information about P4HB eligibility, enrollment via Georgia Gateway and services as well as details about the renewal and access to Federally Qualified Health Centers (FQHCs), including those that are part of the GFPS, as well as public health department clinics to promote P4HB enrollment and services.
8. Monitor the engagement of the CMOs with public health district leaders in parts of the state to see if enrollment of the VLBW infants' mothers in those areas is higher than in other areas of the state without such a coalition and enrollment effort. Report to the districts the percentage of women eligible for the IPC and RM only components of the P4HB program in their areas as well as the percentage being enrolled into the program.
9. Assess how women are learning about access to P4HB when they use the states' new Medicaid enrollment processes through Georgia Gateway and if/how this system leads them to the P4HB program. Assessment of their understanding of the program and 'uptake' of its benefits are also needed.

10. CMOs and their providers should educate women on the new recommendations for earlier and more visits in the postpartum period (or the fourth trimester) as advocated by the American College of Obstetricians and Gynecologists,[11] as well as the importance of achieving adequate interpregnancy intervals for intended pregnancies, and the more effective forms of contraceptives available to them through the P4HB program, especially LARCs, and the availability of coverage of LARCs in the immediate postpartum period.

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Appendix A. Data on Deliveries and Infants 2009-2017

In this Appendix, we continue to provide data on counts of deliveries and births in each CY of P4HB as well as birth outcomes for the pre and post P4HB period for which we have complete claims data. We also show data for the subset of births for which we have linked claims/vital records data. We continue to compare the information gained from the claims data regarding birth outcomes to that which we observe in the linked files. To this end, we provide a summary of the changes we are seeing in the numbers of deliveries and live born infants across study years.

Table A.1 Number of Medicaid Paid Births by Birth Weight Based on Claims Data (2009-2017)

	2009		2010		2011		2012		2013		2014	
Weight Category	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
VLBW	1,718	2.0	1,650	2.0	1,506	2.0	1,612	2.0	1,716	2.2	1,616	2.1
LBW	4,679	5.5	4,547	5.6	4,210	5.6	4,672	5.9	4,737	6.0	5,098	6.5
Normal BW	78,890	92.4	75,187	92.3	69,331	92.3	73,255	92.0	72,186	91.7	71,214	91.3
Stillbirth	83	0.1	79	0.1	40	0.1	50	0.1	42	0.1	38	0.1
Total	85,370		81,463		75,087		79,589		78,681		77,966	

	2015		2016		2017	
Weight Category	**N**	**%**	**N**	**%**	**N**	**%**
VLBW	1,695	2.2	1,716	2.2	1638	2.2
LBW	5,146	6.6	5,522	7.2	5608	7.5
Normal BW	70,893	91.2	69,215	90.5	67145	90.3
Stillbirth	34	0.0	1	0	0	0
Total	77,768		76,454		74,391	

The data in Table A. 1 above show that, unadjusted for any changes in the characteristics of women with a delivery paid by Medicaid over the pre and post P4HB time-period, the percentage of deliveries with a very low birth weight (based on claims data) has remained markedly stable at 2.0-2.2 percent. The actual number of such deliveries/births is lower in CY 2017 (1,638) compared

to CYs 2015 and 2016. When the birth weight distribution is measured based on vital records (Table A.2), we consistently see a lower percentage of VLBW deliveries/births, but the percentage has remained quite stable at 1.9-2.1 percent over the 2009 through 2017 calendar years.

Table A.2 Birth Weight Distribution from Claims versus Vital Records (2009-2017)

	2009		2010		2011		2012		2013	
	Birth Certificate Weight Category	Claims Weight Category %	Birth Certificate Weight Category	Claims Weight Category %	Birth Certificate Weight Category	Claims Weight Category %	Birth Certificate Weight Category	Claims Weight Category %	Birth Certificate Weight Category	Claims Weight Category %
VLBW	1.9%	2.0%	1.9%	2.0%	1.8%	2.0%	1.9%	2.0%	2.0%	2.1%
LBW	8.3%	5.4%	8.5%	5.5%	8.2%	5.5%	8.4%	5.8%	8.4%	5.9%
NORMAL BW	89.8%	92.6%	89.6%	92.5%	90.0%	92.5%	89.8%	92.2%	89.6%	92.0%
Link Rate	89.0%		89.1%		82.2%		90.5%		91.4%	

Distribution of birth weight categories *only* for babies linked to birth certificate.

	2014		2015		2016		2017	
	Birth Certificate Weight Category	Claims Weight Category %	Birth Certificate Weight Category	Claims Weight Category %	Birth Certificate Weight Category	Claims Weight Category %	Birth Certificate Weight Category	Claims Weight Category %
VLBW	2.0%	2.1%	2.0%	2.1%	2.1%	2.2%	2.0%	2.1%
LBW	8.7%	6.3%	8.7%	6.5%	9.0%	7.1%	9.2%	7.3%
NORMAL BW	89.3%	91.6%	89.3%	91.4%	88.9%	90.7%	88.8%	90.6%
Link Rate	91.5%		92.3%		92.7%		92.4%	

As in prior years, we also report on the counts of stillborn deliveries, fetal deaths and total and average costs of deliveries paid by Medicaid. The data are shown for CY 2017 in Table A.3. The number of total deliveries (72,444) is again down from the prior CY 2016 (73,245) count but the composition is similar. The CY2017 deliveries are comprised of almost 89% liveborn deliveries (64,137, around 1% stillborn deliveries (660) and almost 11% fetal deaths (7,647) in both calendar years. The average dollars paid for the mother at delivery were slightly higher in CY 2017 ($4,644) compared to CY 2016 ($4,453).

Table A.3 Medicaid Deliveries for Calendar Year 2017 (CY2017)

MEASURE	Counts	Total $ Paid Mother	Average $ Paid Mother
All Medicaid Deliveries[1]			
Total Deliveries[2]	72,444	336,450,598	4,644.29
Liveborn deliveries	64,137	326,899,691	5,096.90
Stillborn deliveries (>= 22 weeks)[1]	660	2,924,959	4,431.76
Fetal deaths < 22 weeks[1]	7,647	6,625,948	866.48
Deliveries[1] to Demonstration			
Entire Demonstration population[6]			
Total Deliveries	4277	20226397	4729.11
Liveborn deliveries	3753	19666850	5240.30
Stillborn deliveries (>= 22 weeks)[1]	44	205850	4678.42
Fetal deaths < 22 weeks[1]	480	353696	736.87
FP only[3]			
Liveborn deliveries	3666	19203582	5238.29
Stillborn deliveries (>= 22 weeks)[1]	43	201680	4690.25
Fetal deaths < 22 weeks[1]	466	341451	732.73
IPC [4]			
Liveborn deliveries	66	354875	5376.90
Stillborn deliveries (>= 22 weeks)[1]	0	0	0
Fetal deaths < 22 weeks[1]	6	9574	1595.75
Resource Mother only[5]			
Liveborn deliveries	21	108393	5161.57
Stillborn deliveries (>= 22 weeks)[1]	1	4170	4169.82
Fetal deaths < 22 weeks[1]	8	2671	333.85

[1] Deliveries were defined as human conceptions ending in live birth, stillbirth (>= 22 weeks' gestation), or fetal death (< 22 weeks). Ectopic and molar pregnancies and induced terminations of pregnancy were NOT included.

- ***Deliveries of Live births** were identified in the claims by using: ICD-9 diagnostic codes 640-676 plus V27.x **OR** ICD-9 procedure codes 72, 73, or 74 plus V27.x **OR** CPT-4 codes 59400, 59409, 59410, 59514, 59515,59612,59614,59620, 59622 plus V27.x or Z37.x OR ICD-10 diagnostic codes O0 – O9 plus Z37.x or ICD-10 procedure codes 10A, 10D, or 10E plus Z37.x*
- ***Deliveries of Stillbirths** were identified by using ICD-9 diagnostic code 656.4x (intrauterine fetal death >= 22 weeks' gestation) OR specific V-codes [V27.1 (delivery singleton stillborn, V27.3 (delivery twins, 1 stillborn), V27.4 (delivery twins, 2 stillborn), V27.6 (delivery multiples, some stillborn), V27.7 (delivery multiples, all stillborn)] or ICD-10 diagnostic codes Z37.1, Z37.4, or Z37.7*
- ***Deliveries associated with Fetal deaths** < 22 weeks were identified by using ICD-9 diagnostic codes 632 (missed abortion) and 634.xx (spontaneous abortion) or ICD-10 diagnostic codesO03 or O02.1.*
- *In the case of a twin or multiple gestation, the delivery was counted as a live birth delivery if ANY of the fetuses lived. Costs were accumulated over the pregnancy and attributed to the delivery event if there was a fetal death that preceded a live birth.*

Counts of Infants and Costs in CY 2017

Table A.4 Infant Counts and Costs for Mother and Infant at the Delivery Hospitalization Calendar Year 2017 (CY2017)

MEASURE	Counts	Average $ Paid Mother[3]	Total $ Paid Infant Delivery Hospitalization	Average $ Paid Infant Delivery Hospitalization
All Medicaid Live births [1]	74,391	5,262	325,511,044	4,376
VLBW	1,638	6,121	129,598,271	79,120
LBW	5,608	5,566	63,038,880	11,241
Normal BW	67,145	5,221	132,873,892	1,979
All Medicaid Stillbirths[2]	0	*	0	0

[1]*Liveborn infants were identified and further categorized according to infant birth weight as very low birth weight (VLBW) < 1500 grams, low birth weight (LBW) 1500 – 2499 grams, and normal birth weight >= 2500 grams). Birth weight categories for liveborn infants were then defined using encounter data as follows:*

- *VLBW (< 1500 grams): ICD-9 = 764.xx or 765.xx or V21.3 that pertain to weight < 1500 grams: ICD-10 = PO5.XX or PO7.XX that pertain to weight < 1500 grams*
- *LBW (1500 – 2499 grams): ICD-9 = 764.xx or 765.xx or V21.3 that pertain to weight 1500 - 2499 grams: ICD-10 = PO5.XX or PO7.XX that pertain to weight 1500-2499 grams*
- *NBW (≥ 2500 grams): ICD-9 = 764.xx or 765.xx or V21.3 that pertain to weight ≥ 2500 grams or not otherwise classified as VLBW, LBW or stillborn; ICD-10 not otherwise classified as VLBW, LBW or stillborn*

[2] *Stillborn infants were identified using ICD-9 diagnosis codes V35.xx, 768.0, 768.1, or 779.9 or ICD-10 diagnosis codes P95, Z37.1, Z37.4, or Z37.7*

[3] *Amounts paid for mothers at the time of delivery were summarized for all deliveries in table 2 and are summarized here by birth weight of the infant for the subset of mothers (n = 53,675) who could be linked to an infant based on the SSN of the head of the household and other factors used in an algorithm developed by Truven.*

**Link to mother not available*

In Table A.4, we present data on the costs at delivery for the 74,391 live births paid by Medicaid in CY 2017. The costs of infants' delivery hospitalization are up only slightly ($4,376 compared to $4,277) from last year. The costs of a VLBW infant is again up from the prior CY but only slightly; these costs increased by approximately 3% ($79,120 compared to $77,096).

Counts of Infants and Costs CY2017

In Table A.5, we show the estimated costs for infants in their first year of life. As noted in prior reports, we use the average costs of infants born in the first half of the year to extrapolate to the infants born in the second part of the year. The total dollars paid by Medicaid for continuously enrolled infants equaled over $257 million and averaged $3,274 for all infants but $13,845 for infants born VLBW. This is an increase of 14% from the average for CY 2016 ($12,125).

Table A.5 Infant Costs during First Year of Life (Post-Delivery Hospitalization) for Medicaid Live Births in CY 2017

MEASURE	Infants[1] Born on Medicaid in First 6 Months of CY2017	1st Year of Life Post-Delivery Hospitalization			
		Average $ Paid per Infants[2]Born in First 6 Months of CY2017[6]	Total $ Paid[3] Extrapolated to All Infants[4] from those Born in First 6 Months	Total $ Paid Extrapolated to Continuously Enrolled Infants[5]	Average $ Paid per Continuously Enrolled Infants[5]
Medicaid Live births[1]in First 6 Months of 2016	35,506	3,252	253,797,267	257,352,531	3,274
VLBW	537	12,650	21,707,400	23,758,020	13,845
LBW	2,617	5,041	27,836,402	28,372,036	5,138
Normal BW	32,352	2,951	204,253,465	205,222,475	2,965

[1] The *35,506 liveborn infants born in the first six months of CY2017 were categorized as very low birth weight (VLBW) < 1500 grams, low birth weight (LBW) 1500 – 2499 grams, and normal birth weight >= 2500 grams) as noted in table A.4.*

[2]*Costs for all infants born in the first six months of CY2017 are included regardless of their disenrollment or death.*

[3]*Dollars paid for services for infants in their first year of life were counted beginning with the first service date occurring after their delivery hospitalization discharge date. Paid claims for infants born in CY2017 were complete through June of 2018; expenses paid after this date will not be counted in their first-year costs.*

[4]*Costs for the full first year of the infant's life were only available for those infants born in the first six months of 2017 (and based on claims paid only through June 2018). We used the average costs for this cohort of infants born in the first part of 2017 (n = 35,506) to extrapolate to an annual estimate for CY 2017.*

[5] *Costs for all infants born in the first six months of CY2016 are included only for those 35,017 alive and continuously enrolled (data on enrollment were only available through December 31, 2016). We used the average costs for this cohort of infants (n = 35,017) to extrapolate to an annual estimate for CY 2016 as shown in the last column.*

[6] *Omits those with 0 Medicaid dollars, private third-party liability or Medicare coverage*

Appendix B. PRAMS Analysis of Effects of P4HB Program on Goals

The PRAMS is a mixed-mode, population-based, state-specific surveillance system of selected maternal behaviors and experiences during pregnancy and following childbirth. Our study sample included data from the years prior to implementation of the P4HB program (2008-2010) and the years following implementation (2012-2013); we excluded data from the transition year of P4HB implementation (2011). To test the effects of P4HB using PRAMS data, we identified women who were uninsured pre-pregnancy, but Medicaid insured at delivery as these women were most likely in the income range targeted by P4HB. We included these women in the Georgia PRAMS sample and similarly defined women in the PRAMS sample in three control states (Arkansas, Oklahoma, and Maryland). A key criterion in selecting our control states was a formal test of equality in trends of outcome measures in Georgia and our control states. We verified that the trends were similar allowing the control states to serve as a counterfactual for Georgia.

Dependent Variables

Unintended Birth: Unintended birth is a key outcome of interest that we can only measure with survey data. Due to changes in the PRAMS survey during our study period, we tested several measures of unintended pregnancy/birth. For years 2008-2010, the PRAMS data asked the question: *"Thinking back to just before you got pregnant with your new baby, how did you feel about becoming pregnant?"* and included as possible responses the following options: 1) *I wanted to be pregnant sooner*, 2) *I wanted to be pregnant later*, 3) *I wanted to be pregnant then*, and 4) *I didn't want to be pregnant then or at any time in the future*. In 2012, however, a fifth response choice was added: 5) *I wasn't sure what I wanted*. While PRAMS data have generally been used to classify pregnancies as unintended if a woman wanted to be pregnant later or did not want to be

pregnant then or at any time in the future, we had to address the additional response introduced in 2012-2013. We therefore tested several ways of using the data to measure unintended pregnancy/birth. For our first measure, we considered a mother's answer to a second question: *When you got pregnant with your new baby, were you trying to get pregnant?* We then classified mothers as having an unintended pregnancy/birth if they responded that they were: 1) *unsure what they wanted;* or 2) *were not trying to get pregnant*. With this measure, we tested models excluding mothers who were unsure what they wanted. Finally, we completed a separate analysis of whether a mother was trying to get pregnant, based on the answer to the following question: *When you got pregnant with your new baby, were you trying to get pregnant?*

Pregnancy Prevention Effort: Our analysis assessed women's reports of efforts to prevent pregnancy in the preconception and postpartum periods as well as their report of problems getting birth control during the preconception period. Pregnancy prevention during the preconception period was based on the mother's yes/no response to the question: *"When you got pregnant with your new baby, were you or your husband or partner doing anything to keep you from getting pregnant?"* This question lists the key things people do to keep from getting pregnant: birth control pills, condoms, withdrawal, or natural family planning. Pregnancy prevention post-partum is a yes/no to the question: *"Are you and your husband or partner doing anything now to keep from getting pregnant?"* Problems getting birth control pre-conception is a yes/no to the question: *"I had problems getting birth control when I needed it"* which was a possible response to the question: "*What were your reasons or your husbands' or partners' reasons for not doing anything to keep from getting pregnant?"*

Birth Weight: We examined two models estimating the probability of a low or very low birthweight infant. In these models, low birthweight was defined as less than 2,500 grams, while very low birthweight was defined as less than 1,500 grams.

Age at Birth: While we estimated several models examining the mothers age at birth, most of these results were statistically insignificant. We present in Table 10 below, the results using a continuous measure (age in years) at first birth. Mothers with a previous live birth were excluded from this analysis.

Results

In Table B.1 we show the means for each of the dependent variables for the sample of women uninsured pre-pregnancy but insured at delivery in Georgia and our control states; the unadjusted means are shown for the pre (2008-2010) and post (2012-2013) time periods. As the descriptive data show, the rate of unintended pregnancy, regardless of the way we measured it, declined between the pre and post period for women in our Georgia as well as control states' samples. In Georgia, this rate was 61% in the pre-period but declined to 57% in the post period while this rate declined from 60% to 51% in the control states. Those with live births who reported they were 'not trying' to get pregnant went up in both Georgia and the control states with 72% of Georgia women reporting this in the post period compared to 60% of the comparison women.

Table B.1 Descriptive Statistics PRAMS 2008-2013

	Georgia				Control States (AR, MD, OK)			
	Pre P4HB (n=1,057)		Post P4HB (n=455)		Pre P4HB (n=4,494)		Post P4HB (n=1,074)	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Unintended Pregnancy*	61.0%	2.4%	56.8%	3.5%	60.4%	1.2%	50.8%	2.4%
Unintended Pregnancy**	61.0%	2.4%	44.6%	4.0%	60.4%	1.2%	44.1%	2.6%
Not Trying	70.9%	2.3%	72.3%	3.2%	69.4%	1.1%	60.1%	2.4%
Pregnancy Prevention Pre-conception	40.2%	2.9%	70.9%	3.7%	44.9%	1.5%	40.5%	3.1%
Pregnancy Prevention Post-partum	82.8%	1.8%	80.8%	2.7%	86.1%	0.8%	79.0%	1.9%
Problems getting birth control pre-conception	9.0%	1.7%	6.5%	1.8%	6.3%	0.7%	6.3%	1.5%
Very Low Birthweight (≤1,500 g)	1.8%	0.2%	1.2%	0.3%	1.5%	0.1%	1.7%	0.2%
Low Birthweight (≤2,500 g)	9.0%	0.5%	10.0%	1.5%	8.4%	0.2%	8.1%	0.5%
Age at First Birth	23.3	0.36	24.1	0.62	23.0	0.17	24.8	0.29

Notes: Pre-period 2008-2010, Post-period 2012-2013. Sample is limited to Medicaid at delivery and uninsured pre-pregnancy
* "Were you trying" was used if respondent said "was not sure" to the intent question in 2012 or 2013. If not sure and not trying, then coded as unintended ** Dropped those saying, 'was not sure' (2012-2013)

There are markedly different trends in Georgia versus the comparison states on using pre-conception pregnancy prevention methods; in Georgia this increased from 40% to 71% over the pre/post period while in the control states, this declined from 45% to 41%. Pregnancy prevention post-partum declined in Georgia and the control states' samples but more so in the latter. An important question for evaluating the P4HB program is whether these women reported problems getting pregnancy prevention methods pre-conception; here, nearly 9% of women in Georgia said 'yes' in the pre-period but this declined to 7% in the post period while the percent saying 'yes' to this question in the control states stayed stable at 6%. With respect to birth outcomes, the descriptive data suggest that very low birth weight rates improved in Georgia relative to the comparison states while the rate of low birth weight (inclusive of very low birth weight) did not. Finally, age at first birth went up slightly in both samples. These means are unadjusted for age, race/ethnicity and other factors affecting these outcomes. We report on the outcomes after adjusting for these and other factors in the text below.

Multivariable PRAMS Analysis: We used the difference-in-difference method to estimate the effects of P4HB on these outcomes. With this method, changes in the outcomes from the control group are subtracted from those of the treatment group, controlling for any group-specific and time-specific effects that may have altered the outcomes during the study years. As noted, the treatment group includes mothers in Georgia that were uninsured pre-pregnancy but insured with Medicaid at delivery and the control group includes these women in the control states (Arkansas, Oklahoma, and Maryland). We used logistic or multinomial logistic analysis to examine all dichotomous outcomes and linear regression to estimate continuous measures. We controlled for mothers age, race/ethnicity, number of stressors, if the mother drank alcohol three months before her pregnancy, if the mother smoked three months before her pregnancy, number of previous live births, and number of terminations. All regression models included state and year fixed effects and adjusted standard errors for clustering at the state/year level. Analyses was conducted in Stata version 14.2 and account for the complex sample design of the PRAMS.

Table B.2 Estimated Marginal Effects on Pregnancy Prevention and Birth Outcomes

	Marginal Effect	Standard Error	p-value
Unintended Pregnancy*	-0.068	0.035	0.054
Unintended Pregnancy (drop unsure)**	-0.114	0.036	0.002
Not trying	0.021	0.035	0.557
Pregnancy Prevention Pre-conception	0.294	0.041	<0.001
Pregnancy Prevention Post-partum	0.031	0.016	0.054
Problems getting birth control pre-conception	0.019	0.023	0.409
Very Low Birthweight	-0.006	0.029	0.847
Low Birthweight	0.006	0.144	0.969
Age at First Birth	-1.020	1.111	0.363

Controls: age, race/ethnicity, education, number of stressors, drank, smoked, year, number of previous live births, number of previous terminations. * "Were you trying" was used if respondent said "was not sure" to intent question in 2012 or 2013. If not sure and not trying, then coded as unintended ** Dropped those saying, 'was not sure' (2012-2013) Standard errors clustered by state/year Pre-period 2008-2010, Post-period 2012-2013. Sample is limited to Medicaid at delivery and uninsured pre-pregnancy

The results shown in Table B.2 indicate that regardless of the measure of unintended pregnancy used, there were reductions in unintended pregnancy for women in Georgia relative to similar women in the control states. Using the first measure, the results indicate a reduction in births from unwanted pregnancies of 6.8 percentage points for the target group of women. When the women who are 'unsure' are excluded from this analysis, the magnitude of the effect is larger and statistically significant. The only remaining results that are statistically significant ($p < .05$) include a large increase of 29 percentage points in the probability of using pregnancy prevention methods pre-conception and a three-percentage point increase in using pregnancy prevention methods post-partum.

Appendix C. Budget Neutrality Worksheet for Federal Costs in CY 2016

Georgia's P4HB Budget Neutrality Worksheet for: FEDERAL COST CY 2016						
		Quarter 1	Quarter 2	Quarter 3	Quarter 4	TOTAL
WITHOUT DEMONSTRATION - All P4HB Participants (FP and IPC) - FP and associated services (Effective FP)						
FP and FP-Related Services for All P4HB Pop - 90:10 and reg	FP Enrollee Member Months	33,517	40,917	30,628	29,817	134,879
FMAP rates (multivits, immunizations, admin., etc)	IPC Enrollee Member Months	684	397	562	961	2,604
	PMPM for FP Members FP related Services	$25.71	$25.71	$26.58	$26.59	$26.15
	PMPM for IPC Members FP related Services	$25.55	$25.55	$22.69	$22.69	$24.12
	Total	$ 879,143	$ 1,062,052	$ 826,751	$ 814,701	$ 3,589,414
First Year Infant Costs for VLBW Babies < 1,500 grams (all Medicaid paid births)	Estimated Persons					2,117
	Cost per Person	$ 62,916	$ 74,461	$ 59,757	$ 52,865	$ 62,499.49
	Total	$ -	$ -	$ -	$ -	$ 132,311,431
First Year Infant Costs for LBW Babies 1,500 to 2,499 grams (all Medicaid paid births)	Estimated Persons					$ 5,768
	Cost per Person	$ 10,113	$ 9,452	$ 9,535	$ 8,178	$ 9,319.54
	Total	$ -	$ -	$ -	$ -	$ 53,755,113
TOTAL WITHOUT- DEMONSTRATION COSTS		**$ 879,143**	**$ 1,062,052**	**$ 826,751**	**$ 814,701**	**$ 189,655,958**
WITH DEMONSTRATION - IPC SERVICES excl. Resource Mothers Only Participants Only						
Interpregnancy Care Services at the FMAP rate	Member Months	684	397	562	961	2,604
	PMPM	$ 115.81	$ 115.81	$ 115.38	$ 115.96	$ 115.74
	Total	$ 79,212	$ 45,976	$ 64,845	$ 111,440	$ 301,473
First Year Infant Costs VLBW	Persons	378	428	419	402	1,627
Infants < 1,500 grams (all Medicaid paid births adjusted for effect of IPC services)	Cost per Person	$ 62,916	$ 74,461	$ 59,757	$ 52,865	$ 62,499.49
	Total	$ 23,782,223	$ 31,869,094	$ 25,038,138	$ 21,251,591	$ 101,941,046
First Year Infant Costs for LBW	Persons	1,674	1,619	1,793	1,790	6,876
Babies 1,500 to 2,499 grams (all Medicaid paid births adjusted for effect of IPC Services)	Cost per Person	$ 10,113	$ 9,452	$ 9,535	$ 8,178	$ 9,319.54
	Total	$ 16,928,899	$ 15,303,556	$ 17,095,807	$ 14,638,794	$ 63,967,056
First Year Infant Costs for	Persons	8	10	6	8	32
Normal Weight > 2,500 grams	Cost per Person	$ 2,585	$ 2,423	$ 1,823	$ 3,307	$ 2,534.51
only for women who participated in the IPC	Total	$ 20,681	$ 24,226	$ 10,937	$ 26,460	$ 82,304
TOTAL WITH DEMONSTRATION COSTS		**$ 17,012,496**	**$ 15,402,242**	**$ 17,166,501**	**$ 14,718,119**	**$ 166,291,878**
DIFFERENCE						**$ 23,364,080**

Budget Neutrality. The budget neutrality requirement for Georgia's P4HB program under the original STCs, as noted, is based on the potential of the Demonstration to 'shift' the birth weight distribution. Specifically, the budget neutrality spreadsheet requires that the total federal costs for all **low and very low birth weight babies plus normal birth weight babies born to IPC enrollees in each Demonstration year must be less than the total federal costs (using current PY average costs) for the number of low and very low birth weight babies in the *base year* (2008) for the P4HB program to be considered budget neutral.** As the program is maturing the state is better able to gauge whether the Demonstration prevented enough unintended first births and through better management of the health of women with very low birth weight babies, prevented enough repeat births among this group, such that the distribution of all Medicaid births shifted away from the low and very low birth weight categories.

In this PY7 report, we provide data on the sixth year of the Demonstration, using the claims for CY 2017 to give us a full estimate of the first year of life costs for infants born in 2016. We note that the birth weight distribution is based on linked claims and vital records data. Vital records data are used when available and when the newborn does not link to vital records, birth weight is then based on claims data. As shown in the data in the budget neutrality sheet, there were 1,627 VLBW infants and 6,876 LBW infants born under Medicaid coverage in CY 2016. The average costs for the delivery and first year of life for infants across the four quarters in PY7 for the two categories of birth weight were $62, 499 and $9,319 respectively.

When the total federal costs for the per member per month payments for the family planning only components of the Demonstration and the base year VLBW and LBW infants is totaled, it equals approximately $189 million. To calculate the effects of the Demonstration, we subtract from this total, the costs of the IPC per member per month payments, the 2016 costs for VLBW and LBW infants and the costs of any births to IPC enrollees that are of normal birth weight. These costs total approximately $166 million. We note that the count of births of normal birthweight to IPC women are for women ever enrolled in IPC and with a birth occurring in 2016. The difference in the costs with and without the Demonstration is approximately $23 million as shown in the bottom of the spreadsheet. This constitutes the estimated savings to the federal government from the implementation of the P4HB Demonstration in CY2016.