The study evaluates the effectiveness of a pregnancy intervention model (PIM) developed to improve first trimester prenatal care utilization in a population of 2,694 low-income Medicaid women. Engagement in prenatal care is critical before prenatal care can occur. Early initiation of prenatal care is important for low income pregnant women at risk for poor birth outcomes and the Medicaid managed care organizations that enroll them. Once identified and enrolled the health plan utilization medical management staff assessed these women for a myriad of high risk and socially detrimental behaviors in order to facilitate, in a sensitive manner, their access to drug treatment or any needed service. Interventions included a real time identification, reporting, incentive model using medical informatics to supplement existing clinical based assessment of high risk pregnant women and nursing care coordination that included outreach, enrollment assistance, support
services, interagency coordination, home visits, transportation and medical home assignment. A difference was found in the utilization of first trimester prenatal care visits for all women who conceived after the intervention compared to those who conceived prior to the intervention date. A difference was also noted in the “no prenatal care” category due a decrease in the number of women who did not receive prenatal care. PIM appears to be a cost effective, simple solution to a real world problem.
Medicaid Prenatal Care: Testing the Effectiveness of a Prenatal Intervention Model

by
Jan L. Buffa

A DISSERTATION

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APPROVED:

Major Professor, representing Public Health

Chair of the Department of Public Health

I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

Jan L. Buffa, Author
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CHAPTER I

MEDICAID PREGNATAL CARE: TESTING THE EFFECTIVENESS OF A PREGNATAL INTERVENTION MODEL

This paper describes the impact of a new prenatal intervention model (PIM) on the early initiation and utilization of prenatal care services by low-income women residing in the Marion and Polk Counties, Oregon. Chapter I provides the general background of the study, statement of the research question, significance and delimitations, operational definitions, and historical state, and local context for the study; it concludes by providing a conceptual model for the study. Chapter II documents the literature review process and examines both the theoretical and empirical studies in the field. Several theories have been advanced to explain the nature of health-related behaviors; however, this study will explore the theories of informal networks and social capital. The empirical studies will highlight major research in the field with a focus on prenatal care programs and their programmatic experience in assessing a variety of interventional techniques, the gaps in existing knowledge and difficulties faced in determining best practices. Chapter III describes the research design, setting, population and sample, dependent and independent variables, data collection instruments and procedures, statistical procedures and study limitations. Results of the statistical findings and study findings are presented in Chapter IV. Chapter V concludes with a summary of the key findings, conclusions and recommendations for future research.
Background

America’s health care system is less than straightforward, simple to access or affordable to the average person. It’s been described as fragmented, complex and less than optimal. Approximately forty-three million people are without some form of health insurance at any given time (Kaiser Foundation, 2005). It is within this larger context of the health care system that this study turns its attention to prenatal care and a maternity care system that is fragmented, underutilized and struggling with its management and program evaluation (IOM, 1988).

Early prenatal care is commonly understood to be care obtained within the first trimester (or 43 days) of enrollment, if the woman is already pregnant at the time of enrollment (National Committee for Quality Assurance [NCQA], 2001). Current and recent developments and changes in our society and how they affect the health care system make a study on prenatal care utilization important. Tommy Thompson (2002), former Secretary of the United States Department of Health and Human Services (HHS), said the following:

Prenatal care for pregnant women and their babies is a crucial part of the medical care every person should have through the course of their life cycle. Prenatal care services can be a vital, life long determinant of health, and a health plan should do everything a health plan can do to make this care available for all pregnant women. It is one of the most important investments we can make for the long-term good health of our nation (p 7).
Tommy Thompson’s comments reflect the national initiative at the time to improve pregnancy outcomes, which in turn provided the impetus for states to expand Medicaid eligibility and coverage for prenatal care (Baldwin, et al, 1998; Alexander, Tompkins, Peterson & Weiss, 1991). Researcher concern stems from the observation that although access to prenatal care services has expanded for low-income Medicaid women, this trend has not been accompanied by a parallel reduction in the number of low birth weight (LBW) babies (McCormick, Siegel, 2001; Braveman, Egerter, Marchi, Sargonoff, & Rittenhouse, 2003; Krieger, Connell, LoGerfo, 1992).

Agreeing with the national initiative, the Oregon Progress Report (2000), citing the Healthy States 2010 report (Green, 2003) states that prenatal care is essential to the beginning of life. Prenatal care provides an opportunity for the health care professional to identify pregnant women at high risk; it also aides in health issues resulting from low birth weight and improvements in perinatal health (Leichter and Tryens, 2003). Furthermore, the report states that for each $1 expensed in the first trimester, approximately $3 in additional resources can be achieved in preventable pediatric health problems. Also, inpatient claims estimates based on the average cost of inpatient postnatal care for women without prenatal care was $3930 compared to $1589 for women who had prenatal care (Leichter & Tryens, 2003).

With similar results to Oregon's report, the Institute of Medicine (IOM) reported that for every dollar spent on providing more prenatal care to low-income pregnant women, a total of $3.38 would be saved on direct medical expense because of a resulting
reduction in low birth rate infants during the infant’s first year of life (IOM, 1988, p. 2). In a follow-up report (IOM 2001), researchers focused on the outreach methods employed that identified pregnant women and linked them to prenatal care services. In their study of 31 prenatal care programs, IOM researchers assessed which casefinding tools proved the most effective in improving women’s participation in prenatal care (effectiveness was measured in terms of the month of pregnancy during which prenatal care was initiated, the number of prenatal care visits, or both) (IOM, 1988, p. 163). Communities that had been successful in removing the financial and institutional obstacles to care were encouraged to implement casefinding techniques (ways to identify pregnant women) that did a better job of identifying high-risk pregnant women and linking them to prenatal care services (IOM, 1985, 1988). In addition, programs were encouraged to cost out these casefinding techniques and optimize inter-agency relationships that would sustain a system of care that is inviting, non-threatening, and sustainable within their communities (IOM, 1988). “The objective of studying a particular program was not only to understand its approach to improving access, but also to determine which activities appeared effective with what population” (IOM, 1988, p.9).

In a state-by-state comparative study presented in September 2000, the March of Dimes ranked Oregon 40th in effective prenatal care compared to all other states: this study used a 1998 baseline of 83% for pregnant members who obtain early prenatal care (Oregon Health Department, Oregon Department of Human Services [OHD ODHS], Sept. 2000). Despite Healthy Start’s best efforts to reach the national goal of 90%, through 2002 only 68% of high-risk mothers had received comprehensive prenatal care
early in their first pregnancies (ODHS, 2000). Similarly, the Oregon Department of Human Services, under the Office of Medical Assistance Programs (OMAP), highlighted the importance of early first trimester prenatal care in improving birth outcomes (DHS, 2005). They specifically tasked themselves to increase the rate of first trimester prenatal care in pregnant Oregon Health Plan women from 69.5% in 2003 to 71% by 2005 (DHS, 2005). This underscores the need to continually improve the prenatal care enrollment system and to help elucidate the challenges faced by the state of Oregon.

Statewide trends

The Oregon Legislature enacted a series of laws enacted in 1989, known collectively as the Oregon Health Plan (OHP), were designed to provide an innovative, cost effective health insurance benefit for all state residents (Sparer 1999). The OHP expanded the traditional Medicaid benefit and became fully implemented in 1994 (Sparer, 1999). After five years of lobbying and negotiating with health care providers, consumers, private health plans, and the Federal government, the OHP emerged as a bona-fide entitlement program aimed to save health costs through (a) a list of prioritized services and (b) the use of a delivery system that consists of commercial and privately held managed care organizations (MCOs).

OHP provided a basic health care service for those citizens at 100% of the Federal Poverty Level (FPL); this was seen as a tremendous accomplishment because the previous FPL threshold for Oregon Medicaid enrollment was 57% (Sparer, 1999). From 1994 to 2003, the OHP had great success in providing health coverage to much of the
uninsured population in Oregon, although the percentage of uninsured Oregonians had decreased by 7 percent from 1990 to 1998 (Sparer 1999). The percentage of uninsured Oregonians fluctuated up and down over the life of the OHP, but the program’s success has been demonstrated year in and year out (Sparer, 1999). The OHP expanded its enrollment and services through a healthcare rationing system based on a prioritized list of services, coupled with the involvement of commercial and private managed care organizations presented as being more efficient in managing care and containing costs.

The Oregon Health Services Commission (OHSC) developed the prioritized system beginning in 1989 through legislation aimed at finding a way to prioritize care for Medicaid recipients and private employer based health insurance. The OHSC set out to rank the 700 medical diagnosis and treatment groupings in order of their importance. The OHSC ended its task in recommending that services up to line 587 should be covered to help meet the goal of the OHP, which was to provide a basic level of services for all uninsured Oregonians. Although the work done by the OHSC seemed complete, it would not be until 1993 that the Clinton Administration would officially bless the OHP. In the early 1990’s, critics of the OHP claimed that the prioritized treatment based system further disadvantaged those with disabilities and the Federal government warned against a program that was too restrictive (Sparer 1999).

In February of 1994 the OHP began enrolling members into the commercial, privately held managed care organizations. However, women with special needs who did not reside in an area covered by a commercial or managed care plan were managed by the
Office of Medical Assistance Programs (OMAP) on a fee for service (FFS) basis. In 1993 state legislators discovered that the prioritized list and the efficiencies expected from the management of care would not be sufficient to create the savings required to meet the funding requirements of OHP (Sparer, 1999). Therefore, lawmakers imposed a 10-cent per pack tobacco tax and allocated an additional 17 percent of State revenues to OHP (p. 8). Legislation was crafted in an effort to facilitate the enrollment of elderly and disabled citizens in 1995 and the addition of mental health and chemical dependency services to the prioritized list.

The OHP was instrumental in the emergence of numerous managed care organizations (MCO’s) to deliver the defined list of health care benefits. These managed care organizations are referred to as fully capitated health plans, FCHP’s, such as the Marion Polk Community Health Plan (MPCHP or Health Plan). The Marion Polk Community Health Plan contracted with the Office of Medical Assistance Programs (OMAP) to deliver health care to 35,000 Oregon Health Plan enrollees. OMAP manages the OHP and contracts with the health plans based on a capitated budget methodology to provide the full slate of legislated medical health benefits for OHP beneficiaries. The health care benefit package hereinafter referred to as the prioritized list covers the majority of physical health care services, such as inpatient, outpatient, physician, ancillary, pharmaceutical and maternity case management services (Sparer, 1999).

Healthy children and prenatal care (PNC) for pregnant mothers were of particular interest to the State of Oregon’s OMAP. Their interest led to the implementation of the
Oregon Healthy Start Program (Green, Macklin, Tarte, Robianne & Brekhus, 2003). The success of the Oregon Healthy Start Program is evidenced by the following findings:

1. Healthy Start was able to place 98% of the children from high-risk families with a primary care provider who was willing to accept them as a patient during fiscal year 1999-2000 (Green et al., 2003).

2. Additionally, 92% of these children received regular checkups. (OSU, 2005).

3. Healthy Start conducted an evaluation of 6,968 first-birth families during

Because mothers who lack prenatal care are at greater risk for having unhealthy children, researchers placed additional emphasis that resulted in 88% of women in their second pregnancies receiving early prenatal care (Green, B., et al, 2003). This was a 20% increase, as only 68% of these mothers accessed early prenatal care during their first pregnancy (OSU Family Policy Program, 2005). Likewise, the Department of Human Services (DHS) and OMAP selected two quality benchmark indicators for measurement of quality care reporting and management for all health plans and fee-for-service managed members from 1999 to 2002. The DHS selected comprehensive prenatal care for low-income mothers as one of those benchmark measures for its “People are Healthy” program (DHS Annual Performance Report Fiscal Year 2003-2004, 2004). The DHS goal was that 90% of low-income pregnant women receive adequate prenatal care in the first trimester of pregnancy as outlined in the Healthy People 2010 target (Braveman et al., 2003).
Although prenatal care continues to be an issue for this Medicaid population, quality performance measures are changed every two years: in 2003 OMAP made the decision to discontinue prenatal care as a quality performance measure used in its reporting for OHP quality assurance. Health Plan Employer and Information Set (HEDIS) Timeliness of Prenatal Care measure as a contracted performance measure for fully capitated health plans for the following reasons:

- It is thought that most pregnant women served by Fully Capitated Health Plan's were then receiving timely care. The measure does not always show this timeliness because the measure's criteria for inclusion in the numerator is so strict (not allowing for administrative global codes, strict timing of receipt of prenatal care) that it is much lower than reality. When one of the plans separately audited the measure, they found most women had started prenatal care in the first trimester.

- The timeliness of Prenatal Care HEDIS measure is complex to understand and calculate. (Plans vary widely in size and resources devoted to information technology.)

- The use of global codes makes it difficult to determine the initial date of prenatal care administratively.

Despite the current shift of focus away from the HEDIS measure for prenatal care, the state encourages the continued use of prenatal care as a quality indicator of an intervention at the individual FCHP level. A number of health plans, such as MPCHP, continue to measure this through their HEDIS reporting, although they are only required
under the OHP contract to develop improvement plans for two quality indicators at a time. The MPCHP continues to place prenatal care at the top of its priorities list on the premise that the provision of adequate prenatal care is an effective intervention for improving pregnancy outcomes and is cost effective (Krieger et al., 1992).

Local trends

In the winter of 2000 the last commercial insurer opted out of the local area Medicaid market due to declining financial results. The Honorable Governor John Kitzhaber, M.D., asked the board of directors of the Mid-Valley Independent Physicians Association (MVIPA) to assume the management of approximately 35,000 OHP clients who reside within Marion and Polk Counties (Oregon Health Forum 2000). The MVIPA, a not-for-profit taxable mutual benefit company whose membership consists of 480 physicians, was incorporated in 1991 as a physician provider organization (PPO) (Appendix A). It made sense that the area’s physician providers should assume responsibility for this population of Oregon Health Plan patients because they had cared for them under a provider contract with the commercial carriers now leaving the market. The overall percentage change in the Marion and Polk Counties Medicaid population during the study period 2000 to 2004 is indicated in Figure 1.1.

The MVIPA physicians agreed to assume management of these patients and subsequently incorporated the Marion Polk Community Health Plan, hereinafter referred to as health plan, as a for-profit Oregon Limited Liability Company in May 2001.
MVIPA remains the sole member of the company. The health plan and the MVIPA are managed on a day-to-day basis by a singular team of medical and administrative healthcare professionals who utilize state-of-the-art information and health care technologies. The principal offices of both corporations are located in Salem, Oregon. Since its inception in 1991, MVIPA provided a physician provider panel and a full compliment of medical management and financial services to many of the state's commercial insurers, at one point covering up to 120,000 Health Maintenance Organization (HMO) enrollees. In the spring of 2001 the health plan contracted with MVIPA, through a series of administrative and medical management professional agreements, to provide all necessary administrative and medical management services for contracted OHP populations throughout Marion and Polk Counties (Figure 1.2).

Figure 1.1 Percentage change in total Medicaid (OHP) enrollment 2001 through 2004.
These and other community provider partnerships, which will be described later in this paper, formed a healthcare network capable of delivering the full array of health care services in a way that achieved the quality, and economies of scale and program efficiencies necessary to manage the services. Infrastructure includes capabilities such as physician performance standards, review mechanisms, and utilization of a state-of-the-art medical management software application running through a wide area network.

**Research question**

Does the Prenatal care Intervention Model (PIM) improve first trimester prenatal care utilization? The subsidiary questions are: Was there an increase in first trimester
prenatal care utilization post intervention (PIM)? Secondarily, was there a reduction in the percentage of women who received “no prenatal care” post intervention (PIM)?”

**Significance of study**

This study examines effectiveness of the implementation of a prenatal intervention model (PIM) on the early initiation and utilization of prenatal care services by low-income women enrolled in a Medicaid managed care organization. The overarching goal of PIM is to draw more low-income, high-risk women into prenatal care so that their onset of prenatal care is initiated earlier in their pregnancy. Additionally, the study will utilize aspects of both social capital and informal network theories to explain the benefits of enhanced coordination of services across agencies within the community of care.

**Limitations and delimitations**

One limitation to developing an instrument to measure prenatal care services is the matter of whether the accuracy of coding on the patient’s medical claim will represent the care actually given to a client. The measurement tool will abstract information from the prenatal care claims database. Selection bias is a concern and poses a serious threat to the validity of the result because the study used a non-random sample. Furthermore, the study population was not necessarily representative of all births to Medicaid Fee for Service (FFS), OHP or uninsured pregnant members, and therefore may not be representative of the overall conditions in the United States affecting the generalizability
of the results. (Plans vary widely in size and resources devoted to information technology).

**The Study Setting**

The health plan (MPCHP) engages in various methods of delivering health care services by contracting with a wide network of health care providers (Appendix C). During the first year of operation, the health plan contracted with a national maternity case management group, hereinafter referred to as MCMG. The MCMG's prenatal risk assessment program process is outlined below:

- The health plan (MPCHP) transmits in real time a list of pregnant women enrolled in the health plan (MPCHP) to MCMG.
- MCMG makes an initial phone call to the women. It is during this time that the MCMG case managers determined which pregnant women are at risk for preterm delivery or other medical factors that could affect their pregnancy outcome, such as premature delivery.
- A packet of educational materials containing information related to their diagnosis is enclosed.
- After delivery, MCMG continues to send educational information to these women on a broad range of topics, such as smoking cessation, chemical dependency, nutrition, stress management, etc.
- MCMG transmits the results of the evaluation to the women's primary care physician (PCP) and Obstetrical Gynecological (OB/GYN) provider.
For women at high risk for premature delivery, MCMG offers to assist the provider with the women’s appointment compliance, accessing community resources and any other assistance that the provider deems necessary to ensure more complete prenatal care.

As the program was implemented, the health plan discovered that MCMG was managing the women least likely to have an adverse outcome—those already motivated to comply with prenatal guidelines. Approximately 58% of the women identified as high risk were unreachable by either phone or mail. If they were contacted, they were not being assessed.

In the spring of 2002, after just one year, the health plan discovered alarming program gaps in its prenatal care program as it pertained to prenatal care utilization and the identification of women enrolled in the health plan. The health plan came to the conclusion that a new in-house prenatal care program would better meet the needs of this population and the health plan. The health plan decided to terminate its contract with MCMG. The desire to positively impact such a large segment of the health plan’s enrolled population in a meaningful way provided the impetus to develop a new prenatal care service delivery model (PIM). The purpose of this intervention was to increase the early initiation of prenatal care services, specifically first trimester care for health plan
women, and decrease the percentage of women who opt out or for whatever reasons do not receive prenatal care.

The Health Plan (MPCHP) believed there were three major opportunities to improve medical care and increase funding for the study population. They are as follows:

1. Identify pregnant women who are already enrolled and identified as pregnant by OMAP and ensure that they obtain the optimal number of months of prenatal care.

2. Identify women who become pregnant while already enrolled in the health plan but who have not been identified by OMAP and initiate prenatal care.

3. Identify women who become pregnant but are not on the health plan and attempt to get them enrolled in OHP and into prenatal care.

In an effort to expand the community based prenatal care delivery effort, the health plan staff organized a meeting, and met with other prenatal care providers within the health care delivery system.

Not long afterward this meeting, in 2003, the Marion County Health Department experienced two very significant program deficits. The Health Department's prenatal care clinic, which provides care to low-income pregnant women, most of whom do not qualify for the OHP due to immigration status, was in danger of disappearing altogether. The grant that had funded the Marion County prenatal care clinic had expired. Representatives from ten different organizations throughout Marion County came together to formulate a new prenatal care delivery paradigm. Secondly, the historical
medical partnership between Marion County Health Department and Oregon Health & Science University Hospital (OHSU) ended when OHSU experienced budget reductions. The Health Department’s prenatal clinic found itself without funding or perinatal (physician) oversight. Fortunately, two area obstetricians agreed to provide both medical oversight and consultative services. The group that started with two obstetricians, informally named the Prenatal Care Taskforce, subsequently expanded the program to target the uninsured.

The prenatal care procedural model (Appendix D) outlines the prenatal care intervention model (PIM) developed and includes three key interventional (PIM) enhancements: 1.) Identification, 2.) Reporting and 3.) Program incentives. The health plan (MPCHP) and other community providers identify the pregnant women who make up the study population in the following ways:

- Women can apply for coverage under the Oregon Health Plan (OHP), in person or by mail, through the state’s Human Resources department. This process can be quite cumbersome, and many times the applications are incomplete.

- Women can contact OMAP. Staff sends the pregnant women an application for the OHP then helps them choose a health plan (if more than one health plan is functioning in an area).

- Providers who receive calls from women attempting to access prenatal care without insurance can encourage enrollment

- Through the MothersCare program at the local hospital.
The Oregon MothersCare program (Appendix E) was designed to make the Oregon Health Plan enrollment process easier for low-income pregnant women, by helping them complete their OHP application. The primary goal of the program is to help low-income women obtain prenatal care earlier in their pregnancy. The health plan was instrumental in Salem Hospital’s decision to become a MothersCare site. Women can call the MothersCare number if they believe they are pregnant and a MothersCare representative will help them fill out their Oregon Health Plan (OHP) application. The MothersCare representative helps the woman get required documentation for eligibility, including but not limited to a verifiable pregnancy test, pay stubs and other required documentation. Additionally, the MothersCare representative assists the woman in setting up her first prenatal care visit with a provider.

OMAP sends the health plan (MPCHP) a monthly eligibility list that includes all newly enrolled members by their categorical assignment. At the time of enrollment not all women are pregnant; however, a percentage of them become pregnant after they’ve enrolled. In response to this deficiency, the Prenatal Care Taskforce agreed to implement identification and reporting process, named PIM, to identify pregnant women who were not initiating or receiving early prenatal care. The identification and reporting components of PIM are very important: the health plan determined that the total expenditure for the financial and in-kind incentives, by themselves, were small in comparison to the potential effect of increasing early prenatal care enrollment and overall frequency of prenatal care.
The health plan's utilization management (UM) department took responsibility to implement PIM by making ensuring that all prenatal care providers understood the process and to ensure that the intervention (PIM) system would be fully functioning in time to begin the program on July 1, 2002. In addition, PIM educational materials were prepared that outlined the many community wrap-around services (Appendix F).

One problem with the prenatal care procedure prior to July 2002 was that once a woman's pregnancy was confirmed the health plan was rarely notified because there was no financial incentive to do so. Prenatal care and delivery are paid for globally; therefore, the health plan and OMAP were often not aware of a member's pregnancy until she appeared on the state pregnancy logs or when the health plan was notified of her pregnancy by someone other than her prenatal care provider (Appendix G).

Under the new model, the health plan's utilization management department initiates the following process:

- If the plan is informed of a woman's pregnancy of which it was not aware, a gift certificate is sent to the medical office, health department, or hospital personnel notifying the health plan (MPCHP) of the pregnancy.

- The health plan's utilization management department notifies OMAP of the pregnancy so that the woman can receive all benefits she is entitled to under the Oregon Health Plan (OHP).
• The report triggers educational mailings to the pregnant woman and provides an opportunity for UM staff to contact her by phone.

• A woman participating in prenatal care provides a teachable moment, one during which the patient may be more willing to change health-related behavior (McCormick, 2000). This educational effort provides the health plan an opportunity to educate the woman on a full array of services, such as tobacco cessation, nutrition and alcohol and drug avoidance.

One way to examine prenatal care utilization is to review the current literature on prenatal care that makes use of casefinding (identification) interventions such as those employed by the health plan. In an effort to better elucidate the influence of study variables, the study examined: (a.) Utilization of prenatal care in first trimester by age group, and (b.) Change in the percentage of women who opt out of prenatal.

Operational definitions

An outline of key operational definitions is provided below prior to describing the purpose of the study.

1. Adequate prenatal care: Adequate prenatal care is defined as five or more prenatal visits beginning prior to the third trimester of pregnancy. This indicator is calculated as the number of babies whose mothers received adequate care divided by the total births minus the births for which data is missing, multiplied by 100 to obtain the percentage.
2. Baseline: Measures the overall number of prenatal visits and the initiation of prenatal care services by women enrolled in MPCHP.

3. Biomedical Services, Inc.: The outsourced commercial medical management company.

4. Capitated Services: All medically necessary services and supplies rendered or furnished by a provider for a capitation payment.

5. Capitation Rates: A reimbursement system in which providers are paid a set amount for a defined set of services on a per member per month basis (PMPM).

6. Case Finding: Ways of identifying pregnant women and linking them to prenatal care and services that offer support and assistance to help women remain in care once enrolled (IOM, 1988, p.135). This includes methods such as flyers, advice lines, free testing and door to door canvassing, implemented in an effort to locate potential high-risk patients, women in this case, and to enroll them in programs or prenatal care.

7. Categorical Eligibility: There are two categories and five geographic regions for which capitation rates are calculated by OMAP and Price Waterhouse Coopers (actuary).

8. CM: Case Management or case finding.

9. Continuity of Prenatal Care Services: The degree to which the care/intervention for the patient is coordinated among practitioners, between organizations and across time (JCAHO, 1994).
10. Continuous Enrollment: Determine if women identified were continuously enrolled during the first trimester (from 176-280 days prior to delivery) with no gaps in enrollment 43 days prior to delivery through 56 days after delivery (HEDIS, 2003).

11. Early Prenatal Care: Determine if women were enrolled on or before 280 days prior to delivery or estimated date of delivery (HEDIS, 2003).

12. Effectiveness of Prenatal Care Services: The degree to which the care/intervention is provided in the correct manner, given the current state of knowledge, in order to achieve the desired/projected outcomes for the patient. (JCAHO, 1994).

13. Fully Capitated Health Plan (FCHP): Organizations that contract with the State of Oregon’s OMAP to provide portions of the health care services package, typically the full range of physical health care services, including inpatient, outpatient, physician, prescription drug and miscellaneous medical services.

14. Geographic Service Area: Marion and Polk Counties are the health plan’s contracted geographic service area.

15. Health Plan Employer Data and Information Set (HEDIS). Technical specifications measuring the quality of America’s health care and a registered trademark of the National Committee for Quality Assurance (NCQA, 2003).

16. Health Plan: Marion Polk Community Health Plan, LLC, an OHP contractor, dba Health Plan, located in Salem, Oregon. The sole member of the health plan is the
Mid-Valley Independent Physicians Association (MVIPA). See MPCHP. See FCHP. See MCO.

17. Identification: Women identified as having timely prenatal care if they have either a prenatal visit in the first trimester or a prenatal visit within 42 days of enrollment, depending on the date of enrollment in the health plan and any gaps in enrollment during the pregnancy (HEDIS, 2003).

18. Low Birth Health Weight: Low birth weight is defined as less than 2,500 grams, or less than 5 pounds 8 ounces.

19. Member: A person entitled to receive benefits under a policy or contract issued, arranged or administered by the health plan.

20. MothersCare Program: The Oregon MothersCare program was designed to make the process easier for pregnant women by helping them complete the OHP application form, thus facilitating OHP coverage earlier in a woman’s pregnancy.

21. MPCHP: The Marion Polk Community Health Plan, LLC. or health plan or managed care organization (MCO) or fully capitated health plan (FCHP)

22. MVIPA: Mid-Valley Independent Physician Association is a not-for-profit taxable mutual benefit company located in Salem, Oregon, made up of 480 physician members.

23. NCQA: National Committee for Quality Assurance (NCQA). Promotes the use of the performance measures that comprise HEDIS.

24. OHP: Oregon Health Plan
25. OMAP: Oregon Department of Human Services, Office of Medical Assistance Programs.

26. Outreach: Methods that increase participation in prenatal care.

27. PMPM: Per member per month i.e. capitation or funding amount.

28. Prenatal Care Services: Prenatal care services are the risk assessment and regular surveillance of a pregnant woman from the time of her conception through the initiation of labor provided by prenatal care providers. Prenatal care services promote and support healthy behaviors and provide care, interventions and referrals in order to achieve a healthy mother and infant in the context of her family and her community.

29. PNC: Prenatal care.

30. Quality of Prenatal Care Services: Quality of prenatal care may be present to a greater or lesser degree. The dimensions of quality include the effectiveness, the appropriateness, the continuity and the timeliness of prenatal care.

31. Quality Performance Improvement Work Group: The QPIWG is a monthly meeting of OMAP and the Quality Improvement Coordinators from the contracted physical health and dental care plans. OMAP contracts with the managed care plans to provide services for OHP.

32. Social Capital: The knowledge base created when a network of individuals collaborates and exchanges information to promote mutually productive gain (cf. Putnam, 1993).
33. Timeliness of Prenatal Care: Women are identified as having timely prenatal care if they have either a prenatal visit in the first trimester or a prenatal visit within 42 days of enrollment, depending on the date of enrollment in the health plan and any gaps in enrollment during the pregnancy (HEDIS, 2003).

34. UM: Utilization Management

35. Women: Pregnant women enrolled in the Oregon Health Plan (OHP) by the Office of Medical Assistance Programs (OMAP) and Subjects or Participants for the purposes of this study.

36. Very Low Birth Health Weight: Very low birth health weight is defined as less than 1,500 grams.

This study has the potential of providing evidence about the effectiveness of a specific prenatal care case finding intervention (PIM) and whether it is significantly related to the early initiation and utilization of prenatal care services. A review of the literature suggests that further research of this significant and challenging problem is required in order to associate a particular intervention with outcomes in a sound manner.

One method of examining the effectiveness of any health care behavioral or programmatic intervention is to place it within a theoretical framework. The two frameworks utilized in this study are informal network and social capital theories. The following chapter outlines the theoretical and empirical frameworks upon which this study was based.
CHAPTER II
REVIEW OF THE LITERATURE

A large body of literature on the nature of prenatal care utilization provides a basis for the present study. This examines both theoretical and empirical studies in the field. Informal networks and social capital are the two theoretical frameworks of interest. Field (2003) reminds us of the cliché "it's not what you know but who you know." In reality, it's both what you know and who you know and the commonality between your goals and values. With that thought in mind, it is no wonder that networks, with their sets of shared values (particularly informal networks) provide the structural support for social capital. This study will focus on the characteristics of informal networks and how that typology best supports the study results. In the final section, the notion of intervention or casefinding as conceptualized in the literature will be briefly discussed and compared.

Portney and Watkins (2000) write that theories are developed in two primary ways: inductive and deductive. Inductive theories evolve through a process of observation, during which researchers ascertain what variables are or are not related to certain phenomena (p.25). This pattern forms the basis of their generalizations or inductive reasoning (Portney & Watkins, 2000). In contrast to inductive theory, deductive theory (or intuitive theory) is formulated on the basis of intuitive understanding of an event without the benefit of observation (p.26). For the purposes of this study, the researcher used components of both inductive and deductive theory. Observations of the current prenatal care process initiated the study’s theoretical
premise. A new prenatal care model (PIM) was shared internally with health plan (MPCHP) staff and externally with other prenatal care practitioners in the service area. After informal discussion, it was agreed to test and operationalize these new processes into a practical intervention (Portney & Watkins, 2000). It was Portney and Watkins who gave insight into the "continuum between fact and theory, whereby a theory can be built on facts, but must also be tested by them" (p.26).

Keeping in mind the characteristics of constructing theory (Portney & Watkins, 2000), selected elements of both informal networks and social capital theories were chosen to lay the theoretical framework for testing the effectiveness of a new prenatal care model (PIM). This study will focus on the characteristics of social capital and informal networks and how this blended typology best explains the relationship among the study variables. Blending these theories allows researchers to acknowledge the many benefits that social capital and informal networks can provide in problem solving. Although it is important to mention these distinct terminologies because many of them share key characteristics, it is not within the scope of this paper to delineate between many of the other related theories, such as communities of practice, collaborative alliances, or social networks.

**Theoretical Literature**

Theories of social capital and informal networks were woven together to provide a rich framework for the prenatal care intervention (PIM). Networks create value by
providing coordination expertise, also known as informal knowledge networks (King, 2004). These theories have been advanced to explain why some people engage in health-seeking behaviors and why many people do not. Goldenberg, Patterson, and Freese (1992) conclude that very few studies employ a theoretical framework in their analyses of the process of enrollment in prenatal care (O’Dette, 1996).

**Informal Network Theory**

It is the nature of networks to depend on communication, social theories and supply. Each network contains a myriad of connections or interdependent parts analogous to the central nervous system and the skeletal system (De Heer, 2003; Ackoff, 1999). Finnish researcher Aart Jan de Heer (2003), in his work *The Challenge of Networking in Small and Medium Sized Firms*, describes networking as a “process of identifying and acting on complimentary interest without formal means of coordinating or command.” De Heer (2003) contrasts *informal* versus *formal* networks and similarly suggests that networks contain "reciprocal patterns of communication and exchange" (De Heer, 2003). He distinguishes informal networks by their lack of documentation and familiarity; he states that their interactions can be work related, personal or social.

The importance of cooperation and the need for internal and external information sharing between agencies are essential if communities are to develop innovative approaches to identify women at high risk. The sharing of specialized knowledge, particularly operational knowledge, affords people the opportunity to share
knowledge and exchange ideas, needs and real life experiences (De Heer, 2003). Wenger and Snyder (2000) define communities of practice as "a group of people informally bound together by shared expertise and a passion for a joint enterprise" (p.135). Similarly, De Heer (2003) views social networks as networks that transfer information over hierarchy borders: this results in knowledge sharing and synergic effects.

Cross, Liedtka and Weiss (2005) describe a scenario where "work has become a collaborative endeavor accomplished less through standardized processes and formal structures than through informal networks of relationships; however, harnessing the power of these groups is elusive" (p.125). They make the case for the importance of shared values, desired outcomes, singular vision and mutual exchange that appears fostered in an informal network (Cross, Liedtka & Weiss, 2005). This is in contrast to the formal system, where, try as you might, you can't force people to participate at this level if they don't want to.

The Health Plan (MCPHP) staff had the informatics technology in place and believed the intervention (PIM) would work; it took the cooperation and collaboration of all the network participants to successfully operationalize the intervention. The "informal network" of prenatal care providers became more essential in defining the reciprocal nature of their social relationships and appreciating the benefits (capital) that could accrue from their shared values.
Social Capital Theory

The essence of social capital is relationships (Field, 2003). Social capital is the existence of cooperative and accessible community networks that maintain high levels of participation and a strong sense of local identity, trust and mutual help among their members (Putnam, 1995). Capital is created through the connectivity between individuals and others, internal and external to their organizations, thus providing synergy. These connections are maintained over time; as the old saying goes, the sum of the parts is greater than the whole. Individuals tend to achieve more through their connections with others than they would either by themselves or without significantly more effort (Field, 2003). This process of communication is analogous to a network or series of networks comprised of persons with shared values and knowledge.

Putnam (1995; Putnam & Feldstein, 2003) describes two types of social capital: Bonding and bridging. With the exception of a brief definition of bonding capital, this paper will focus on bridging social capital. Bonding refers to a homogeneous group who by choice are internally focused and almost always inclusive (p.3). In contrast, bridging social capital is outwardly focused or non-exclusive. Putnam stresses the use of bridging social capital in situations that require links to the external assets and information and have a need to move forward (Putnam, 1995; Putnam & Feldstein, 2003). They believe that the benefits of bridging capital are realized in strengthened horizontal communication and reciprocity among the stakeholders (Putnam & Feldstein, 2003, p.2-3).
Field (2003) describes the debate among academics, economists and epidemiologists as to the legitimacy of the use of capital as it pertains to social capital. However, he concludes by saying that if social exchange between individuals gives rise to resources that would not otherwise exist, then its use is legitimate. Barron, Field and Schuller (2000) describe social capital as neither a tidy nor mature theory with an unpredictable future. It is readily abused, but offers great promise (Barron, Field, Schuller, 2000). Social capital shifts the focus of analysis from the behavior of the individual agents to the pattern of relationships between the agents, social units and institutions.

In the same way, the health plan (MPCHP) shifted its focus of analysis from asking why these women were not enrolling onto the health plan or accessing prenatal care and instead began to examine what factors were at work within the system of care that kept them from being identified. There was a pattern of relationships between the system, prenatal care providers and the women, albeit not an optimal pattern of relationships because a percentage of the women were either unaware of the services available or they were purposefully choosing not to initiate the contact, assist in their enrollment into OHP and/or prenatal care. Researchers believe that social capital acts as some type of independent variable or intermediary factor that has the potential to improve health (Putnam, 1995).
Health care organizations are governed by rules and lend themselves to all the trappings of a bureaucracy, including written policies and procedures and clearly defined patterns of formal communication (typically top down or side to side) dependent on position not people. In reality, when people want to get something done, they will bypass these formalities and seek out friends and business acquaintances they know and trust (Wenger & Snyder, 2000).

Health care organizations are increasingly forming links with one another to form dynamic connections or networks (De Heer, 1999). The health care system is made up of a continuum of stakeholders (persons, agencies, organizations, patients, vendors’ insurance companies, health plans, etc). Informal networks possess two advantages (Senker & Faulkner, 1996); first and foremost they create an atmosphere of trust that is conducive to information sharing. This synergistic combination of trust and information sharing fosters an exchange of personal knowledge that often is difficult to transfer otherwise (De Heer, 2003). Similarly, the health plan’s (MPCHP) intelligence lies within the experiences of the people who work there. Consequently, not all of their knowledge is formalized or written down (De Heer, 2003). Therefore, it is reasonable to assume that one way to disseminate this knowledge is to communicate it to those with similar interest, such as the other prenatal care delivery partners within the social system (De Heer, 2003).

Increasing traditional organizational structures, such as the pyramid or bureaucratic model, are proving less efficient or effective and giving rise to another type of model-the networked organizational model. Its boundaries are more fluid and chaotic.
These organizations can be described as multi-organizational with overlapping domains and conflicting authorities (Crosby and Bryson, 2005). This type of organization best describes the health plan (MPCHP). No single person, group or individual took charge of the research problem, yet many were affected (Crosby and Bryson, 2005). A singular model of leadership no longer syncs up with the needs of the 21st Century (Crosby and Bryson, 2005). We are now living in a world in which power is shared across boundaries, where no one person is in charge and where it is more effective to define, solve and resolve problems collaboratively among ourselves for the common good (Crosby and Bryson, 2005).

The procedural interventions model (PIM) that underlies the interventional process (Appendix D) supplements both levels of the conceptual model to follow. Figures 2.1 and 2.2 portray the informal networks archetype and the participants and their respective participating organizations that are involved, each possessing varying degrees of social capital. The conceptual models assist the researcher to map the mess, identify obstructions to proper functioning, and help to avoid the endless search for more detail that is all too familiar in a bureaucratic organization (Ghardajedaghi, 1999).

Figure 2.1 shows the informal network as it would appear structurally at arms length but linked in its participatory relationships; whereas, Figure 2.2 provides a visual presentation of the desired informal network as it collapses into a safety net of collaborative communicative interface within which the healthcare and related social support needs of a pregnant woman are addressed. This adaptability, this fluidity, allow
for boundaries to be extended. Figure 2.2 helps to highlight the very dense web of relationships and interdependent nature of the network participants involved in caring for one or many pregnant women in a local prenatal care system. Gharajedaghi (1999) suggests that networks of overlapping boundaries with numerous intersections reinforce a sense of reciprocal obligation to extend boundaries of empathy. One can just imagine the amount and variety of communication that is exchanged as the system reconfigures in a very fluid informal way transitioning from linked to interfaced (see Figures 2.1 & 2.2) and back again for purposes of provider-to-provider communication on an as needed basis. Although the various participants in the network are quite different in structure in many ways, they are similar in their process of caring for the pregnant women.
Figure 2.1 Conceptual Model Linked

Figure 2.2 Conceptual Model Collapsed
Empirical Research

Early interventional studies have generally concluded that the majority of prenatal care interventions are marginally effective in their attempts to reduce the percentage of women who underutilize or opt out of prenatal care, particularly in subgroups of women determined to be at high risk (IOM, 1985, 1988, 2000, & 2001; McCormick & Siegel, 1999; Elams-Evans, et. al. 1996; Thompson, Curry, & Burton, 1994). However, Fiscella (1995) states policy makers should remain mindful of the overall and potential cost effective benefit of prenatal care before making final determinations about what should be done or not done, even though it has yet to be proven that prenatal care improves birth outcomes.

Current health behavior change theories (see Table 2.1) suggest that behavioral transformations all explicitly or implicitly incorporate a theoretical basis for understanding behavior (McCormick & Siegel, 1999). There is an abundance of empirical research that supports and documents the use of these theories and other lesser known theories. Unfortunately, as applied, tested and evaluated, program results appear disappointing at best (IOM, 1988).
Table 2.1  Health Behavioral Change Theories

<table>
<thead>
<tr>
<th>Name of theory</th>
<th>Social Learning or Social Cognitive Theory</th>
<th>Theory of Reasoned Action &amp; Theory of Planned Behavior</th>
<th>The Health Belief Model</th>
<th>Community Health Model or Public Health Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Individual's behaviors are motivated by both personal beliefs and social factors. Self efficacy, behavioral capability, &amp; self control.</td>
<td>The individual’s behaviors are primarily determined by intentions to perform the behaviors.</td>
<td>Three key components: 1. threat 2. outcome expectati ons 3. efficacy expectati ons</td>
<td>Designed to reach populations not only individuals. Central concepts: Community empowerment, competence, participation, issue selection, &amp; critical consciousness</td>
</tr>
<tr>
<td>Key</td>
<td>Many relevant concepts must be addressed in an intervention</td>
<td>Behavioral intention &amp; influential</td>
<td>Cues to action</td>
<td></td>
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</tbody>
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This section will review the empirical literature on specific casefinding or interventional techniques that are currently being utilized in prenatal care programs throughout the country. This overview includes but is not limited to: Door to door canvassing of targeted neighborhoods by program staff; telephone advice lines; radio and written flyers; drop-in clinics; third-party referral systems; periodic screenings; free
testing sites; and a variety of program-generated reminders such as key chains and refrigerator magnets (IOM, 1995, 1988). Studies have examined the barriers to care; adequacy of prenatal care; perceptions of prenatal care, and alternate sources of prenatal care intervention (IOM, 1988). However, few studies have successfully quantified the impact of specific case finding techniques on the early initiation or utilization of prenatal care services.

Recent studies and the older Institute of Medicine (IOM, 1985 & 1988) report nominally effective interventions, difficulty in quantifying outcomes and program planners who are befuddled by their lack of success in changing patient behavior based on health behavioral theories and their understanding of the barriers to care (IOM, 1988). The sheer volume of work that has previously taken place on the specifics of low birth weight, prenatal care utilization/underutilization, high-risk behaviors and casefinding was short of astonishing to this researcher. As indicated by the IOM, lack of progress in the area of prenatal care utilization is not for lack of initiative, applied resources or interest on the part of researchers or public health advocates (IOM, 1988). Literature exists that documents the behavioral, social, economic and environmental barriers that exacerbate the underutilization of prenatal care services nationally (McCormick & Siegel, 1999). McCormick and Siegel cite the following key health-related behaviors that that present risks during pregnancy:
• Smoking: Approximately one in seven pregnant women (13.6%) smoke during pregnancy even though it has been proven that smoking adversely affects the health, development and functioning of their offspring.

• Alcohol consumption: In 1995 50.6% of women reported drinking during pregnancy and 12.6% reported frequent drinking. Frequent drinking has increased four fold according to research.

• Drug use: Estimates of drug use rates range between 7.5 to 15% although it's feared that this number is low due to under reporting.

• Exercise: Two Fifths of all women between ages of 18 and 64 and one half of those 65 and older do not exercise.

• Nutrition and weight: 14% of women are underweight and 27% women are overweight.

• Violence: 3.4% of women in the US are physically assaulted by their partners per year.

• Sexual activity: As it relates to STDs, HIV and AIDs

Interestingly enough, beginning in the early 1980s, researchers found that the percentage of births by women with late or no prenatal care was on the upswing nationally (IOM,1988; Elams-Evans, Adams, et al, 1996). This finding was corroborated at the state level by a report by the Oregon Center for Health Statistics (1982), which noted that improvements made into the early 1970’s had been reversed. The percentage of women receiving no care, beginning care in the third trimester, or
having less than five prenatal care visits was on the rise. A more recent study attempted to determine if the increase in the percentage of women who received no prenatal care was due to the increased risks of no care or to the increasing percentages of births to women at high demographic risks of no care. Researchers concluded that the increase in the crude rate of no prenatal care was driven by the increased risk found in subgroups of women (Elam-Evans et al, 1996).

These and other study results raise the saliency of inadequate prenatal care as a marker of the national inadequacy of women's health services; consequently, a new delivery paradigm is needed to address this problem (Oregon State Health Division, 1982) (Table 2.2). The absence of prenatal care is defined by some researchers as a "sentinel health event" or "negative health state" and is purported to be avoidable within today's health care system (Elam-Evans et al, 1996). Despite increased Medicaid eligibility for pregnant women through the 1970's and 80's, the percentage of low income women without prenatal care (a demographic effect) has actually increased. One method of investigating which prenatal care interventional techniques are effective in increasing the early initiation of prenatal care services and improving their overall utilization is to pose a theoretical framework for the implementation of an early pregnancy identification intervention.

Glanz (1997) reported that the most effective interventions are directed at a specific behavior, however, McCormick and Siegel, (1999) report the number of intervention studies is minimal. Related literature also explores factors affecting the
utilization of prenatal care, such as coordinated services, community outreach, home visitation and incentives (IOM, 1995, 1988). Program results appear sporadic at best in their efforts to maintain the robustness of their program initiatives, and it appears that the presence or absence of leadership underlies this phenomenon (Leichter and Tryens, 2003). McCormick and Siegel believe that provider collaboration can bridge the gap between prenatal care and primary care (p.52).

Table 2.2 Three Types of Prenatal Care Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Focus</th>
<th>Outcome</th>
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<tbody>
<tr>
<td>IOM, 1988</td>
<td>Overviews who obtains PNC; Barriers to Care; Perceptions of Care and experience of PNC program providers</td>
<td>Remove obstacles to care rather than move subjects around obstacles. Strengthen existing systems to remove barriers to care. Assure system capacity &amp; education</td>
</tr>
<tr>
<td>Thomas Strong, MD, 2000</td>
<td>Examines prevailing assumptions about the drivers of maternity healthcare in the US.</td>
<td>There is a need for policy makers to encourage responsible behavior from their constituents. Good intentions don’t render a particular modality more effective.</td>
</tr>
<tr>
<td>Marie McCormick Joanna E. Siegel 1999</td>
<td>Evaluates the effectiveness of PNC interventions</td>
<td>PNC is not an optional service; Greater attention to the cause’s i.e. ways to reduce smoking or alcohol use.</td>
</tr>
</tbody>
</table>
However, only one study was found to have demonstrated the effectiveness of a pregnancy identification intervention intended to influence the early initiation and increased utilization of prenatal care among low-income Medicaid women. Stankaitis, Brill and Walker (2005) in their study on the reduction of neonatal intensive care unit admission rates in a Medicaid managed care population, reported that practitioners reported only three percent of pregnancies to the health plan prior to the implementation of a prenatal registration form. This is the only program intervention analogous to PIM. In this study, a health risk assessment form was completed and sent to their health plan. In exchange, the providers were given a $30 reimbursement stipend per submission; however, if they failed to notify the plan moneys were withheld from their reimbursement. Although the researchers cite a submission rate of 88% to 98% within one year of implementation, they were quick to point out that challenges remained because many of the forms were not received until late in the third trimester, negating the benefits of early first trimester enrollment (Stankaitis, Brill & Walker, 2005).

Despite all the innovative programmatic improvements implemented to mitigate these barriers to care and improve prenatal care utilization, a percentage of women remain who opt out of prenatal care (Elam-Evans et al, 1996). The majority of the casefinding and interventional techniques used to improve participation in prenatal care have proven only minimally effective in decreasing the percent of women who opt out or initiate early prenatal care (IOM, 1985, 1988; Thompson, Curry, & Burton, 2001). As indicated earlier in the introduction, a number of low income women at high risk for poor birth outcomes were either late in their initiation of prenatal care, underutilized care
throughout their pregnancy, or simply did not access prenatal care services at all. These findings were not dissimilar from other research described in the introduction and later detailed under empirical findings.

**Summary**

The literature provides many examples of casefinding and interventional techniques that may or may not have influenced the early initiation or utilization or prenatal care. However, there is no silver bullet, big fix, or singular approach that adequately addresses the multiplicity of factors that lead to the underutilization of prenatal care services. The research presented attempts to define and examine the behavioral barriers to explain why some women do not access prenatal care services or engage in health-seeking behaviors (Elam-Evans, et al, 1996). Furthermore, a large body of literature exists to challenge the industry’s long standing assumptions about lack of insurance as a proxy measure for poverty. This literature suggests that a strong relationship between poverty and untimely care continues to persist after adjustment for insurance, education, age, parity, marital status and ethnicity (Braveman, Egerter, & Marchi, 1999).

There is a clear need for case finding and social support to locate and enroll women in PNC and to encourage them to continue in the program once they begin [IOM, 1988). The consequences of doing nothing or accepting the status quo weren’t acceptable options for the health plan or other prenatal care providers. Efforts to increase timely
prenatal care initiation cannot focus solely on women with Medicaid, the uninsured, women in absolute poverty or those who receive care at public-sector sites (Braveman, et al. 1999). Because the health care delivery system is made up of many disparate sub systems of care (outpatient, home health, mental health, county health departments, safety net clinics), solving the complexities and disparities in care, access and reimbursement is difficult.

How might one solve this conundrum? Perhaps a sound theoretical framework, such as is provided by the blending of informal network and social capital theories, could assist in improving the early initiation and reduce the percentage of pregnant women who opted out of prenatal care all together. The next chapter describes the methodology employed in evaluating the effectiveness of the program intervention (PIM).
CHAPTER III

METHODOLOGY

The study will evaluate the effectiveness of a prenatal intervention model (PIM) intended to improve the patterns of prenatal care utilization in a population of low-income Medicaid women at risk for poor birth outcomes. The chapter explains the methods used in carrying out the study, giving special emphasis to the analysis of data. This chapter presents the research question, describes the study setting, study design, study population, and sample selection procedures. The data analysis examines the study variables, data collection methods, study instruments, a description of how the study variables were identified, abstracted, collected, stored, queried, and analyzed. Chapter three concludes with a discussion on the limitations of the study.

Research Participants and Sample Selection

The study population consisted of all pregnant low-income women enrolled in the Oregon Health Plan, and assigned by OMAP to the Marion Polk Community Health Plan (MPCHP) between the dates of May 1, 2001, through Dec 31, 2003. A total of 2,694 pregnant women were identified between the dates of May 1, 2001, through Dec 31, 2003, and made up the baseline and treatment sample population. A total of 1,773 women conceived prior to July 2002 (the implementation date of MPCHP’s maternity and prenatal care intervention program), and 921 mothers conceived after July 2002. The baseline measures the overall number of prenatal visits and the initiation of prenatal care
services by women enrolled in MPCHP, prior to the intervention (PIM) date of July 2002.
PIM (intervention) was designed to identify all pregnant women and enroll them in
care for the purpose of increasing the early initiation and overall utilization of

care. PIM was implemented on July 2002.

How were the women who participated in the study assigned to the baseline and

groups? The women were assigned to either a baseline group (pre July 1,

2002) or a treatment group (post July 1, 2002) based on their estimated conception date.
The initial enrollment and initial pregnancy identification process is outlined in Chapter

One. However, for the purposes of the data analysis, the sample was extracted from the
health plan’s medical claims database. The data may contain inaccuracies inherent in the
medical record due to incorrect or poor charting; these inaccuracies can cause
confounding. Additionally, practical constraints did not allow randomization of study
women to a control group; this lack of a control group offers little control over
extraneous variables. Prior to the women’s enrollment in the health plan (MPCHP), the
women may or may not have been enrolled in a different health plan contracted in the
service area.

Informed Consent and Protection of Human Participants

Permission for use of the health plan’s database was obtained from the health
plan’s medical director and the internal review board (IRB) (see Appendix H). The study
protocol and application was submitted to the Oregon State University’s Institutional
Review Board. Approval period for the study was granted for the time period: 09/23/04 through 09/22/05. Assurance was provided by the researcher that the study women (pregnant OHP women enrolled in the Health Plan would not be identified by name and that the databases would be linked only by the member's health plan eligibility number and birth date. There was no direct contact between the researcher or the health plan and the pregnant women under study for the purpose of this analysis.

Research Design and Procedures

The study retrospective was a quasi-experimental, one group pre-test, and post-test study design often used in clinical research design. This design involves a set of measurements taken before and after the implementation of the prenatal care intervention (PIM) in population pregnant Medicaid women enrolled in the health plan (MPCHP). This study then contrasts the information obtained from the pretest (01) date claims extraction from the post-test (02) as depicted in the model below:

Design

01  X  02

The study compared the outcomes of interest between the prenatal care intervention (PIM) group or post July 2002 and the (pre July 2002) baseline group.
Threats to Internal Validity

Although the literature indicates that randomization of the assignment of study participants is preferred in the testing of cause and effect hypotheses, randomization is not possible within the study's clinical environment (Portney & Watkins, 2000). Consequently, this opens the study results up to threats of internal validity because the study does not control for history, maturation, regression to the mean, or selection bias. It simply is not possible to control for all of the factors that may have changed between baseline and treatment time periods; however, the literature indicates that this design still presents a reasonable alternative to the randomized trial (Portney & Watkins, 2000). Moreover, researchers are sensitive to the possibility that events other than the intervention, could have occurred within the same time frame and that could impact the observed change. Despite all of the inherent weakness of the design, researchers believe that this design presents an acceptable alternative to the randomized trial and can still provide some valuable information.

Threats to External Validity

The study, by way of its selection process and homogeneity of women (pregnant women enrolled on OHP and the health plan) does attempt to control for specific study traits that may interfere with the dependent variable. The study is vulnerable to threats to external validity because the effects of the intervention may not be generalizable across other insured populations, such as, commercial, Medicaid fee for service or Health
Maintenance Organization (HMO). There may be characteristics of the Marion Polk Counties service area that differ from other Medicaid service areas in terms of their ability to implement a similar intervention. The real strengths of this study lie in (a) its large sample size and (b) its excellent design that can determine the effectiveness of the intervention, efficacy of the program and to investigate just how much change can be expected with the intervention. The study examines a real life problem in a Medicaid health plan, hence, the practical strengths of this type of design is that it is inexpensive and easy to perform.

**Identifiers**

For the purpose of confidentiality all providers and health plan (MPCHP's) OHP enrollees claims files will be kept confidential. The only identifiers that exist for the reports used reside in the raw data table the reported data sets were used to create. The identifiers are the unique member IDs assigned by OMAP and are housed in MPCHP's secured internal database. MPCHP adheres to HIPAA regulations for identifiers. These identifiers are the only ones used for reporting purposes. No other data is available in the report or detail that identifies the individuals.

**Instruments Used in Data Collection**

The instruments and recording processes that were used in the data collection process are: the claims database, and the HEDIS 2001 report that utilizes Access® and
Excel®. The study extracted data from the health plan’s claims database located on site at MPCHP in Salem, Oregon. This database was aggregated through electronic transmission of claims files from a continuum of contracted health care providers. The data are extracted from a HEDIS 2001 report entitled the ‘Initiation of Prenatal Care’ CPT and Diagnosis codes and provided the descriptive findings with interpretation MPCHP’s maternity and prenatal care analysis. Raw claims data were reduced by queries developed in the Access database: subsequent to the development of variable queries, all reports and graphics will be reported utilizing Excel.

A t-test or parametric (t) test for comparing two means, also called the students t-test, will be used to analyze the data for this study. As applied to this study, the t-test was compared for difference between pre- and post- intervention for initiation of prenatal care by trimester. Portney and Watkins (2000) report tests of statistical significance—such as the t-test, confidence levels or multivariate regression are often used in the analysis of clinical trials (Portney & Watkins, 2000). In addition, a cost estimate analysis is provided to show how the intervention’s cost to increase incidence of pregnant women receiving first trimester prenatal care by one case (woman). Table 3.1 presents the variables under study.
### Table 3.1 Study Variables

<table>
<thead>
<tr>
<th>VARIABLE NAME</th>
<th>DEFINITION</th>
<th>MEASURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Total number of meeting the HEDIS technical specifications for a delivery</td>
<td>interval</td>
</tr>
<tr>
<td>by Age Group</td>
<td>Total number of women enrolled in each defined age group</td>
<td>interval</td>
</tr>
<tr>
<td>Avg. number of per Age Group</td>
<td>Avg. number of enrolled per Age Group</td>
<td>ratio</td>
</tr>
<tr>
<td>Avg. months enrolled per women up to delivery</td>
<td>Population's average months enrolled per women: by Rate Group and by Age Group</td>
<td>ratio</td>
</tr>
<tr>
<td>Women</td>
<td>Enrolled in MPCHP’s</td>
<td>Yes/no</td>
</tr>
<tr>
<td>Prenatal Care Frequency</td>
<td>Number of prenatal care visits</td>
<td>interval</td>
</tr>
<tr>
<td>Avg. Prenatal Care visits</td>
<td>Average prenatal care visits per women by: rate group, age group, trimester</td>
<td>ratio</td>
</tr>
</tbody>
</table>

### Summary of the Methodology

This chapter explained the methods used to quantify the impact of the PIM intervention strategy that was used to increase the initiation of prenatal care services.

The next chapter presents the results obtained with those methods. Future research will need to be conducted to determine cause of failure to contact women or why the women did not access prenatal care, however, that is not within the scope of this paper to describe.
CHAPTER IV
PRESENTATION AND ANALYSIS OF DATA

As stated in Chapter 1, the goal of the study was to determine the effectiveness of a pregnancy identification model (PIM) intended to improve the patterns of prenatal care utilization in a population of low income Medicaid women at risk for poor birth outcomes. The three primary components of the intervention model were: identification of pregnant women, reporting of pregnancy test outcomes to the health plan, and the effects of a reporting incentive that is sent to the provider office staff for their participation for enrollment.

This chapter will first provide a brief description of the primary sources used to complete the analysis, inclusive of a description of the Health Plan Employer Data and Information Set (HEDIS) performance measures that are used to determine the parameters of the study analysis and which variables are to be included or excluded. Secondarily, a description of the study population and the analytical parameters will be described. The figures and tables that follow assist in summarizing the study findings in the following chapter.
Statement of Research Question

Does the Prenatal Care Intervention Model (PIM) improve first trimester prenatal care utilization? The subsidiary questions are: was there an increase in first trimester prenatal care utilization post intervention (PIM)? Secondarily, was there a reduction in the percentage of women who received “no prenatal care” post intervention (PIM)?

Population

The study population consists of pregnant women residing within Marion or Polk Counties and enrolled in the Oregon Health the Plan (OHP) and The Health Plan (MPCHP) for reporting dates May 1, 2001 through December, 31, 2003.

Technical Specifications

There is no clear consensus found in the literature on the “optimal” set of variables to use as a measure of prenatal care. For the purposes of this study and as per the guidelines set forth by the Office Medical Assistance Program (OMAP) for all fully capitated health plans (FCHP’s or Health Plan) contracted under the Oregon Health Plan (OHP) Health Plan Employer Data and Information Set (HEDIS) parameters are utilized. HEDIS 2003 contains the amendment to HEDIS 2001 and used for the purposes of this report period, and is one of the most widely used set of performance measures for
managed care health plans, such as Health Plan. The tool was developed and is updated by the National Committee for Quality Assurance (NCQA). It has been adapted for use by regulators and public purchasers. For the purposes of this study, researchers used Volume 2: Technical specifications required in the collecting and submitting of HEDIS 2003 data (HEDIS, 2003). This section outlines the data collection and reporting process for each measure presented. Guidelines on how to perform the necessary calculations, in addition to collection, reporting, and sampling criteria related to the variables under study are provided (Appendix I). The descriptive statistics for the study were developed utilizing these report parameters:

- HEDIS 2001 Initiation of Prenatal Care CPT and Diagnosis codes (excluding continuous enrollment criteria)
- Lines of Business: Health Plan or the Marion Polk Community Health Plan (MPHCP)
- Report Period: 5/1/01 to 12/31/03

Descriptive Statistics

The results of indicate for the reporting period (May 1, 2001 through December 31, 2003) 2,694 women were identified with a total of 2,868 deliveries (a number of them delivered twice during this reporting period). A summary of the number of women in each study group and the number of deliveries for the reporting period follows:
In the Baseline or pre interventions group (Pre July 2002): 1, 773 women delivered 1947 babies (174 women in the baseline group delivered twice during the reporting period).

In the Treatment or pre intervention group (Post July 2002): 921 women delivered exactly 921 babies (there were no multiple births or pregnancies in this population).

Six age categories routinely depicted (internally developed) in the following analysis are:

1. 13 to 18 year old pregnant women
2. 19 to 25 year old pregnant women
3. 26 to 30 year old pregnant women
4. 31 to 35 year old pregnant women
5. 36 to 40 year old pregnant women
6. 41 and older year old pregnant women

Figure 4.1 indicates the percentage of women (study population) and deliveries that occurred by age group (see Figure 4.1). Approximately 8% of the population under study are 13 to 18 years of age and accounted for 239 deliveries; 58% are 19 to 25 years of age and accounted for 1, 668 deliveries; 19% are 26 to 30 years of age and accounted for 559 deliveries; 5% are 31 to 40 yeas of age and accounted for 131 deliveries and that 1% are 41 years of age and older and accounted for 27 deliveries. A total of 1947
deliveries occurred in the baseline group or prior to the intervention (July 1, 2001) and exactly 921 in the treatment group of after the intervention (July 2002).

**Figure 4.1**

**Total Deliveries by Age Group Category**

![Total Deliveries Chart]

Table 4.1 depicts the difference in the average number of enrolled months in the six categorical age groups between the treatment group (post intervention) and the baseline group (pre Intervention). The baseline (pre intervention) group is notated as “Conceived before July 2002”, whereas, the treatment group (post intervention) group is notated by “Conceived after July 2002.” The average enrolled months per delivery
increased from 4.81 months for women in the baseline group (pre intervention) to 5.65 months for women who conceived in the treatment group (post intervention). There appears to be an opportunity to further increase the number of months women are enrolled during their pregnancy across all age categories and the Health Plan will address this in near future.

**Table 4.1**

Average Enrolled Months during Pregnancy

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Conceived Before July 02</th>
<th>Conceived After July 02</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 to 18</td>
<td>4.75</td>
<td>5.61</td>
</tr>
<tr>
<td>19 to 25</td>
<td>4.76</td>
<td>5.76</td>
</tr>
<tr>
<td>26 to 30</td>
<td>4.99</td>
<td>5.39</td>
</tr>
<tr>
<td>31 to 35</td>
<td>5.01</td>
<td>5.59</td>
</tr>
<tr>
<td>36 to 40</td>
<td>4.43</td>
<td>5.72</td>
</tr>
<tr>
<td>41 and Older</td>
<td>4.89</td>
<td>5.78</td>
</tr>
<tr>
<td><strong>Average enrolled months During pregnancy</strong></td>
<td><strong>4.81</strong></td>
<td><strong>5.65</strong></td>
</tr>
</tbody>
</table>

In response to the question: Was there an increase in the proportion of women who initiated prenatal care in the first trimester of their pregnancy in the treatment group (post-PIM intervention) compared to the baseline group (pre-PIM intervention) (see Figure 4.2)? Figure 4.2 demonstrates that 38.13% of the women in the treatment group (post intervention) initiated prenatal care in the first trimester of their pregnancy, whereas, only 26.77% of the women in the baseline group (pre intervention) first initiated
care. Furthermore, Figure 4.2 demonstrates that there was a reduction in the proportion of women (13.25%) who received no prenatal care in the treatment group (post intervention) compared to the proportion of women (19.86%) in the baseline group (pre intervention). In response to the subsidiary research question: Was there a reduction in the percentage of women who received “no prenatal care” post intervention (PIM),?” the research indicates there was a reduction.

**Figure 4.2**

*First Prenatal Care Visit by Trimester Based on Date of Conception*

![Bar chart showing first prenatal care visit by trimester based on date of conception.](chart)

<table>
<thead>
<tr>
<th></th>
<th>1st Trimester</th>
<th>2nd Trimester</th>
<th>3rd Trimester</th>
<th>NPNC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceived Before July 02</td>
<td>26.77%</td>
<td>29.05%</td>
<td>44.18%</td>
<td>19.86%</td>
</tr>
<tr>
<td>Conceived After July 02</td>
<td>38.13%</td>
<td>29.73%</td>
<td>32.15%</td>
<td>13.25%</td>
</tr>
</tbody>
</table>

Table 4.2 presents the total number of prenatal care visits by trimester for the reporting period 5/1/01 through 12/21/03 and reflects the results of a t-test for difference
between pre- and post-intervention (PIM) for the initiation of prenatal care by trimester. Portney and Watkins (2000) report that the t-test is robust due to the very large sample population. Additionally, a regression analysis was performed on specific variables (age; number of women enrolled per clinic; rural versus urban; and county of residence) however, the analysis did not contribute any new information, since the additional independent variables did not attain statistical significance.

- The Student's t-test was performed for the difference between pre and post intervention (PIM) for initiation of prenatal care by trimester.
- The analysis could either have been based on the number of month's enrolled (member-months), or based on the percent that had a prenatal visit in the first trimester, or by the percent that had no prenatal care.
- In addition, the proportionate change in women who initiated prenatal care in the first trimester of their pregnancy in the intervention group (post PIM) compared to baseline (Pre PIM) values by first, second, third trimester and no prenatal care are highlighted for review.
- The Pre PIM data or baseline data is presented next to the post PIM or treatment group for the sake of visual clarity.
- The increase in the total number of prenatal care visits is presented on the Y axis as a percentage increase (see Table 4.2).
- The confidence interval (95%) for the difference between pre- and post-intervention proportions is also displayed.
The analysis used a 95th percentile Confidence Interval, and then determined the t-value in the table for alpha = .05.

The t values were used to translate backwards into the confidence interval that provide the parameters for the regions of rejection and the critical values as determined by P-values area also calculated.

If t obs > t crit, then the two groups are significantly different. SPSS provided the t obs and the p level for that t obs.

A statistical significance is suggested in Table 4.2 for women who 25.6 percent of the women initiated care in their first trimester post intervention (PIM) versus 15.7% prior to the intervention (PIM) or an increase of 9.9%. In addition, a statistical difference is also suggested in Table 4.1 as the percent of women who had no prenatal care declined, as indicated by a reduction of post intervention (PIM) percentages or after July 2002. This would be expected as the number of women initiating first trimester, or any care, increases (see Table 4.2). The health plan's implementation of the prenatal care intervention (PIM) and the collaborative efforts of the provider network to identify and enroll pregnant women in their first trimester of prenatal care appear promising.
### Table 4.2

T-test for difference

<table>
<thead>
<tr>
<th>Conception Date</th>
<th>Pre</th>
<th>Post</th>
<th>P-value (2-sided)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Trimester*</td>
<td>15.7%</td>
<td>25.6%</td>
<td>&lt; .001</td>
<td>(7.0%, 12.9%)</td>
</tr>
<tr>
<td>2nd Trimester</td>
<td>17.1%</td>
<td>20.0%</td>
<td>0.057</td>
<td>(-.08%, 5.9%)</td>
</tr>
<tr>
<td>3rd Trimester*</td>
<td>26.0%</td>
<td>21.6%</td>
<td>0.012</td>
<td>(-7.7%, -1.0%)</td>
</tr>
<tr>
<td>No Prenatal Care*</td>
<td>41.3%</td>
<td>32.3%</td>
<td>&lt; .001</td>
<td>(-12.3%, -4.7%)</td>
</tr>
</tbody>
</table>

* Denotes p-value < .05

Figure 4.3 depicts the difference in the initiation of first trimester care by trimester after the intervention (Post PIM) compared to the prior to the intervention (pre PIM). The figure shows a 9.9% increase in initiation of first trimester prenatal care with subsequent decreases in the percentage of women initiating care in their third trimester or not at all. This figure is a representation of the data found in the t-table 4.1 located on the preceding page.
Data Exploration:

Baseline characteristics (urban/rural; number of women enrolled per clinic; age; and county of residence) were compared between pre and post interventions groups which provided an opportunity to visually explore the data by examination of the above variables that potentially could have an impact on the effect of the intervention on the rate of first trimester care. The variables were categorical (nominal), so they don't lend themselves to regression models as suggested in following tables.
Table 4.3 provides the opportunity to visually explore the data by examination of the study population variance between urban and rural distribution, pre and post intervention (PIM) by conception date. Baseline or pre intervention groups and treatment or post interventions (PIM) groups exhibit similar urban vs. rural distributions and have similar distributions of county residence.

Table 4.3

First Trimester Care rates by Urban versus Rural Distribution

<table>
<thead>
<tr>
<th>Urban/Rural Distribution</th>
<th>Conception Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline or Pre Intervention (PIM)</td>
</tr>
<tr>
<td>Urban</td>
<td>66.5%</td>
</tr>
<tr>
<td>Rural</td>
<td>33.5%</td>
</tr>
</tbody>
</table>

Table 4.4 provides the opportunity to visually explore the data by examination of the variable that potentially could have an impact on the effect of the intervention on the rate of first trimester care (see table 4.4). Enrollment, or the number of prenatal women enrolled per clinic by conception date pre and post PIM are presented are remain relatively constant across pre and post interventions group as evidenced in the table below.
Table 4.4

First Trimester Care rates by the Number of Pregnant Women Enrolled per Clinic

<table>
<thead>
<tr>
<th>Number of Prenatal women enrolled per clinic</th>
<th>Conception Date</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre Intervention (PIM)</td>
<td>Post Intervention PIM</td>
<td></td>
</tr>
<tr>
<td>Over 100</td>
<td>71.1%</td>
<td>72.9%</td>
<td></td>
</tr>
<tr>
<td>41-100</td>
<td>7.5%</td>
<td>6.7%</td>
<td></td>
</tr>
<tr>
<td>1-40</td>
<td>21.4%</td>
<td>20.4%</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.5 depicts the average age of the study population by their conception date pre and post intervention (PIM). This table also provides the opportunity to visually explore the data by examination of the age variable that potentially could have an impact on the effect of the intervention on the rate of first trimester care. The results indicate that the average age at conception for the baseline (pre intervention) and the treatment group (post intervention) remains relatively constant.

Table 4.5

First Trimester Care rates by Age at Conception Date

<table>
<thead>
<tr>
<th>AGE</th>
<th>Conception Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before July 1, 2002</td>
</tr>
<tr>
<td></td>
<td>24.2</td>
</tr>
</tbody>
</table>

Table
4.6 provides the opportunity to visually explore the data by examination of the variable that potentially could have an impact on the effect of the intervention on the rate of first trimester care (See Table 4.6). The results suggest that distributions by county of residence of the baseline (pre intervention) and treatment groups (post intervention) remained similar.

Table 4.6
First Trimester Care rates by County

<table>
<thead>
<tr>
<th>Conception Date</th>
<th>Before July 1, 2002</th>
<th>After July 1, 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marion</td>
<td>83.7%</td>
<td>84.7%</td>
</tr>
<tr>
<td>Polk</td>
<td>12.1%</td>
<td>11.8%</td>
</tr>
<tr>
<td>Other</td>
<td>4.2%</td>
<td>3.5%</td>
</tr>
</tbody>
</table>

Table 4.7 shows the difference in the rate of first trimester prenatal care was analyzed by the subgroups (age, Number of women per clinic or Clinic Size, County, and Urban/Rural/Other) that could potentially have an impact on the effect of the intervention on rate of first trimester prenatal care. This was done with the use of 95% confidence intervals for estimation of the mean for each variable. The difference in the rate of first trimester care across all subgroups remained relatively constant prior to and post intervention. Subgroups, such as age, with more variability were probably related to smaller sample size.
Table 4.7: Rates for first trimester prenatal care, analyzed by subgroups

<table>
<thead>
<tr>
<th>Age</th>
<th>Baseline Mean (Confidence Interval)</th>
<th>Treatment Mean (Confidence Interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre Intervention</td>
<td>Post Intervention</td>
</tr>
<tr>
<td>13-18</td>
<td>0.19 (.16 to .22)</td>
<td>0.21 (.16 to .26)</td>
</tr>
<tr>
<td>19-25</td>
<td>0.14 (.13 to .15)</td>
<td>0.26 (.25 to .28)</td>
</tr>
<tr>
<td>26-30</td>
<td>0.18 (.16 to .20)</td>
<td>0.22 (.19 to .25)</td>
</tr>
<tr>
<td>31-35</td>
<td>0.20 (.16 to .23)</td>
<td>0.32 (.27 to .37)</td>
</tr>
<tr>
<td>36-40</td>
<td>0.18 (.23 to .22)</td>
<td>0.25 (.19 to .32)</td>
</tr>
<tr>
<td>41 &amp; older</td>
<td>0.12 (.04 to .20)</td>
<td>0.30 (.15 to .45)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clinic size—Number of PNC Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 100</td>
</tr>
<tr>
<td>41-100</td>
</tr>
<tr>
<td>1-40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>County</th>
<th>Baseline Mean (Confidence Interval)</th>
<th>Treatment Mean (Confidence Interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre Intervention</td>
<td>Post Intervention</td>
</tr>
<tr>
<td>Marion</td>
<td>0.15 (.14 to .16)</td>
<td>0.24 (.23 to .26)</td>
</tr>
<tr>
<td>Polk</td>
<td>0.19 (.17 to .22)</td>
<td>0.31 (.27 to .36)</td>
</tr>
<tr>
<td>Other</td>
<td>0.16 (.12 to .20)</td>
<td>0.34 (.26 to .43)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Urban/rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
</tr>
<tr>
<td>Rural</td>
</tr>
</tbody>
</table>
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The research study evaluated the effectiveness of a pregnancy identification model (PIM) that was intended to improve the patterns of prenatal care utilization in a population of low-income Medicaid women at risk for poor birth outcomes. This chapter will begin by restating the research problem and a review of the major methods used in the study. The chapter will conclude with a summary of the study results and a discussion of their implications.

The Research Question

Does the Prenatal care Intervention Model (PIM) improve first trimester prenatal care utilization? The subsidiary questions are: was there an increase in first trimester prenatal care utilization post intervention (PIM)? Secondarily, was there a reduction in the percentage of women who received "no prenatal care" post intervention (PIM)?

Review of Methodology

A non-random quasi experimental retrospective study was conducted on 2,694 women who were identified as low income women enrolled on the Oregon Health Plan and the Marion Polk Community Health Plan (MPCHP). Medical claims data regarding pre and post program (PIM) prenatal utilization rates were analyzed in accordance with
HEDIS 2003 technical guidelines. Data sets were created using linkages of claims. Routine descriptive statistics and a t-test were utilized for these analyses. The t-test is robust due to the very large sample population and the homogeneity of the sample population and is one of the most commonly applied statistical tests in health care (Portney and Watkins, 2000).

Summary of the Results

The following findings are summarized in response to the research questions:

1. Does the Prenatal Care Intervention Model (PIM) improve first trimester prenatal care utilization?

2. Was there a reduction in the percentage of women who received “no prenatal care” post intervention (PIM)?

There was a statistical difference in the percent of women who had a prenatal visit in the first trimester in the baseline group of 15.7% versus 25.6% in the treatment or post (PIM) group (p-value of < .001). Also, a statistical difference was demonstrated in the percent of women who had no prenatal care, declining from 41.3% to 32.3% in the post intervention (PIM) (p-value of < .001). A similar effect was seen across several demographic variables (age, county of residence, rural versus urban designation, or the number of women enrolled per clinic.)
The health plan’s implementation of the prenatal care intervention (PIM) and the collaborative efforts of the provider network to identify and enroll pregnant women in their first trimester of prenatal care demonstrate the effectiveness of the 'social network, etc. model (put in here what you've been using)' in a community setting. This cost-effective approach, using existing health care networks, could be implemented in other communities providing prenatal care to low-income women.

Explaination of Unanticipated Findings

The study suggests that MPCHP’s maternity and prenatal program has not been as successful in reaching mothers in the 19 to 25 age group as indicated by the total number of women by age group delivering. This indicates a need to target this group more effectively to increase enrollment in the Oregon Health Plan so that these women would receive prenatal care earlier in their pregnancies. Oregon Health Plan is the only insurance available to these women so there was not an opportunity for them to be cared for under another plan option.
Theoretical Implications of the Study

Theories of social capital and informal networks were woven together to provide a rich framework for the (PIM) intervention. The conceptual models presented in Chapter two assisted in the development of the theoretical constructs. The theories used in the pregnancy intervention model (PIM) were hypothesized to provide a platform upon which like-minded people were given the opportunity to:

- span boundaries,
- share core knowledge
- nurture innovation
- customize solutions
- coordinate response
- optimize underutilized resources
- collaborate
- build trust
- create connectivity
- achieve their goals
- problem solve

Many health care intervention programs focus on the outputs and do not consider the inputs that drive the intervention and thus lead to the desired output. Engagement in prenatal care is critical before prenatal care can occur, and this makes the study of
prenatal care intervention ripe for further study. More specifically, “how do I get my basic needs met in order to want prenatal care?” The Institute of Medicine (IOM, 1985, 1988) recommended States legislate a system of accountability, whereby the State designates a local organization to act as the “residual guarantor” of services and to arrange for care for pregnant women who remain outside of the prenatal care system. This entity would assess the unmet prenatal care needs, act as the broker to develop the local provider panel to fill the gaps in service and, when necessary, provide service delivery sites. In this specific research study, MPCHP functions as the residual guarantor of services under the OHP. Possibly the conceptual model provided will be adopted by others in similar settings who desire to provide a comprehensive prenatal care program but find themselves unable to identify the women who could most benefit from such a service.

Implications for Practice

In conclusion, study results suggest that prenatal care intervention (PIM) has potential for further practical application for other Medicaid managed health plans. PIM appears to be a simple, cost effective solution to a real world problem. However, to truly be effective the health plan must assure there is adequate provider system capacity for these women, establish a methodology to assist them in enrolling and foster agreement among stakeholders regarding PIM as a case finding solution along with its identification and reporting process. Once these women are identified and enrolled, the health plan utilization medical management staff has the opportunity to assess these women for a
myriad of high risk and socially detrimental behaviors in a sensitive manner in order to facilitate their access to drug treatment or any needed service.

**Relationship of the Current Study to Previous Research**

The Institute of Medicine (IOM, 1988) researchers assessed which prenatal casefinding tools proved most effective in improving women's participation in prenatal care. This effectiveness was measured in terms of the month of pregnancy during which prenatal care was initiated, the number of prenatal care visits, or both. The consensus from this 1985 report identified that the human effort and financial resources being spent were not cost-effective. The casefinding techniques employed by those organizations studied showed marginally beneficial results.

**Recommendations for Educators**

"Health promotion and timely detection and treatment of health risks are needed by all pregnant women. Early prenatal care can be particularly important for low-income women, who may have worse health and/or lack ongoing preventive health care before pregnancy and therefore are at higher risk for poor pregnancy outcomes (Braveman, 2003, p.)." The literature reviewed identified flaws in the existing casefinding techniques. This study addresses or remedies a few of them. This relatively simplistic intervention (PIM) is revolutionary in its simplicity and takes a new world approach to solving a formal systems problem. Delivery systems must not rely solely on old
methodological approaches to identify these women and must adopt new boundary-spanning tools to increase the identification and subsequent treatment of this very fragile and deserving population.

**Suggestions for Additional Research**

Future efforts should focus on mothers in the 19 to 25 age group to increase their enrollment in the Oregon Health Plan and their use of prenatal care and other health-related services. Studies that target these young mothers earlier in their pregnancies and implement timelier prenatal care utilization would be advantageous (Braveman, et al. 1995). In addition, the health plan intends to conduct an analysis of delivery outcomes in the near future that gives consideration to:

1. Verification of live births.
2. Premature and healthy outcomes analysis that compares women who did and did not receive prenatal care as well as length of their enrollment in prenatal care.
3. A neonatal intensive care unit (NICU) inpatient analysis will also be instrumental in determining the full impact of the PIM intervention.
4. Cost analysis to determine the differential cost of the neonate conceived in the baseline versus those in the treatment group in first year of life.
The literature reports the expansion of a Medicaid maternity benefit is associated with an increase in prenatal care utilization by pregnant low-income women once they initiate care. However, future studies should focus on timeliness of care (Braveman, et al, 1995). Perhaps further studies could consider the application of informal knowledge networks as an effective precursor for successful interventions in health care related services.
REFERENCES


Arbor, S. A. (Personal Communication, March 21, 2005) also verified this. Quality Performance Improvement Work Group (QPIWG) meeting minutes specifically: 9/9/03 meeting minutes meeting minutes from 9/9/03 (pages 7 & 8), 10/13/03 (page 5) and 11/10/03 (page 3).


King, J. (Spring, 2004). Personal Communication, OSU, Corvallis, OR.


APPENDICES
MISSION
Preserve and promote the wise use of health resources in Marion and Polk Counties. Enhance the ability of physicians to act as patient's advocates. Assure a sound and ethical business environment that promotes flexibility and the pursuit of appropriate opportunities.

Call or write the association at:
198 Commercial St., S.E., Suite 240.
Salem, OR 97301
503/371-7701 or fax at 503/321-8046.
Mid-Valley Independent Physicians Association began as Capitol Health Care Physicians in 1976. The organization first acted as the provider panel for the Capitol Health Care HMO. To establish greater independence, in September of 1991 the association changed its name to Mid-Valley Independent Physicians Association by amending its articles of incorporation. At the same time, the IPA hired a staff member and began contracting with additional carriers.

Today, the association has over 420 members practicing primary and specialty care serving Salem, Santiam, Silverton and Valley Community Hospitals. The IPA contracts with more than 8 insurance carriers representing more than 120,000 covered lives. Product lines include commercial, Medicare, Oregon Health Plan, and workers compensation.

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Our organization

The IPA leadership consists of an 18-member Board of Directors elected annually for a three-year term by a vote of the general membership. The IPA is an Executive Committee composed of members of the Board and charged annually with oversight of the association. Members include the president, the immediate past president, the president elect, the vice president for specialty care, the vice president for primary care, and the secretary-treasurer. Standing committees, which consist of a chairman and additional members, include: Executive Committee, Membership/Credentialing, By Laws, Contract Committee, Quality Improvement, Medical Management Committee. There is a chief executive officer, a chief financial officer, a medical director, and an operations staff hired by the Board to manage the association. The IPA is also represented by legal counsel specializing in physician groups and health care.
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Appendix A
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- Executive Committee
- Membership/Credentialing
- Quality Improvement
- Medical Management Committee
- By Laws
- Contract Committee
- Medical Review & Negotiations

The IPA represents its members in negotiating contracts with carriers.

Contract Review & Negotiations
The IPA legal council represents the IPA negotiating contracts for the general membership with major insurance carriers.

Third Party Administrative Services
As a licensed Third Party Administrator, the IPA offers a variety of managed care services for other health care organizations and provider groups.

Physician Credentialing
The IPA assists members in credentialing for the health plan provider panels.

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- Contract Committee

Our organization

The IPA is also represented by legal counsel specializing in physician groups and health care.
Este manual está disponible en español a petición del interesado.

Мы можем предоставить данную брошюру на русском языке по требованию.
Welcome to Marion Polk Community Health Plan (MPCHP). This handbook gives important information about the services and benefits you receive with our Plan. Please take the time to read it and keep this copy to answer questions you may have.

**ALTERNATE FORMAT**

If you need this Oregon Health Plan Member Handbook or other informational materials in another form, such as:

- Other Languages
- Large Print
- Computer Disk
- Audio Tape
- Oral Presentation

Please call our Customer Service at (503)584-2150 or Toll Free 1-866-362-4794 to request the format you need. The TTY line for members with hearing impairments is 1-800-471-7944 for local calls (503) 584-2180.

**WHERE TO CALL**

MPCHP wants to make sure you get the services you need. Our office is open Monday thru Friday from 8:00 AM to 5:00 PM. Customer Service is available anytime during normal office hours.

**When do I call Marion Polk Community Health Plan?**

Call Customer Service if you:

- Need help picking a Primary Care Provider (PCP)
- Need to change your PCP selection
- Need a prescription, supplies, or other necessary item and/or services in the first month of enrollment if you are unable to see a PCP
• Have questions about the Plan
• Have questions about a medical bill
• Need an interpreter for a medical appointment
• Have questions about a claim
• Have questions about your benefits
• Need a new MPCHP ID Card
• Have a complaint about your medical coverage

You can reach our Customer Service Department at the following numbers:

503-584-2150 1-866-362-4794 1-800-471-7944 / 503-
584-2180
Salem Toll-free TTY Line for people with
hearing impairments

**When Do I call My Caseworker?**

For help with these questions or problems, call your caseworker.

• If you recently moved or had a name change
• If you have recently had a baby and want to add him or her to the Oregon Health Plan
• If you need to find out if you are still eligible or will be eligible next month
• If you need transportation to or from a medical appointment
• If you have not received your OMAP Medical Care Identification for the month
• If you need to change your managed care plan

**What If I Have Other Questions?**

• If you have questions about your premium bill call OHP Premium Billing Office 1-800-922-7592
• If you want to apply for the Oregon Health Plan call 1-800-359-9517 or TTY 1-800-621-5260
• If you are checking the status of your Oregon Health Plan application call 1-800-943-9249 or TTY 1-800-735-2900
EXCEPTIONAL NEEDS CARE COORDINATION (ENCC)

The plan has an Exceptional Needs Care Coordinator to assist members who have complex medical and/or special needs. ENCC helps coordinate health care services for persons age 65 or older and people who are blind or disabled. Persons who have special medical, supply or equipment need, or who will require support services in obtaining care, may request ENCC help by calling MPCHP at the following numbers:

Salem (503) 581-7010
Toll Free 1-866-318-5375
TTY 1-866-846-4831

IF YOU NEED SERVICES NOW

In the first month of enrollment, if you are unable to see a Primary Care Provider (PCP) and you need:
- Prescriptions
- Supplies
- Other necessary items
- Services

Call our Customer Service Department:
Salem (503) 581-7010
Toll-free 1-866-318-5375
YOUR PRIMARY CARE PROVIDER

When you join MPCHP, each family member will choose a Primary Care Provider (PCP). It is important for you to select a PCP as soon as you join the plan to make sure you get the care you need. A selection card and provider list was mailed to you with this Member Handbook. Once you have selected a PCP, complete the PCP assignment card and return to MPCHP.

Your PCP will coordinate all of your medical care.* This includes specialty care and hospital care, if necessary. Do not go to any provider other than your PCP unless he or she tells you to. If you go to a provider who is not your PCP or is not referred to you by your PCP, you will have to pay for the care yourself.

By selecting a PCP as soon as you join MPCHP, you won’t have a problem getting in to see a provider if you or a family member becomes ill. Once you have selected a PCP for each family member, a MPCHP ID card will be mailed to you listing each person’s PCP. If you need help choosing a PCP, call Customer Service.

IMPORTANT
If you do not choose a PCP from the provider list, one will be chosen for you. *The exceptions to this rule are listed under Specialist Care and Referrals.

CHANGING YOUR PRIMARY CARE PROVIDER

If you want to change the PCP you have selected, call Customer Service.

Do not see any provider other than your PCP until you have called MPCHP. Any doctor you see on your own will not be paid and may refuse to see you. You don’t want this problem, especially when you are ill.
IMPORTANT!

YOU MUST CALL MPCHP BEFORE YOU SEE A NEW PCP. YOUR NEW SELECTION WILL BE EFFECTIVE ON THE FIRST OF THE MONTH FOLLOWING YOUR REQUEST TO CHANGE.

A new ID card will be sent to you with the name of your new PCP on it. All current referrals and authorizations will be terminated. You will need to talk to your new PCP about any new referrals and authorizations.

GETTING MEDICAL CARE

To see your MPCHP provider for routine checkups or when you get sick:

1. Call your PCP to make an appointment.
2. Schedule regular checkups with your PCP to learn more about your health care needs and to prevent major illness.

REMEMBER: YOU MUST CONTACT YOUR PCP FOR ALL YOUR HEALTH CARE, EXCEPT IN AN EMERGENCY OR FOR CARE NOT COVERED BY MPCHP.

SPECIALIST CARE AND REFERRALS

If it is necessary for you to get specialty care, for most services your PCP must refer you. See your PCP first. He or she may need to contact MPCHP for approval for that referral.

IMPORTANT!

If you see a specialist without a referral from your PCP, MPCHP will not pay for your care. You may be billed for those services.
The following is a list of services that do not need a referral from your PCP. Unless noted, you must use a MPCHP participating provider.

- Annual women’s exam
- Immunizations [shots] (may be received by any provider)
- Maternity care (a referral from your PCP is needed to see a specialist other than your maternity doctor.)
- Mental health and chemical dependency services
- Routine vision exams
- Most family planning services (may be given by any provider)

**PHYSICIAN INCENTIVES**

If you are considering enrolling in our Plan, you are entitled to ask if the Plan has special financial arrangements with our physicians. Special financial arrangements that can affect the use of referrals and or other services that you might need. To get this information, call our Customer Service Department at (503)584-2150 or Toll Free 866-362-4794 or TTY 1-800-471-7944 and request information about our physician payment arrangements.

**CANCELLED/MISSED APPOINTMENTS**

If you cannot make it to a scheduled appointment, call your PCP as soon as possible. If you miss appointments and do not call your PCP or referral specialist you may prevent another patient from receiving a needed appointment. Your health is important, be sure to follow-up with your doctor
when he or she says they need to see you. If you miss multiple appointments without canceling first, you may be terminated from the plan. If you miss too many appointments your doctor can decide not to be your PCP.

**COVERED BENEFITS**

The services listed below are just some of the covered services on the Oregon Health Plan. If you have questions about what is covered, please call MPCHP Customer Service.

Preventive Services:
Preventive services are a very important part of the care you receive from your PCP. This includes regular check-ups, immunizations (shots), and any tests to tell you what is wrong. Your PCP recommends these services. Please discuss the recommended schedule for health checkups with your provider.

Well-Child Care:
Well-Child Care is available for children and young people to help them stay healthy. Even if your child is not sick, he or she needs to see the PCP for regular check-ups. Included in Well-Child Care are:

- Exams
- Immunizations (shots)
- Vision testing
- Health education
- Lead testing
- Hearing testing
- Dental referral
- Nutrition information

Health Exam Schedule:

- Birth through 24 months: 7 visits
- Age 2 through 6: One well-child exam every 12 months
<table>
<thead>
<tr>
<th>Age Group</th>
<th>Required Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 7 through 18</td>
<td>One well-child exam every 24 months</td>
</tr>
<tr>
<td>Age 19 through 34</td>
<td>One exam every 48 months</td>
</tr>
<tr>
<td>Age 35 and over</td>
<td>One exam every 24 months</td>
</tr>
</tbody>
</table>

**Pregnancy Care:**
MPCHP wants both a healthy mother and healthy baby. If you are pregnant, you should see a plan provider right away. It is important to begin prenatal care early in your pregnancy. It is very important for a woman to get regular medical care from a plan provider. Your care will include regular office visits, routine lab work, and other testing. Your provider will help you understand the changes in your body and how your baby is growing.

**Adult Preventive Care**

This includes routine physical exams, some immunizations (shots), Pap tests and mammograms (breast x-rays) for women, and prostate exams for men.

Preventive care is an important part of your health care. This includes periodic health examinations and screenings. Here are your benefits:

**Physical Exam**
- One exam every 4 years (48 months) for people age 19-34;
- One exam every 2 years (24 months) for those age 35 and older

**Annual breast, pelvic, & pap test**
- One exam every 12 months for women up to age 65;
- One exam every 12 – 36 months for women age 65 and older

**Mammogram**
- One baseline mammogram for women between age 35 and 40;
- Once every 12 months for women age 40 and older

**Prostate cancer screening**
- One rectal exam every 12 months for men age 50 and older;
- Prostate testing as recommended by your provider.

**Colon cancer recommended**
- Once every 12 months for age 50 and older, or as
screening by your provider

Cholesterol screening

Recommended

Baseline screening for people between age 19 and 23; once every 5 years for age 24 and older, or as recommended by your provider

Diagnostic Services -

Includes examinations to determine what is wrong with you and whether or not the treatment for the condition is covered. Marion Polk Community Health Plan will pay for lab and x-ray when your PCP or referral specialist (with a valid referral) orders them. You may get these services in your doctors office, clinic, or in a hospital outpatient department.

Vision Care:

You do not need a referral from your PCP to have a routine vision exam. In order for your visit to be covered by MPCHP, you must be seen by a MPCHP participating provider. However, if you have a medical condition, such as an injury or infection, be sure your PCP makes a referral.

Exams and eyeglasses:

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 1-20</td>
<td>As medically needed</td>
</tr>
<tr>
<td>Age 21 and over</td>
<td>1 exam every 24 months</td>
</tr>
</tbody>
</table>

Glasses:

A selection of glasses is available at no cost to you through participating providers. If you wish to purchase more expensive glasses than the selection provided, you will be responsible for the entire amount. MPCHP cannot pay any portion of glasses or frames that cost more than the selection provided. OHP does not allow this.

Hearing Care:
MPCHP is responsible for providing hearing services. Hearing exams are covered with a referral from the PCP to a participating provider. Hearing aids are covered if they meet medical criteria. Hearing aid batteries and repairs are covered benefits. If you are in need of hearing services, ask your PCP for a referral. If you are already receiving hearing services, please call Customer Service so we can arrange the continuation of your care.

Hearing Aids:
- Age 1-20: 2 aids every 3 years
- Age 21 and over: 1 aid every 5 years

Skilled Nursing Facility:

Skilled nursing is covered for up to 20 days following hospitalization when medically necessary. Medicaid may cover additional Skilled Nursing Facility care or if you have Medicare.

Prescription Drugs:

MPCHP covers prescription drugs for conditions paid for by the Oregon Health Plan. Family planning drugs, some-over-the-counter products, and some devices are also covered. All items for covered conditions require a prescription from your PCP or specialist. See the MPCHP provider directory for a pharmacy near you.

MPCHP has developed a list of prescription drugs and some over-the-counter drugs that are available to you. This list is also called a drug formulary. It includes both brand name and generic medications that are safe and effective. Generic drugs will be prescribed, if available. If you want to know if a certain drug is on the list, ask your provider. He or she will be able to tell you.
If your provider feels you should get a drug that is not on the list, he or she may make a special request. The request would ask MPCHP for approval to prescribe the drug. Once MPCHP reviews the request and decides to approve or deny, we will notify your provider. You will then either be able to fill the prescription or get a similar drug that is on the list.

Family Planning –

For family planning services and supplies, you may see a provider in the plan or go to the County Health Department.

Sterilization must be provided by your Marion Polk Community Health Plan provider or by referral from your PCP to be covered by the plan.

MEDICAL AND SURGICAL CARE

Coverage includes medically appropriate treatments for conditions that are expected to get better with treatment. Some examples of medical conditions that you might get treatment for include but are not limited to:

- Appendicitis
- Asthma
- Broken bones
- Burns
- Cancer
- Diabetes
- Ear infections
- Epilepsy
- Eye disease
- Head injuries
- Heart disease
- Infections
- Kidney disease
- Pneumonia
- Rheumatic fever
- Stomach or leg ulcers
The following medically appropriate services are covered when provided as part of treatment for covered medical conditions.

- Inpatient hospital care at a participating hospital when arranged by your PCP or PCP-referral specialist.
- Emergency room (ER) care for a medical emergency. You should not go to the ER for a problem that can be treated in your PCP’s office. If you go to the ER and it is not an emergency, you may have to pay for the visit.
- Home health care arranged by your PCP.
- Skilled nursing facility care for up to 20 days when arranged by your PCP.
- Physical, speech, and occupational therapy if arranged by your PCP or specialty provider.
- Hospice care for the terminally ill. Other comfort care measures, including pain reliever medications when arranged by your PCP are also covered.
- Medical equipment and supplies for treatment of a covered illness or injury. Some equipment and supplies include, but are not limited to:
  - Crutches
  - Diabetic supplies
  - Hospital-type supplies
  - Ostomy supplies
  - Oxygen
  - Oxygen equipment
  - Walkers
  - Wheelchairs

SERVICES THAT ARE NOT COVERED (EXCLUSIONS)

Not all medical treatments are covered. When you need medical treatment, contact your PCP. These are some of the exclusions:

- Personal comfort or convenience items (radios, telephones, hot tubs, treadmills, etc.)
- Cosmetic services
- Services performed by an immediate relative or member of your household
- Transportation, except as specifically listed in the emergency care benefit section.
- Any services received outside the United States
- Non-emergency care if you go to a provider who is not a Marion Polk Community Health Plan provider.

If you have questions about covered or non-covered services, contact Customer Services at 503-584-2150 or toll free at 1-866-362-4794. The TTY line is 1-800-471-7944.

**EMERGENCY CARE**

Take care of problems before they become serious. Call your PCP when you are sick. Please do not wait until after office hours to get care for you or your family. Emergency care is covered 24 hours a day, 7 days a week. Marion Polk Community Health Plan is responsible for payment of emergency services.

If you believe you have an emergency medical condition call 911 or go directly to the emergency room. If you are not sure your condition is an emergency call your PCP they will direct your care. Follow up care is not an emergency. You should call your provider’s office to make arrangements for follow up care.

Emergency care when you are away from home: If you are traveling and have an emergency, go to the nearest emergency room or call 911. Emergency services are only authorized as long as the emergency exists. Please call our office to arrange for further care if it is needed while you are out of the service area. Also, call for follow-up care or transfer of your care.

**What is a true medical emergency?** An emergency medical condition means you have symptoms that are severe (including severe pain).
You believe your health will be in serious danger if you don’t get help right away. This also includes your unborn child’s health if you are pregnant. An emergency medical condition can also be a serious problem with a bodily function or with a part of your body, such as your heart. Some examples of emergency situations are:

- Broken bones
- Bleeding that does not stop
- Suspected heart attacks
- Major burns
- Loss of consciousness

If you go to the emergency room for something that is not an emergency, you may have to pay for the bill.

Do not go to the emergency room for care that should take place in your provider’s office. Routine care for sore throats, colds, flu, back pain, and tension headaches, for example, is not considered an emergency. Remember, whenever you need advice, call your PCP’s office. Someone will be available to help day and night 24 hours a day, 7 days a week. If your PCP cannot talk with you, speak to the on-call provider. They will be able to direct your care.

**SMOKING CESSATION**

Marion Polk Community Health Plan will pay for services to help you quit smoking. This benefit includes pharmacy products (such as nicotine patches and other prescribed drugs).

**INTERPRETER SERVICES**

MPCHP pays for interpreter services for members who do not speak English or have a hearing impairment. You must need the services for
covered medical services. To get an interpreter, ask your provider to arrange for those services. Your provider will work with MPCHP for an interpreter to meet you for the visit.

MENTAL HEALTH AND CHEMICAL DEPENDENCY SERVICES

For Mental Health Services call Mid-Valley Behavioral Health at 503-361-2647.
For Chemical Dependency Services please call one of the participating providers listed in the provider directory.

These services do not need a referral from your PCP. You will be asked to sign a release of information form with the mental health or chemical dependency provider to have your PCP informed of your treatment.

There may be some services that may not be covered because of diagnosis or type of treatments. You will have to pay for those services. Be sure to call if you have any questions about mental health or chemical dependency services.

AMBULANCE

If it is an emergency call 911. MPCHP will pay for medically necessary ambulance transportation in an emergency. This means MPCHP will pay for an ambulance only when transportation in another vehicle could endanger your health. Your PCP or referral specialist will coordinate those services through MPCHP. If you use the ambulance for something that is not an emergency, you may have to pay the bill. Stretcher car, wheelchair, or other transportation for convenience is not covered.

Note: If you need a ride to a medical appointment call your branch office.
APPEAL PROCESS

Marion Polk Community Health Plan has an appeal process that you can use. If you are not satisfied with the decision, you can appeal that decision within 60 days by calling 1-866-362-4794 or writing to:

Marion Polk Community Health Plan (MPCHP)
Grievance and Appeals
PO Box 2777
Salem, OR 97308

We will review your appeal and give you a decision within 30 days.
Appendix D

PRENATAL INTERVENTION PROGRAM (PIM)

PNC Subject is identified by OMAP, the Health Plan, the Health Department, PNC provider or medical office personnel through positive pregnancy test or self-disclosure. The health plan is notified via fax, phone call or on line chart notes.

The health plan’s utilization review department initiates the following process:
- A reporting incentive gift certificate is sent to person responsible for identifying PNC pregnant woman.
- UM notifies the state of pregnancy so that pregnant woman is afforded all benefits she is entitled to under the Oregon Health Plan.
- UM initiates educational mailings to PNC pregnant woman.

UM identifies whether or not the pregnant woman has prenatal care.

- Woman does not have prenatal care provider:
  - A phone call is made to the woman & she is assisted or assigned a PNC provider.
  - If unable to contact woman:
    - If woman is located:
      - Health Plan case manager notifies subject’s state caseworker of inability to locate subject.
      - State case manager per OAR attempts to locate member.
      - If unable to locate woman, she is disenrolled from health plan as per OAR rules.
    - If woman is not located:
      - Health Plan case manager notifies subject’s state caseworker of inability to locate subject.
      - State case manager per OAR attempts to locate member.
      - If unable to locate woman, she is disenrolled from health plan as per OAR rules.

- Woman has prenatal care provider:
  - Prenatal care provider requests case management of subject.
  - Open to case management

Woman is contacted and assessed for holistic needs (e.g., drug treatment, transportation, domestic violence, housing services).
Woman is given needed resource information.
Woman is assisted in finding a prenatal care provider if needed.
Woman may be offered a care conference with both state and health plan case managers along with provider input based on holistic assessment.
Local Participating Providers
Proveedores Participantes Locales

- Lancaster Family Health Center
- Salem Nurse-Midwives
- West Salem Clinic
- Willamette Family Medical Center
- Dr. Beth Vermont-OB/GYN
- Marion County Health Department
- Salem Hospital Laboratory
- Mission Medical Imaging

To Enroll in the Program
Please Call:
MARION COUNTY WOMEN'S HEALTH for a pregnancy assessment appointment
(503) 588 - 5355

Para Inscibirte en el programa favor de llamar:
MARION COUNTY WOMEN'S HEALTH para una cita de valoracion
(503) 588 - 5355

Marion/Polk Community Prenatal Care Project
Communidad de Marion/Polk Proyecto del Cuidado Prenatal

Marion/Polk Prenatal Care Project is sponsored and funded by the Mid-Valley Independent Physician Association and Salem Hospital.

El Proyecto Prenatal Marion/Polk está patrocinado y fundado por Mid-Valley Independent Physician Association y Salem Hospital.
Prenatal Care
The most important thing you can do for your baby before he or she arrives is to get early and ongoing prenatal care. Prenatal care helps ensure that you and your baby remain healthy during your pregnancy and may identify possible problems that may effect you or your baby before and after birth.

Cuidado Prenatal
La cosa ma's importante que puede hacer para su bebe antes que llegue es obtener cuidado prenatal temprano y seguido. El cuidado prenatal le asegura que usted y su bebe sigen de buena salud durante de su embarazo y posiblemente identifican problemas que le puede causar maios efectos a usted o a su bebe antes o despues del parto.

The Program
The Program offers...
- Affordable, quality prenatal care at a reduced cost of only $600.00. Similar services for non-program clients cost much more.
- Discounted ultrasounds, if paid at time of service.
- Needed prenatal laboratory testing at discount prices, if paid for at time of service.

El Programa
El Programa le ofrece...
- Cuidado prenatal bajo en coste por solamente $600.00 servicios similares para los que no tienen el programa cuestan mucho mas.
- Ultrasonidos de precios bajos si paga al tiempo del servicio.
- Servicios necesarios del laboratorio en precios bajos si paga al tiempo del servicio.

Do You Qualify?
You may qualify if...
- You need prenatal care and do not have a prenatal care provider.
- You do not qualify for the Oregon Health Plan or do not have other insurance.
- You meet income requirements.

ZCalifica Usted?
Calificaria si...
- Necesita el cuidado prenatal y no tiene proveedor.
- No califica para el Plan de Salud de Oregon y no tiene otra aseguranza
- Califica economicamente
### Pregnancy Physicians

**Aumsville:**
- Scott Hadden: 503-749-4734
- Tracie Hotan: 503-749-4734

**Independence/Monmouth:**
- Shawn Ensminger: 503-606-3283
- Keith White: 503-838-1133
- Steven LaTulippe: 503-838-1133

**Salem:**
- Paul Balmer: 503-585-6388
- Michael Bowen: 503-399-2424
- Geoffrey Carden: 503-606-3288
- Laura Chong: 503-399-2424
- Evelin Dacker: 503-362-6304
- John De bloque: 503-378-7526
- Deborah Dillon: 503-399-2444
- Douglas Ellason: 503-362-6304
- Frederick Frank: 503-399-2424
- Elizabeth Harmon: 503-399-2444
- Deborah Johnson: 503-585-9695
- Lois Jensen: 503-399-2444
- Michael Kather: 503-391-4615
- Lance Loberg: 503-378-7526
- Cheryl Lungenhill: 503-399-2424
- Lavina Morgan: 503-485-5959
- Salvador Ortega: 503-585-6388
- Lucy Peterson: 503-399-2444
- Patricia Peterson: 503-399-2424
- Jonathan Pegmire: 503-581-8636
- Michelle Rasmussen: 503-540-7477
- Oleg Reznik: 503-585-6388
- John Settenspiel: 503-362-6304
- Tsaie Tihanayi: 503-362-1314
- David West: 503-588-7525
- Lancaster Women's Clinic: 503-588-0076

**Silverton:**
- Elizabeth Blount: 503-873-8686
- Denis Dalinsky: 503-873-8853
- John Gilliam: 503-873-3636
- Shandra Greig: 503-873-8686
- Rodney Orr: 503-873-8686
- Michael Wicks: 503-873-8341
- Timothy Peters: 503-873-6987
- Sarah Peters: 503-873-6987
- Brooke Renard: 503-873-8853
- Mark Rowley: 503-873-7920

**Stayton:**
- Katie Busts: 503-769-6386
- Gregory Murphy: 503-769-5764
- Dean Yeager: 503-769-2641
- Beth Vermont: 503-769-1605

**Woodburn:**
- Denis Dalinsky: 503-982-0828
- Brooke Renard: 503-982-0828
- Mark Rowley: 503-873-7920
- Salem Clinic: 503-982-2000

### Prenatal Pamphlet

9. Participating Hospitals
- Salem Hospital
- Silverton Hospital
- Santiam Hospital

---

Tel: (503)316 - 8120
Ask for Veronica, MS RN
Pregnancy Case Manager
**Congratulations, YOU ARE PREGNANT**

It is Marion Polk Community Health Plan’s goal to help you get the best pregnancy care at the earliest possible time in your pregnancy.

**WHAT YOU WILL FIND IN THIS PAMPHLET**

<table>
<thead>
<tr>
<th>What to Find</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When should you set up your first pregnancy appointment?</td>
</tr>
<tr>
<td>2. Where can you go if you want help with drug or alcohol problems?</td>
</tr>
<tr>
<td>3. Getting to the doctor</td>
</tr>
<tr>
<td>4. If you need help to quit smoking</td>
</tr>
<tr>
<td>5. Information about cavity prevention</td>
</tr>
<tr>
<td>6. First baby?—Healthy Start Support</td>
</tr>
<tr>
<td>7. The importance of multivitamins</td>
</tr>
<tr>
<td>8. Local pregnancy providers</td>
</tr>
<tr>
<td>9. Participating hospitals</td>
</tr>
</tbody>
</table>

**1. First Pregnancy Appointment**

On the back of this pamphlet is the list of approved pregnancy providers for Marion Polk Community Health Plan. Call and set up your appointment today. Pregnancy care is best started in the first three months of pregnancy.

**2. Drugs and Alcohol**

Marion Polk Community Health Plan wants to give you all the help you need to quit. We offer a special program for women only thru Bridgeway. Bridgeway provides a complete, private women’s program that does not judge. Childcare and transportation are available. We just want to help you quit alcohol and/or drugs. Please call (503) 363-2021.

**3. Getting to the Doctor**

Don’t have transportation to the doctor? Not a problem. You are eligible for free transportation: To schedule call 903-315-5544 or 1-888-315-5544.

**4. Help to Quit Smoking**

Marion Polk Community Health Plan knows it is difficult to quit and that it is even harder to quit forever. We want to help. Smoking during pregnancy puts you at risk to have your baby too early. Babies born too early often have to stay in the hospital and may have lasting medical problems. Marion Polk Community Health Plan and its providers want to help you quit smoking. Please talk to your doctor about quitting smoking and the medications that are available to you to help make this easier.

**5. Cavity Prevention**

Cavities can be stopped while you are pregnant. What you can do:  
- Brush and floss your teeth two times a day and use mouthwash—ask your doctor or dentist about Periex/Peri-Gard.  
- Chew sugarless gum containing xylitol (for example: Orbit, Starburst, Car- free Kolaiez) to stop cavities. Xylitol reduces cavities for you and children with mothers who chew gum with xylitol, have fewer cavities and ear infections.

- Be sure to see your dentist when you are pregnant. As you may lose your dental benefit 60 days after your baby is born.

**6. Healthy Start for New Moms**

Because babies do not come with directions Healthy Start offers free home visits with information for first time parents. You will get:

- Home visits for you during your pregnancy. A caring person will visit you after your child is born.
- How to ease stress, what to expect about your baby’s growth, toys, safety, and taking your baby on trips are all key parts of learning healthy parenting.
- Finding solutions to problems like locating transportation, daycare, and community help for housing, food, clothing, and meeting other parents with children.

- Marion county: 903-362-3138  
- Polk county: 903-485-2185

**7. Multivitamins**

All women who are capable of becoming pregnant should take a multivitamin containing 0.4 mg of folic acid every day to help prevent birth defects. Start today and continue even after your baby is born.
Oregon Health Plan
Pregnancy Notification

It is important to identify a pregnant OHP/Medicaid client as early in her pregnancy as possible. This ensures the client and her baby receive extended health care coverage and that the provider and referred practitioners are reimbursed for their services.

Please complete the information listed below to report a pregnancy for an OHP/Medicaid patient.

<table>
<thead>
<tr>
<th>Patient Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicaid ID Number:</td>
</tr>
<tr>
<td>Estimated Due Date:      05/01/2023</td>
</tr>
<tr>
<td>Provider Name:</td>
</tr>
<tr>
<td>Name of Managed Care Medical Plan: Mariner Polk Community Health Plan</td>
</tr>
<tr>
<td>Signature: Veronica Sheffield MS RN - Managed Care Representative</td>
</tr>
<tr>
<td>Date:</td>
</tr>
</tbody>
</table>

OHP 3360

Fax to (503) 373-0868
Hello --

IRB application no. 2691, has been approved. The approval period for your project is: 09/23/04 through 09/22/05. The approval letter will be sent to Dr. Friedman via campus mail later today.

If you find that you need to make any changes or modifications to any part of the approved application, please use the attached Modification Request Form to request approval for any changes before implementing the changes.

Please use the attached Adverse Event Form to report any incident that is not an expected outcome of the research that results in emotional, physical, or psychological harm or stress to any participant. If you have any questions, please feel free to contact me at IRB@oregonstate.edu.

Best of luck with your project --

Laura

Laura K. Lincoln
Human Protections Administrator
Oregon State University
Office of Sponsored Programs and Research Compliance
312 Kerr Administration Building
Corvallis, OR 97331-2140
(541) 737-3437 telephone - (541) 737-3093 fax
http://can.oregonstate.edu/research/BiomedicalCompliance/HumanSubjects.html

4/11/2005
Prenatal and Postpartum Care

Summary of Changes to HEDIS 2003

- ICD-9-CM codes 615.11 and 669.82 (which identify members who had a live delivery) were added to Table A3-B.
- LPT code 76818 (to identify visits in the first trimester) was added to Table A3-C Decision Rule 2.
- Table A3-D was clarified to identify prenatal visits from later in pregnancy.
- CPT codes 88156-88158 (which identify postpartum visits) were deleted from Table A3-E.

Description

The percentage of women who delivered a live birth between November 6 of the year prior to the measurement year and November 5 of the measurement year and who were continuously enrolled at least 41 days prior to delivery through 56 days after delivery. For these women, the measure assesses the following facets of prenatal and postpartum care:

Timeliness of Prenatal Care. The percentage of women in the denominator who received a prenatal care visit as a member of the MCO in the first trimester or within 42 days of enrollment in the MCO.

Postpartum Care. The percentage of women in the denominator who had a postpartum visit on or between 21-56 days after delivery.

Eligible Population

<table>
<thead>
<tr>
<th>Product line(s)</th>
<th>Medicaid and commercial (report each product line separately).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age(s)</td>
<td>None specified.</td>
</tr>
<tr>
<td>Continuous enrollment</td>
<td>43 days prior to delivery through 56 days after delivery.</td>
</tr>
<tr>
<td>Allowable gap</td>
<td>No allowable gap during the continuous enrollment period.</td>
</tr>
<tr>
<td>Anchor date(s)</td>
<td>Date of delivery.</td>
</tr>
<tr>
<td>Benefit(s)</td>
<td>Medical.</td>
</tr>
<tr>
<td>Event/diagnosis</td>
<td>Delivered a live birth on or between November 6 of the year prior to the measurement year and November 5 of the measurement year. Women who delivered in a birthing center should be included in this measure. Refer to Tables A3-A and A3-B to identify and verify live births. Women who had two separate deliveries (different dates of service) between November 6 of the year prior to the measurement year and November 5 of the measurement year should count twice. Women who have multiple live births during one pregnancy should be counted once in the measure.</td>
</tr>
</tbody>
</table>

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Prenatal and Postpartum Care

Administrative Specification

Denominator
MCOs should follow the first two steps below to identify the eligible population. This population is the denominator for both rates.

Step 1
Identify live births.

Identify all women with a live birth between November 6, 2001—November 5, 2002, using Method 1 and Method 2, defined below.

Method 1
The codes listed in Table A3-3A both identify a delivery and indicate that the outcome of the delivery was a live birth. Therefore, women who are identified through the codes listed in Method 1 are automatically included in the eligible population and require no further verification of the outcome.

Table A3-A: Codes to Identify Live Births

<table>
<thead>
<tr>
<th>Description</th>
<th>ICD-9-CM Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify live births</td>
<td>650</td>
</tr>
<tr>
<td></td>
<td>V Codes: V70.0, V71.7, V72.5, V73.5, V74.6, V80-V95, V99*</td>
</tr>
</tbody>
</table>

*These codes are from the infant's record. Please note that if an MCO is unable to link the mother's and infant's records, these codes are optional.

Method 2
Identifying deliveries and verifying live births.

The codes listed in Table A3-3B, Step A identify deliveries but do not indicate the outcome of the delivery. The MCO must use Step B to eliminate deliveries that did not result in a live birth.

Table A3-B: Codes to Identify Deliveries and Verify Live Births

<table>
<thead>
<tr>
<th>Description</th>
<th>CPT Codes</th>
<th>ICD-9-CM Codes</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step A: Identify deliveries</td>
<td>55000, 59400, 59410, 55410, 55510, 55511, 55610, 55612, 55604, 55620, 55622</td>
<td>760.7, 760.8, 760.9</td>
<td>370-375</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step B: Exclude deliveries not resulting in a live birth</td>
<td>V Codes: V70.7, V71.7, V72.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*These codes are OB-provisional ICD-9-CM codes and are found in the mother's record.

Step 2
Identify continuous enrollment.

For women identified in Step 1, determine if enrollment was continuous between 43 days prior to delivery and 56 days after delivery, with no gaps.

MEDIS 2003, Volume 2
Numerator(s)

Women are identified as having timely prenatal care if they have either a prenatal visit in the first trimester or a prenatal visit within 42 days of enrollment, depending on the date of enrollment in the MCO and any gaps in enrollment during the pregnancy. Thus, MCOs should only include visits that occur while the member was enrolled in the MCO.

Step 3 Determine enrollment status during the first trimester.

Determine if women identified in Step 2 were enrolled on or before 240 days prior to delivery (or estimated date of delivery [EDD]). For women meeting this criteria, go to Step 4. For women who were not enrolled on or before 240 days prior to delivery (or EDD) and were therefore pregnant at the time of enrollment, proceed to Step 6.

Step 4 Determine continuous enrollment for the first trimester. Determine if women identified in Step 3 were continuously enrolled during the first trimester (from 176-280 days prior to delivery [or EDD]) with no gaps in enrollment. For these women, use one of the four decision rules in Table A3-C numerator criteria to determine if there was a prenatal visit during the first trimester.

Step 5 For women who had a gap between 219-280 days prior to delivery, proceed to Step 6.

Step 6 For all other women identified in Step 3 and Step 5, determine the start date of the last enrollment segment. For women who were not enrolled in the MCO on or before 240 days prior to delivery (or EDD) and for women who had a gap between 219-280 days prior to delivery (Step 5), determine the start date of the last enrollment segment.

For women whose last enrollment started on or between 219-279 days prior to delivery, proceed to Step 7. For women whose last enrollment started less than 219 days prior to delivery, proceed to Step 8.

Step 7 Determine if enrollment started on or between 219-279 days prior to delivery.

If the last enrollment segment started on or between 219-279 days prior to delivery, determine numerator compliance using Table A3-D numerator criteria for a visit between the last enrollment start date and 176 days prior to delivery.

Note: MCOs may count services that occur over multiple visits toward this measure as long as all of the services occur within the time frame established in the measure.
Step 8 Determine if enrollment started less than 219 days prior to delivery.

If the last enrollment segment started less than 219 days prior to delivery, determine numerator compliance using Table A3-D numerator criteria for a visit within 42 days after enrollment.

Table A3-C: Markers for Early Prenatal Care Obtainable from Administrative Data

<table>
<thead>
<tr>
<th>Decision Rule 1</th>
<th>Administrative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prenatal care visit to an OB practitioner, a midwife, or family practitioner or other primary care practitioner with documentation of when prenatal care was initiated.</td>
<td>CPT = 99009 or 99010 or 99019 or 99018 or 99423 or 99426</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Decision Rule 2</th>
<th>Administrative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any visit to an OB practitioner or midwife with either: Procedure-based evidence of prenatal care in the form of screening tests such as an obstetric panel-alone, or TORCH antibody panel-alone or rubella antibody/avidity with RfR incompatibility (ABO/ Rh blood typing), or ultrasound/echography of a pregnant uterus. Diagnosis-based evidence of prenatal care in the form of pregnancy-related diagnosis or ICD-9-CM V code for prenatal care.</td>
<td>CPT = 99201-99205, 99211-99215, or Revenue code 514 with either: CPT = 76905, 76915, 76916, 76919, 80085, 80090 or 86762 with 86710 or 86830 or ICD-9-CM = (640.x3, 641.x3, 642.x3, 643.x3, 644.x3, 645.x3, 646.x3, 647.x3, 648.x3) or 651.x3, 652.x3, 653.x3, 654.x3, 655.x3, 656.x3, 657.x3, 658.x3, 659.x3). V code = V22-V23 or V24, or Occurrence code = 10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Decision Rule 3</th>
<th>Administrative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any visit to a family practitioner or other primary care practitioner with both: Procedure-based evidence of prenatal care in the form of screening tests such as an obstetric panel-alone, or TORCH antibody panel-alone or rubella antibody/avidity with RfR incompatibility (ABO/Rh blood typing), or ultrasound/echography of a pregnant uterus. Diagnosis-based evidence of prenatal care in the form of pregnancy-related diagnosis or ICD-9-CM V code for prenatal care.</td>
<td>CPT = 99201-99205, 99211-99215, or Revenue code 514 with both: CPT = 76305, 76315, 76316, 76319, 80085, 80090 or 86762 with 86710 or 86830 and ICD-9-CM = (640.x3, 641.x3, 642.x3, 643.x3, 644.x3, 645.x3, 646.x3, 647.x3, 648.x3, 651.x3, 652.x3, 653.x3, 654.x3, 655.x3, 656.x3, 657.x3, 658.x3, 659.x3). V code = V22-V23 or V24, or Occurrence code = 10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Decision Rule 4</th>
<th>Administrative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any visit to a family practitioner or other primary care practitioner with diagnosis-based evidence of prenatal care in the form of a documented LMP or EGD with either a complete obstetrical history or risk assessment and counseling/education</td>
<td>CPT = 99201-99205, 99211-99215, or Revenue code 514 with internal MCO code for an obstetrical history or risk assessment and counseling/education (if applicable)</td>
</tr>
</tbody>
</table>

* Generally, these codes are used on the date of delivery, not the first date for C3 care, so this code is useful only if the claim form indicates when prenatal care was initiated.

Source: Harvard Pilgrim Health Care

** When using a visit to a family practitioner or other primary care practitioner, it is necessary to determine that prenatal care was rendered, and that the member was not merely diagnosed as pregnant and referred to another practitioner for prenatal care.
### Table A3-D: Markers for Prenatal Care Obtainable from Administrative Data

<table>
<thead>
<tr>
<th>Marker Event</th>
<th>Decision Rule 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any visit to an OB/GYN, family practitioner, or other primary care practitioners with either an ultrasound or a principal diagnosis of pregnancy</td>
<td>CPT Code: 59460* or 59510* or 59610* or 59618* or 59425** or 59426** or 99020-99205, 99211-99215; or Revenue code 514 with either any occurrence of CPT code 76805, 76810, 76815, 76816, 76818 or principal diagnosis of the ICD-9 diagnosis codes = (B44.x.x, 642.x.x, 643.x.x, 644.x.x, 645.x.x, 646.x.x, 647.x.x, 648.x.x or 651.x.x, 652.x.x, 653.x.x, 654.x.x, 655.x.x, 656.x.x, 657.x.x, 658.x.x, 659.x.x); V code = V22-V28 or V29; or Occurrence code = 10</td>
</tr>
</tbody>
</table>

Note: MCOs should refer to the Practitioner Turnover measure of the definition of primary care practitioners and OB/GYN practitioners.
Prenatal and Postpartum Care

Timeliness of Prenatal Care Numerator

**STEP 1**
Identify live births

**STEP 2**
Identify whether the member meets Continuous Enrollment requirements

**STEP 3**
Was the member identified in Step 2 enrolled on or before 340 days prior to delivery (or EDD)?

**STEP 4**
Was the member continuously enrolled for 178 to 290 days prior to delivery, with no gaps during this period?**

**STEP 5**
Does the member have gaps in the first trimester?

**STEP 6**
Determine the last enrollment segment**

**STEP 7**
Use Table A3-C numerator criteria

**STEP 8**
Use Table A3-D numerator criteria to determine if there was a visit by 178 days prior to delivery**

---

**Notes:**
- If the member identified in Step 3 was continuously enrolled for the first trimester (178-290 days prior to delivery), there is no need to look for gaps occurring during other times in the pregnancy. Use the criteria in Table A3-C to determine numerator compliance. For example, if a member was enrolled during the first trimester, 178-290 days prior to delivery with a gap between the 178-183 days prior to delivery, the EDD must still meet the A2-3 first trimester criteria for numerator compliance. The gap and last enrollment segment are incidental because the member meets the first trimester enrollment test.
- See the definition of "last enrollment segment" included in the Technical Specifications.
- The 178 days prior to delivery indicates the 42-day period following enrollment. For example, a member who had a last enrollment segment 225 days prior to delivery has until the end of the first trimester (178 days prior to delivery), instead of the 153 days prior to delivery under the 42-day criteria. Table A3-C also has greater flexibility to identify a prenatal care visit.
Postpartum care
A postpartum visit on or between 21–56 days after delivery. A woman is considered to have had a postpartum visit if a submitted claim/encounter:

- identifies that a pelvic exam or postpartum care has occurred and
- has a date of service on or between 21–56 days after the delivery.

MCOs may use any of the codes listed in Table A3-E to determine a postpartum visit.

Table A3-E: Codes to Identify Postpartum Visits

<table>
<thead>
<tr>
<th>CPT Codes</th>
<th>ICD-9 CM Codes</th>
<th>LB-90 Revenue Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>59150, 59660, 59669, 59673, 59690, 59699, 59710, 59804, 59810, 59818, 59822, 59827, 60114, 60146, 60147, 60148, 86150, 86155, 86164-86167</td>
<td>9149</td>
<td>923</td>
</tr>
</tbody>
</table>

*Generally these codes are used on the date of delivery, not on the date of the postpartum visit, as this code may be used only if the claim form indicates when postpartum care was rendered.

Exclusion (optional):

None.

Hybrid Specification

Denominator
A systematic sample drawn from the eligible population for each product line. Like other measures that employ the hybrid methodology with multiple numerators, MCOs may reduce their sample size using the current year’s lowest product-line specific administrative rate of the two indicators or the prior year’s lowest audited product-line specific rate for the two indicators.

Numerator(s)

Timeliness of prenatal care
Plans should refer to criteria outlined in Step 1–Step 8 for the visit time frame.

Administrative
Refer to the Administrative Specification above to identify positive numerator hits from the administrative data.

Medical record
Documented in medical record must identify one of the following:

Prenatal care visit(s) to an OB/GYN practitioner or midwife. Documentation in the medical record must include a note indicating the date on which the prenatal care visit(s) occurred, and evidence of one of the following:

- a basic physical obstetrical examination that includes auscultation for fetal heart tone or pelvic exam with obstetric observations or measurement of fundus height (a standardized prenatal OB form may be used) or

- evidence that a prenatal care procedure was performed, such as:
  - a screening test in the form of an obstetric panel (e.g., hematocrit, differential WBC count, platelet count, Hep B surface antigen, rubella antibody, syphilis test, RBC antibody screen, Rh(D) and ABO blood typing)

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- TORCH antibody panel alone or a rubella antibody test/titer with an Rh incompatibility (ABO/Rh) blood typing
- echography of a pregnant uterus.

- or documentation of LMP or EDD in conjunction with either:
  - prenatal risk assessment and counseling/education
  - a complete obstetrical history.

- or, for members whose last enrollment segment was after 219 days prior to delivery:
  - any visit to an OB/GYN, family practitioner, or other primary care practitioner with a principal diagnosis of pregnancy.

Prenatal care visit(s) to a family practitioner or other primary care practitioner. Documentation in the medical record must include a note indicating the date on which the prenatal care visit(s) occurred, with diagnosis of pregnancy and evidence of one of the following:

- a basic physical obstetrical examination that includes auscultation for fetal heart tones, or pelvic exam with obstetric observations or measurement of fundus height (a standardized prenatal OB form may be used) or
- evidence that a prenatal care procedure was performed, such as:
  - a screening test in the form of an obstetric panel
  - a rubella antibody test/titer with an Rh incompatibility (ABO/Rh) blood typing
  - TORCH antibody panel
  - echography of a pregnant uterus.

- or evidence that a diagnosis of pregnancy has been established in the form of a documented LMP or EDD in conjunction with either:
  - a complete obstetrical history
  - a prenatal risk assessment and counseling/education.

- or, for members whose last enrollment segment was after 219 days prior to delivery:
  - any visit to an OB/GYN, family practitioner, or other primary care practitioner with a principal diagnosis of pregnancy.

Postpartum care
A postpartum visit on or between 21-56 days after delivery, as documented through either administrative data or medical record review. Evidence of postpartum care may be completed during any visit(s) that occur on or between 21-56 days after delivery.

Administrative
Refer to the Administrative Specification above to identify positive numerator hits from the administrative data.

Medical record
Documentation in medical record must include evidence of the data on which a postpartum visit occurred and one of the following:
Prenatal and Postpartum Care

- a pelvic exam
- an evaluation of weight, blood pressure, breasts and abdomen.
- a notation of "postpartum care."

Definitions

**Live birth**
The complete expulsion or extraction from the mother of a product of human conception, irrespective of the duration of pregnancy, which, after such expulsion or extraction, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached.

**Preterm**
Any neonate whose birth occurs through the end of the last day of the 37th week (259th day) following the onset of the last menstrual period.

**Post-term**
Any neonate whose birth occurs from the beginning of the first day (291st day) of the 43rd week following the onset of the last menstrual period.

**Start date of the last enrollment segment**
Refers to the following: for women who had a gap in enrollment during their pregnancy, the last enrollment segment is the enrollment start date during the pregnancy that is closest to the delivery date.

Refer to Guideline 57, Medicaid Continuous Enrollment, for information about handling administrative one-day enrollment gaps.

Notes:

- When counting prenatal visits, include visits with physician assistants, nurse practitioners, midwives and registered nurses, provided that evidence of co-signature by a physician is present, if required by state law.
- MCOs may count services that occur over multiple visits toward this measure as long as all of the services occur within the time frame established in the measure.
- The use of an EDD date is optional. Using the EDD requires medical record review and allows for increased compliance for members who deliver preterm.

* These definitions are from the Guidelines for Perinatal Care, Fourth Edition, American Academy of Pediatrics and the American College of Obstetricians and Gynecologists.
MCOs that submit HEDIS data to NCQA must provide the following data elements:

### Table A3-1/2: Data Elements for Prenatal and Postpartum Care

<table>
<thead>
<tr>
<th>Measurement year</th>
<th>Administrative</th>
<th>Hybrid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data collection methodology (administrative or hybrid)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Sampling method used</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Eligible member population (i.e., members who meet all criteria)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Number of numerator events by administrative data in eligible population (before exclusions)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Current year’s administrative rate (before exclusions)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Minimum required sample size (MRSS) or other sample size</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Oversampling rate</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Final sample size (FSS)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Number of numerator events by administrative data in FSS</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Administrative rate on FSS</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Number of original sample events excluded because of valid data errors</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Number of employee/dependent medical records excluded</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Additional records added from the auxiliary list</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Denominator</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Numerator events by administrative data</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Numerator events by medical records</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Reported rate</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Lower 95% confidence interval</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Upper 95% confidence interval</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>
Specific Guidelines for Use of Services Measures

- Mental Health Utilization—Percentage of Members Receiving Inpatient, Day/Night Care and Ambulatory Services
- Chemical Dependency Utilization—Inpatient Discharges and Average Length of Stay
- Chemical Dependency Utilization—Percentage of Members Receiving Inpatient, Day/Night Care and Ambulatory Services.
Frequency of Ongoing Prenatal Care

SUMMARY OF CHANGES TO HEDIS 2003

- The use of ultrasounds was clarified.
- MCOs must use the same denominator for this measure as the Prenatal and Postpartum Care measure.
- A continuous enrollment requirement was added to this measure.

Note: This measure has the same structure as measures in the Effectiveness of Care domain. MCOs should follow the Specific Guidelines for Effectiveness of Care Measures when calculating this measure.

Description

The percentage of pregnant Medicaid-enrolled women who received <21 percent, 21–40 percent, 41–60 percent, 61–80 percent or >81 percent of the expected number of prenatal care visits, adjusted for gestational age and the month that the member enrolled in the MCO. By specifying that the product line at risk includes only live births, this measure captures only a percentage of an MCO Medicaid member’s pregnancies.

For each woman who had (a) live birth(s) during the measurement year, the MCO:

- Identifies the actual number of prenatal care visits rendered to the member while enrolled in the MCO
- Identifies the number of expected visits
- Calculates the ratio of received-to-expected visits
- Reports an unduplicated count of the number of women who had <21 percent, 21–40 percent, 41–60 percent, 61–80 percent, or >81 percent of the number of expected visits, adjusted for the month the member enrolled in the MCO and gestational age. MCOs report five rates.

<table>
<thead>
<tr>
<th>Eligible Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product line(s)</td>
</tr>
<tr>
<td>Age(s)</td>
</tr>
<tr>
<td>Continuous enrollment</td>
</tr>
<tr>
<td>Allowable gap</td>
</tr>
<tr>
<td>Anchor date(s)</td>
</tr>
<tr>
<td>Benefit(s)</td>
</tr>
<tr>
<td>Diagnoses/event(s)</td>
</tr>
</tbody>
</table>

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Women who have multiple live births during one pregnancy should be counted once in the measure.

### Administrative Specification

**Denominator**

The eligible population.

**Numerator(s)**

Women who had an unduplicated count of <21 percent; 21-40 percent; 41-60 percent; 61-80 percent; or >81 percent of the number of expected visits, adjusted for the month of pregnancy at time of enrollment and gestational age.

Use the following steps to calculate each woman’s ratio of observed-to-expected prenatal care visits.

*For each woman included in the denominator:*

**Step 1** Identify date of delivery, using hospital discharge data.

**Step 2** Identify gestational age at birth from the hospital record (e.g., admission write-ups, histories and physicals, discharge summaries or labor and delivery record(s) or birth certificate). **Gestational age** is the number of completed weeks that have elapsed between the first day of the last normal menstrual period and the date of delivery. If gestational age is not available, assume a gestational age of 280 days (40 weeks).

Methods recommended to determine gestational age are:

- **Physician ascertainment using ultrasound or Dubowitz assessment**
- Last menstrual period (LMP) calculation (date of LMP – date of delivery + 7). If gestational age is recorded or calculated in fractions of a week, round down to the lower whole number.

**Step 3** Identify the date on which the member enrolled in the MCO and determine the stage of pregnancy at time of enrollment.

MCOs should use the following five-step approach (or an equivalent method) to calculate the stage of pregnancy at time of enrollment:

- Convert gestational age (Step 2) into days.
- Subtract gestational age (in days) from the date of delivery (Step 1).
- Subtract the date obtained in Step 2 from the date on which the member enrolled in the MCO to determine the stage of pregnancy at time of enrollment.
- Divide the numbers of days obtained in Step 3 by 30.
- Round the resulting number up or down according to the .5 rule to the next whole number.

*For example, delivery date is August 8, 2001; gestational age is 33 weeks; date of enrollment in the MCO is May 6, 2001. Given these variables, the five-step process is as follows:*
Frequency of Ongoing Prenatal Care

- gestational age in days is 231 days (i.e., 33 weeks × 7 days/week)
- date of delivery – gestational age (in days) is December 22, 2000 (i.e.,
  August 8, 2001 – 231 days)
- date on which the member enrolled in the MCO minus date obtained in
  Step 2) is 135 days (i.e., May 6, 2001–December 22, 2000)
- month prenatal care began is 4.5 months (i.e., the member enrolled in the MCO
  5 months into her pregnancy).

Step 4 Using Table UI-A, find the number of expected ACOG prenatal visits by
gestational age and the stage of pregnancy at time of enrollment. The chart
subtracts the number of missed visits prior to the date the member enrolled
(Step 3) from the number of recommended visits for a given gestational age.

ACOG recommends that women with an uncomplicated pregnancy receive visits
every 4 weeks for the first 28 weeks of pregnancy, every 2–3 weeks until 36
weeks of gestation, and weekly thereafter. For example, ACOG recommends 14
visits for a 40-week gestation. If the member enrolled during her fourth month
(3 missed visits prior to enrollment in the MCO), the expected number of visits
is 14 – 3 = 11.

For deliveries with a gestational age <28 weeks or >42 weeks, MCOs should
calculate the expected number of prenatal care visits using the date on which the
member enrolled in the MCO and ACOG’s recommended schedule of visits.
For example, if gestational age is 26 weeks and the member enrolled during her
second month of pregnancy, the expected number of prenatal care visits is 5
(i.e., 6 expected visits [1 visit every 4 weeks or 6 visits in 24 weeks], less 1 visit
missed in the first month).

If gestational age is 43 weeks and the member enrolled during her third month of
pregnancy, the expected number of prenatal care visits is 15 (i.e., 14 expected
visits for a 40-week gestation plus 1 visit each additional week [17 total expected
prenatal care visits], less 2 visits missed in the first and second months).

Step 5 Identify the number of prenatal care visits the member received during the
course of her pregnancy and enrollment in the MCO using ambulatory/
encounter data. To identify prenatal visits which occurred during the first
trimester, MCOs should use Table A3-C in the Prenatal and Postpartum Care
measure, in the Access/Availability of Care domain. MCOs may use any of
the four rules presented in that table to search for evidence of prenatal care; a
woman’s record need satisfy only one of the rules.

To identify prenatal visits which occurred during the second and third trimester,
MCOs should use Table A3-D in the Prenatal and Postpartum measure, in the
Access/Availability of Care domain. MCOs should document their methodology
for identifying prenatal care, whether or not these decision rules were followed.
(Refer to Table A3-D.)

Step 6 Calculate the ratio of observed visits (Step 5) over expected visits (Step 4).
Frequency of Ongoing Prenatal Care

**Step 7** Report each woman in the appropriate category:
- <21 percent
- 21–40 percent
- 41–60 percent
- 61–80 percent
- >81 percent of the number of expected visits. MCOs should report five numerators.

*Note: MCOs should refer to the Practitioner Turnover measure for the definition of primary care practitioners and OB/GYN practitioners. Ultrasound and lab visits should not be included in this measure unless they are a part of the office visit with a physician.*

### Exclusion (optional):
None.

#### Hybrid Specification

**Denominator**
A systematic sample of members drawn from the eligible population. MCOs collecting this measure and the Prenatal and Postpartum Care measure must use the same systematic sample for both. MCOs may reduce the sample size based on the product-line-specific current measurement year or the prior year’s administrative rate of women who received ≥81 percent of expected prenatal care visits.

*Note: For information on reducing sample size, refer to the Guidelines for Calculations and Sampling.*

**Numerator(s)**
Women who had an unduplicated count of <21 percent, 21–40 percent, 41–60 percent, 61–80 percent or ≥81 percent of the number of expected visits, adjusted for the month of pregnancy at time of enrollment and gestational age. The visits may be identified through either administrative data or medical record review.

Note that the numerator is calculated retroactively from date of delivery or EDD.

*Note: MCOs should refer to the Practitioner Turnover measure for the definition of primary care practitioners and OB/GYN practitioners.*

**Administrative**
Refer to the Administrative Specification above to identify positive numerator hits from the administrative data.

**Medical record**
Use the medical record documentation requirements in the Prenatal and Postpartum Care measure, in the Access/Availability of Care domain to identify prenatal visits.

### Exclusion (optional):
MCOs must exclude members for whom a prenatal visit is not indicated. These exclusions are indicated by a dash (--) in Table UI-A.

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Frequency of Ongoing Prenatal Care

Notes:

- When counting prenatal visits, include visits to nurse practitioners, midwives, and registered nurses, provided that evidence of co-signature by a physician is present, if required by state law.

- MCOs employing the hybrid methodology may not use a combination of administrative data and medical record review to identify prenatal care visits for a given individual in the denominator. For example, for one member, an MCO may not count two prenatal care visits identified through administrative data and another three visits identified through medical record review (or a total of five prenatal care visits) even if each visit shows a different date of service.

### Table U1-A: Expected Number of Prenatal Care Visits for a Given Gestational Age and Month

<table>
<thead>
<tr>
<th>Month of pregnancy</th>
<th>Gestational Age in Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>member enrolled in the MCO</td>
<td>28</td>
</tr>
<tr>
<td>5th month</td>
<td>7</td>
</tr>
<tr>
<td>6th month</td>
<td>6</td>
</tr>
<tr>
<td>7th month</td>
<td>5</td>
</tr>
<tr>
<td>8th month</td>
<td>4</td>
</tr>
<tr>
<td>9th month</td>
<td>3</td>
</tr>
</tbody>
</table>

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