Evaluation of Medicaid Medical Homes for Pregnant Women in Southeast Wisconsin

Final Report

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Executive Summary

This study evaluates a pilot program, launched by the Wisconsin Department of Health Services (DHS) in January 2011, which enrolls high-risk pregnant women in Southeast Wisconsin into a medical home model. The intervention is characterized by more intensive service than standard prenatal care, including comprehensive assessments, care coordination, home visiting, and other non-clinical supports. Clinics agreeing to serve as medical homes and participate in the pilot initiative receive additional payments (above the Medicaid payments for prenatal care and delivery) as well as a bonus payment for positive birth outcomes as defined by DHS.

Research Goal: To determine if the medical home model is effective in improving birth outcomes among BadgerCare Plus (Medicaid)-enrolled high-risk women in Southeast Wisconsin.

Objectives/Specific Aims

1. Measure participating clinics against: a) their individual benchmark measures for the process of prenatal and postpartum care, b) fidelity of implementing the contractual parameters and other attributes of the medical home pilots, and c) how the clinic intervention differs from pre-program standard care.
2. Conduct a pre-post impact analysis employing a concurrent control group to estimate the program's effects on birth outcomes for patients who receive health care from clinics participating in the pilot intervention

Intervention Design: DHS, in its 2011-2013 contracts with health maintenance organizations (HMOs) for the provision of health services in Southeast Wisconsin, included a requirement that they implement a medical home pilot program for high-risk pregnant women in targeted zip codes and / or with certain chronic conditions in Kenosha, Milwaukee, and Racine Counties. Four HMOs were awarded contracts; one HMO withdrew from the market in November 2012, leaving three participating HMOs. Fourteen clinics or clinic groups that provide obstetric services agreed to serve as pilot program sites, with a plan to enroll a minimum of 2,400 women over three years, January 2011 through December 2013. BadgerCare Plus pays participating providers a $1,000 bonus for every member meeting enrollment criteria for the medical home pilot and an additional $1,000 for a positive birth outcome. These payments add to the regular Medicaid payments for pregnancy care, including prenatal care and delivery.

Research Methods: The study tracks birth outcomes of patients who receive prenatal care from clinics participating in the medical home pilot pre-period (2009-2010) and post-implementation period (2011-2013), and associates the resulting pre-post comparison to an analogous calculation for patients in the target zip codes who receive care in non-pilot clinics.

The statistical analysis included 18,547 women in the target zip codes during the study period 2009-2013, who were divided across treatment and comparison groups. The empirical design was an intent-to-treat, differences- in-difference analysis, in which the intervention effect is calculated by comparing the difference in the trends in outcomes across the treatment and comparison groups. This design is among the strongest available observational designs with respect to estimating unbiased impact estimates. Qualitative methods, including site visits and interviews, provide context, explanatory narrative, and clinic-specific information regarding intervention dosage.

***Use of Interim Findings*:** The evaluators reviewed a preliminary report with DHS leadership and the DHS OBMH team on December 2, 2013. That report provided an in-progress view of the OBMH initiative, and provided interim data from two components of the evaluation: 1) statistical analysis of process measures pertaining to prenatal care, and 2) qualitative reports from site visits to 15 participating clinics and three HMOs. However, there had not yet been enough completed pregnancies and deliveries to report statistically sound data on birth outcomes.

Those data were preliminary, reported sooner than mid-way through the data collection period. With those limits, that report focused more on the qualitative findings from the site visits, identifying strengths and weaknesses and considering recommendations.

DHS staff at that time stated that they were aware of many of the identified issues and had worked over the past two years to address them in a timely manner. Staff reported the use of rapid cycle evaluation as an integral component of the OBMH pilot initiative since implementation. DHS also recognized the need for enhanced communication among and between the state, HMOs and participating clinics as well as clearer guidelines / performance expectations for all stakeholders.

Since that time, the evaluators completed the following:

- Intent-to-treat analysis of the full cohort of eligible women.
- Assessment of primary outcome measures of birth weight and gestational age, using vital statistics (birth certificate) matched with Medicaid claims/encounter data.
- Two more clinic site visits.
- Structured interviews as case studies with medical home patients.
- Post-intervention surveys of intervention sites, matching the pre-intervention medical home inventory, allowing for a more structured description of the nature of the intervention.

Final Results

The quantitative analysis finds the following:

- No impact of the intervention on *birth outcomes*, including birthweight or gestational age. These null effects were precisely estimated, allowing us to rule out effect sizes of 2-3% or greater.
- Statistically imprecise estimates for the receipt of *prenatal care coordination (PNCC)* and *dental services*, from which no meaningful conclusions can be drawn.
- Positive, statistically significant and clinically meaningful impacts on the likelihood of *behavioral health* receipt in the third year of program implementation. While the positive effects are encouraging, it is important to note that overall levels of behavioral health receipt remained very low across both treatment and comparison clinics.
- Small, statistically insignificant increase in the likelihood of receiving timely postpartum care in the first two implementation years, growing in the final pilot year. These impacts only reached statistical significance at the 10% level, so should be treated as suggestive.

Qualitative Analysis: Site visits and interviews with patients indicate a relationship between this intervention and an increase in patient and provider satisfaction, along with more active patient engagement with the care team. However, the program demonstrates 1) continuing inconsistencies in the program delivery and identification/inclusion of patients, 2) incentives that promote selection bias to the exclusion of highest need patients, and 3) lack of continuity of care through the inter-partum period. The program appears to need stronger articulation of process performance metrics beyond clinical care, including specific aspects of care-coordination. These challenges may be addressed with payment incentives specifically rewarding fulfillment of social supports and services.

I. Wisconsin Medicaid OB Medical Home Program

IA. Background

Disparities in birth outcomes, and poor birth outcomes among low-income and African-American women, persist in Wisconsin and nationally. A 2010 Cochrane systematic review[1] of various forms of support during pregnancy for women at increased risk of low birthweight babies concludes the following: Programs that offer additional support during pregnancy are unlikely to prevent low birthweight or preterm birth. They may help reduce the likelihood of antenatal hospital admission and caesarean birth. The existing Cochrane systematic reviews for other approaches to addressing birth outcomes identify the weak conclusive value of existing evidence, including studies of group versus conventional care[2] and incentives to promote prenatal care initiation and attendance[3]. One specific program, known as Nurse-Family Partnerships, has accrued a substantial body of evidence suggesting positive impact on birth outcomes,[4] but this literature has not yet been subject to systematic review.

Home visiting and care coordination practices have been more recently recognized as part of Patient Centered Medical Homes (PCMH), a model recently embraced by State Medicaid programs, private commercial payers and providers to address the needs of high needs patients.[5] The PCMH model stands on five core principles: patient-centeredness, comprehensive care, care coordination, accessible services, and a systematic approach to quality and safety.[6]

For evaluation of Wisconsin's OB medical homes program, we compiled 86 evaluation reports or peer reviewed articles on PCMH implementation or on "enhanced" prenatal care, PNCC, or home visiting programs for pregnant women, which may offer similar services to a PCMH.

The existing scholarly literature on PCMH focuses on high need patients, including the elderly, adults with chronic illnesses, and children with special health care needs. More recent studies review PCMH models for the general patient population, perhaps in a safety net provider or Medicaid delivery setting. No published studies focus specifically on the PCMH model as a strategy to address birth outcomes.

Many individual studies report the PCMH's positive effects on utilization, with 23 published reports[7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29] of decreases in emergency department visits, hospital admissions, readmissions, and/or other acute services. Eight studies[30,31,32,33,34,35,36,37], however, report no or mixed differences in utilization. One study reports a consistent increase in utilization after the introduction of the PCMH model.[38]

The literature shows decidedly mixed results for the PCMH effects on costs. Eight studies[25,26,28,39,40,41,42,43] report reduced costs, six studies[17,19,22,35,41,44] report increased costs, and nine[10,12,21,23,27,31,33,38,45] report no difference in costs. One study[40] reports cost increases in the start-up year with cost savings by the third year. Of the 15 studies that find no cost savings, two[12,35] consider that savings might have resulted if PCMH services were limited to very ill patients only. One proposed model calls for a fine-tuning of team-based care that allows primary care physicians to narrow their patient panel to focus on patients with complex conditions and social needs, while other health professionals treat patients visiting the medical homes for lower acuity conditions.[46]

Quality of care showed improvements in 36 studies[13,15,17,18,33,19,22,23,24,25,26,27,32, 33, 35,36,38,39, 40,41, 44,45,47,48,49,50,51,52,53,54,55,56,57,58,59] as measured by patients receiving recommended care for such chronic illnesses as diabetes, COPD, asthma, behavioral health issues, or for their demographic group, and reporting that quality score improved in at least one area while experiencing no decreases in the other quality measures. Seven studies[10,31,37,47,60.61,62] found no or mixed differences in external quality measures after a PCMH was introduced. Reported patient and/or provider satisfaction showed improvements in fifteen studies[10,17,22,23,24,27,28,36,38,42,52,54,56,63,64],two found no difference[41,65] and two[53.66] report that perceived quality among patients declined in the first year of implementation.

The literature on enhanced prenatal care also suggests a range of outcomes. With regard to utilization, two[67,68] studies report decreases in ER visits, hospital admissions, readmissions, and/or other acute services , while one study[69] found no or mixed differences in acute utilization. Studies on pregnancy care also explore whether a woman receives a threshold of recommended prenatal care. Six studies[70,70,71,72,73,74] report adequate or improved amount of prenatal care, while one[75] found no or mixed differences in prenatal care. Another study reports that women in a managed care case management system did worse for recommended care than women in a fee for service system.[76]

Three studies[72,77,78] report that enhanced prenatal care reduces overall costs, while one[79] reports no differences in costs. Two other studies[80,81] report varying results depending on the race of the mother.

Outcomes from enhanced prenatal care showed some improvement in 17 studies [71,72,74,75,78,80,82,83,84,82,83,84,85,86,87,88,89], as measured on various parameters that include birthweight, preterm births or infant mortality, and social measures such as improved family harmony and school readiness of children. But six studies[73,76,90,91,92,93] found no or mixed effects on outcomes. Three studies [70,85,94] report improvement in reported patient satisfaction.

Overall, the studies of PCMH and enhanced prenatal care generally show some positive results, although improvements process and outcome measures remain modest or mixed. Studies have not yet elucidated what specific elements work and with which populations. As well, despite national standards and certification programs, the implementation PCMH, team-based care, prenatal care coordination, home visiting, and other forms of enhanced prenatal care differ considerably across clinics, sites, or programs. Such models involve several intervention elements (for example, clinical care, social work, community service, home visiting, peer support), across multiple types of providers and settings. Each site may implement the model with varying levels of adherence.

IB. Intervention Design

The Wisconsin Department of Health Services (DHS), in its 2011-2013 contracts with health maintenance organizations (HMOs) for the provision of health services in Southeast Wisconsin, required that they implement a medical home pilot program for high-risk pregnant women in targeted zip codes and/or with certain chronic conditions in Kenosha, Milwaukee, and Racine Counties. Four HMOs were awarded contracts; one HMO withdrew from the market in November 2012, leaving three participating HMOs.

Fourteen clinic entities that provide obstetric services agreed to serve as pilot program sites, with a plan to enroll a minimum of 2,400 women over three years, January 2011 through December 2013. BadgerCare Plus pays participating providers a $1,000 bonus for every member meeting enrollment criteria for the medical home pilot and an additional $1,000 for a positive birth outcome. These payments add to the regular Medicaid payments for pregnancy care, including prenatal care and delivery.

The degree to which some of these clinics actually participated in the pilot project varied, as did their dates of initiation. That affected the decision about whether and how to include them in the evaluation of the program. Table 1, below, lists the clinic entities that were initially named as pilot sites and their inclusion status in the study.

Table 1

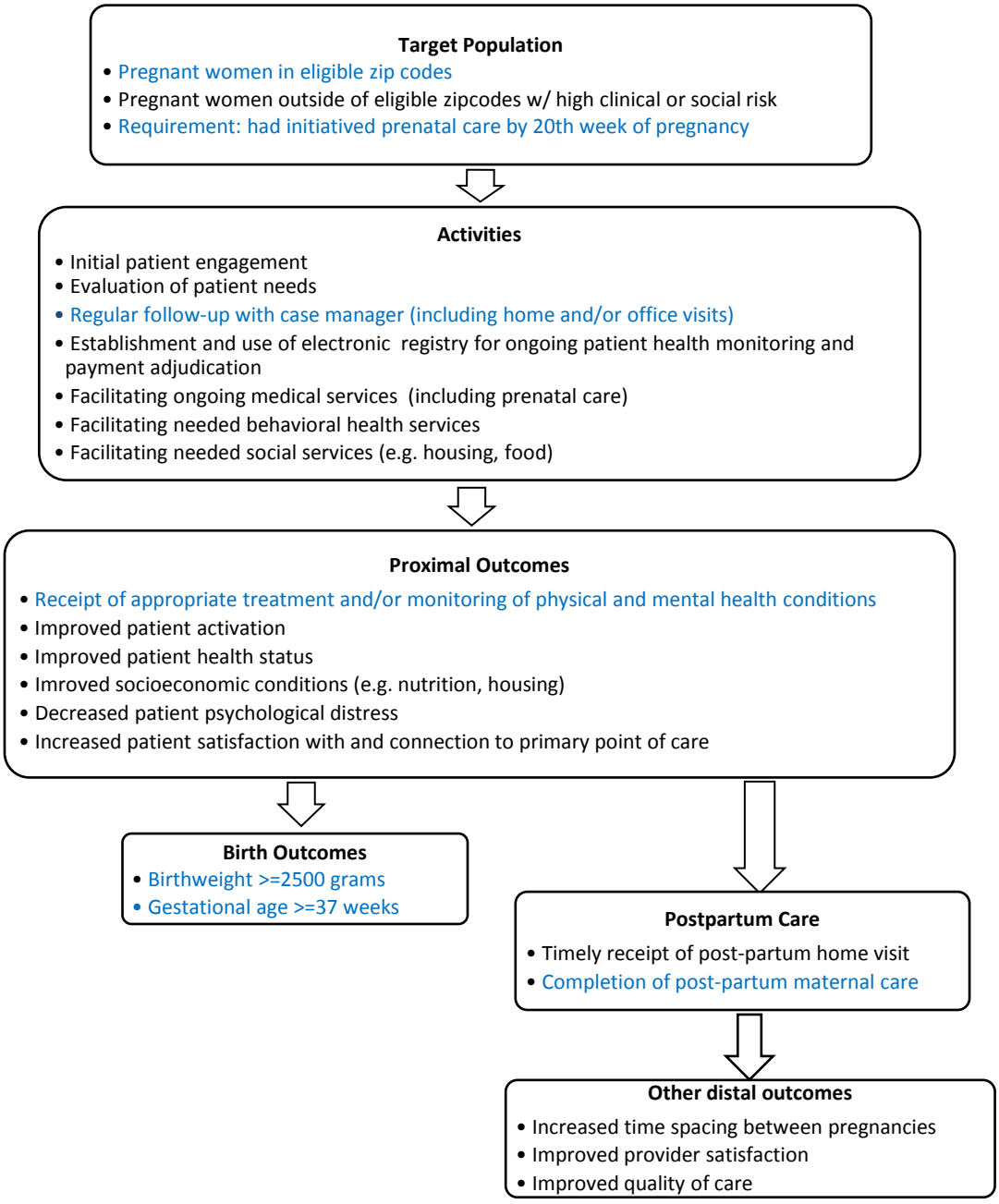
Clinic Name	Program Start Date	Program End Date	In Impact Analysis?
Aurora Family Care	September 2011	December 2012	No
Aurora Midwifery	July 2011	Not Ended	Yes
Aurora St Luke's	N/A	N/A	No
Froedtert East OB/Gyn	November 2012	Not Ended	Yes
Kenosha Community Health	Aware, some participation January 2011	Not Ended	No
Lifetime OB/Gyn	January 2011	Not Ended	Yes
Columbia St Marys	January 2011	Not Ended	Yes
Wheaton Franciscan Glendale	November 2011	Not Ended	Yes
Waukesha Family Medicine Center	July 2011	Not Ended	Yes
Isaac Coggs Heritage	N/A	N/A	No
MLK Heritage	N/A	N/A	No
Hillside Family	N/A	N/A	No
16th Street	January 2011	Not Ended	Yes
St Joseph's Women's Health	January 2011	Not Ended	Yes
Wheaton Franciscan Racine	July 2012	Not Ended	Yes

IC. Logic Model and Methods

An intervention logic model, based on that of Chouinard and colleagues[95], provides a framework with which to develop and assess the measurement of program activities and potential impacts. (Figure 1) We executed a mixed-methods strategy to measure the specific constructs within this model. Measures that could be created using quantitative data are in blue text; the remaining measures were assessed by qualitative methods, although one of the distal outcomes – pregnancy spacing – was not an element within scope of this project, but is considered an important element of maternal health and birth outcomes.

Quantitative statistical methods provide intent-to-treat impact estimates on birth outcomes. Rapid-turnaround *qualitative* methods[96], including site visits and interviews, provide the primary (although not exclusive) method to assess program activities and proximal outcomes. All methods are described in more detail below.

Figure 1. Logic Model



ID. Fidelity of Implementation: Pre-Post Survey of Current Clinic Practices

Clinics that DHS had identified as OB Medical Homes were asked, in March/April 2011, then immediately post-implementation in October 2012, and finally in September 2015, to complete a survey instrument adapted from the Commonwealth Fund's Safety Net Medical Home Initiative. This survey asked about a range of operational features, and was designed to allow comparison of pre- and post-pilot service provision and process measures.

Out of 14 pilot OBMH Clinic or Clinic Groups identified by DHS, six individual clinics or clinic groups completed both the pre- and post- OB Medical Home pilot surveys. The analysis of implementation practices rests on the surveys provided by these the six clinics or clinic groups: Waukesha Family Medicine Center, St Joseph's Women's Health, Kenosha Community Health Center, 16th Street clinics, Wheaton Franciscan Glendale and Lifetime ObGyn.

These results may not reflect the implementation of the OBMH pilot site in aggregate. It is likely that the clinics that did not return their pre- or post-pilot surveys may differ in some significant manner in their care delivery practices and/or in the manner that they did or did not implement the pilot. If the non-reporting sites made fewer changes to their practices, then the results reported here of the reporting sites will overstate the effect of the OBMH on clinic practices in aggregate.

Two clinics provided two post-intervention surveys but had not completed their pre-intervention surveys. These clinics, in their post-pilot surveys, took particular care to document their care efforts. One clinic noted that most of its providers practice centering pregnancy and the Nurse Educator conducts an extensive intake process with new patients. The other responding clinic has a designated care manager for their pregnant patients who double checks and follows up on missed appointment daily, has set educational material to give to each pregnant women at designated gestational ages, and has a care team review all patients at 20 and 32 weeks. These stand as important aspects of care in an OB medical home. However, lacking a pre-pilot survey for these two clinics, it cannot be determined whether these clinics implemented these care elements as a part of becoming an OBMH pilot or that these clinics that had already implemented an expanded approach to prenatal care when they were designated as an OB Medical Home.

The six reporting clinics as a group, pre- to post-pilot, improved or expanded the techniques that they used in several elements, increasing the performance of 22 elements by two clinics and 2 elements by 3 clinics. The areas that showed substantial expansion in adoption: an increase from one to five clinics reporting "providers received training on how to support patient decision-making" and an increase from three to six on the provision of care management by various clinic staff. Patient engagement, including questions pertaining to goal-setting, self-management, multi-lingual staff, and group care, showed expanded adoption across clinics in seven of eight elements. Questions pertaining to helping women initiate pediatric well-baby care showed improvements in four of five elements.

A few areas shows decreased number of clinics reporting preferred medical home preferred practice. This may reflect actual change/reduction in performance, or it may reflect a variation in assessment from a different person reporting. (The survey, when administered, had requested multiple

respondents from each clinic in order to assess the validity of individual responses and be able to assess inter-rater reliability, but recognizing the reporting burden, did not require it.)

Strategies used to ensure that patients understood instructions and/or information had negative movement: Prior to the intervention all six clinics said that they provide educational materials written at a sixth grade reading level or lower and that patients were encouraged to ask questions. Post-intervention only four provided easier-to-read materials and five encouraged women to ask questions. Post-intervention, only two clinics reported documenting the preferred method of communicating test results in the medical record, while all six did prior to it.

Table 2, below, provides detail to the pre- and post-implementation survey responses.

Table 2. Pre-and post-implementation clinic practices, as self-reported by the pilot sites

	Pre	Post
How does the HMO identify high risk women?		
DHS High Risk Registry	0	0
Provider Intake	6	6
Pregnancy screening tool/Notification of Pregnancy	3	6
Health Needs Assessment	3	6
ER Usage Reports	0	4
Electronic Health Records	2	4
Other	1	0
Once identified, what, if anything does the HMO do to help high risk pregnant women get connected to prenatal care?		
Letter sent to patient	1	2
Telephone call to patient	2	4
PNCC or other organization contacted to do home visit	1	3
Made an appointment for patient	4	6
What was the time frame for scheduling the initial and subsequent prenatal appointments?		
First available provider, no target timeframe for appointment	1	0
Preferred provider, no target timeframe for appointment	0	0
First available provider within one week of request	5	5
Preferred provider within one week of request	3	4
Same day appointment when needed with first available provider	3	6
Same day appointment when needed with preferred provider	2	2
Did the clinic address missed prenatal appointments?		
Clinic does not typically follow-up on missed appointments	0	1
Telephone contact attempted	6	6
Mail or email contact attempted	4	6
Home visit attempted	3	4
Outreach to collateral contacts attempted	3	6
Follow-ups documented in medical record	5	6
Multiple attempts at follow-up	6	6

What were the clinic's standards for responding to patients seeking information/advice during regular business hours?		
Same day response from physician, PA, NP	5	4
Same day response from RN or nursing staff	6	5
Next day response from physician, PA, NP	2	1
Next day response from RN or nursing staff	3	2
No standard time frame for response from physician, PA, NP	0	1
No standard time frame for response from nursing staff	0	0
All Communication documented in medical record	5	5
What was the protocol for the patient who wanted or needed to contact care providers after normal business hours?		
Messages left on clinic answering machine	2	0
Clinic telephone message system directed patient to local emergency dept in case of emergency	1	3
Messages left with answering service which contacted care providers as needed	6	4
On-call nurse line	1	3
After hours contacts were reviewed by the care team the next day for any needed follow up	4	4
What guided the process and protocols for prenatal care, post-partum care and care of chronic conditions?		
The individual provider's professional judgment and experience	5	4
Clinical care guidelines were available, but were NOT used as prompts	1	1
Clinical care guidelines were routinely used as a care protocol	5	6
How were the patient's various needs addressed during the prenatal visit and/or other visits?		
Prenatal visits were restricted to addressing required/routine pregnancy issues with other issues scheduled for a separate visit	0	0
Medical issues that impacted the pregnancy, e.g. diabetes, were addressed during the prenatal visit	6	6
All/any medical issues were addressed during prenatal visits	5	4
Referrals were made to other providers for medical conditions needing special Attention	6	6
Referrals were made to other professionals for issues such as nutritional counseling, birth planning, etc.	6	6
What strategies were used to coordinate care?		
Patient registries	3	3
PCP/OB coordinated all medical care	3	4
RN or other nursing staff coordinated all medical care	3	3
Care management was provided by other clinic staff	3	6
Care management was provided by HMO staff	2	1
Team approach to meeting patient needs including providers and nursing staff	2	2
What strategies are in place to provide follow-up for emergency room (ER) visits?		
No automatic follow-up provided as no mechanism is in place for clinic to become	2	1

aware of ER visit		
Follow-up only provided if hospital/ER/HMO alerts clinic	2	0
Follow-up only provided if hospital/ER/HMO alerts clinic & follow-up appears Necessary	4	6
Follow-up provided as needed via routine tracking of ER usage	2	3
Follow-up routinely provided via agreements/ arrangements with ER and hospitals to track high risk patients	1	1
Co-locate staff at ER	1	?
What procedures, if any, does the clinic have in place to link patients with needed community resources?		
It is not routinely done	1	0
All pregnant members receive a list of community resources	3	5
Designated staff are responsible for providing referrals to community resources	4	6
Designated staff are responsible for linking patients with community resources, e.g.,assistance in making initial appointment	4	5
What strategies were used to engage women in their own care?		
Values and preferences were assessed in a structured format	4	5
Referrals to prenatal classes, health educators or care self-management classes	5	6
Engaged patients in goal setting	5	6
Providers received training on how to support patient decision making	1	5
Multilingual staff available on a limited basis	2	1
Multilingual staff always available	4	5
Pregnancy care and birth plans developed with the patient and documented in the medical record	4	5
Group care (centering)	2	4
Support groups	3	3
What strategies were used to ensure that patients understood instructions and/or information?		
Educational materials without regard to reading level	2	0
Educational materials written at a sixth grade reading level or lower	6	4
Patients were encouraged to ask questions	6	5
"Teach back" methods	3	4
How were test results communicated to patients?		
Not communicated unless patient asked	0	0
Via phone within a specified time frame	5	5
via email or U.S. mail in a specified time frame	3	3
Preferred method of communication documented in medical record	6	2
Does the clinic help women make and keep their post-partum appointment?		
Mother reminded during discharge to make appointment for post-partum care	6	6
Post-partum appointments are made prior to delivery or discharge	2	2
For women classified as high risk during pregnancy, post-partum home visits are routinely made	2	4
Follow-up for missed appointments is routinely done	4	6

Does the clinic help women initiate pediatric well-baby care?		
Mother encouraged to select pediatrician prior to delivery	4	5
Mother assisted in selecting pediatrician prior to delivery	6	6
Mother encouraged to make well-baby appointment during discharge	4	5
First well-baby visit scheduled prior to discharge	1	3
For mothers and babies classified as high risk during pregnancy, home visits routinely made for first few months following delivery	2	4
What strategies, if any, does the clinic have in place to help women overcome potential barriers to needed care?		
Clinic arranges for transportation or provides transportation vouchers	4	5
Arranged/provided child care	1	2
Clinic provides on-site translation services	6	6
If you checked 'yes', for what languages are translation services provided?		
___ Spanish	6	5
___ Hmong	2	4
Clinic has arrangements with specialty care providers who accepted high risk patients in a timely manner	5	4
Clinic has difficulty arranging care with specialty care providers in a timely manner	1	1
Does the clinic use performance measures to improve pregnancy outcomes?		
Performance measures were unavailable at clinic site	1	0
Performance measures are available to clinics/practices, but were not used to improve practices or protocols	0	0
Clinic staff regularly review clinical, operational and patient satisfaction measures	4	5
Clinic staff regularly review clinical, operational, and patient experience measures and work with clinics/practices to make adjustments in practices and protocols as needed	5	6

II. Statistical Analysis of Process and Outcome Measures

IIA. Study Population: Selective Enrollment

Several persons interviewed during the site visits reported that a few providers were choosing to exclude from enrollment some women as pilot patients if their risk profile suggested that a poor birth outcome was "inevitable." Such patients would receive the full scope of OBMH care, but would not be included in the obstetric medical home (OBMH) registry so that the provider clinic might avoid liability for the contractual obligation of following a patient experiencing a poor birth outcome for two years subsequent to the birth: "It's easier not to put that person in the pilot registry." Others reported that an HMO may include women retrospectively in the registry based on their outcome: whether they met the process criteria or had a healthy birth. One interview participant suggested that one HMO had removed women from the pilot based on missed appointments.

This type of selective enrollment would upwardly bias statistical estimates of the treatment effect, leading to an overstatement of the intervention's impact. The formal inclusion as a pilot patient, and thus the treatment group participants as measured in the evaluation, should and must be driven only by the qualification criteria established in the HMO contract. Inclusion based on provider or HMO discretion and retrospective adjustment will selectively bias the treatment group towards those who received all of the contractually obligated services or met the outcomes of under study.

Given these concerns, the statistical model for the final evaluation abandoned the prior per-protocol analysis in favor of including both those patients who were actually registered/enrolled as OBMH patients, along with those who met the DHS criteria for inclusion. That is, the final impact estimates employ an *intent-to-treat* (ITT) approach similar to that found in best-practice clinical trials. Specifically, ITT estimates are calculated by constructing the treatment group to include all patients who were initially intended to receive the treatment under study, *regardless* of whether or not they actually received it.

This convention was chosen to assure that no classification bias of the type discussed above influenced the impact estimates. The final analysis will define the treatment group to include all women receiving prenatal care at the pilot clinics who live in the target zip codes as set forth in the DHS contract. While other criteria for pilot inclusion exist (e.g. having experienced a previous poor birth outcome), the data do not reveal these elements. As such, we limit the filter to target zip code, which we can cleanly identify.

The ITT estimates provide the preferred impact estimates because of their relative lack of bias; However, we note that ITT is a conservative approach that tends to shift the estimates towards a null finding (i.e. no program impact). We did augment the ITT analysis with a *per-protocol* analysis, which defines the treatment group to be those patients who are reported in the registry as having received the designed intervention. The preliminary impact estimates of the per-protocol analysis were provided to DHS in the January 2014 interim report.

However, we have determined that the per-protocol analysis was likely plagued with positive bias in the impact estimate, because of the presence of selective enrollment practices. We have thus chosen to exclude those findings from the final report and provide only the findings from the intent-to-treat analysis.

IIB. Data

Socio-demographic data drawn from Wisconsin's CARES database, which warehouses application and enrollment data for all state social programs (including Medicaid), were merged with health care utilization data drawn from Medicaid encounter and claims records and birth outcome data drawn from the state's vital statistics system. Note that the match rates were very high; approximately 98% of Medicaid births in the eligible zip codes had a match to vital statistics data. Importantly, match rates were similar across treatment and comparison clinics, as were infant deaths, which were very rare (fewer than 0.5% of sample births for both treatment and comparison clinics).

The analytic sample (n = 18,547) was comprised of all Medicaid-covered births by women residing in the target zip codes during the calendar years 2009-2013. In keeping with the program eligibility requirements discussed above, we further limited the sample to women whose records reflected a medical encounter containing a pregnancy diagnosis code at least 5 months prior to delivery date. Following the related literature[97], patients were attributed to the clinic at which they received a majority of visits over the course of pregnancy; in the rare instance of a tie, the patient was attributed to the clinic at which she had the most recent visit. This method yielded a subsample size of 8,547 women attributed to 9 treatment group clinics and 10,476 women attributed to 40 comparison clinics. Patients from the 6 targeted clinics that were unable to fully implement the program were excluded from the analysis.

IIA1. Outcome Variables

We were able to measure three health care process measures using the claims/encounter data. The first, whether or not a patient received any PNCC during pregnancy, maps to an important program activity listed in Figure 1. An important caveat: PNCC does not necessarily reflect all of the care coordination that a patient may have received. PNCC is a specific state program, and not all treatment group clinics increased PNCC billing under the intervention even though in-house social workers were hired to deliver care coordination. We were also able to measure two proximal outcomes: whether or not a patient received any behavioral health care (mental health and/or substance abuse) and whether or not a patient received a dental visit during pregnancy. Finally, we examined the receipt of a timely postpartum visit (within 8 weeks of delivery), the program's postpartum care focus. The two birth outcome measures were whether or not a patient had a term birth, defined as >= 37 weeks gestational age and whether or not the baby weighed >= 2,500 grams, the key birth outcomes targeted by the pilot. To minimize multiple comparison concerns, we made an a priori specification that the two birth outcomes would comprise the primary outcomes of interest and that the utilization measures would comprise secondary outcomes. Moreover, a priori power calculations were based on the two birth outcome measures, and as detailed below, several of the regressions for the utilization measures were underpowered. As such, it is important to treat the utilization impact estimates as exploratory rather than confirmatory in nature.

IIA2. Control Variables

Socioeconomic variables constructed from the CARES data and included race (White, Black, Other/Missing), Hispanic ethnicity, a continuous measure of income as a % of the federal poverty level, and age. Control variables constructed from the claims data included whether or not the patient smoked and an indicator reflecting the presence of a chronic condition during pregnancy.

IIC. Methods

We employed a pre-post design with concurrent controls drawn from comparison clinics. This quasi-experimental design is often referred to as a difference-in-differences (DiD) approach, reflecting the underlying comparison inherent in the method: namely, the difference in the outcome of interest prior to and after the intervention for treatment clinics is compared to the analogous pre-post difference for

control clinics. The underlying assumption is that absent the program, the trends in the outcome measures would have been the same across treatment and comparison clinics. While this assumption does not require that treatment and comparison clinics exhibit the same underlying levels of the outcome variables, it does require that the presence of any known and unknown secular trends exerts similar effects on the trends in the outcomes. In practice, better-matched baseline levels of the outcome measures across treatment and comparison groups provide greater reassurance regarding the (untestable) parallel trends assumption, as many intervening secular trends are specific to fairly homogenous subgroups.

An example in this context is the heightened media and policy attention that safety net providers received over the study period. A host of public health initiatives targeted towards these clinics was initiated in parallel to the pilot intervention – including efforts designed to curb prenatal smoking, increase social support, and reduce co-sleeping. As such, these trends likely differentially influenced clinics serving low-income women versus clinics serving high-income women. In recognition of this concern, we limit comparison clinics to those that served at least 20 Medicaid-enrolled women in the target zip codes over the pre-period 2009-2010. Moreover, as a robustness exercise we implement a propensity-score matched version of our generalized difference-in-difference specification, which is outlined in greater detail below.

In keeping with related PCMH evaluations, all estimates are intent-to-treat, meaning that the treatment group includes all patients who were eligible to participate in the program, regardless of whether or not they actually received program services. The inclusion of both compliers and non-compliers is crucial for assessing program effectiveness, as it accurately reflects the diversity of compliance experienced in actual clinical practice.[98]

We estimate the following individual-level specification using multivariate linear probability regression:

$$(1) \qquad Y_{i,c,t} = \beta_1 Year1_{c,t} + \beta_2 Year2_{c,t} + \beta_3 Year3_{c,t} + \boldsymbol{X_{i,c,t}\gamma} + \delta_t + \zeta_c + \varepsilon_{i,c,t}$$

where *i* indexes individuals, *c* indexes clinics, and *t* indexes year. The relationship of interest is a given outcome measure – $Y_{i,c,t}$ – as a function of whether the sample member received care in a clinic after the intervention had been launched. We allow for potential heterogeneity in program impacts by time since program initiation, with β_1 representing the program impact in the clinic's first year of implementation ($Year1_{c,t}$), β_2 representing the program impact in the second year of implementation ($Year2_{c,t}$), and β_3 representing the program impact in the third year of implementation ($Year3_{c,t}$). Five of the nine treatment clinics began the program in January 1, 2011, accordingly all patients giving birth subsequent to June 1 of that year were eligible for program inclusion.

Excluded from the sample are all patients receiving care in these treatment group clinics who gave birth during the time period January 1, 2011 - June 1, 2011; while these women were ineligible for intervention services, they may have benefited from spillover effects from clinic-level changes induced by intervention implementation. For these clinics, the first year indicator reflects births between June 1, 2011 and December 31, 2011, while the second and third year indicators include births for calendar year 2012 and 2013, respectively. The remaining four clinics had delayed start dates; as follows, their year

indicators represent later calendar periods, with a truncated amount of time populating the final period. The analogous sample exclusion for ineligible women giving birth during the first six months of the implementation period was made.

Control variables include the vector of individual-level measures ($\boldsymbol{X_{i,c,t}}$) and a full set of year dummies (δ_t) and clinic dummies (ζ_c). A mean-zero random error term is represented by $\varepsilon_{i,c,t}$. The estimates of interest, β_1 through β_3, represent the *within-clinic* change in the outcome of interest compared to comparison clinics, after program implementation relative to before.

Standard errors are clustered at the clinic-level to account for shared variance among patients receiving care at the same clinic.

As a robustness exercise, we estimate a propensity score weighted version of equation (1) using inverse probability of treatment weighting (IPTW). First, we run a clinic-level regression (*n* = 41) of treatment group status (0 = comparison clinic; 1 = treatment clinic) on the following clinic-level averages regarding Medicaid-covered births in the target zip codes over the pre-period (2009-2010): the total number of births; percent Hispanic; percent Black; percent Other/Unknown race; percent with birthweight >= 2,500 grams. The resulting predicted probability (phat) is used to construct the IPTW weight, which equals 1/phat for treatment group clinics and 1/(1 – phat) for comparison clinics.

IID. Results

Table 3 displays descriptive statistics stratified by treatment and comparison clinics. Age and income levels were similar across the two groups; the average age of women in the sample was approximately 25 years old and the average household income was 38% of the FPL, indicating a very poor population. Race and ethnicity differed across treatment strata, with Black patients comprising a higher percentage of births in comparison clinics (54%) relative to treatment clinics (51%) and Hispanics comprising a higher percentage of births in treatment clinics (33%) relative to comparison clinics (25.3%).

Patients in treatment clinics had lower rates of chronic conditions and lower rates of smoking relative to patients in comparison clinics (19% vs. 22% and 13% vs. 16%, respectively). While the IPTW weighted sample averages are more comparable along the unbalanced measures of SES, clinical risk, and birthweight, appreciable differences remain along the dimensions of ethnicity and smoking.

Table 3. Descriptive Statistics Weighted by Inverse Probability of Treatment Weights

	Treatment (*n* = 8,071)	Comparison (*n* = 10,476)	Ho: Treat = Comp
Independent variables (2009-2013)			
Age (mean)	24.9	24.8	$p < 0.24$
HH income as % FPL (mean)	36.0	35.2	$p < 0.28$
Race			$p < 0.01$
Black	57.3	60.6	
White	11.3	12.5	
Other/Missing	31.4	26.8	
Hispanic ethnicity	27.4	21.6	$p < 0.01$
Chronic conditions indicator	21.4	22.3	$p < 0.18$
Smoking indicator	13.9	17.5	$p < 0.01$
	Treatment (*n* = 3,027)	Comparison (*n* = 4,174)	Ho: Treat = Comp
Dependent variables (2009-2010)			
Any PNCC receipt	38.4	29.4	$p < 0.01$
Any behavioral health care receipt	8.42	10.0	$p < 0.06$
Any dental care receipt	12.3	10.8	$p < 0.11$
Timely postpartum care receipt	86.6	84.2	$p < 0.02$
Gestational age >= 37 weeks	87.9	88.1	$p < 0.86$
Birthweight >= 2,500 grams	91.8	91.9	$p < 0.37$

Utilization

Unadjusted Trends

Treatment group clinics exhibited considerably higher levels of PNCC rates at baseline relative to comparison clinics (Figure 2, Panel A); moreover, this difference was fairly stable throughout the study period. In both the pre- and post-periods, the proportion of patients receiving a dental visit was comparably low across treatment strata (Figure 2, Panel B). Similarly, the proportion of patients receiving a behavioral health visit (Figure 2, Panel C) was low at baseline and remained low throughout the study period; trends differed across treatment strata in an inconsistent pattern over time. In contrast, the trends over the study period for the proportion of patients receiving a postpartum visit were similar across treatment and control clinics (Figure 2, Panel D); importantly, initial differences in visit rates favoring the treatment clinics were eliminated over the course of the pilot.

Figure 2, Panel A

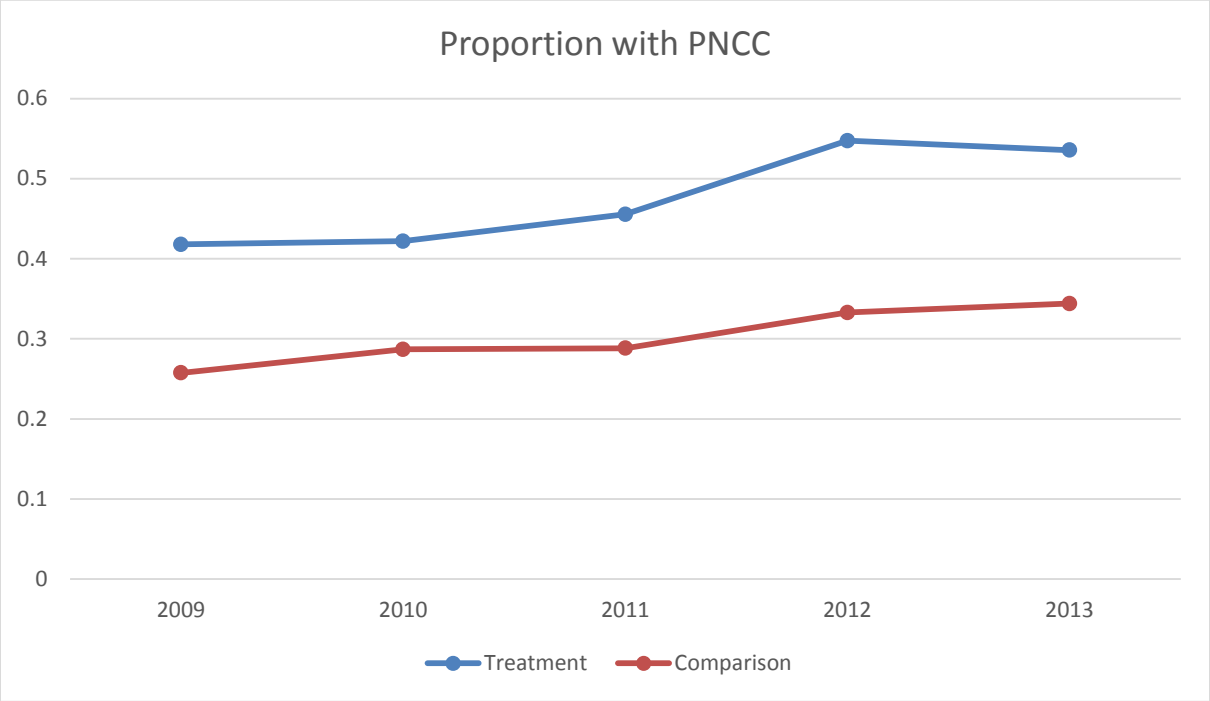


Figure 2, Panel B

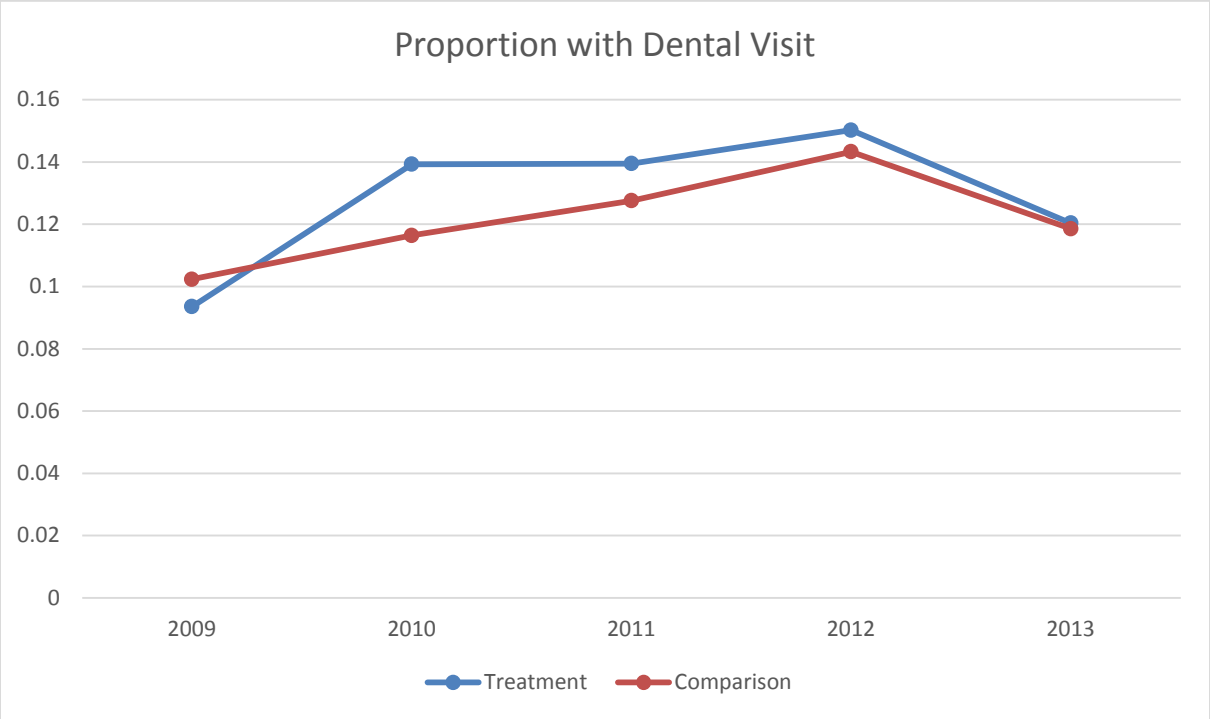


Figure 2, Panel C

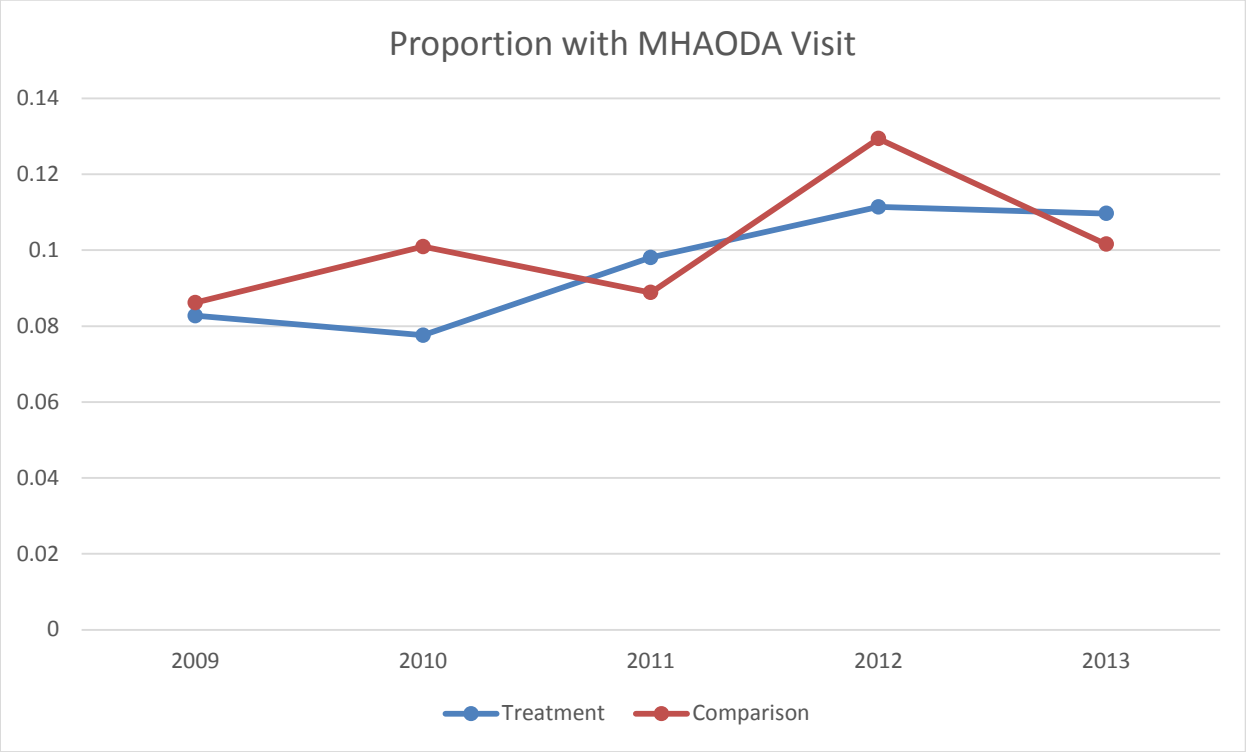
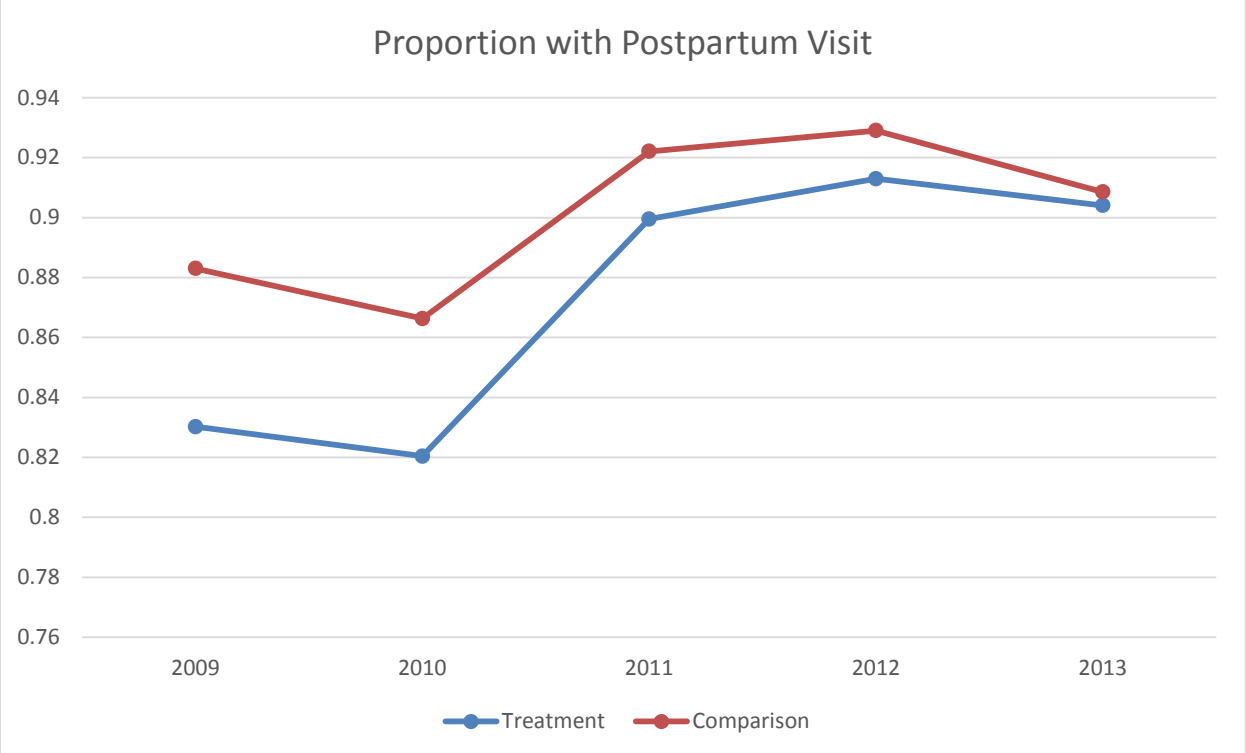


Figure 2, Panel D



Regression-Adjusted Difference-in-Differences Results

Table 4 contains the program impact estimates for the utilization outcomes. For the PNCC outcome (Panel A), impact estimates ranged between 6.7 and 13.3 percentage points, reflecting fairly large relative increases over baseline rates (20% - 40%). However, none of the estimates are statistically significant, and the data cannot rule out a very wide range of potential impact magnitudes (a decrease of approximately -8 percentage points to an increase of 32 percentage points). These results are, therefore, inconclusive, as the data do not permit a meaningful impact estimate for the PNCC outcome. That caveat aside, it is important to highlight that the magnitudes of the impact estimates are robust across regression specifications – which is true for all of the outcome measures – providing important reassurance regarding the validity of our comparison group design. Additionally, the pattern of impact estimates grew over time, with a meaningful difference between first and second year magnitudes versus third year magnitudes. This pattern suggests that implementation took two years prior to the realization of any potential program impacts.

Table 4. Regression Results: Utilization Measures

	*Dependent variable: Receipt of **any PNCC***				*Dependent variable: Receipt of **any behavioral health visit***		
	(1)	(2)	(3)		(1)	(2)	(3)
First implementation year	0.072	0.067	0.069		0.014	0.003	0.001
	(0.048)	(0.062)	(0.040)		(0.015	(0.015)	(0.017)
Second implementation year	0.081	0.079	0.085		-0.006	-0.011	-0.007
	(0.089)	(0.062)	(0.059)		(0.11)	(0.006)	(0.006)
Third implementation year	0.107	0.104	0.133		0.025	0.026*	0.028*
	(0.089)	(0.091)	(0.096)		(0.021)	(0.011)	(0.011)
Controls for SES/medical risk?	N	Y	Y		N	Y	Y
Propensity-score weighted?	N	N	Y		N	N	Y
Dep. var. mean in pre-period	0.335				0.088		
	*Dependent variable: Receipt of **any dental visit***				*Dependent variable: Receipt of **Timely postpartum visit***		
	(1)	(2)	(3)		(1)	(2)	(3)
First implementation year	0.019	0.019	0.025		-0.002	-0.002	-0.001
	(0.021)	(0.022)	(0.017)		(0.011)	(0.011)	(0.011)
Second implementation year	0.019	0.019	0.008		0.025	0.025	0.023
	(0.012)	(0.014)	(0.014)		(0.028)	(0.028)	(0.026)
Third implementation year	0.002	0.003	0.001		0.111^	0.108^	0.108^
	(0.030)	(0.030)	(0.028)		(0.064)	(0.063)	(0.061)
Controls for SES/medical risk?	N	Y	Y		N	Y	Y
Propensity-score weighted?	N	N	Y		N	N	Y
Dep. var. mean in pre-period	0.113				0.853		

Note: Estimates are coefficients from linear probability models (n=18,547). Standard errors in parenthesis. All specifications include clinic and year fixed effects and are cluster-corrected at the clinic level. * $p < 0.05$; ^ $p < 0.10$

The results for any dental visit (Panel B) are similarly statistically imprecise and therefore inconclusive, with magnitudes of impact estimates ranging from 0.1 percentage points to 2.5 percentage points, and associated confidence intervals demonstrating an inability to rule out magnitudes ranging from -5.7 percentage points (a decrease of 50% relative to the baseline rate) to 5.9 percentage points (an increase of 52% relative to baseline).

In contrast, all three DiD specifications suggest that the pilot program had positive impacts on the likelihood of behavioral health receipt in the third year of program implementation (Panel C), and these impacts are statistically significant in the regression-adjusted specifications, which afford greater statistical power than the unadjusted DiD specification due to the inclusion of control variables. Importantly, these third-year estimates are of clinically meaningful magnitude; the regression-adjusted DiD estimate of 2.6 percentage points (column 2) represents an increase of almost 30% over the baseline proportion of 0.088. An auxiliary descriptive analysis demonstrated that these increases in behavioral health visits were driven by increases in mental health screening and psychotherapy. While the positive effects are encouraging, it is important to note that overall levels of behavioral health receipt remained very low across both treatment and comparison clinics.

The pattern of impact estimates of postpartum receipt is similar to that for behavioral health receipt, exhibiting very small, statistically insignificant magnitudes in the first two implementation years and growing to meaningfully sized magnitudes in the final pilot year. These impacts only reached statistical significance at the 10% level, so they should be treated as suggestive. Again, the impact estimates are quite robust in magnitude across specifications. Moreover, the magnitudes of the third year impacts are clinically meaningful. The regression-adjusted specification reflects an impact estimate of 10.8 percentage points, an increase of 12.7% over baseline.

Birth Outcomes

Unadjusted Trends

On average, term births increased among treatment group patients in the post-period relative to the pre-period; however, the rates were exhibiting a negative trend by the end of the study period (Figure 3, Panel A). The comparison clinics experienced very similar trends, implying a null program impact. Treatment patients had higher levels of term births across all years; however, the differences across groups were not statistically significant nor of a clinically meaningful magnitude.

Both levels and trends in birthweight differed across treatment and comparison groups (Figure3, Panel B). While the treatment groups had higher levels of healthy birthweight in the pre-period, by the end of the study period, patients in the comparison clinics had closed the gap and, in 2013, had slightly surpassed the treatment group rates. The difference in the trends and levels across treatment clinic strata create potential concern about the appropriateness of the parallel trends assumption. Note that this imbalance motivated our inclusion of pre-period birthweight in the IPTW weight. As displayed in Table A1 (and described above), the IPTW weights created balance across treatment strata in birthweight rates in the pre-period, providing reassurance regarding the comparability of the two clinic groups.

Figure 3, Panel A

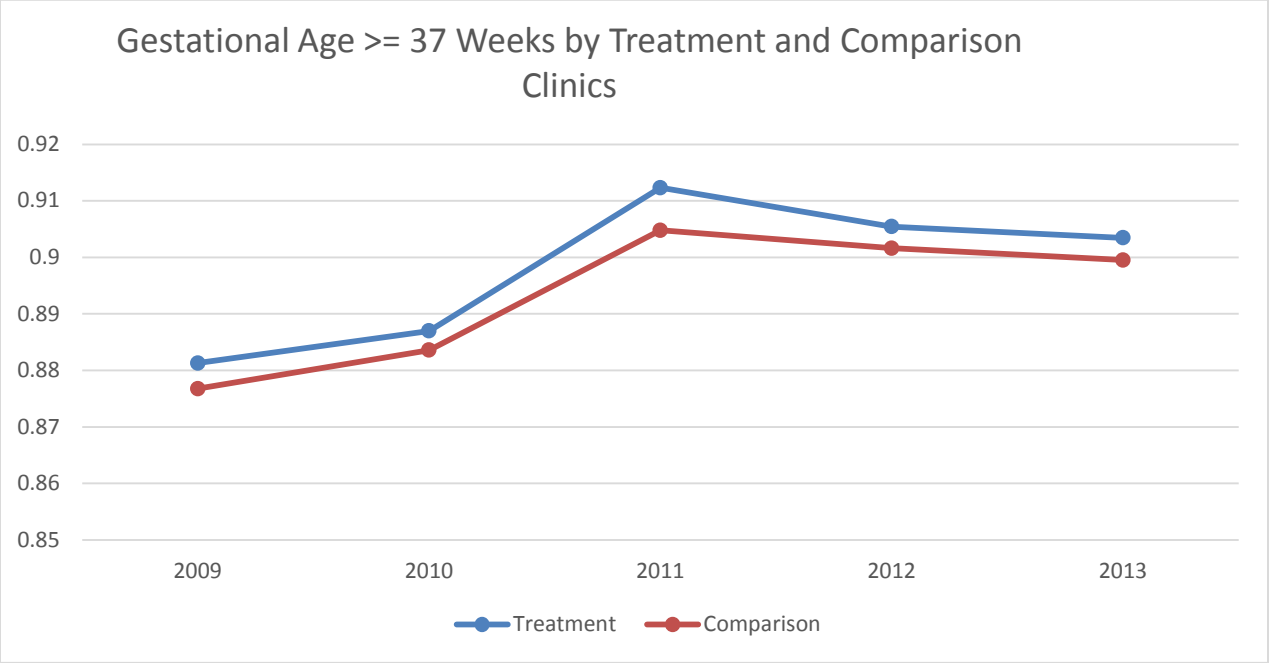
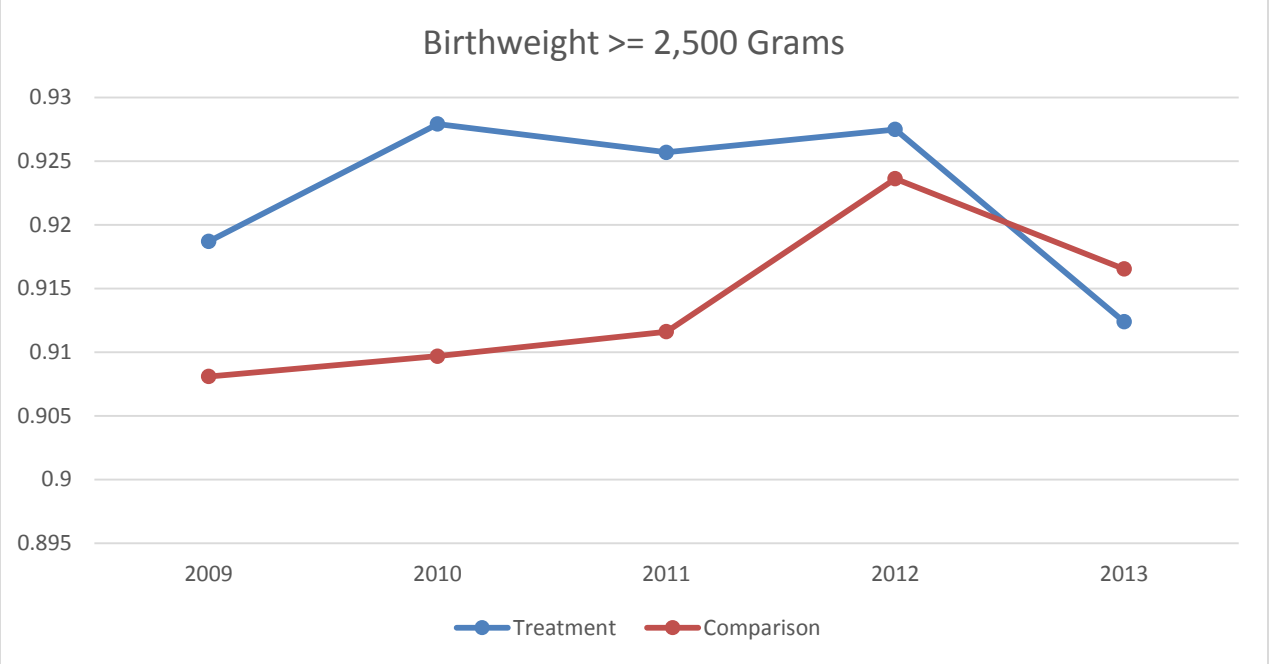


Figure 3, Panel B



Regression-Adjusted Differences-in-Differences

Table 5 displays the estimated program impacts on term birth derived from unadjusted, adjusted, and propensity-score matched difference-in-differences specifications. For term birth, impact estimates ranged between -0.9 percentage points and 1.2 percentage points (a decrease of 1% to an increase of 1.4% relative to the baseline pre-period magnitude of 88.2%). These estimates are consistent with the null effects implied by the trends in Figure 2, Panel C, and none of the program impacts are statistically significant. Moreover, the magnitude of the estimates is robust across specification, providing reassurance regarding the internal validity of our design. The confidence intervals rule out effect sizes of approximately 2-3% or greater; benchmarking against other difference-in-differences designs, this represents a precisely estimated null result.

Table 5. Regression Results: Birth Outcomes

Dependent variable: Gestational age >= 37 weeks			
	(1)	(2)	(3)
First implementation year	0.011	0.012	0.012
	(0.008)	(0.009)	(0.008)
Second implementation year	-0.005	-0.005	-0.008
	(0.008)	(0.009)	(0.012)
Third implementation year	-0.002	-0.002	-0.009
	(0.011)	(0.012)	(0.012)
Controls for SES/medical risk?	N	Y	Y
Propensity-score weighted?	N	N	Y
Dep. var. mean in pre-period	0.882		
Dependent variable: Birthweight >= 2,500 grams			
	(1)	(2)	(3)
First implementation year	-0.001	0.001	0.003
	(0.010)	(0.010)	(0.010)
Second implementation year	-0.012	-0.010	-0.008
	(0.008)	(0.008)	(0.009)
Third implementation year	-0.018	-0.016	-0.020
	(0.011)	(0.011)	(0.012)
Controls for SES?	N	Y	Y
Propensity-score weighted?	N	N	Y
Dep. var. mean in pre-period	0.915		

Note: Estimates are coefficients from linear probability models (n=18,547). Standard errors in parenthesis. All specifications include clinic and year fixed effects and are cluster-corrected at the clinic level.

Similarly, there were no meaningful program impacts on birthweight (Table 5). In keeping with the results for term birth, none of the impact estimates were statistically significant or of meaningful magnitude. Specifically, impact estimates ranged between -0.2 percentage points and 0.3 percentage points (a decrease of 2.2% to an increase of 0.33 % relative to the baseline pre-period magnitude of 91.5%). Again, the confidence intervals rule out impacts on the order of 2% or greater.

IIE. Discussion and Limitations

Implementation of the OB Medical Homes showed a lack of clearly articulated roles and responsibilities and clear communication protocols among and between HMOs and clinics and among clinic staff. This seems to have compromised clinic participation and documentation, patient outreach and engagement, which may have affected the observed outcomes.

Wisconsin DHS holds that the OBMH includes as a key goal improving the quality of care, including addressing social supports. However, the project lacks mechanisms to readily track care-coordination activities, as they are not generally billed as a separate Medicaid service and thus cannot be assessed using claims/encounter data. The care coordination activities may have been documented in the charts and assessed using chart review, but DHS did not include this element within the scope of this evaluation or its MetaStar chart review contract.

The biggest threat to internal validity of this statistical evaluation is the potential imperfect balance of observed and unobserved confounders across treatment and comparison clinics. While our difference-in-differences design is among the strongest observational designs with respect to internal validity, we acknowledge that residual confounding may remain given the non-random selection of clinics into the program. We find it compelling, however, that our impact estimates are consistent across all specifications, including the propensity-score matched difference-in differences model, which employs a relatively homogenous group of treatment and comparison clinics to derive program impacts.

As discussed in other report sections, the planned initiative to implement a uniform patient registration database failed, translating into an inability to pursue an exploratory per-protocol analysis. Alternatively stated, we lack the ability to identify compliers vs. non-compliers, therefore we cannot determine any potential differences in program efficacy across these groups. Conversations with key stakeholders in treatment group clinics suggest that while the program exerted meaningful benefits for participating women, participation rates among eligible women were low. For example, one large clinic kept detailed records of refusals and shared with investigators that approximately ½ of eligible women refused participation in the pilot. Absent the ability to perform an exploratory per-protocol analysis, we cannot begin to assess whether the null effects arose because of low take-up or low efficacy (or both).

Ideally we would include the other primary performance measure – receiving 10+ prenatal care visits – as an additional outcome. However, global billing of prenatal care in Wisconsin Medicaid precludes our ability to assess prenatal care receipt beyond a dichotomous yes/no indicator reflecting 6+ visits in the encounter data. Over 90% of women receiving care in both treatment and comparison clinics received at least 6 visits, which is unsurprising given the program inclusion criterion requiring early prenatal care initiation.

At the same time, the clinical and social support staff, through the site visit interviews discussed in section II below, clearly expressed that they do not do not consider the number of prenatal visits a particularly important measure for program performance and outcomes with their highest need patients. Rather, they believe that the program should be assessed on other interventions related to the social supports provided.

This raises perhaps the most important limit in the evaluation: the scope of both the number and nature of available measures. We are unable to capture many of the primary intervention aims with the quantitative analysis, as highlighted in the logic model (Figure 1). For example, a key goal of the intervention was to connect vulnerable pregnant women with needed non-medical resources such as food, housing, clothing, and transportation. Data from the qualitative implementation study indicate that case managers were indeed actively and effectively procuring these resources for patients; however, we have no corresponding quantitative measures. Also worth noting: across clinic sites the obstetricians and other physicians expressed emphatic support for the intervention, speaking frequently and compellingly about the benefit of having social work supports embedded in the clinic setting. These qualitative findings are discussed in more detail in the following section.

III. Rapid Turnaround Qualitative Methods: Case Studies and Site Visits

IIIA. Case Studies with OBMH Patients

The evaluation plan included focus groups with women who had received prenatal and post-partum services at the OB medical home clinics. In the fall of 2015, we worked with the clinic contacts to recruit participants, offering transportation, childcare, and a $25 Walgreens gift card for a one-hour time commitment, and wide flexibility about scheduling.

Even with this, we were unable to recruit enough participants to conduct focus groups and, instead, received commitments from six mothers scheduled for meetings two-at-a-time at three sites on three separate dates. It turned out, however, that some did not show up, and we ultimately conducted interviews with four individual mothers –two together at Site #1 and one each at Site #2 and Site #3.

These few interviews do not provide generalizable information about the medical home pilot initiative, but can offer anecdotal perspective that suggests potential program strengths or areas in need of correction.

These four mothers offered substantially differing perspectives on their experiences. The two mothers at Site #1 both reported being very happy with the clinic, and felt it was the best place in Milwaukee to get health care. They appreciated that they didn't have to wait a long time for appointments or once they arrived at the clinic. At this clinic, they stated:

- "Every problem is taken care of."
- "They have a good team."

One of the mothers had a previous pregnancy, several years earlier, receiving care at a different clinic/health system. She reported that, by comparison, the current clinic and experience here was much better: "I'm in the right place now."

Both mothers noted that they were able to receive need needed dental care, and also appreciated the PNCC services. They were not aware specifically about the OBMH model or that they had been part of any special program, but they did believe that their treatment at this clinic was better than what they

have previously experienced elsewhere.

One awkward moment emerged in discussing the various support services available. The mothers were asked if they were aware of and had used the Baby's Closet program during their pregnancies. One mother quickly said yes, while the other mother said that she knows about the program but she didn't know that this clinic had a Baby's Closet. This led to some discussion between these two mothers about why one of them might have access to it and the other one did not.

The Baby's Closet is not specifically a part of the OBMH. But the OBMH is intended to provide care coordination to connect women to relevant and available social supports. The manner by and degree to which women learn about this program, and variations woman-to-woman in this experience, may indicate something about the way other programs and services are being communicated.

- This might suggest a need to make clear to patients, perhaps via checklist, the various supports that are available at the clinic and, if not offered to all patients, why that may be. This will avoid misinformation or a sense of exclusion that could occur as patients and community residents talk to one another.

The matter of Baby's Closet also arose during the interview at Site #2.

The Site #2 mother, when asked about awareness and use of Baby's Closet, noted difficulty in keeping track of Baby's Closet information. She explained that the Baby's Closet information and reward coupons arrived at her home via U.S. mail in white envelop labelled "United Healthcare" and so would be mixed up with other mail and often not recognized. The coupons needed to be presented at the health care visits, and she would usually not have brought them in with her.

- This suggests a need for a more patient-centered approach to structuring patient-incentive programs, recognizing the challenges present in the patients' lives. It may be more logical for the clinic to keep track of the patients' earned reward points – perhaps in its computer system – rather than requiring the patients to keep track of and submit coupons.

The Site #2 mother articulated a range of concerns, far more serious than the Baby's Closet, about her care experience, that suggest significant shortfall in that medical home clinic as she experienced it.

She explained that she had received care in the past year for new baby, and also has an 8-year-old for whom she had received care at this same clinic. She is now a single parent and had recently lost her mother, who had assisted her in caring for her children.

This mother reported that she was able to receive all of the clinical services she needed, did not have dental care needs during her pregnancy, and received smoking cessation services post-partum, at her choice.

But she felt that her main and most important needs remained unmet. She was incredibly articulate, voicing the following statements at various points throughout the interview:

- "They were not looking at my emotional concerns as a patient."
- "There's just standard medical care here."
- "Should be more hands on with my emotional stuff."
- "They need a social perspective."

This mother expressed strong appreciation for the monthly home visits she received from the PNCC nurse, with whom she developed a strong bond. She feels upset that she lost that at the end of her post-partum period, and is now struggling with depression and feels she has no support. She voiced a need for respite services: "I just need a small break during the day, so I can get some stuff done or get some rest."

She stated that no social workers or counselors have been made available to her at the end of her post-partum period, even though she remains on Medicaid. She also noted that she had at least one time called a crisis line, and was frustrated in reaching a voice message that instructs callers to leave a message or call 911 if suicidal.

She also noted a general dissatisfaction and, in fact, distress with her experience at the clinic itself. She asserted that her experience with her pregnancy care eight years previously was better because the clinic gave her more resources and "lots of things." This time, she felt that the clinic didn't respect her needs as a patient during the visits, and that it didn't recognize that she needed more "hands-on help onsite" at the clinic, beyond providing only PNCC home visits.

Finally, this mother noted that she was not happy with the clinic staff's communication with her as patient, feeling she should have received more information about the care and what was happening. She felt that she "was always being told you just have to have this." For example, she said that she received an ultrasound at every visit and didn't understand why this was needed.

She was asked if she thought these problems were related to the kinds of services available at the clinic or just the decisions being made by the individual staff. She stated that she doesn't know if it was staff or services of the clinic, "but patients don't have a good support system."

These themes were also voice by the mother in the interview at Site #3. This mother had a six-month old infant, and two other living children, ages 7 and 3. She had also experienced three prior pregnancy losses, including a late term stillbirth. All of the pregnancies had been under the care of the same clinic.

This mother was very complementary of her PNCC nurse. She voiced a wish to have direct access to her PNCC nurse and her doctor rather than having to go through the front desk staff, whom she felt was not consistently responsive to her needs or concerns, particularly given her very difficult pregnancy history and anxiety related to that.

This mother very much liked PNCC, her PNCC nurse, the concern her nurse expressed about her, and that the nurse reminded her of her appointments. The nurse seemed very responsive to this mother's concerns, but the mother felt frustrated that the PNCC nurse wasn't always available to talk to her when she had concerns.

This mother felt that the people who answered the phone when she called were not adequately responsive or respectful of her concerns. The mother didn't like being called back by others who were not her PNCC nurse. She felt that the front desk staff and others did not take her seriously: "Ignoring my own input on my body is bad. I know my body best." This mother explained that her history of pregnancy loss indicated specific and valid health concerns, along with expected anxiety: "Doctors and nurses should at least check up on whatever I was saying, should value my opinion if I am saying I think something is wrong."

These concerns motivated the mother to go the hospital emergency room with her concerns if she was not able to talk with her PNCC nurse or her doctor directly. She said that she was better able to get her concerns addressed immediately at the ER.

In considering the question of how many times she went to the ER, this mother answered: Around the time of the first two miscarriages (between her firstborn and second-born child), about 15 times. For her most recent full-term pregnancy, she went to the ER 5 times but for things that she thinks could have been handled in clinic "if they just would have taken me seriously."

She did note that, during her most recent pregnancy, she felt more secure in herself, having had another successful pregnancy with her second child a few years earlier. She stated that the clinic felt more responsive. She felt people "were more on top of things," were better at calling her back sooner. She reported having direct phone numbers for some of her care providers. She had a lot more visits due to getting weekly injections to prevent premature birth, and found the clinic's new nurses more pleasant and responsive.

- When asked about the changes she described in her care experience across pregnancies, she attributed improvements to the better personalities of the new nurses and other staff changes rather than to any system changes.

This mother also spoke about her appreciation of the home visits, which she received once per month from her main PNCC nurse and another PNCC staff person. She reported that it was "different from being in the clinic, more comfortable," that her PNCC nurse listened and gave good advice.

The mother also reported that she did have one post-partum home visit and was supposed to have two but the other one "didn't work out."

Other support services: This mother reported that she was not able to participate in parenting or centering groups as she could not coordinate the meeting times with her visits for shots and clinical care and it felt like too much.

She also said that she was not aware of the Baby Closet, "had heard rumors that the clinic had it" but that it was never offered to her.

When asked if there was anything she needed that she felt she couldn't get during her pregnancy, this mother identified that she had felt a need for a belly support during her most recent pregnancy because the one she used in a prior pregnancy no longer fit properly. She said that she had tried to get one but

the insurance denied it because it had paid for the previous one and insurance only pays for one.

This mother did note satisfaction with the labor and delivery setting, process, and nurses.

At this point, she remains covered by Medicaid but reports being unable to get a primary care doctor, as most have very long waiting lists for new patients. Her previous provider dropped her because she has missed three appointments, which she asserts happened because of problems with the transportation company. So she currently relies on urgent care clinics and the ER.

- This mother echoes the mother from Site #2, who felt unable to get needed support or care once she was outside of the post-partum window, even though she remains Medicaid-enrolled.

- Such a lapse in care coordination and primary care access during the inter-partum period for women in their childbearing years may significantly affect the spacing of future pregnancies, the parenting capacity of these mothers, and their health when they enter into their next pregnancies, all of which may affect the health of future babies and the long-run costs to the state Medicaid program.

IIIB. Site Visits

As of December 1, 2013, the evaluation team conducted site visits to 15 clinics identified by DHS as OBMH sites, meeting with 87 clinic staff members, and with each of the three participating health plans/HMOs. The HMO site visits included meetings with the CEOs and Medical Directors, along with senior managers and care coordination staff.

The information provided below, based on the completed interviews, was reported in early 2014 to assist DHS in its continuous quality improvement efforts. It is important to note that the study did not include an opportunity to conduct a second round of site visits in 2015, so we were not able to assess the degree to which the challenges and issues identified earlier in the program had been resolved. However, the pre- and post- implementation surveys, discussed in Section I of this report, provide a view of the fidelity of implementation that supplements this early site visit data.

The Wisconsin DHS in March 2016 provided a table that identifies the actions that were taken in response to the January 2014 report. That DHS table is reproduced below.

Issue	Response	Comments
1. Inadequate, un-coordinated communication. ◆ Within clinics ◆ Between clinics and HMOs ◆ Between clinics, HMOs and DHS	◆ Quarterly best practice sessions ◆ Meetings with DHS, HMOs and clinic staff	◆ How to ensure that policy changes are clearly communicated to the clinics
2. Need for up-front investment	◆ DHS issued prospective payments to HMOs to 'pass-through' to clinics	◆ Done in year 1; shortly after

Issue	Response	Comments
		implementation
3. Home visits are very difficult to do.	◆ Allowed visit to occur in other venues ◆ Policy was changed in 2014 contract ◆ Policy was changed to require attempts to do home visits; if member refused must be documented in the record	
4. Postpartum visits are hard to do within the 60 day time-frame.	◆ ACOG guideline and a HEDIS measure. ◆ Will not be changed. ◆ If adequate documentation of attempts are in the medical record, DHS will not penalize the clinic, i.e., bonus payment.	
5. 2-year follow-up is unreasonable.	◆ Policy changed to make HMOs responsible for follow-up as long as woman remains a member.	◆ Requirement for clinic to do follow-up was never implemented.
6. Lack of access to dental and behavioral health services.	◆ Will continue to emphasize the need to work with the HMO ◆ HMOs do not believe there is an issue with access; have adequate coverage in their networks.	
7. Transportation issues – pre-scheduling requirement interferes with urgent appointments; can't bring baby for postpartum visit; can't bring other children to prenatal visits	◆ Issues have been shared with transportation broker ◆ DHS attempting to resolve/mitigate ◆ MA issue across all services and populations	
8. Lack of documentation of care coordination 9. External care coordination agencies refusing to share information with clinic.	◆ New MOU requirement effective 7.1.2015 ◆ External providers reminded that they must share information with the member's HMO.	◆ Need to discuss and agree on strategies for documenting these activities.
10. FFS → HMO enrollment (express enrollment)	◆ Allowed clinics to 'count' services provided prior to HMO enrollment toward OBMH requirements, e.g., #	◆ DHS to re-visit prior strategies for getting pregnant

Issue	Response	Comments
	of visits	women enrolled in HMO more quickly
11. OB Registry – "fail, fail, fail" ◆ Duplicative work ◆ Limited functionality ◆ Can't close cases ◆ Some HMOs/clinics use to game the system, e.g., only enter women with good birth outcomes post-delivery	◆ Existing registry designed by HMOs & clinics ◆ Was not a requirement to use; documentation could also be done via excel spread sheets or EHRs ◆ New registry implemented late 2014 with enhanced functionality ◆ Clinics required to use new registry	◆ Cost/timing issue
12. MetaStar chart reviews ◆ Purpose not clear ◆ Burdensome ◆ No sharing of results	◆ Changed protocol for record requests ◆ Accepted records in a variety of ways ◆ Improved sharing information	◆ Continue to improve how results are shared with individual clinics and HMOs
13. Should include 'family stabilization' as an outcome, not just focus on birth outcomes; give more 'credit' for meeting the psycho-social needs	◆ Focus on birth outcomes will not change ◆ Meeting psycho-social needs helps ensure better birth outcomes; is not an outcome by itself	◆ Clinic and HMO staff involved in establishing original goals
14. Eligibility criteria ◆ Is too narrow ◆ Should accept women regardless of the status of her pregnancy (e.g., beyond 18 weeks ◆ Living in certain zip codes should not be a criteria ◆ Should include SSI – HMO members	◆ Eligibility criteria was simplified - Focus remains on getting women enrolled early in their pregnancy - Continued focus on high-risk women, e.g., prior poor birth outcome, chronic condition, teen mother ◆ SSI-HMO members will be eligible effective 7.1.2014	Criteria based on data on disparities, research, best practices, OB care guidelines

With regard to Items #13 and #14, the evaluators reaffirm the initial report's message, based on findings from this final report. The 2014 preliminary report and this final evaluation did not call for eliminating a focus on birth outcomes but, rather, adding "credit" for clinics meeting various more proximal measures related to psycho-social needs. A specific focus on the delivery of the social support services might better promote practice changes beyond the standard clinical care models. As well, it will remove the existing selection bias – the incentive for clinics to cherry pick their patients in favor of those likely to deliver a positive birth outcome, instead providing them incentive to deliver supportive care for higher risk patients.

The eligibility criteria also create a selection bias, incenting the inclusion of women most likely to enter care early and exclude higher risk women who enter care later. It is true that best practice calls for early prenatal care entry, and it is understood that DHS wants its providers to care for women early in pregnancy. Presumably, DHS wants the OBMH programming to bring in women early who would otherwise have entered care late – rather than simply counting women who would normally access care early in pregnancy. But the OBMH program, as structured, favors inclusion and care for women who would enter care early *regardless of the OBMH, rather than because of the OBMH*, while excluding from the program those who may most need the supportive services the OBMH provides.

Meanwhile, the higher-risk women -- those who had and continue to enter care late, who had been and continue to be at risk for poor birth outcomes. That may in part explain the failure of the OBMH to significantly affect the birth outcomes of the sample of enrolled women, who may have been selected for inclusion based on criteria that deemed them less likely to deliver a poor outcome. For this reason, we recommend against early prenatal care entry as an inclusion in the program.

The following text reproduces the preliminary report delivered to DHS in January 2014. The information reported and conclusions reached by the evaluators are based on qualitative data gathered through site visits and interviews. The interviews reflect the experiences and perceptions of the person speaking. The evaluators, when possible, reviewed on-site documents to confirm various site visit observations.

Table 6 summarizes the interview sites and subjects.

Table 6. Site Visit Participants

	Number of sites	# of persons interviewed
Clinics	15	75
HMOs/Health Plans	3	12
Total Site Visits	**18**	**87**
Interviews by Occupation Type		
Physicians	14	
Nurses/Nurse PNCC	19	
Nurse/Midwives	7	
Medical Assistants	11	
Social Workers/PNCC	9	
Customer Service Rep/Front Desk	9	
Medical Office Directors/Administration	7	
Medical Office Other Admin	3	
Insurance: Directors or Executives	4	
Insurance: Other Administration	4	
Total # of persons interviewed	**87**	

IIIA1. Designated Sites but No Apparent OBMH Programming

Five clinics visited and currently reported as pilot OBMH sites had no women enrolled in the pilot at the time of the site visit.

Two of them, both independent community-based clinics, had just begun learning about the program and how to get it underway. One site's staff team expressed confusion about the nature of the program and did not feel that that staff had been provided adequate information from clinic leadership, the state, or HMOs about what was intended. The other clinic had begun exploring the program's potential but was uncertain about how many of its patients would qualify under the pilot criteria. Another clinic had aggressively enrolled women in the program at the start, but stopped implementing the program when it had a significant turnover it its key provider staff. It was preparing to re-start the program in February 2014.

Two clinic sites in Milwaukee, both affiliated with an academic residency program, had not implemented the program but were listed as pilot program sites. In these clinics, the staff on the whole was unfamiliar with the program. The lead nurse at these clinics indicated some early attempts to participate that had fallen aside due to other pressing priorities. Those lead nurses showed very limited familiarity with the specifics of the program.

The common thread here: Neither clinic had been provided information from the senior leadership about the medical home, its priority, or how additional dollars could come to the clinic to bolster resources and service capacity. The lead nurses had apparently been provided information packages and told to fax to the participating HMOs the data sheets about patients who may qualify. One of the clinics' lead nurses had been under the misunderstanding that the program was only for pregnant women under the age of 18 who reside in specific zip codes. One nurse manager had been using the wrong form to record information and was uncertain about where she should be sending the pilot program enrollment information.

In each of these clinics, no structured programming was initiated, and no additional staff hired. These clinics do not have in –house prenatal care coordinators or prenatal health education services, and do not conduct on-site prenatal specific services such as Stork's Nest, parenting classes, or First Breath, a smoking cessation intervention. Rather, these clinics refer their patients to their parent hospital for all prenatal support services.

The clinics did have an on-site social worker and a referral specialist, but these staff members work with all patients and do not have any specific responsibility for the needs of pregnant women.

At the same time, both of these clinics had attained NCQA designation as Patient Centered Medical Homes (PCMH). Those interviewed were unable to report what level of PCMH certification they have attained. The medical home activities that they reported included conducting some limited home visiting via medical residents, but not for pregnant women. These home visiting services were structured to meet the residency training program requirements, and focused on homebound elderly.

The clinics did, however, respond that they could benefit from additional resources that could enhance services for pregnant women. They indicated a need/interest in a health educator and in the ability to offer parenting classes.

IIIA2. Clinics with Active Medical Home Programming

The evaluation team received information about active programming related to the OBMH at ten sites. Among these, wide variation in capabilities exists across sites

Several sites offered or were developing Centering Pregnancy-like programs that they use in conjunction with the OBMH. One site had engaged six obstetricians in a new Centering Pregnancy model. Several sites also had or were adding Stork's Nest/Baby's Treasures/Baby Bucks/ Baby's Closet incentive programs, PNCC services and Presumptive Eligibility processes.

Most of these clinics had obligated the resources up-front to hire additional care coordinator(s) and augmented those functions at the clinic. It appeared that the pilot implementation requires an up-front investment to hire the care coordinator, train staff, etc. The clinics associated with larger infrastructures (major hospital or health system) may be more prepared to invest resources and time up-front and can more easily withstand delayed payments from the HMOs.

Clinics emphasized the importance of the personal bond and trust, between staff (particularly the case managers/care coordinators and schedulers) and the clients/patients. Clinics reported having a single standard of care for all pregnant women, regardless of whether they were enrolled in the pilot. The clinics uniformly believed that the pilot has had spillover effects, raising the overall standard of care for all patients.

Several clinics that are affiliated with larger systems are PCMH level 3, so the pilot is consistent with this nationally attained status. One clinic, also associated with an academic residency program, reported making substantial changes to clinic processes, including the intake with nursing staff, adding care coordinators on-site, and expanding communication between nursing and other clinic staff/providers. This clinic emphasized starting prenatal visits as soon as women have a confirmed pregnancy, first with a dating ultrasound, rather than waiting until the completion of the first trimester.

Most of the changes associated with the OBMH pilot projects fell into the arena of care coordination and the addition of other support services. Three significant innovations in this arena were noted:

- physician participation in group visits and parenting classes, in one case extending beyond the clinic setting;
- use of labor and delivery nurses as prenatal care coordinators, who provide extensive (monthly) home visiting and then have the potential continuity with a patient into the clinical process of labor and delivery; and
- the bridging of social service and private medical practice with psycho-social services.

All clinics noted the additional tracking, monitoring, and paperwork associated with the pilot patients relative to their non-pilot pregnant women. Even with this, the clinics expressed commitment to the program, with appreciation extending beyond the increased payments.

IIIA3. Benefits

Several participating clinics observed that the OBMH "adds credibility" to the practice's efforts and adds momentum toward developing an organized structure.

The medical home pilot has helped clinics institutionalize and formalize practices that had already been occurring. This was variously described as "a more systematic, structured process" that supported the following improvements:

- More pre-visit planning is being conducted.
- A more personal scheduling system has been implemented assigns each provider a dedicated scheduler and attempts to provide continuity of care by a single provider for each pregnant woman.
- Additional care coordination/referral capacity takes stress off of the time with the physician and other clinical providers.
- Nurses spend more time with the patients doing patient education.
- A more team-based approach, with better coordinated care, provides patients with more individual attention.
- Physician satisfaction increases with the support of the care coordinators.
- Providers spend more time doing their clinical care and patient education during the visit and know that they patients will get the proper referral and follow-up.
- Clinics may have been able to increase the number of patients providers can see, get them in sooner, and open up "special appointments" in the schedule.

IIIA4. Perspectives and Challenges

The site visit participants provided detail and perspective about specific aspects of the OBMH implementation, including metrics surrounding service delivery, performance and outcomes.

IIIA5a. Home visiting

All clinics visited, except one, reported that many patients do not want or refuse home visits. Even when they agree to receive home visits, they are often not at home when the visit is scheduled. Their addresses and phone numbers change frequently. This has made it very difficult for the clinics to meet the original OBMH requirements for this service.

The clinics reported that the program's expectations/requirements about home visits have been relaxed. But the clinics were not certain whether DHS had officially changed the requirements, or if the HMOs were simply not enforcing the requirements. The HMOs, in turn, reported that the DHS was no longer enforcing the requirement but they were not certain if this was an official change or simply a relaxation of an existing parameter.

At the interview, most clinics reported that they no longer aggressively pursue home visiting. Several, however, did still require a single postpartum home visit. One provider stood in stark contrast to the others in the home visiting arena. This provider characterized its entire OBMH enterprise as a home visiting model, and reported that its care coordinators visit the enrolled patients home approximately 10 times in a pregnancy. The provider reported that, among all patients who qualify for its OBMH pilot, 52% accepted participation in its home visiting model, while 48% declined such engagement.

This provider also reported readily achieving a postpartum home visit within two weeks following delivery. This home visit allows an opportunity to screen for depression, schedule the postpartum clinic visit, discuss birth control, and discuss parenting skills.

IIIA5b. Postpartum visit

Nearly all sites noted difficulty scheduling and attaining the postpartum visit within 60 days. This includes the provider that reports success in its home visits. Generally, most reported that a visit is regularly scheduled within the 60-day time frame but the patient often cancels or misses that appointment. Nonetheless, the clinics assert that they can usually get the patient in for a visit eventually, and often within the next several weeks.

Several clinics expressed frustration that the entire incentive is lost if they cannot attain a post-partum visit in the required time frame. They assert that the incentive payment should not depend on whether the post-natal visit occurs, if all other prenatal metrics are met. One clinic proposed a graduated incentive payment, with one level for attaining prenatal metrics, and a separate payment for attaining postpartum metrics.

On the other hand, another physician voiced the concern that a 60-day postpartum visit was too late to screen women for postpartum depression. This physician works at a family practice clinic in which the staff asserted that they do not have much trouble getting women to return for postpartum visits because the women are bring their babies back to that same clinic for infant care.

It was noted that this same-site care for both the mother and the baby provides such benefits, encouraging a mother to adhere to her own care schedule because she can meet her baby's care needs at the same time and place. The mother can also utilize the Medicaid transportation vendor who will transport both mother and baby to the clinic location if both have appointments. This differs from circumstances in which the woman's care occurs at separate locations from that of her baby, both geographically and temporally.

IIIA5c. Follow-Up for "Poor Outcome"

The HMOs and some clinics reported that the OBMH program has no mechanism for monitoring or enforcing the required two-year follow-up for women who have poor birth outcomes. It was asserted that this provision is a meaningless component of the program, a "fantasy," "unrealistic," and that the two year follow-up simply does not happen.

(Note: The degree to which clinics perceive their responsibility for the two-year follow-up for poor birth outcomes would presumably influence the selective enrollment discussed earlier in this report.)

DHS later determined that the provision was never implemented and informed the participating clinics that follow-up for poor outcomes was the role of the HMOs, not the clinical providers.

IIIA5d. Service Challenges

Challenges persisted for some of the clinics with obtaining dental or other specialty care for their OBMH enrolled patients, but others reported no problem with referrals. Other services elicited regular expressions of concern:

Patient transportation: Even after DHS changed the Medicaid transportation vendor – transportation challenges impeded women's ability to keep their appointments. Transportation providers only transport the patient, and refuse her ability to bring along her new baby. This means that patients cannot maintain their appointments unless they have arranged childcare. It was also reported that patients must schedule rides two days in advance, and the interview participants did not mention or express awareness of the ability to call for rides within three hours for urgent situations. The need for advance scheduling is not considered an effective model for handling the needs of women in high risk pregnancies, who may have concerns or issues arise that require a same day or next day visit. It was noted that a patient in these circumstances (for example, spotting, elevated blood pressure, swollen ankles, etc.) might need to rely on an ambulance call, ultimately costing the Medicaid program significantly more than necessary.

The comprehensive assessment component was reported as being more intensive in terms of referrals, and can get overwhelming. The process may raise expectations of services, but it remains difficult to find the providers and services. Clinic staff also reported difficulty gaining Medicaid approval for certain treatments and prescriptions in the behavioral health arena.

Behavioral Health: Some clinics have extensive in-house capacity to handle needs, while others are quite limited. They tended to make due, using the primary care providers for prescribing and more limited ability for external referral for psychiatric care. Behavioral health providers on staff were usually not equipped to care for women who have severe mental illness requiring complex medical management (i.e., antipsychotics) or substance use disorders. Most clinics reported great difficulty finding providers to whom they can refer their patients for behavioral/psychological therapy during pregnancy. In some cases, given the real or perceived lack of services, the clinics may not have been

screening or referring for substance abuse treatment in a rigorous manner.

At the same time, at least one HMO asserted that they have a very robust panel of providers available to meet the behavioral health needs for pregnant women, and that there should be no problem in this regard. This HMO expressed surprise and concern that any health care provider should perceive a lack of available specialty providers for referral. It was suggested that there may be a need to bolster the communication to OBMH providers about referral and resource availability, encouraging them to utilize the HMO to make needed referrals.

One community based clinic stood apart from the others regarding access to specialty services. It expressed confidence in this arena. This clinic described a program titled Specialty Access for Uninsured Patients (SOP), in partnership with Froedtert Hospital, that providers mental health services within 2-3 weeks and, if urgent, within a day or, at most, a week. This clinic also asserted that its case managers are readily able to secure alcohol and substance abuse treatment services for its patients, noting that its prenatal patients sign contracts related to opiates and controlled substances and undergo regular urine testing.

Other cross-system coordination: One clinic also described what it considered a smooth transition for women who present for care in the Froedtert emergency department. A system called My Health Direct assures that a woman in the emergency department, once determined pregnant, gets connected with a clinic, which has times served in the provider schedules to provide follow-up care in the clinic for such women.

IIIA5e. Coordination between clinics and HMOs

Clinics reported a highly variable degree of activity, assistance, and engagement by HMOs. Most often noted: The challenges in managing a smooth and timely transition from fee-for-service (FFS) to enrollment in an HMO. Medicaid allows a newly eligible Medicaid member 90 days in FFS prior to enrolling in an HMO. A pregnant woman who is newly eligible for Medicaid may miss the 16-week window to qualify for the Medical Home pilot enrollment because she is not yet enrolled in an HMO.

Some patients are enrolled in an HMO but the clinic does not know this. It seemed that women, with some degree of regularity, may be post-dated into the medical home retrospectively. One clinic reported situations whereby a patient changes from FFS to an HMO late in her pregnancy, so that she is switched to medical home status after delivery, as a retrospective case.

The transition process from the HMO that withdrew from the Southeast market and who had a majority of pilot patients, was not smooth in all places, such that some patients reverted to FFS. This presented further challenges in tracking the OBMH status of patients.

Some HMOs seemed to overlay additional services to keep track of their patients and, as reported by one HMO, “focus on making their members feel special.” In such cases, the HMO provides its own care coordinators, peer support programs, and “baby shower” and “stork nest” type programming.

This may be in parallel to whatever is being provided by the clinic.

Neither the clinics nor the HMOs expressed clarity on how the support services provided by the HMO collaborate or avoid duplication with those provided by the clinic. Several persons noted a need for better coordination such that clinical providers understand what the HMO is providing.

Several very positive points emerged about the relationship between the HMOs and clinical providers. A close and familiar relationship was evident among the various professionals. Both the clinic and HMO staff described a collaborative relationship working toward shared goals.

IIIA5f. Care Coordination

All OBMH clinic staff focus on care coordination as the heart of the pilot program.

Clinics expressed concern about the lack of structure for how to document, monitor, and measure care coordination in the medical record, and that this was not a component of the registry (described further in the section on Data Monitoring).

Interview participants suggested that the DHS seminar on Care Coordination should have addressed how to document care coordination. Instead, it was noted that the seminar focused on what care coordination is and how to do it. Some providers found this "insulting" in that the DHS staff does not actually work with patients. Providers perceived that state officials would not understand the challenges of clinical practice, the realities of their patient populations, or the challenges inherent in care coordination.

An HMO leader also voiced concern that some OBMH sites are using external PNCC providers, and that those PNCC providers often refuse to share patient information and documentation of services. The state payment for external PNCC services, this HMO leader asserted, has created a cottage industry and lack of clinical oversight. These stand-alone PNCC providers operate in a somewhat autonomous manner and may refuse the sharing of medical information with the medical / clinical provider.

IIIA5g. Registry and Data Monitoring

All of the clinics and HMOs interviewed expressed a wide range of concerns about the OBMH registry, managed by the Center for Urban Population Health (CUPH), and about data input by sites. Overall, it was noted that the fields in the registry needed to be updated to increase its utility to the clinics and to the OBMH quality improvement process.

The CUPH OB registry was not considered user friendly. One clinical leader expressed frustration that the clinics don't know who to contact to ask questions pertaining to the registry.

Among the very common problems reported: cannot run reports, cannot enter multiparous, no free text field, can't mark a closed case. One frustrated staff person simply concluded: "fail, fail, fail."

A clinical leader reported concern that the registry fields focus on standard ACOG services and measures, lacking fields to report information about delivery of OBMH care coordination and

support services. This clinician believed that such reporting offers nothing beyond existing quality review that would inform the OBMH process and outcomes.

HMOs noted that some clinics may not have been entering and updating the data in the registry in real time but, rather retrospectively filling in fields. This may have been where selective enrollment occurs, such that women who had been considered OBMH treatment patients did not appear in the registry if they did not ultimately fulfill the metrics that qualify for incentive payment.

Many concerns were also expressed about the state's High-Risk registry. Clinics most frequently shared frustration that they could not access that registry, and that the data are only viewable to HMOs. The HMOs also expressed a desire to share those data with providers.

At the same time, HMOs did raise questions about the data in the enrollment files. It was reported that the code for pregnant women are attached forever/continuously, so women who have long ago completed their pregnancies show up in the high risk registry file and have been contacted in error by the health plans.

One clinic noted challenges in getting the data to complete the fields pertaining to the birth. The clinic is part of a call group with other clinics and, if the baby is delivered by a provide from the call group, the OBMH clinic will not itself have the delivery information such as birth weight and has difficulty attaining the information to complete the registry data.

IIIA5g. Documentation and Performance Metrics

Clinics generally reported that data collection was complicated and that required documentation feels burdensome. They often expressed concern about trouble showing outcomes, particularly because of their distrust with the registry. In order to compensate for this, some clinics reported doing their own chart abstraction, pulling hospital data, and keeping their own registries on excel files.

Beyond this, both clinics and health plans expressed the need for clarification about requirements to receive the payments, particularly with regard to the postpartum visit, home visit, and the nature of care coordination.

The participants reported feeling that the expectations and evaluation metrics remained unclear, and that they may be held responsible for things outside of their control. Areas of remaining uncertainty included the requirements for home visits, chronic conditions, zip codes, and weeks of entry into care (16-20). Many were aware that DHS had issued several Frequently Asked Questions (FAQ) documents, but the participants did not know if these were official changes to the contract requirements, and felt that questions often linger. As well, clinics reported uncertainty about whether the HMO or DHS was the arbiter of compliance.

Several clinics reported feeling that the MetaStar chart review process was confusing, unclear in both process and objectives. The audit elements, they asserted, were not consistent with contract requirements. Or, in cases where the contract requirements had evolved (home visits, for example), the MetaStar audit was still auditing for the original requirement.

The audit results were not communicated back to the clinics in a timely manner and, in some cases, not at all. One clinic had some payments put in jeopardy as a result of the MetaStar audit – a process about which the HMO reported being completely unaware. HMOs reported never receiving a report from the MetaStar audits. One HMO characterized the MetaStar audit process as "crazy" in requiring the clinics to copy and fax extensive amounts of paper over to Madison for review, rather than being on-site to do medical records review. One clinic noted the time intensive requirements and duplicate work associate with the MetaStar audit. This clinic suggested that the audit should be structured such that the data elements can be imported directly from the registry or the EPIC/EHR systems.

Interview participants noted a broad range of concerns about the performance metrics themselves. Among the assertions were the following:

- The program outcome measures do not account for multiple births and the effect on length of gestation and birth weight.
- The number of required prenatal visits is not evidence-based and it is not clear what counts as a prenatal visit.
- Patient may deliver early and thus fall short in the number of visits, but still have a good outcome and should merit a bonus.
- The measurement of a "positive outcome" pertaining to gestational age and birth weight should have some exclusions or allowance of sub-characteristics (e.g., gestational diabetes, where a 36 week healthy baby is likely to be a good outcome).
- Visits to specialists should be included toward meeting the total visit requirement.
- Visits with social workers/care coordinators should be counted regardless of where they occur (no home visit requirement).
- Important outcomes, from a lifecourse perspective, may be less tangible, such as the provision of a stable care environment. For this reason, the OBMH program should value the process measures as much as the outcomes.
- Metrics do not include patient satisfaction and parenting outcomes.

Recommended improvements to performance metrics included 1) up-front and automatic entry into the registry of all women who qualify for the OBMH, and 2) incentive structure to encourage provision of OBMH service to highest risk patients, with no penalty for non- attainment of clinical goals.

Many of the clinical staff leaders expressed a preference/need for the performance criteria to reflect the social determinants of health over the medical process measures. One community-based clinic, in particular, spoke poignantly about the challenges facing its population. The clinic, they noted, must limit its home visits because of safety concerns for its staff, clinic liability and insurance. This clinic

staff, when visiting homes, brings along a security guard and does so to deliver food or set up cribs.

This clinic expressed the challenge in simply assuring that the patients have their most basic needs met for proper food, clothing and housing, asserting that, from the starting place of its patients, these will be more important toward achieving a healthy baby than the number of medical visits. And after the 15th of each month, adherence to medical appointments becomes a remote concern for patients as they focus on attaining food and bus tickets.

With this context, the clinic staff here spoke about its programming focus on social supports: the group visits, parenting discussions, clothes closet, meals, cooking classes, mobile market. They enthusiastically embraced the OBMH model in that it promotes their efforts in these arenas. At the same time, the audit process measures focus on the elements that, at least for this clinic's population, did not feel to them as relevant or, at this point, attainable.

IIIA5h. Incentive Payments

All clinics actively enrolling women in the OBMH pilot program expressed that the Incentive payment was sufficient, and very much appreciated. They noted that that it puts reimbursement for publicly insured patients on par with that of private patients.

The clinics and the health plans both reported experiencing significant lag in payments, taking many months for reimbursement, although this did seem to be improving.

IIIA5i. Criteria for Qualifying for Program

Interview participants frequently expressed a desire to change/broaden the criteria for women to qualify for the program.

The zip code restrictions, clinics reported, failed to accommodate the transitory nature of housing circumstances for the patient populations in these communities.

The clinics and HMO participants also argued against the requirement to enroll prior to 16 weeks gestation. Later enrollment, they asserted, would benefit many high-risk women and could produce intensive impact on the "late arrivals."

Another suggestion: The program should allow SSI Medicaid members into the pilot.

IIIA6. Leadership

The OBMH implementation appeared to depend, at the minimum, on two elements:

1. Commitment by both an administrative and a clinical leader – in many cases a nurse manager and a clinic manager – who communicate the program to the full staff and make the goals and expectations of the program clear.

2. Up-front resource commitment to add a care coordinator or other designated capacity, rather than simply adding new tasks to the workload of existing staff.

Staff at clinic sites that were struggling with implementation suggested that participating sites should be required to have a single person specifically designated as the Medical Home Program Coordinator. That person would need to clearly define the program with staff and what it means, how to implement it, and how it is financed.

A staff member at another clinic went further, suggesting that DHS require and train a Program Coordinator, assuring each site lead knows how to make the program work and, prior to being designated an OBMH site, report to the state how the program will fit in the practice.

Such suggestions revealed frustration by clinic staff and a belief that the program had not been effectively introduced to or understood by the clinic team. In these cases, despite being a designated OBMH pilot site, uncertainty lingered about whether this program was a fit.

The designation of clinic sites by the HMOs seems to have been done in an informal manner. It was reported that one HMO had prepared an official agreement with its OBMH sites, but the other HMOs had simply discussed it with the sites, with participation based on a verbal agreement. This lack of structure may have contributed to some clinics' lack of formality in their initiation or participation.

IIIA7. Relationship with State Agency

All persons interviewed voiced support for the intent and goals of the OBMH initiative. Some noted that the DHS had been very open to suggestions and listening to input. They expressed appreciation that DHS leadership had been on site and available, and willing to make changes to the program.

Some leaders expressed a belief that this program had promoted strong collaboration among the HMOs and providers. At the same time, participants also offered more critical remarks about the program's implementation. The executive leaders were particularly critical about the strategic and tactical approach to this effort, and about the role of the state agency.

The following observations were noted about the OBMH program:

- The current model is more theoretical than a true clinical process for improvement. It does not change the culture of service delivery.
- Executive leaders asserted a need for strong localized governance of this kind of effort, and feel that this has been somewhat absent.
- OBMH project would benefit from leadership by a local coalition, rather than attempted leadership by state agency staff.
- A true collaborative model among providers and health plans would be "intimidating to state partners."
- The program measurement and reward criteria are not based on measures that address the environment and circumstances that lead to poor birth outcomes.

- The current state of fragmentation and competition among HMOs and providers impedes the needed collaboration.
- Lacks a culture of engagement, and poor official communication on policy.
- Lacks a single point of responsibility among the providers and HMOs.
- The state needs to focus on what policy decisions are needed to assist HMOs and providers, rather than prescribing specific elements of practice.
- Would prefer if the state engage as a partner, working with HMOs and providers to develop a "community standard of care" and promote innovation over fragmentation.
- The HMOs did not feel that they had meaningful input for developing the guidelines for the medical home project.
- The program has too much variation, and not enough sharing. For example, the infant mortality review that is underway should be shared.
- Participants benefit most from best practice seminars and peer review.
- The program lacks sharing of clear and meaningful measures and regular data feedback.

Often noted: a desire to explicitly involve others who are more closely involved the social determinants of health -- jobs, housing, education, and nutrition – in this collaborative model, peer learning, and metrics.

IV. Conclusions and Recommendations

These final conclusions and recommendations represent a consolidated statement based on the statistical findings, case studies, site visits and interviews. They are from the report authors based on the evaluation findings in the context of the literature review provided at the front of this report.

Medical Homes or enhanced prenatal care interventions are broadly defined, with several and varying components. It remains unclear what elements of these models may be effective and with which populations. The models may be informed by an understanding of the social determinants and a lifecourse perspective on health, in service toward the goal of improved clinical outcomes.

Wisconsin's OBMH program aims to improve birth outcomes, and in doing so focuses on medical processes and outcomes – number of prenatal visits, partum visit, birthweight. This evaluation found little impact on these clinical measures, consistent with the existing literature around Medical Homes or enhanced prenatal care, which also reports few, modest or mixed results.

The Wisconsin OBMH did show a small, clinically meaningful improvement in participants' receipt of behavioral health and/or AODA services. Also, the pilot clinics' staff generally viewed the program favorably, appreciating their ability to add needed care management and social supports for their patients. The program appears to improve the satisfaction of providers working in these clinics. Pilot clinics did report their efforts to improve their responsiveness to patients, assure receipt of care management, and supply women with community resources. Any improvements that did occur in these regards, however, cannot be solely attributed to the OBMH program, given the number of pilot clinics also pursuing NCQA medical home certification and participating in other parallel initiatives.

Indeed, the OBMH pilot clinics were a self-selected group that might have been already relatively high performers, chosen because of their interest and intent to implement the program and the HMO's belief in their capacity to do so. This process excluded those clinics that might need improvement through such a program, and also misses the opportunity to reach the highest need patients that may be receiving care at less resourced clinics. As well, the pilot program's requirement that women initiate care prior to 16 weeks may select women already likely to produce positive outcomes, again missing an opportunity to improve process and outcome measures among the highest need mothers.

Recommendations to consider include the following:

1. Require participation by all clinics in a defined geographic area where their OB practices are serve a specified percentage of Medicaid women, regardless of zip code of mother's residence.
2. Require offer of programming to all high risk women, with no selection by providers outside of the program's inclusion criterion, and do not require early initiation of prenatal care.
3. Develop a strong well-defined participation agreement between the clinics and the HMOs.
4. Deliver a well-structured orientation program for clinic leaders and clinic staff, with clear expectations for program implementation and reporting.
5. Measure and reward clinic performance on process measures in the medical home inventory, a range of metrics pertaining to the assurance of social service support and delivery (food, housing, safe environment, etc), and the integration of behavioral health and primary care.

6. Address within the model the lingering needs of mothers after the 60-day post-partum period as it affects post-neonatal well-being of the child, mothers' spacing of next pregnancy, and the health of the mother at the outset of the next Medicaid-supported pregnancy.

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