**Partners in Pregnancy**

**Location:** Virginia (statewide)
**Date Submitted:** 11/2008
**Category:** Promising Practice

**BACKGROUND**
In Virginia, 10,300 babies born each year are low birth weight (LBW), and 3,000 of these are Medicaid births. Virginia's infant mortality rate is 7.2 per 1,000 live births, making it the 18th highest state in the country and above the national average for infant mortality. Despite advances in health care, research, technology and millions of dollars invested in the prevention of low birth weight, the incidence of LBW has increased; 7-11% of all live births are complicated by LBW. Improvement in neonatal technology has improved survival rates but at a high cost. Neonatal intensive care days are among the most expensive, and the social impact from significant morbidity after birth is staggering. Partners in Pregnancy is a partnership between Comprehensive Health Investment Project (CHIP) of Virginia and the Optima Health Plan aimed at improving health outcomes for high risk pregnant women and their infants.

Partners in Pregnancy provides high-risk pregnant women and their infants with the care they need to survive and grow up healthy. The program involves home visits and case management by CHIP nurses and outreach workers, in combination with a medical home and regular nurse consultations provided by Optima. This program has been effective in improving the lives of at-risk mothers and their infants, and can be utilized by other programs that share the goal of improving health outcomes for at-risk women and children.

**PROGRAM OBJECTIVES**
The overall program goal is to improve adverse pregnancy outcomes by decreasing NICU days and dollars. Primary project objectives include:

- Reduction of NICU days and costs
- Maintenance of eligibility for Medicaid coverage for mothers and infants
- Increasing percentage of infants with a medical home
- Promotion of healthy behaviors to improve health outcomes

**TITLE V/MCH BLOCK GRANT MEASURES ADDRESSED**

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<th>Measure</th>
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<td>#3: Percent of very low birth weight (VLBW) infants born in a hospital with a Level III+ Neonatal Intensive Care Unit (NICU).</td>
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<td>#4: A) Percent of infants who are ever breastfed and B) Percent of infants breastfed exclusively through 6 months.</td>
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<td>#11: Percent of children with and without special health care needs having a medical home.</td>
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<td>#14: A) Percent of women who smoke during pregnancy and B) Percent of children who live in households where someone smokes</td>
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<td>#15: Percent of children 0 through 17 years who are adequately insured</td>
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**TARGET POPULATION SERVED**
The Partners in Pregnancy project serves low-income women in 11 urban, suburban and rural communities in central and eastern Virginia. The target population was identified from pregnant Optima Health Plan-enrolled women based on a demographic assessment of high risk factors, including past history of pre-term labor, low birth weight and other measures of poor health outcomes. As of November 2008, over 700 women have received program services.

**PROGRAM ACTIVITIES**
CHIP nurses were trained according to the March of Dimes recommendations for the care of high-risk pregnant women. Ten March of Dimes nursing modules were presented in 2-day trainings across three regions of the state by Sentara/Optima Partners in Pregnancy nurses. Nurses received copies of each of the modules. Several months after the initial training, a follow-up training was conducted to instruct nurses on how to apply March of Dimes recommendations to specific high-risk pregnancy scenarios.

Great Beginnings Start Before Birth prenatal training was offered to all outreach workers. This training covered the three trimesters of pregnancy, nutrition, depression during and after pregnancy, labor and delivery planning, breastfeeding, cultural implications on pregnancy and
lifestyle issues such as domestic violence, smoking, substance and alcohol use, and motor vehicle safety during pregnancy.

Bright Futures Guidelines were used by all CHIP nurses and outreach workers as a basis for health supervision activities conducted in the family’s home after the child is born. All CHIP nurses and outreach workers receive training on the Bright Futures Guidelines during CHIP Core Training. In order to make these training materials and protocols more practical for use in the home environment, several tools were developed. Using the March of Dimes modules covered in the training, CHIP of Virginia staff created two case management tools (information sheets) for CHIP nurses, which included the following:

1. Prenatal Key Questions: outlines signs and symptoms of the most common conditions leading to preterm labor and suggests questions to be asked by the nurse to assist in assessment and case management.
2. Prenatal Intervention Sheet: outlines, by diagnosis, the critical aspects of case management including important areas for teaching and when additional referral or communication with the women’s physician is required.

These two documents were condensed in two laminated sheets, allowing for ease of use during home visits. Also, each staff member receives a Bright Futures Pocket Guide to assist with anticipatory guidance during home visits.

Using the Great Beginnings Start Before Birth prenatal curriculum and training, CHIP staff created key trigger questions by subject area for outreach workers to use on home visits. These trigger questions were modeled after Bright Futures questions but were adapted for key aspects of pregnancy including nutrition, depression, prenatal care, stress, and lifestyle issues. Outreach workers use these trigger questions to structure their prenatal home visits, to stimulate discussion with prenatal women on key issues, and provide a guideline for teaching. Parent Education Handouts for each subject area are referenced under the trigger questions.

PROGRAM OUTCOMES/EVALUATION DATA
Cost data were calculated Per Member Per Month (PMPM) for control and intervention groups. In both groups cost categories were defined as: Emergency Department (ED), Home Care, Inpatient Admissions, Outpatient Services, Doctor Office Visits, and Pharmacy.

Women in the intervention group had PMPM costs that were higher for Emergency Department, Home Health, outpatient services and office visits (an expected variance due to program participation and encouragement to seek prenatal care). However, the intervention group had a lower cost than the Control group mothers in pharmacy use, and a substantially lower PMPM cost for inpatient admissions ($176 PMPM) when compared to the Control mothers ($185 PMPM).

The data are even more significant for the infants in the intervention group, where the PMPM cost for all indicators was lower when compared to infants in the intervention group, except for a slightly higher ED cost. Most notable was the difference in inpatient cost, which was $239 PMPM for the intervention infant as compared to $539 PMPM for the control infants.

The intervention infants spent less time in the hospital, with 4,584 hospital days/1000 infants compared to 5,444 hospital days/1000 infants for control infants. Healthy behaviors were also impacted by participation in the program, with a 55% decrease in maternal smoking, a 100% decrease in maternal alcohol use and a 70% decrease in stress levels for those who reported high stress levels when they first entered into the program. Behavior changes were self-reported by the participants to program staff.

Pre/Post testing and course evaluations of the trainings demonstrated that outreach workers left with increased knowledge of pregnancy related issues and a greater set of teaching skills to use during home visits.

The Partners in Pregnancy program evaluation showed that the average claims of a participating pregnant woman and her child through the first year of life was $6,658, compared with $8,945 for the control group. This is a net savings of $2,287 per pregnancy, and an overall return on investment of 1.26. CHIP babies spent 44% fewer days in the hospital than the control babies. NICU days per 1,000 were 3,086 for CHIP babies and 6,417 for the control group. On average, of children enrolled in CHIP, 92% have health insurance, 95% have a medical home and 94% are up to date on their immunizations.

PROGRAM COST
Investment costs for planning the intervention totaled $22,393, which covered expenses for data management, modest funding for a nurse practitioner and nurse case manager, and program leadership. Operating expenses in the first year totaled $170,739. Included in these expenditures were support for the principal investigator, the program manager, data analyst, outreach worker and clinical support. In year two, the operating expenses decreased to $60,099, with most of the decline due to less reimbursement for clinical support.

The project has gone from being grant-funded (initial funding was provided by the Sentara Foundation) to being sustained at Optima and fully integrated into their managed care billing system. The service is now subject to prior authorization for referred members; CHIP submits claims for reimbursement.
ASSETS & CHALLENGES

Assets:
- CHIP had strong data demonstrating improved birth outcomes when pregnant women received at least four months of CHIP services prior to delivery, and therefore was better able to approach Optima healthcare with the idea of partnership.
- Optima had a strong track record of incorporating quality improvement in their health programs.

Challenges:
- The population served can be a challenge to engage due to the variety and complexity of health and socio-economic risk factors.
- The pregnant women served frequently have other children (who may have health issues) and the mothers often need support in meeting their own prenatal health needs within the context of other pressing family demands.

Overcoming challenges:
- Partnering with the family in a goal-setting process, listening to the family’s concerns and working in a comprehensive manner to support the whole family provided CHIP with the ability to address many of the barriers to health.
- The CHIP staff became the eyes, ears and hands of the health plan, bringing nursing and family support into each individual home.
- Optima’s high-tech data mining and monitoring techniques were paired with CHIP’s high-touch, in-home expertise, resulting in a very successful partnership.

LESSONS LEARNED
- A modest investment in intensive case management and education for high-risk pregnant women positively influences their birth outcomes and yields significant medical costs savings.
- A consistent mechanism for training new staff (due to periodic turnover of staff) needs to be incorporated into this type of program.

FUTURE STEPS
The program is ongoing. CHIP is also seeking to replicate the partnership with an additional Medicaid managed care plan.

COLLABORATIONS
Optima’s senior leadership was very committed and involved in the program. The Virginia Department of Medical Assistance Services (DMAS) Policy and Research Division provided support in evaluation planning as staff explored options for an additional comparison group from another geographic area not covered by mandatory Medicaid managed-care enrollment. This did not fully pan out because of the inability to match on risk factors and the lack of data on health behaviors from this group.

Each of the local CHIP programs work closely with a variety of service providers in their respective communities including healthcare providers, Virginia Departments of Social Services, Health, and Mental Health, public housing, early intervention providers, etc.

PEER REVIEW & REPLICATION
“Long Range Quality and Cost Outcomes of a Comprehensive Pregnancy Partner Program” was accepted for the poster session at the June 2008 Association of Women’s Health, Obstetric and Neonatal Nurses (AWHONN) Conference in Los Angeles, California. Optima’s analysis of the data has led to the belief that it is financially beneficial to pay for CHIP’s services; CHIP now submits claims through the commercial insurance billing system.

This program was not replicated at the time of submission.

RESOURCES PROVIDED
Demonstrating the Business Case for Quality in Medicaid: Challenges and Opportunities, Published: October 2008
Funder: Robert Wood Johnson Foundation and The Commonwealth Fund:
http://www.chcs.org/publications3960/publications_show.htm?doc_id=714632

More information about Partners in Pregnancy can be found at: http://members.optimahealth.com/health-and-wellness/mlmp-partners-pregnancy/Pages/default.aspx

Key words: Infant Mortality, Low Birthweight, Home Visiting, Prenatal Care, Medicaid, CHIP, Bright Futures

★ This program was highlighted at AMCHP’s 2009 Annual Conference with a Promising Practice award.

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