Annual Report

Planning for Healthy Babies Program® (P4HB®)

1115 Demonstration in Georgia

YEAR 6

Submitted to the Centers for Medicare and Medicaid Services

By:

The Georgia Department of Community Health (DCH)

And

Emory University, Rollins School of Public Health (RSPH)

Department of Health Policy and Management (HPM)

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Executive Summary

The Planning for Healthy Babies Program® (P4HB®), Georgia's section 1115(a) Medicaid Demonstration expanded the provision of family planning (FP) 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) since its implementation in 2011. The P4HB program, initially approved for a three-year period from January 1, 2011, through December 31, 2013, has received numerous temporary extensions. The current temporary extension expires on March 31, 2018.

Estimated enrollment of those eligible in the community in Program Year (PY) 6 indicated that slightly over 5% of the eligible population enrolled in the FP only component. 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 PY6 was estimated at 9.5%. These percentages are virtually the same as observed for PY5 and represent a substantial decline from the estimated 20% of the eligible population 'in need' of family planning services and enrolled in PY3. Despite multiple engagement efforts by DCH and providers in the community, both enrollment and utilization of services by those enrolled into the P4HB have been lower than initially predicted and declines in enrollment continued through PY6.

As the state seeks a renewal of P4HB, efforts are being made to increase enrollment of the eligible population. During 2016, the Georgia Gateway system was being tested and getting ready to go live in 2017. Georgia Gateway 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; the P4HB is included within the Medical Assistance component of this system.

In this and prior annual reports, we use data to address the progress on the goals and objectives of P4HB. We again include analyses based on the quasi-experimental design using data from the period prior to P4HB implementation (2009-2010) and post P4HB (2011-2016) for Medicaid births in comparison to privately insured women with an education level of high school or less. Based on the Pregnancy Risk Assessment Monitoring System (PRAMS) data for Georgia and comparison states, we analyze the effects of the P4HB program on women's reports of unintended pregnancy and use of efforts to prevent pregnancy prior to conception. The remainder of our analyses are based on claims data and in some instances, linked claims and vital records for two years pre-P4HB (2009 and 2010) and for program years post-P4HB (2012-2016). We largely omit PY1 as a transitional year.

The following is a summary of our findings organized around the program goals and objectives of P4HB as stated by the Georgia Department of Community Health (DCH) in their initial application:

Goal: Reduce Georgia's LBW and VLBW Rates:

- Relative to similar women in comparison states without a change in family planning waiver policy or to a sample of privately insured women in Georgia, analyses showed:
    - No effect on preterm, LBW or VLBW infant outcomes.

Goal: Reduce Unintended Pregnancies in Georgia:

- Relative to similar women in comparison states without a change in family planning waiver policy, analysis showed:
    - an increase in the percentage "doing something" to prevent pregnancy during both the preconception and postpartum periods; and
    - a reduction in the probability that these women reported their pregnancy as unintended.

Goal: 'Avert' Births and Lower Medicaid Costs in Georgia:

- A positive number of 'averted' births has been found in each of the program years;
- Budget neutrality analysis has shown a savings to the federal government in each of the program years.

Program Objectives. With respect to the objectives related to the goals of the P4HB program, our analysis of PRAMS, linked claims/vital records, and enrollment data finds:

Objective: Increase use of Family Planning Services

- Enrollment in the family planning only component continued to decline after peaking in early 2013(due to auto enrollment into the program);
- Use among all Medicaid enrolled women 18-44:
    - use of any family planning visit increased 2009-2013 but declined over the subsequent years;
    - use of any visit/service for birth control generally declined over the 2009-2016 time period
- Use among women in P4HB:
    - use of any family planning visit was higher than non-P4HB Medicaid enrolled women in 2011 at 35%, declined by 2014, and then increased markedly to 39% in 2016;
    - use of any visit/service for birth control declined and then increased, ending at approximately 30% in 2016;
    - declines in usage over 2012-2014 for the P4HB women reflect the increased number of auto-enrolled who tended to use birth control at a lower rate;

- use among non-Medicaid insured women seeking services from Title X providers has been difficult to trend due to a change in the Title X grantee from the Georgia Department of Public Health to the Georgia Family Planning System (GFPS) in July 2014. However, data indicate:

    - the number of female Title X users served by GFPS increased in 2016 to 90, 687; while this is below the 112,703 women served by DPH in 2013

<u>Objective</u>: Increase use of Effective Contraceptives

- Among all Medicaid women ages 18-44 using some form of contraceptive:

    - the use of Tier 1 (most effective) contraceptives was virtually unchanged from 2009 to 2016 (approximately 34%) despite an increase from 2009 to 2011;

    - the slight increase seen from 2009 to 2011 reflected a slight increase in use of LARCs (Tier 1 methods that are reversible);

- Among P4HB users of some form of contraceptive:

    - the use of Tier 1 contraceptives declined from 2011 to 2016, ending at about 15% of P4HB users;

    - the use of Tier 1 contraceptives overall and LARCs increased very slightly from 2014 to 2016 among P4HB women but this did not change the overall declining trend in both.

- Among Title X users at risk of unintended pregnancy:

    - the percentage using Tier 1 contraceptives was stable between 2015 and 2016 at 35%;

    - the remaining 65% of women at risk and with a known method used moderately effective (Tier 2) or less effective (Tier 3,4) methods.

<u>Objective</u>: Lower Teen Births and Repeat Teen Births

- Relative to a sample of privately insured Georgia women Medicaid insured women had:

    - an increase in women's age at first birth;

    - a reduction in births at ages 18-19; and

    - a reduction in teen births (<18).

Objective: Increase Interpregnancy Spacing

- Relative to a sample of privately insured Georgia women analyses showed:
    - reductions in very short interpregnancy (<6 months) intervals;
- Analysis of women in P4HB showed:
    - Women in the FP only component were less likely to have a pregnancy within 6, 12 or 18 months after enrollment than were RSM women not ever enrolled in P4HB, followed after an index birth;
    - Women in the IPC component of P4HB were significantly less likely to have a repeat pregnancy within 18 months than were RSM women with a VLBW delivery;
    - Women in the IPC component of P4HB were significantly less likely to have a repeat delivery within 18 months than were RSM women with a VLBW delivery.

Objective: Utilization and Management of Chronic Conditions

- From PY5 to PY6, there were small increases in the number of women enrolled in both the IPC and Resource Mother only components of P4HB, and the utilization of services for the care of chronic health conditions was stable across PY5 and PY6;
- The utilization of services for chronic health conditions is substantially higher for women in the Resource Mother only component compared to IPC, which may reflect their poorer underlying health status and/or better knowledge of the availability of covered services;
- Further analysis to define the set of women in IPC and the Resource Mother only components of P4HB known to have chronic health conditions (by examining vital records and prenatal claims data), and then to examine the service utilization for those sets of women, will be essential in better understanding the proportion of women in each category with chronic health conditions receiving appropriate care in the interpregnancy period.

Objective: Monitoring Trends in Medicaid Deliveries/Births

- All Medicaid births, including stillbirths, increased in PY1 and PY2 but have declined since then to a total of equaled 76,454 and a cost to the state of approximately $327 million in PY6;
- Percent VLBW (<1500 grams) has increased from 1.8% to 2.0% in PY1 to 2.1% to 2.2% in PY6 depending on the source (vital records or claims) of measurement;
- Percent LBW (<1500 grams up to < 2500 grams has increased from 5.4% to 8.3% in PY1 to 7.1% to 9.0% in PY6;
- First year of infant life costs for all VLBW infants paid for by Medicaid continued to be high when counting the $77,096 at delivery plus $12,125 post-delivery costs.

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 became available effective January 1, 2011 and 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).

The P4HB program also provides Interpregnancy Care (IPC) services, inclusive of nurse case management/Resource Mother outreach, to women who meet the above eligibility criteria and 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 very low birth weight 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 PY6 report contains the pre/post analyses based on five years of data post the P4HB implementation, 2011-2016, using linked vital records for these years.

II. SUMMARY OF SIXTH YEAR ACTIVITIES

Communication and Outreach

During PY6, DCH conducted outreach activities to increase awareness of the P4HB program and to encourage participation by both consumers and providers. In addition, the CMOs and network providers also conducted outreach and education to prospective enrollees about the P4HB program. The communication and outreach efforts for PY6 are summarized below.

DCH Supported Activities

In PY6, DCH: 1) educated CMOs and Medicaid network providers about P4HB and services available under the program; 2) utilized consumer-based outreach; 3) collaborated with state agencies to enhance outreach and enrollment in P4HB; and 4) completed an annual evaluation. The DCH link for the P4HB program is: http://dch.georgia.gov/planning-healthy-babies.

1. **Educate Providers.** DCH communicated regularly throughout the year with the CMOs and network providers regarding the P4HB program. One round of provider surveys was performed in PY6. The provider surveys were distributed in June 2016 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 2016. 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 for the program, the enrollment process, and details about selecting a CMO. These letters were identified as one of the top five most frequently cited sources for the P4HB applicants' knowledge about the program in 2016. These letters were discontinued during the fourth quarter of 2016 in order for them to undergo revisions prior to the implementation of the new DCH eligibility system in February 2017.

   In addition, PSI Maximus staff conducted telephone outreach to women recommended by the CMOs for disenrollment from the IPC component. As a result of this outreach, many women elected to remain enrolled in the P4HB program.

   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 PY6, DCH collaborated with many agencies to explore enhancements to the P4HB eligibility, enrollment, and outreach processes. For example, during Q1 2016, DCH P4HB program staff met with the Georgia Families' enrollment broker to gain a better understanding about the outreach activities Maximus conducts to obtain the P4HB eligibility women's CMO selection. In Q2 2016, DCH hosted a meeting with the three CMOs, staff from the RSM program, and the DCH managed care enrollment staff and PSI/Maximus staff. The purpose of this meeting was to align understanding about the P4HB program's eligibility and current enrollment workflows and plan for the new integrated eligibility system to be implemented in early 2017. Also, DCH P4HB staff collaborated with the DCH Communications Team to develop a short survey for P4HB women who fail to respond to their renewal letter within 30 days of receipt. This survey was distributed via email in third quarter of PY6. Because the survey yielded only a 4% response rate, results were inconclusive and no reasons were identified about why P4HB participants fail to renew their enrollment in the program.

4. **Annual Evaluation:** DCH worked with Emory University to prepare the sixth annual P4HB evaluation.

CMO Supported Activities

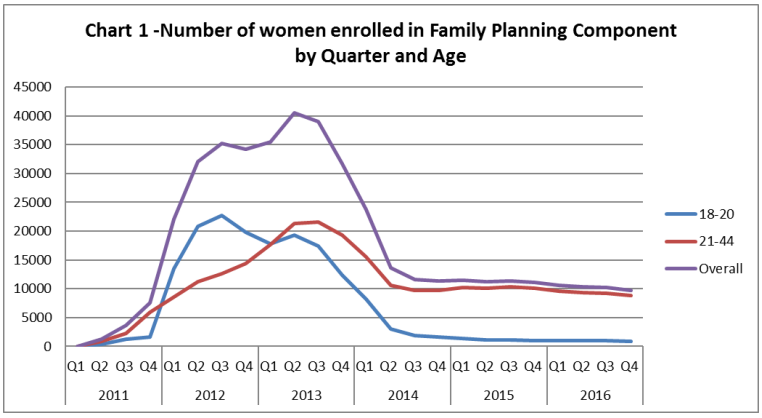
Each of the three CMOs working with the P4HB program has their own client and provider education plans relative to the P4HB program. This information is posted on their respective websites. (https://www.myamerigroup.com/ga/your-plan/planning-for-healthy-babies.html; http://georgia.wellcare.com/member/p4hb; https://www.pshpgeorgia.com/members/planning-for-healthy-babies.html).

During PY6, 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 in particular.

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

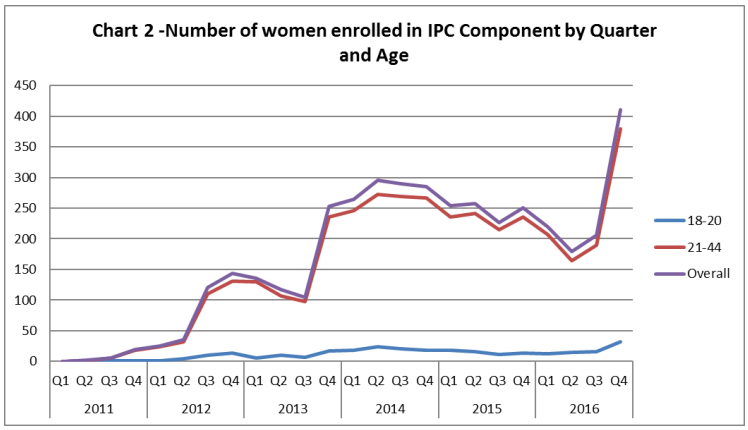


It is extremely important for the P4HB program to enroll significant portions of eligible women if the program is to achieve its goals. Throughout our quarterly reports, we have provided summaries of the P4HB enrollment process, barriers to enrollment, and enrollment patterns. We report below on trends in the number of women enrolled in the FP only and IPC components of the P4HB program through the most current data, December 2016.

Enrollment Trends

As shown in Chart 1, enrollment in the FP only component of P4HB has declined markedly from the second quarter of 2013. It is clear that the discontinuation of auto enrollment in this year was associated with significant declines in the number of women enrolled in the FP only component of P4HB. Total enrollment in the FP only component began to fall from its peak level of 40,593 in Q2 2013 and has continued to decline to 9,749 by the 4th quarter of 2016, less than one-quarter of its peak level. The composition of these FP only enrollees by age also changed dramatically over this period. Whereas the 18-20 year olds comprised 48% of FP only enrollees at the peak enrollment point, by the end of 2016 this younger group made up only 10% of the total. While the peak enrollment for the 21-44 age group occurred later than for the 18-20 year old group their downward trend lines appear fairly similar since quarter 2 of 2014.

In contrast to the declines in the FP only component, enrollment in the IPC component of the P4HB has grown significantly in 2016 as shown in Chart 2. This growth has largely been among those ages 21-44 although there was a slight increase among those ages 18-20 in the last quarter of this year. During 2016, the increase in total enrollment of women in IPC from the 250 enrolled in quarter 4 of 2015 to 411 indicates a 64% increase. The increase in enrollment of women with a very low birth weight infant into the IPC component during 2016 more than doubled for the younger age group of 18-20 year olds while increasing 83% among those in the older age group of 21-44. These patterns are in contrast to the slight decline seen in 2015 and indicates outreach efforts to these women may have been more successful in the current study year.



The number of women enrolled in the Resource Mothers only component of the P4HB program totaled 138 by the end of PY6. Combined with the 411 women enrolled in the IPC component, there were 549 women who had delivered VLBW infants and received, through the P4HB program, nurse case management and Resource Mother services, primary care and other IPC services available to them, by the end of PY6. The total number of 549 IPC and RM only women at the end of PY6 is up significantly (83.0%) from the 300 women in this group at the end of PY5.

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% of FPL in order 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 less than or equal to 200% FPL remaining uninsured has declined in Georgia. The estimate of eligible women in the community is 187,342 for 2016 a decline of almost 35% from 2013.

As shown below in Table 1, the percentage of those eligible who enroll increased from less than 3% in 2011, the first year of P4HB, to an estimated 12% of the eligible population enrolled in the family planning only component of P4HB in 2012. This remained fairly stable at 11% in PY3. Beginning in PY4, however, this percentage dropped in half to approximately 5% where it has remained since. When we consider 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 enrolled peaked in PY2/PY3 at 20% to 22%. This participation measure has also dropped and it is estimated to equal 9% to approximately 10% over the last three P4HB program years.

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	1,522	14.5%
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	1,716	18.5%
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	1,616	19.6%

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	1,695	17.7%
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	1,716	32.0%

[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. Women enrolled in RSM with a VLBW infant should be the denominator for this calculation. 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 (n = 1,716 in Table A.1 shown later) as the denominator. [3]We use the numbers enrolled as of the 4th quarter of 2016 (and reported in our 4th Quarter 2016Report) 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 were actually in need of 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 as shown in column 3.*

In marked contrast to the participation of women in the FP only component of P4HB, the data in Table 1 show that the percentage of women with a VLBW infant enrolled in the IPC and Resource Mother only components of P4HB grew from a low of 14.5% in PY2 to a high of 32% in PY6. If the declines in the percentage of eligible women enrolled in the FP only component is due to increased coverage under Medicaid or subsidized insurance on the Marketplace, there is less concern for their access to family planning services and hence, potential enrollment in Medicaid if pregnant. We are not able, however, to document the causes for this decline. While women in this income range also have access to free or reduced cost family planning at Title X clinics, we reported on large declines in the use of these services in our PY5 report. We update the Title X data in a later section of this annual report.

IV. USE OF FAMILY PLANNING SERVICES

The causal 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 < 200% 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, in order for the use of family planning services by *all* women of reproductive age in the income range targeted by the P4HB program to increase.

In prior reports, we indicated that the use of contraceptives at Title X clinics shifted toward long-acting, reversible contraceptives (LARCs) and the percentage of eligible women using Title X services increased from 2009-2013. However, when viewed as a combined, publicly funded family planning delivery system, total family planning services (paid for by Medicaid or Title X) did not increase enough to result in a growing percentage of women with incomes at or below 200% FPL with a family planning or birth control visit from 2009 through 2013.[1]

Family Planning and Birth Control Visits by Medicaid and Title X Clients

In this section, we update the data on use of family planning services by Medicaid enrolled women users of Title X clinics, through 2016. 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.

Medicaid 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, the Medicaid recipients' 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. We have also made changes in recognition that the Georgia CMOs are not using Therapeutic Class coding when reporting on drug usage and, due to this practice, a number of P4HB enrolled women who were using oral contraceptives were not previously identified as contraceptive users. In addition, we recognized that we should include an additional diagnosis code that indicated contraceptive use even though a separate procedure or drug code was not observed for the woman. In enacting these coding changes, a larger number of family planning visits and users of contraceptive methods were captured and the newly identified group of contraceptive users were primarily users of oral contraceptives. To assure our ability to examine trends pre and post implementation of the P4HB program, we updated our prior years of Medicaid data to be consistent with these changes.

The first bank of data in Table 2 reflects the percentage of Medicaid enrolled women ages 18-44 years with any Medicaid family planning related visit reimbursed at the 90:10 FMAP over the pre/post P4HB period. In turn, 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), is shown. The additional P4HB covered services are reimbursed at the state's regular FMAP rate. In the last bank of data, the percentage of all Medicaid enrolled women with any family planning or family planning related visit is shown for those women *not* enrolled in the P4HB program during the year.

As the data show, the percentage of all Medicaid enrolled women 18-44 years of age and actually using family planning or family planning related services first increased over the 2009-2013 time-period; in 2009, this percentage was approximately 25% and by 2013 it equaled 31.1%. The

percentage of all Medicaid enrolled women for whom the visit involved the provision of some form of birth control was relatively stable 2009-2013 between 21 to 22%. Both of these measures, however, declined over the following years; use of any family planning equaled approximately 27% in 2016 and the percentage with any visit/service for birth control equaled 18.2%.

Table 2. Use of Family Planning and Birth Control Visits among Medicaid Enrolled, P4HB, and Medicaid Non-P4HB

	Use Among Medicaid Women Ages 18-44 All Medicaid Enrolled			**Use Among P4HB Women P4HB Enrolled**			**Use Among Medicaid Non-P4HB Women Ages 18-44 All Medicaid Non-P4HB Enrolled**		
	Any Family Planning Visit[1]	Mean Visits Per User	Any Visit /Service for Birth Control[1]	Any Family Planning Visit[2]	Mean Visits Per User	Any Visit /Service for Birth Control[2]	Any Family Planning Visit[3]	Mean Visits Per User	Any Visit /Service for Birth Control[3]
2009	24.5	2.4	22.0						
2010	25.0	2.4	21.9						
2011	28.9	2.3	20.9	35.0	2.7	27.3	28.8	2.3	20.7
2012	30.4	2.8	21.6	27.3	3.9	20.1	30.9	2.6	21.9
2013	31.1	2.6	21.4	27.9	3.7	19.8	31.6	2.4	21.7
2014	29.0	2.5	20.4	26.2	3.7	18.7	29.2	2.4	20.5
2015	28.3	2.5	19.6	41.0	3.9	31.6	27.7	2.4	19.0
2016	26.7	2.4	18.2	39.1	3.8	29.3	26.1	2.4	17.7

[1] Denominator is all women ages 18-44 enrolled in Medicaid during year. [2] Denominator is all women ages 18-44, citizen, and < 200% FPL in Georgia during year. [3] Denominator is all women ages 18-44, citizen, and < 200% FPL in Georgia during year; numerator is sum of use among Medicaid enrolled women and Title X non-Medicaid enrolled women ages 18-44.

These patterns among all Medicaid insured women reflect the combination of usage of family planning services by P4HB and non-P4HB Medicaid insured women. Among women in P4HB, the percentage with a family planning visit began at a higher level in 2011 at 35%, declined to 26.2% in 2014 and then increased markedly to 39% in 2016. On the other hand, patterns of use for the non-P4HB enrolled Medicaid women, representing the great majority of the total, mirror the overall pattern of usage from 2011-2016, indicating a general decline. With respect to the usage of family planning visits for birth control, the pattern for non-P4HB enrolled women also 'mirrors' the overall pattern. On the other hand, the percentage of P4HB enrolled women with birth control visits declines and then increases, ending at approximately 30% in 2016. The declines

in usage over 2012-2014 for the P4HB women reflects in large part, the increased enrollment of the auto-enrolled over this period; auto-enrolled women tended to use birth control at a lower rate.

Methods of Contraception Used

Another way the introduction of 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 users of some form of contraceptive by the WHO tiers of effectiveness 1-4. We also show the percentage of users of some form of contraceptive who are using long-acting reversible contraceptives (LARCs) in the last column of Table 3. We note that the reported percentages reflect the change in coding to: 1) mirror the OPA list of codes; and 2) use of NDC codes in addition to therapeutic class to address the CMOs' reporting issue. A key change that occurs from the use of the OPA codes is a portion (5-9%) of the users have a visit for birth control but no procedure or drug code to indicate what type is used and hence, the tier cannot be specified.

Table 3. Distribution of Contraceptive Methods Paid by Medicaid for All Medicaid Enrolled 2009-2015

Year	Percent of Contraceptive Methods among Users of Some Birth Control by Tier, All Medicaid Enrolled, Ages 18-44				
	Tier 1	Tier 2	Tier 3/4	Tier Not Specified	LARC
2009	34.23	59.05	1.76	4.95	20.98
2010	30.95	62.84	1.50	4.71	17.88
2011	37.34	52.16	1.65	8.85	22.29
2012	33.55	58.50	1.64	6.30	20.75
2013	31.53	60.74	1.79	5.93	18.90
2014	31.47	60.93	1.67	5.93	19.22
2015	32.49	61.05	1.24	5.22	20.73
2016	33.53	60.69	0.95	4.84	21.41

Notes: 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.

As the data in Table 3 show, the use of Tier 1 contraceptives was virtually unchanged from 2009 to 2016 (approximately 34%). While there was an increase to 37% in 2011, the first year of P4HB,

the percentage declines thereafter. The increase in Tier 1 usage was related to a slight increase in the use of LARCs from 21% in 2009 to 22% in 2011 but this too, declined thereafter. The increase in Tier 1 usage was mirrored by a decline in the use of Tier 2 birth control methods, largely oral contraceptives, from 2009 to 2011 but this percentage increased after 2011 to 61% in 2016.

If the P4HB program is working as intended, the patterns of family planning service and contraception usage among enrollees (with required months of continuous enrollment) should show increases as P4HB enrollees become more aware of their benefits, more accustomed to their CMO providers and more of them receive advice regarding their reproductive health care.

Table 4. Distribution of Contraceptive Methods Paid by Medicaid for Women in P4HB versus Not in P4HB, 2009-2015

Year	% of Contraceptive Methods by Tier Paid by Medicaid: P4HB Enrolled Women					% of Contraceptive Methods by Tier Paid by Medicaid: Medicaid Non-P4HB Enrolled Women Ages 18-44				
	Tier 1	Tier 2	Tier 3/4	Tier Not Specified	LARC	Tier 1	Tier 2	Tier 3/4	Tier Not Specified	LARC
2011	22.25	66.47	3.30	7.97	18.22	37.78	51.74	1.60	8.88	22.41
2012	16.48	70.43	3.69	9.40	14.33	35.87	56.88	1.36	5.88	21.62
2013	16.18	71.34	3.84	8.64	13.95	34.16	58.93	1.44	5.47	19.75
2014	14.15	73.77	3.52	8.57	12.37	33.10	59.73	1.49	5.68	19.87
2015	15.57	76.31	2.30	5.82	14.04	33.97	59.72	1.14	5.17	21.32
2016	15.18	77.89	1.40	5.53	13.74	34.93	59.37	0.92	4.78	21.99

***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.*

As shown in Table 4, the use of Tier 1 contraceptives among all P4HB users of some form of contraceptive declined from 2011-2016, ending at about 15% of P4HB users in this category in 2016. There was a slight increase in use of Tier 1 and LARCs from 2014 to 2106 among P4HB women. Yet the percentage using LARCs declined from 18% in 2011 to approximately 14% in 2016. There was a related increase in the percentage of P4HB users using oral contraceptives over this period. Among non-P4HB enrolled women there was also a general decline 2011 to 2016 in

the use of Tier 1 contraceptives but with a similar slight increase from 2014 to 2016. This pattern also applies to the use of LARCs among these women with the percentage in 2011 being virtually the same in 2016 (approximately 22%) due to a slight increase between 2014 and 2016.

Use at Title X Clinics

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 perhaps different clientele than the prior grantee, the Department of Public Health (DPH). In our prior reports, we noted that as the Title X grantee changed in the state, the amount of 'unknown' data for several of the key data elements provided in the FPAR reports increased markedly from 2014 to 2015. This affected our ability to draw clear conclusions regarding the patterns of change. Since our last annual report, we found that the FPAR reports have been updated by the GFPS, reducing the amount of unknown data and we report on these updated data here.

In Table 5 below, we show the FPAR for the full calendar years of 2012 through 2016; data for the years 2012-2013 are all from the Georgia DPH whereas data for years 2015-2106 are all from the GFPS. Despite the updated numbers, there was still a clear reduction in the number of females getting family planning services beginning in 2014, falling from 112,703 to 97,483 and continuing through 2015 to 66,912.

Table 5 Use of Services by Family Planning Users at Title X Clinics 2012 -2016, FPAR Data

	FPAR Data 2012[1]		FPAR Data 2013[1]		FPAR Data 2014[1]		FPAR Data 2015[1]		FPAR Data 2016[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%
Male	3,025	2.4%	2,604	2.3%	4,840	4.7%	19,397	22.5%	36,371	28.6%
Total	126,992		115,307		102,323		86,309		127,068	
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%
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%
Total	123,967		112,703		97,483		66,912		90,697	
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%
Not Tested for Chlamydia	23,863	40.4%	23,296	44.1%	25,025	59.9%	14,420	67.1%	19,052	62.6%
Total	59,028		52,774		41,754		21,493		30,453	
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%
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%
Income Over 250% FPL	1,149	0.9%	751	0.7%	1,100	1.2%	3,265	5.9%	6,990	6.8%
Total (Known Income Level)	126,992		115,307		91,864		55,113		102,452	
UK/NR/Missing	0	0.0%	0	0.0%	10,459	10.2%	31,196	36.1%	24,616	19.4%
Total	126,992		115,307		102,323		86,309		127,068	
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%
Private Insurance	18,701	15.5%	16,311	14.8%	14,973	15.5%	23,753	28.8%	37,717	29.7%
Uninsured	82,223	68.2%	73,313	66.4%	59,130	61.3%	34,105	41.3%	51,914	40.9%
Total (Known Insurance Status)	120,640		110,408		96,496		82,577		126,936	
UK/NR/Missing	6,352	5.0%	4,899	4.2%	5,827	5.7%	3,732	4.3%	132	0.1%
Total	126,992		115,307		102,323		86,309		127,068	
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)	3,095	3.0%	1,629	1.7%	1,866	2.6%	5,345	20.0%	9,500	17.0%
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%
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%
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%
Total (Known Birth Control Method)	104,914		95,606		71,112		26,668		55,726	
UK/NR/Missing/None	3,535	3.3%	2,906	2.9%	13,227	15.7%	34,077	56.1%	17,004	23.4%
Total	108,449		98,512		84,339		60,745		72,730	

[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.

While the number of female users increased in 2016 to 90,687 this is still below the 112,703 women served by DPH in 2013. It is the case, however, that the total men and women family planning users in 2016 (127,068) 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%).

The remaining data in Table 5 pertain only to female family planning users. Of those with known income data, the percentage of female < 250% FPL and hence, likely eligible for P4HB was approximately 93% in 2016**.** In this year, the GFPS provided services to a fairly large percentage (~41%) uninsured female planning users, but this percentage is lower than for clientele served by DPH. Of all female planning users seen by GFPS in 2016, approximately 80% were 'at risk' of becoming pregnant; this group exclude those who are already pregnant, seeking pregnancy or abstinent.

We use only those women 'at risk' of pregnancy and with known method of contraception to discuss changes in the use of relative effectiveness of contraceptives. The percentage (23% in the 2016 GFPS) still in this unknown/not reported group data is down from 56% in the 2015 GFPS data but still much larger than in the DPH data (approximately 3%). This makes it difficult to interpret the data and, especially, to interpret changes in percentages using each type of method. Based on those with known data, the percentage reporting a Tier 1, *non-reversible* (sterilization by any method) decreased by about 3 percentage points from 2015 to 2016 while the percent using Tier 1, *reversible* methods (LARCs) increased by approximately the same amount from 15% to 18%. This leaves the estimated percentage using Tier 1 stable at 35%. The remaining 65% of women at risk of unintended pregnancy with known method used moderately effective (Tier 2) or less effective (Tier 3 & 4) methods. Among these women, it appears that GFPS clientele have reduced their use of Tier 2 methods (from 41% to approximately 37%) while increasing their use of the less effective methods. Without knowing the composition of usage among *all* female planning users 'at risk' of unintended pregnancy leaving with a contraceptive method, it is impossible to say whether or not the overall distribution shifted toward more effective methods.

In our last annual report, we noted that there was a decline in the percentage of female family planning users less than 25 years of age who were tested for chlamydia from 40% in 2014 to approximately 33% in 2015. It may be that the billing process at FQHCs is different or less detailed than the Title X process and hence, women may have actually been getting these services but it was not being recorded in the FPAR data. In the 2016 data, there is a reported increase to 37% but this 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]

V. USE OF SERVICES BY IPC WOMEN

IPC Service Use Related to Chronic Conditions

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 the content of the annual report 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 on ascertaining the types of chronic conditions for which these women are seeking and receiving care under the P4HB program and we continued this approach for PY6 data.

Table 6a. Service Utilization for Chronic Health Conditions for IPC and Resource Mother Only Participants (PY6)

Condition	Resource Mother	IPC
	N = 158	N = 466
≥ 1 Condition	92 (58.2%)	153 (32.8%)
Severe Mental Illness	20 (12.7%)	28 (6.0%)
Depression – Other	4 (2.5%)	4 (0.9%)
Depression - Major	17 (10.8%)	23 (4.9%)
Depression - Bipolar	4 (2.5%)	3 (0.6%)
Cardiovascular	38 (24.1%)	60 (12.9%)
Hypertension	36 (22.8%)	54 (11.6%)
Hyperlipidemia	8 (5.1%)	4 (0.9%)
CHF/Ischemia	5 (3.2%)	7 (1.5%)
Endocrine Disorders	30 (19.0%)	38 (8.2%)
Obesity	19 (12.0%)	32 (6.9%)
Diabetes	14 (8.9%)	5 (1.1%)
Thyroid Disorders	4 (2.5%)	3 (0.6%)
Substance Use	26 (16.5%)	38 (8.2%)
Tobacco	23 (14.6%)	32 (6.9%)
Drugs	7 (4.4%)	12 (2.6%)
Atopic and Allergic	21 (13.3%)	29 (6.2)
Asthma	14 (8.9%)	23 (4.9%)
Allergies	8 (5.1%)	7 (1.5%)
Lupus	6 (3.8%)	2 (0.4%)
Migraine/headaches	21 (13.3%)	42 (9.0%)
Anemia	20 (12.7%)	24 (5.2%)
Chronic fatigue/malaise	9 (5.7%)	5 (1.1%)
Gastrointestinal Reflux	10 (6.3%)	7 (1.5%)

The specification of services used for IPC and Resource Mother only enrolled women for PY6, as shown in Table 6a, are based on ICD-10 coding. Among the IPC component's 466 participants, the claims data indicate that 153 (32.8%) enrolled in IPC in PY6 utilized services indicative of care for a chronic condition. The most common group of chronic conditions for which IPC

enrolled women received services was for cardiovascular disorders (12.9%), particularly for hypertension (11.6%); followed by migraine headaches (9%); endocrine disorders, particularly obesity (6.9%); and substance use (8.2%), particularly tobacco use (6.9%). Care for atopic and allergic conditions was also quite common (6.2%), with utilization in this category dominated by care for asthma (4.9%), as was care for severe mental illness (6%), which was dominated by care for major depression (4.9%).

The chronic health conditions for which the Resource Mother only women were treated include the same set of conditions as observed for the IPC women but, as the data show, their rates of receiving services for chronic conditions were higher overall than for IPC women (58.2% vs. 32.8% for one or more chronic health conditions). Also, while their chronic condition service utilization followed the same pattern as for IPC women, with the most utilized services for care of chronic conditions being for cardiovascular disease (particularly hypertension), followed by endocrine disorders (particularly obesity), substance use (particularly tobacco use), and severe mental illness (particularly for major depression), utilization of services for each of these sets of chronic conditions was substantially higher than those observed for the IPC women, which may reflect the poorer health status of women covered by Georgia LIM (Low Income Medicaid) or ABD (Aged, Blind and Disabled) Medicaid and/or their better understanding of the availability of covered services for the care of their chronic health conditions. Notably, 24.1% of RM only women were treated for cardiovascular disease (vs. 12.9% of IPC women), 19% of RM only women were treated for endocrine disorders (vs. 8.2% of IPC women), 16.5% were treated for substance use (vs. 8.2% of IPC women), and 12.7% were treated for severe mental illness (vs. 6% of IPC women). Treatment for migraine headaches and anemia was also substantially higher for RM only vs. IPC women (13.3% vs. 9%, and 12.7% vs. 5.2%, respectively).

Of note, there were more women enrolled in IPC during PY6 compared to PY5 (466 vs. 378) and in the Resource Mother only component during PY6 compared to PY5 (158 vs. 125); see Table 6b for chronic condition service utilization for PY5. The proportion of women enrolled in each component who utilized services for one or more chronic health conditions during PY6 compared to PY5 was, however, largely unchanged: 32.8% vs. 36.7%, respectively, for IPC enrollees and 58.2% vs. 56.0%, respectively, for Resource Mother only enrollees. There are some differences in the rank order of the type of chronic condition services between PY5 and PY6; most notably, the leading set of chronic condition services utilized in PY5 were for severe mental illness and endocrine disorders for both IPC (both approximately 13.0%) and Resource Mother only (both approximately 22%), while utilization of services for cardiovascular conditions led in PY6. We note, however, that further analysis is needed in order to best interpret the trends in utilization of services for chronic health conditions. Specifically, in order to better understand the proportion of women with chronic health conditions who are enrolled in the IPC and Resource Mother only components of P4HB, and then evaluate the proportion of those women known to have chronic health conditions who are utilizing services for the care of those chronic health conditions during the interpregnancy period, we plan to broaden the scope of our evaluation to include using the infant birth records and prenatal care claims codes to establish the set of women with and without diagnosed chronic health conditions and examine their utilization of indicated chronic care and preventive health services during the time that they are enrolled in the program.

Table 6b. Service Utilization for Chronic Health Conditions for IPC and Resource Mother Only Participants (PY5)

Condition	Resource Mother	IPC
	N = 125	N = 378
≥ 1 Condition	70 (56.0%)	139 (36.7%)
Severe Mental Illness	28 (22.4%)	49 (13.0%)
Depression – Other	21 (16.8%)	33 (8.7%)
Depression - Major	5 (4.0%)	7 (1.9%)
Depression - Bipolar	4 (3.2%)	7 (1.9%)
Cardiovascular	25 (20.0%)	39 (10.3%)
Hypertension	24 (19.2%)	37 (9.8%)
Hyperlipidemia	5 (4.0%)	3 (0.8%)
CHF/Ischemia	1 (0.8%)	1 (0.3%)
Endocrine Disorders	28 (22.4%)	51 (13.5%)
Obesity	21 (16.8%)	37 (9.8%)
Diabetes	8 (6.4%)	8 (2.1%)
Thyroid Disorders	3 (2.4%)	9 (2.4%)
Substance Use	14 (11.2%)	48 (12.7%)
Tobacco	12 (9.6%)	43 (11.4%)
Drugs	2 (1.6%)	7 (1.9%)
Alcohol	1 (0.8%)	4 (1.1%)
Autoimmune	4 (3.2%)	3 (0.8%)
Lupus	4 (3.2%)	2 (0.5%)
Rheumatoid Arthritis	2 (1.6%)	1 (0.3%)
Neurologic	20 (16.0%)	29 (7.7%)
Migraine/headaches	19 (15.2%)	28 (7.4%)
Seizures	1 (0.8%)	3 (0.8%)
Atopic and Allergic	17 (13.6%)	15 (4.0%)
Asthma	8 (6.4%)	12 (3.2%)
Allergies	9 (7.2%)	3 (0.8%)
Anemia	23 (18.4%)	25 (6.6%)
Chronic fatigue/malaise	12 (9.6%)	5 (1.3%)
Gastrointestinal Reflux	8 (6.4%)	8 (2.1%)

Access to health care before and between pregnancies is recognized as crucial for improving US birth outcomes[3-4], and is recognized as especially important for women with chronic health conditions[5] and for women with prior adverse birth outcomes[6]. 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[7], 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 an 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.[8]

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. The mechanism through which this would occur was an anticipated lowering of the percentage of all Medicaid births that are LBW and VLBW. In turn, the state anticipated an increase in the use of family planning services as well as the management of contraceptive use and health conditions that affect reproductive outcomes, which would help lengthen the interpregnancy intervals of P4HB enrolled women. Additionally, the treatment of acute and the management of chronic conditions of women enrolled in the IPC component would lead to better health of the women, and in turn better birth outcomes.

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.[9] The estimated fertility rate was 160 per 1,000 for the fifth program year; we use this 'expected' fertility rate for this sixth program year since the state is awaiting renewal of P4HB. If this rate is applied to all women enrolled in the FP only and the IPC/RM program components at the end of PY5 (11,433 from Table 1) and hence, at risk of a delivery in PY6, the number of expected births is 1,829 in PY6 as shown below.

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

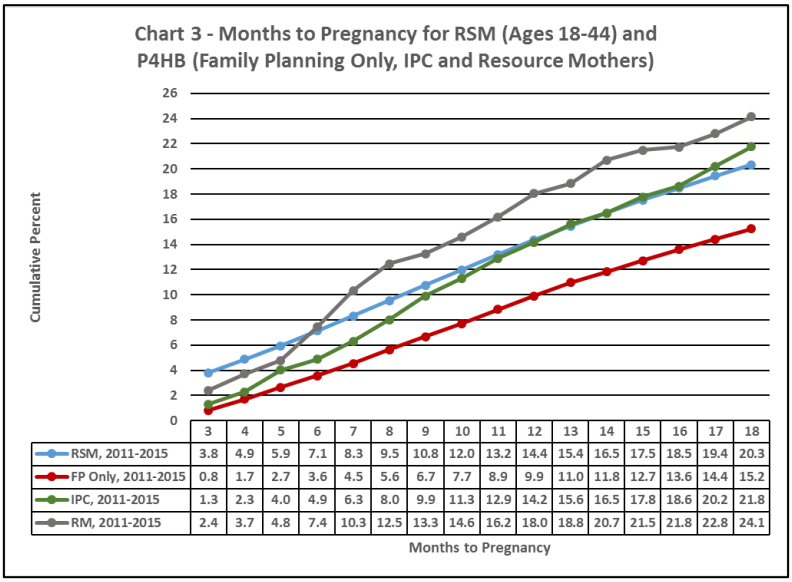
Number of 'Expected' Births Among Participants[1]	Number of Deliveries/Live Births in 2016 to Participants[2]	Number of 'Averted' Births
1,829	471	1,358

[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 2016 for women enrolled in Demonstration at the end of 2015, 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 2016, would be 575.

The above estimates indicate that the number of actual births in PY6 to P4HB participants (471) enrolled at the end of 2015 is less than that expected and the number of 'averted births' is 1,358. 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. This would be a pregnancy within an appropriate interpregnancy interval and means the number of 'averted' births could be under counted in the above calculations. The positive number of averted births in Table 7, while smaller

than in earlier years, still 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. In this PY6 annual report, we continue to examine the outcomes of pregnancy or delivery among P4HB women after they enroll in the waiver program. 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 (pregnancy) as shown in Chart 3.



	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
RSM, 2011-2015	3.8	4.9	5.9	7.1	8.3	9.5	10.8	12.0	13.2	14.4	15.4	16.5	17.5	18.5	19.4	20.3
FP Only, 2011-2015	0.8	1.7	2.7	3.6	4.5	5.6	6.7	7.7	8.9	9.9	11.0	11.8	12.7	13.6	14.4	15.2
IPC, 2011-2015	1.3	2.3	4.0	4.9	6.3	8.0	9.9	11.3	12.9	14.2	15.6	16.5	17.8	18.6	20.2	21.8
RM, 2011-2015	2.4	3.7	4.8	7.4	10.3	12.5	13.3	14.6	16.2	18.0	18.8	20.7	21.5	21.8	22.8	24.1

This chart shows 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 2011-2015 cohorts of P4HB FP only enrollees and for comparison purposes, we chart the same outcome for RSM women with an index birth in 2011-2015, regardless of their infants' birthweights and who were never enrolled in the P4HB program. The data in Chart 3 indicate that the percentage of women for whom we observe a pregnancy is consistently lower for the women enrolled in the FP only component than the RSM women. By the eighteenth month following their initial month of enrollment into the FP only component of P4HB, 15% of enrollees had evidence of a pregnancy compared to 20% of RSM women who qualified for, but did not enroll in, the P4HB program. These data are suggestive of P4HB's success in delaying a new or repeat pregnancy among eligible and participating women compared to women in the same income

range, eligible for the P4HB program, but not participating. We note that the percentage of FP only enrollees with repeat pregnancies is lower at 6 months (approximately 4% compared to 7%) and at 12 months (approximately 10% compared to 14%), both of which represent very short interpregnancy intervals.

We also show in Chart 3, the cumulative percentage of IPC and RM only enrolled women with a new pregnancy by month since their enrollment. Both of these groups had delivered a VLBW infant just before their enrollment into P4HB. As the data shows, they are more likely to have a repeat pregnancy than all RSM women with any infant birthweight outcome. The percentage with a repeat pregnancy is generally higher among the RM only group than the IPC group especially by the sixth month. By the end of the 18th month, the cumulative percentage of RM and IPC women with a repeat pregnancy is close but still higher for RM (24%) than for the IPC enrolled women (22%). While this indicates that the majority (76%) of these two groups avoided a repeat pregnancy [paid by Medicaid] for at least 18 months, a sizeable percentage of these two groups (14% to 18%) did have a repeat pregnancy within a short period (12 months or less).

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. To evaluate the effect of the P4HB program on the IPC participants, we compared their outcomes to a group of women who were eligible for IPC but not participating, namely, RSM women with an index birth of a VLBW infant between 2011-2015 as they would have qualified for the IPC component of P4HB but chose not to participate. In Table 8, we show the percentages of women in the 2011-2015 IPC enrollee cohort and the RSM comparison cohort with a repeat pregnancy within six, twelve and eighteen months' post-enrollment. Among the 2011-2015 IPC

enrollee cohort, a significantly smaller percentage experienced a repeat pregnancy within six months (4.9% vs. 10.4%) and twelve months (14.2% vs. 18.9%) of their index VLBW delivery compared to women in the RSM comparison cohort. However, by 18 months after the index VLBW delivery, there was no longer a statistically significant difference between the two cohorts when approximately 22% of the 2011-2015 IPC enrollee cohort vs. approximately 25% for the RSM comparison cohort had a repeat pregnancy.

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 2011-2015 N = 698	RSM – VLBW 2011-2015 N =3,015
Pregnant within 6 months	34 (4.9%)	314 (10.4%) ^^^
Pregnant within 12 months	99 (14.2%)	571 (18.9%) ^^^
Pregnant within 18 months	152 (21.8%)	759 (25.2%)^
	N 605*	**N = 2,706***
Delivery within 18 months	74 (12.2%)	456 (16.9%)^^^
Fetal Deaths	6 (1.0%)	54 (2.0%)
Still Births	5 (0.8%)	23 (0.8%)
Very Low Birth Weight (<1500 g)	9 (1.5%)	33 (1.2%)
Low Birth Weight (1500-2499 g)	13 (2.1%)	84 (3.1%)
Normal Weight (≥2500 g)	38 (6.3%)	234 (8.6%)
Unknown Weight	3 (0.5%)	28 (1.0%)
Adverse Outcomes**	33 (5.5%)	194 (7.2%)

IPC and RSM-VLBW index deliveries through 06/30/2015 **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 gestations, 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 above data show that the proportion of women experiencing a delivery within 18 months of their index VLBW delivery was statistically significantly lower for the IPC enrollee cohort compared to the RSM comparison cohort (12.2% vs. 16.9%). While there was not a significant difference in the proportion of those deliveries ending in an adverse birth outcome (fetal death, stillbirth, very low or low birth weight delivery), the percent with adverse outcomes (5.5%) for the IPC enrollees was markedly lower than for the RSM women with an index VLBW infant (7.2%).

Next, we used regression analysis to assess the difference in the: 1) probability of a repeat pregnancy within 18 months; and 2) the probability of a delivery within 18 months among IPC women and RSM women with a VLBW infant. In this analysis, 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 shown in Table 9 indicate that participation in the IPC component of the P4HB program is associated with a reduced probability (9.4 percentage points) of a repeat pregnancy within 18 months of an index VLBW delivery. In turn, P4HB program participation is associated with a reduced probability of repeat delivery within 18 months of 6.9 percentage points. We note that there are likely unobserved characteristics of the women with a VLBW infant that affect their decision to participate in IPC that may also affect these outcomes and hence, it is hard to imply causality from these findings.

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	-9.4^^^
Repeat Delivery within 18 Months after Index Delivery	-6.9^^^

^ *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.

Repeat pregnancy within 18 months' regressions include IPC participants through 12/31/2015.

Repeat delivery within 18 months' regressions include IPC participants through 06/30/2015.

VII. EFFECTS OF THE P4HB PROGRAM ON GOALS

When the P4HB program was implemented, the Emory team proposed to work with the state in the evaluation of the P4HB program by obtaining and linking data to enable the state to assess changes in the performance measures noted earlier. The state hypothesized that the P4HB 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. Because the P4HB program is targeted at the income range of women who would qualify for Medicaid 'if' they become pregnant, we hypothesized that this increased use of contraceptives should lead to reduced unintended pregnancies and in turn, unintended births among the RSM eligible group of women in Georgia (as well as improved inter-pregnancy intervals). Since teens are at high risk of unintended pregnancy, a related hypothesis was that the rate of unintended births and repeat teen births would also fall post P4HB. An overall improvement in the use of family planning services and the outcomes noted could also occur among all Medicaid women if there were 'spillover' effects on the LIM and disabled women in Medicaid and perhaps, to younger teens (<18 years) in Medicaid.

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 use PRAMS data on measures that cannot be measured based on claims data,

such as an unintended live birth. We first report on these analyses and then, on measures of program outcomes based on linked claims and vital records data.

PRAMS Analysis of Outcomes

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 a number of 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 10 we show the means for each of the dependent variables for the sample of women uninsured pre-pregnancy but insured through Medicaid 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 [uninsured pre-pregnancy but insured through Medicaid at delivery] 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 Georgia with 72% of women reporting this in the post period compared to a decline in the control states to 60%.

Table 10. 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 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 11. 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 11 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.

Claims/Vital Records Analyses of Outcomes

We have updated our prior analysis of the linked claims and vital records data to include data on births from 2016, the sixth program year. Descriptive data on the outcomes for 2009/2010, 2012/2013, 2014/2016 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 12. 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 in order to identify women expected to have incomes more comparable to the RSM and other Medicaid insured women (< 200% FPL).

We note that the analysis includes two 'post P4HB' time periods: 2012-2013 before the ACA and 2014-2016 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 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 number of VLBW infants being included in the analytic sample.

These data were used to assess 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 15 indicate that between 2009/2010 and 2014/2016, 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. 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 0.8 of a 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 among privately insured declined very slightly, there was a decline of 7.6 percentage points (25.9% to 18.3%) among the Medicaid insured.

There were also declines in maternal smoking and very short interpregnancy intervals for both the private and Medicaid groups 2009-2010 to 2014-2016. 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, low birth weight and very low birth weight 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 2014/2016 time period for the Medicaid insured women.

Overall Patterns

Table 12. 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**	**2014/2016**	**2009/2010**	**2012/2013**	**2014/2016**
Age at First Birth[1]	27.1	26.8	27.1	22.9	23.2	23.7
Age 18-19 at First Birth[1]	6.5%	7.6%	6.2%	25.9%	21.3%	18.3%
Teen Birth[2]	2.8%	3.3%	2.7%	13.1%	10.0%	8.3%
Repeat Birth[3]	64.9%	65.4%	61.8%	62.3%	63.4%	64.2%
MaternalSmoking[4]	4.6%	3.9%	3.9%	10.0%	9.1%	8.8%
Interpregnancy Interval ≤ 6 months[5]	6.0%	5.9%	5.7%	12.8%	10.9%	11.3%
Interpregnancy Interval ≤ 12 months[5]	16.6%	15.8%	15.5%	27.2%	23.6%	24.1%
Interpregnancy Interval ≤ 18 months[5]	28.1%	26.1%	25.9%	39.8%	35.4%	35.6%
Birth Outcome						
Preterm (<37 weeks)[6]	9.8%	9.2%	8.2%	11.6%	11.5%	10.1%
Low Birth Weight (< 2500 grams)[7]	6.9%	6.2%	5.9%	8.9%	8.9%	9.3%
Very Low Birth Weight (< 1500 grams)[8]	1.5%	1.1%	1.1%	1.6%	1.6%	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.*

Regression Analysis of Medicaid Compared to Sample of Private Insured

The descriptive data provide some insight on the expected changes pre and post the P4HB program but changes in the overall distribution of income, levels of employment, etc. will lead to changes in the numbers of women in need of and qualifying for Medicaid paid services. In order to control for some of the secular changes that may affect the fertility and birth outcomes of both the Medicaid and comparison group of women, we used data pre and post-P4HB to test whether there were differences in the changes seen pre- versus post-P4HB for the two groups. Such a quasi-experimental design enables a more rigorous examination of the causal impacts of P4HB.

Specifically, we used a pre/post (0/1) indicator, a Medicaid/private insured indicator (0/1), and interacted these two indicators (pre/post times Medicaid/private insured) to test for differences in the changes pre and post P4HB. We controlled for other factors (age group, race/ethnicity, marital status, mother's education, mother's tobacco use, month of birth and the percent poverty level of their census tract) in all equations. First birth (0/1) was included when analyzing the infant outcomes and we included only singletons in the regression analysis. The results shown in Table 13 reflect the two post-P4HB time periods: 2012-2013 before the ACA and 2014-2016 after the ACA. As in the PRAMS analysis, we omit data from the transitional year (2011).

The estimated effects shown in Table 13 can be interpreted as the change in the probability of the outcomes (with the exception of 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 $p < .05$.

Table 13. Estimated Effects of P4HB Implementation on Targeted Maternal Health and Birth Outcomes, * All Live Births

	Ages 18-44		**Ages <18**		**Ages 18-19**		**Ages 18-24**	
Maternal Health Outcomes								
	Post12_13* RSM	Post14_16* RSM	Post12_13* RSM	Post14_16* RSM	Post12_13* RSM	Post14_16* RSM	Post12_13* RSM	Post14_16* RSM
Age at First Birth[1]	.52^^^	.72^^^	--	--	--	--	--	--
Age 18-19 at First Birth[1]	-2.01^^^	-1.91^^^	--	--	--	--	--	--
Teen Birth[2]	-.69^^^	-.66^^^	--	--	--	--	--	--
Repeat Birth[3]	-1.39^	2.59^^^	-6.04^	1.06	-2.29	3.02	-2.43^	2.20
MaternalSmoking[4]	-.10	.24	--	--	.80	-1.15	.27	.21
Interpregnancy Interval ≤ 6 months[5]	-1.10^^	-.23	--	--	.92	-13.33	.24	-1.38
Interpregnancy Interval ≤ 12 months[5]	-1.49^	.08	--	--	5.86	-.21	-.80	-1.47

Interpregnancy Interval ≤ 18 months[5]	-.89	.57	--	--	5.55	-.35	.88	-2.67
Birth Outcomes (Live born infants)								
Preterm (<37 weeks)[6]	.27	-.11	-2.03	.43	1.77	-1.36	1.41	.43
Low Birth Weight (< 2500 grams)[7]	.45	1.27^^^	-6.59	.43	2.52	3.05	1.19	1.62^^
Very Low Birth Weight (< 1500 grams)[8]	.23	.35^^	-4.47	-1.20	.58	.89	.40	.30

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

(With the exception of age at first birth, estimated effects from logistic models are multiplied by 100 to provide percentage point changes in the dependent variable.) *All outcomes are measured using linked Medicaid and vital records data. ◊ Insufficient sample size in control group.[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 inter-birth 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.

We found significant: 1) increases in the age at first birth; 2) reductions in first births at ages 18-19; 3) reductions in teen births; and 4) reductions in very short interpregnancy (<6 months) intervals. 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 post period and the effect is larger in the 2014-2016 post P4HB period. The results indicate a reduction of approximately two percentage points in the likelihood of a first birth at ages 18-19 and in addition, almost a 0.7 percentage point reduction in births to teens less than age 18. The probability of a interpregnancy interval < six months for the Medicaid versus low-income private insured sample was lower by 1.1 percentage points in the 2012-2013 post versus pre-P4HB period.

The results on repeat (second-order) births are only significant at $p < .10$ 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; this holds for teens < 18 and those ages 18-24 as well. However, in the second post-P4HB period, these effects are actually positive and

significant at p<.05 for all women 18-44. These results indicate there that the ACA mandate and the implementation of the Marketplace exchange in Georgia may be associated with a change in the composition of the Medicaid and/or comparison groups that 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 post P4HB period; this effect holds only for the 18-24 age group. It may be that the evaluation of the P4HB program should be done only using 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 as we move toward a manuscript based on these analyses.

Thus, while the combined PRAMS and vital records/clams 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 find evidence that the P4HB program had any effects on birth outcomes as was intended.

VIII.MEDICAID PAID BIRTHS IN 2016

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 in order 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 2016 equaled 76,454.

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 2.1% in 2016. A larger increase is seen in the percentage of LBW infants, climbing from 8.3% in 2009 to 9.0% in 2016.

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 $326 million and the average costs per mother was $4,453. The total costs for the 76,454 infants (including stillborn) delivered to Medicaid enrolled women in 2016 was approximately $327 million, leading to a total maternal and infant cost of approximately $653 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 $77,096 in CY 2016, compared to the costs for an infant of normal birthweight, which equaled $1,923 in CY 2016.

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 2016 averaged $10,862 and totaled nearly $19 million. The average costs for VLBW infants is markedly lower (23%) than the average in CY 2015 ($14,119). The difference appears to be driven by the very large costs of care for a few VLBW infants in CY 2015 since the median is not that different between the two years.

In comparison, the average costs to Medicaid for the first year of life for a normal birth weight infant in CY 2016 was $2,669. The bulk of the total cost for all infants in their first year is for these infants of normal weight, at $185 million, with a total cost for all infants of $236 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 annual report pertain largely to the sixth year of the P4HB Demonstration and measures based on linked Medicaid and vital records data. In this, as in the PY5 Annual Report, we include analysis of the effects of the P4HB based on the Pregnancy Risk Assessment Monitoring System (PRAMS) data and linked claims/vital records using the quasi-experimental design originally proposed to CMS. These analyses are based on five years of data after the implementation of the P4HB program and hence, provide significant information regarding the success of the program on its stated goals. 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 to move the program closer to its intended goals.

Conclusions. Overall, the progress on key P4HB goals and related program objectives is mixed. While the combined PRAMS and vital records/clams 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, there is little evidence to indicate that the P4HB program has yet had any effects on infant birth outcomes. As noted above, the descriptive data on low and very low birth weight indicate an upward trend and the analysis based on the quasi-experimental design showed no significant effects

While the P4HB initially enrolled a significant portion of eligible women in the community, enrollment dropped significantly when the auto-enrollment process ended and, more currently, other options for obtaining insurance have perhaps moved some near-poor women onto the Marketplace exchange. Access to and use of family planning and contraceptive services has also been an issue. As the current reports notes, the use of any family planning services and in particular, the use of the more effective contraceptive methods has not increased substantially, although patterns were affected by the lower use rates seen among the auto-enrolled.

Yet, once women are enrolled in the FP only or IPC components of the P4HB, they are less likely to have pregnancies or deliveries than comparison groups of RSM women followed over the same time period. This would suggest that enrolling and retaining larger numbers of women in the P4HB may be key to moving the program closer to its intended goals.

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 can be noted:

- 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 related to the required re-certification of program eligibility that occurs at that point for the continuation of enrollment and benefits;
- Limited understanding of the program itself – including the enrollment process and the program's eligibility criteria and covered services – by women and their providers;
- Limited marketing or large-scale outreach to eligible women about P4HB and the enrollment process.
- Lack of focus on how the FP only and IPC components must work together to decrease the probability of a VLBW infant outcome through reducing teen and unintended pregnancies, lengthening interpregnancy intervals, as well as by reducing the risk of a repeat VLBW delivery through interpregnancy care.
- Little improvement in use of family planning services in general and, importantly, little to no improvement in the use of the most effective contraceptive methods;
- Disruption of the Title X provider system and initial declines in female family planning users that limited the ability of P4HB to reach the broader community of eligible women;

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. The leading chronic health conditions for which IPC and Resource Mother women utilized services were for cardiovascular disorders, particularly for hypertension; followed by migraine headaches; endocrine disorders, particularly obesity; and substance use, particularly tobacco use.

As described previously, but which is deserving of further emphasis, in order to better understand the proportion of women with chronic health conditions who are enrolled in the IPC and Resource Mother only components of P4HB, and then evaluate the proportion of those women known to have chronic health conditions who are utilizing services for the care of those chronic health conditions during the interpregnancy period, we plan to broaden the scope of our evaluation to include using the infant birth records and prenatal care claims codes to establish the set of women with and without diagnosed chronic health conditions and examine their utilization of indicated chronic care and preventive health services during the time that they are enrolled in the program. This more refined analysis of the set of women with chronic health conditions who deliver a VLBW infant and are enrolled in the IPC and Resource Mother only components will allow for us to examine for another threat to success—the possible lack of coordination between 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.

As reported in prior years, while there have been numerous efforts throughout the state to make women and providers aware of the P4HB program, and despite these efforts the percentage of women eligible who actually enrolled in the program has consistently fallen well below the expected numbers. While uninsured women in the income range targeted by the P4HB program has declined in Georgia, a large number remain uninsured in 2016 and it is likely that many of them would qualify for and benefit from the P4HB program. On a positive note, the implementation of Georgia Gateway, the systematic approach to one-stop enrollment for public system, was fully implemented during 2017, offering promise that more of these uninsured, eligible women will be systematically brought into P4HB.

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 200% FPL who remain uninsured. Even as 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. It continues to be important for DCH to work with all providers, including the GFPS providers, to inform women of the program and to enroll and retain more of the eligible women in the community into the program.

Specific recommendations are as follows:

1. 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. Regarding the latter, the CMOs and their network of

providers should help women be aware of 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.

2. Continue to enhance education and outreach to Medicaid participating providers 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). Additionally, such communication 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. Medicaid providers should also be encouraged to discuss the availability of post-partum LARC insertion with their pregnant patients.
3. In order 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.
4. Initiate another round of outreach to the neonatal intensive care units, particularly the Regional Perinatal Centers, throughout Georgia in which the VLBW infants are cared for in order to inform the social workers, nurse case managers, and physicians of the availability of the IPC component 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.

5. Monitor the means by and intensity with which the Resource Mothers of the three 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.
6. Given the growing enrollment of Resource Mother only participants and their higher use of services for chronic conditions, ensure that the CMOs are reaching out to them in the same manner as women in the IPC component regarding the use of effective family planning services as well as the use of services to manage any chronic conditions they may have. Preventive and other services to address their chronic conditions are important in maintaining their health and improving subsequent pregnancy outcomes.
7. Continue to partner with DPH, the GFPS, obstetrical care providers and delivery hospitals to engage them in enrolling women, within the target population, into the P4HB program.
8. 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 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.
9. 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 that are actually being enrolled into the program.

10. 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.
11. Assess the effects of the changes in reimbursement for LARC insertion immediately postpartum made by the state of Georgia and fully effective beginning in 2016.

References

1. Dunlop AL, Adams EK, Hawley J, Blake SC, Joski P. Georgia's Medicaid family planning waiver: Working together with title x to enhance access to and use of contraceptive and preventive health services. Women's Health Issues. 2016 Dec 31;26(6):602-11.

2. Screening for chlamydial infection: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2007;147(2):128-134.

3. American College of Obstetricians and Gynecologists. The importance of preconception care in the continuum of women's health care (ACOG Committee Opinion No. 313). Obstetrics & Gynecology 2005; 106: 665-666.

4. Atrach H, Johnson K. Adams MM, Cordero JF, Howse J. Preconception care for improving perinatal outcomes: the time to act. Maternal Child Health Journal 2006; 10 (Supp 5): 3-11.

5. Lu M, Kotelchuck M, Culhange JF, Hobel CJ, Klerman LV, Thorp JM. Preconception care between pregnancies: The content of internatal care. Maternal Child Health Journal 2006; 10 (Supp 7): 107-22.

6. Johnson, K., Posner, S.F., Biermann, J. et al. CDC/ATSDR Preconception Care Work Group; Select Panel on Preconception Care. Recommendations to improve preconception health and health care—United States. A report of the CDC/ATSDR Preconception Care Work Group and the Select Panel on Preconception Care. *MMWR Recomm Rep*. 2006; 55: 1–23

7. Adams MM, Elam-Evans LD, Wilson HG, Gilbertz DA. Rates of and factors associated with recurrence of preterm delivery. JAMA. 2000; 283:1591–6.

8. Floyd RL, jack BW, Cefalo R, Atrash H. Mahoney J, Herron A, Husten C, Sokol RJ. The clinical content of preconception care: alcohol, tobacco, and illicit drug exposures, American Journal of Obstetrics and Gynecology 2008; 31: 199 (6): S333-9.

9. Department of Community Health (DCH). (2011) Planning for Healthy Babies Concept Paper. Available at. http://dch.georgia.gov/sites/dch.georgia.gov/files/imported/vgn/images/portal/cit_1210/33/52/156793595PlanningforHealthyBabiesProgram121709Final.pdf

APPENDIX A

DATA ON DELIVERIES AND INFANTS

In this Appendix, we continue to provide data on all deliveries and births in CY 2016 as part of the annual reporting process. We also report on birth outcomes for the full pre and post period of P4HB for which we now have complete claims data and the subset 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 data. To this end, we provide a brief 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 (2009-2016)

	2009		2010		2011		2012	
Weight Category	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
VLBW	1,718	2.0	1,650	2.0	1,506	2.0	1,612	2.0
LBW	4,679	5.5	4,547	5.6	4,210	5.6	4,672	5.9
Normal BW	78,890	92.4	75,187	92.3	69,331	92.3	73,255	92.0
Stillbirth	83	0.1	79	0.1	40	0.1	50	0.1
Total	85,370		81,463		75,087		79,589	

	2013		2014		2015		2016	
Weight Category	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
VLBW	1,716	2.2	1,616	2.1	1,695	2.2	1,716	2.2
LBW	4,737	6.0	5,098	6.5	5,146	6.6	5,522	7.2
Normal BW	72,186	91.7	71,214	91.3	70,893	91.2	69,215	90.5
Stillbirth	42	0.1	38	0.1	34	0.0	1	0
Total	78,681		77,966		77,768		76,454	

Table A.2 Birth Weight Distribution from Claims versus Vital Records (2009-2016)

	2009		2010		2011		2012	
	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%
LBW	8.3%	5.4%	8.5%	5.5%	8.2%	5.5%	8.4%	5.8%
NORMAL BW	89.8%	92.6%	89.6%	92.5%	90.0%	92.5%	89.8%	92.2%
Link Rate	89.0%		89.1%		82.2%		90.5%	

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

	2013		2014		2015		2016	
	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%	2.0%	2.1%	2.1%	2.2%
LBW	8.4%	5.9%	8.7%	6.3%	8.7%	6.5%	9.0%	7.1%
NORMAL BW	89.6%	92.0%	89.3%	91.6%	89.3%	91.4%	88.9%	90.7%
Link Rate	91.4%		91.5%		92.3%		92.5%	

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 total number of such deliveries/births is virtually the same in CY 2016 (1,716) as in CY 2009 (1,718). 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 2016 study period.

In prior years, we have also reported on the counts of stillborn deliveries, fetal deaths and total and average costs of deliveries paid by Medicaid. The data are shown for CY 2016 in Table A.3. The number of total deliveries (73,245) is down slightly from the total number in CY 2015 (73,532) but it is comprised of fewer liveborn deliveries (64,794 versus 65,319), fewer stillborn deliveries

(649 versus 853) but more fetal deaths (7,802 versus 7,360) than in CY 2015. The average dollars paid for a mother at delivery were slightly lower overall in CY 2016 ($4,453) compared to CY 2015 ($4,754)

Table A.3 Medicaid Deliveries for Calendar Year 2016 (CY2016)

MEASURE	Counts	Total $ Paid Mother	Average $ Paid Mother
All Medicaid Deliveries[1]			
Total Deliveries[2]	73,245	326,161,863	4,453
Liveborn deliveries	64,794	317,012,582	4,893
Stillborn deliveries (>= 22 weeks)[1]	649	2,621,367	4,049
Fetal deaths < 22 weeks[1]	7,802	6,527,914	837
Deliveries[1] to Demonstration			
Entire Demonstration population[6]			
Total Deliveries	4,790	22,042,229	4,602
Liveborn deliveries	4,223	21,439,867	5,077
Stillborn deliveries (>= 22 weeks)[1]	47	196,859	4,188
Fetal deaths < 22 weeks[1]	520	405,503	780
FP only[3]			
Liveborn deliveries	4,148	21,015,489	5,066
Stillborn deliveries (>= 22 weeks)[1]	44	181,669	4,129
Fetal deaths < 22 weeks[1]	507	391,922	773
IPC [4]			
Liveborn deliveries	51	291,716	5,720
Stillborn deliveries (>= 22 weeks)[1]	2	7,500	3,750
Fetal deaths < 22 weeks[1]	9	9,486	1,054
Resource Mother only[5]			
Liveborn deliveries	24	132,663	5,528
Stillborn deliveries (>= 22 weeks)[1]	1	7,689	7,689
Fetal deaths < 22 weeks[1]	4	4,095	1,024

[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 gestations, 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 2016

In Table A.4, we present data on the costs at delivery for the 76,453 live births in CY 2016. The costs of infants' delivery hospitalization are down only slightly ($4,277 compared to $4,302) from last year while the costs of a VLBW infant is up by approximately 14% ($77,096 compared to $67,609).

Table A.4 Infant Counts and Costs for Mother and Infant at the Delivery Hospitalization Calendar Year 2016 (CY2016)

MEASURE	Counts	Average $ Paid Mother[3]	Total $ Paid Infant Delivery Hospitalization	Average $ Paid Infant Delivery Hospitalization
All Medicaid Live births [1]	76,453	5,045	326,963,439	4,277
VLBW	1,716	6,141	132,296,345	77,096
LBW	5,522	5,463	61,579,938	11,152
Normal BW	69,215	4,993	133,087,156	1,923
All Medicaid Stillbirths[2]	1	*	2,146	2,146

[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 = 53,954) 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.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 $233 million and averaged $2,956 for all infants but $12,125 for infants born VLBW. This is a decrease from the average for CY 2015 ($15,628) which appeared to be driven by a few, more expensive babies last year.

T**able A.5 Infant Costs during First Year of Life (Post-Delivery Hospitalization) for Medicaid Live Births**

MEASURE	Infants[1] Born on Medicaid in First 6 Months of CY2016	1st Year of Life Post-Delivery Hospitalization			
		Average $ Paid per Infants[2]Born in First 6 Months of CY2016[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	36,244	3,018	235,915,173 18,639,192	233,370,808 20,806,500	2,956
VLBW	569	10,862	32,541,146	31,359,438	12,125
LBW	2,479	5,893	184,734,835	181,204,870	5,679
Normal BW	33,196	2,669			2,618

[1] The *36,708 liveborn infants born in the first six months of CY2016 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 CY2016 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 CY2016 were complete through June of 2016; 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 2016 (and based on claims paid only through June 2017). We used the average costs for this cohort of infants born in the first part of 2016 (n = 36,244) to extrapolate to an annual estimate for CY 2016.*

[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. Budget Neutrality Worksheet for Federal Costs in CY 2015

Georgia's P4HB Budget Neutrality Worksheet for: FEDERAL COST CY 2015						
		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	34,611	35,136	34,802	34,657	139,206
FMAP rates (multivits, immunizations, admin., etc)	IPC Enrollee Member Months	787	876	801	754	3,218
	PMPM for FP Members FP related Services	$23.17	$23.17	$23.17	$23.20	$23.17
	PMPM for IPC Members FP related Services	$33.64	$33.64	$33.64	$33.64	$33.64
	Total	$ 828,242	$ 843,398	$ 833,138	$ 829,337	$ 3,334,120
First Year Infant Costs for VLBW Babies < 1,500 grams (all Medicaid paid births)	Estimated Persons					2,117
	Cost per Person	$ 65,080	$ 56,142	$ 48,400	$ 53,220	$ 55,710.56
	Total	$ -	$ -	$ -	$ -	$ 117,939,246
First Year Infant Costs for LBW Babies 1,500 to 2,499 grams (all Medicaid paid births)	Estimated Persons					$ 5,768
	Cost per Person	$ 10,530	$ 9,737	$ 8,365	$ 8,723	$ 9,338.79
	Total	$ -	$ -	$ -	$ -	$ 53,866,155
TOTAL WITHOUT- DEMONSTRATION COSTS		**$ 828,242**	**$ 843,398**	**$ 833,138**	**$ 829,337**	**$ 175,139,521**
WITH DEMONSTRATION - IPC SERVICES excl. Resource Mothers Only Participants Only						
Interpregnancy Care Services at the FMAP rate	Member Months	787	876	801	754	3,218
	PMPM	$ 122.89	$ 122.89	$ 122.89	$ 124.01	$ 123.17
	Total	$ 96,713	$ 107,650	$ 98,434	$ 93,502	$ 396,299
First Year Infant Costs VLBW Infants < 1,500 grams (all Medicaid paid births adjusted for effect of IPC services)	Persons	357	415	411	429	1,612
	Cost per Person	$ 65,080	$ 56,142	$ 48,400	$ 53,220	$ 55,710.56
	Total	$ 23,233,562	$ 23,299,003	$19,892,440	$ 22,831,356	$ 89,256,360
First Year Infant Costs for LBW Babies 1,500 to 2,499 grams (all Medicaid paid births adjusted for effect of IPC Services)	Persons	1,562	1,572	1,809	1,804	6,747
	Cost per Person	$ 10,530	$ 9,737	$ 8,365	$ 8,723	$ 9,338.79
	Total	$ 16,447,123	$ 15,307,320	$15,132,085	$ 15,736,783	$ 62,623,310
First Year Infant Costs for Normal Weight > 2,500 grams only for women who participated in the IPC	Persons	7	10	7	5	29
	Cost per Person	$ 8,254	$ 3,258	$ 3,006	$ 1,778	$ 4,074.40
	Total	$ 57,781	$ 32,583	$ 21,045	$ 8,892	$ 120,301
TOTAL WITH DEMONSTRATION COSTS		**$ 39,835,179**	**$ 38,746,556**	**$35,144,003**	**$ 38,670,533**	$152,396,271
DIFFERENCE						**$ 22,743,250**

Budget Neutrality. The budget neutrality requirement for Georgia's P4HB program, 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 we are 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 PY6 report, we provide data on the fourth year of the Demonstration, using the claims for CY 2016 to give us a full estimate of the first year of life costs for infants born in 2015. 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 1,612 VLBW infants and 6,747 LBW infants born under Medicaid coverage in CY 2015. The average costs for the delivery and first year of life for infants across the four quarters in PY5 for the two categories of birth weight were $55,711 and $9,339 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 $175 million. To calculate the effects of the Demonstration, we subtract from this

total, the costs of the IPC per member per month payments, the 2015 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 $152 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 2015. 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.