

The Impact of the Oregon Health Plan on
Prenatal Care Utilization and Birth Outcomes

By

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A Master's Research Project

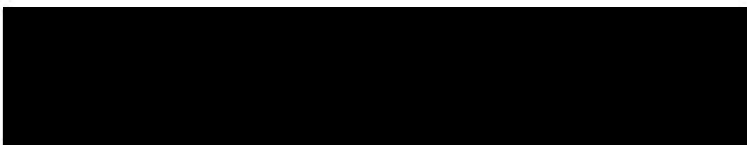
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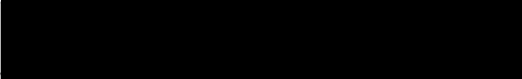
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ABSTRACT

TITLE: The Impact of the Oregon Health Plan on Prenatal Care Utilization and Birth Outcomes

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The impact of the Oregon Health Plan on prenatal care utilization and birth outcomes were assessed by means of a retrospective, descriptive study using secondary data from the Oregon State Health Division. Rates of first trimester care, inadequate care and low birth weight infants for women covered by Public Assistance after the onset of the Oregon Health Plan were compared to similar rates before the Oregon Health Plan. Demographic data including age, race and marital status were also evaluated. Data for this report came from the Oregon State Health Division's Center for Health Statistics in two forms: The 1993 Vital Statistics Annual Report and birth certificate data for the months of November and December, 1994 and January and February, 1995.

The Oregon Health Plan appears to have had a negative effect on all outcome variables. The rate of first trimester care was significantly lower ($p = 0.003$) and the rates of inadequate care and low birth weight infants were significantly higher ($p < 0.001$) after the Oregon Health Plan. Results indicate a need for more in-depth study in the future including qualitative research into the women's experience in receiving care.

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Chapter One:

Introduction

Early and continuous prenatal care is critical in the prevention of low birthweight infants and adverse pregnancy outcomes. Numerous studies have shown that not only does the receipt of adequate prenatal care increase the likelihood of having a healthy baby, it does so in a cost effective manner (Inglis, 1991; Lia-Hoagberg, et al., 1990; Smith, 1990; Witwer, 1990). Both the Institute of Medicine and the American Academy of Pediatrics estimate that for each dollar spent on prenatal care, between two and ten dollars of expensive high-technology care for low birthweight newborns is saved (Lia-Hoagberg, et al., 1990).

While the problem appears clear cut, the solution has yet to be found. The causes of poor pregnancy outcomes are numerous and complex and include social, political, economic, and geographic factors. The United States currently ranks 21st among the nations of the developing world in infant survival and our teenage pregnancy rate is twice that of other industrialized nations (Inglis, 1991). The United States lacks a direct, comprehensive system for making maternal-child health services easily accessible to all women and children.

What is clear is that a large percentage of poor neonatal outcomes may be related to limited access to prenatal care. In this country, accessibility and quality of health care are determined by many factors including race, language, income level, education, age and location of residence. Women and children who are low income, uninsured or

underinsured, teenage, inner-city or rural residents, or members of a minority group are more likely to have difficulty obtaining care.

In response, there has been a trend in the late 1980's and early 1990's for states to expand Medicaid eligibility for pregnant women. The financial barrier to care, although it is clearly only part of the problem, has traditionally been seen as the most critical barrier to accessing care (Coburn & McDonald, 1992; Howell & Ellwood, 1991; Piper, Ray & Griffin, 1990; Witwer, 1990).

The state of Oregon is one of many to change the way in which publicly funded prenatal care is provided. In February of 1994, the Oregon Health Plan went into effect replacing the traditional fee for services system with managed care in most part of the state. For most women, this means that for the first time they would be able to choose their prenatal care provider rather than depending on the Public Health centers for their care.

By the Fall of 1994, little was known about the actual effects of the Oregon Health Plan on prenatal care, but informal discussion among practitioners reflected growing concern. Confusion over where clients should and were being seen, the refusal of some providers to accept Oregon Health Plan clients, and delayed entry into care all seemed to be very real issues without clear answers.

The focus of this study, therefore, was the receipt of prenatal care and birth outcomes for publicly funded women in Oregon since the implementation of the Oregon Health Plan. Results of this research will help determine if there has been a change in the outcomes for publicly funded pregnant women in terms of first trimester care, the rate of

inadequate care and infant birthweights. As no formal plan was set up to research the effects of the Oregon Health Plan on prenatal care and birth outcomes, this research is intended to provide the information necessary to determine if a further study is warranted.

Chapter Two

Review of the Literature

A great deal has been written about the receipt of prenatal care and its effects on pregnancy outcomes. This review will be organized around three major areas: the importance of early and continuous prenatal care in the prevention of adverse pregnancy outcomes, barriers to care with a focus on sociodemographic characteristics and system barriers, and the effect of the Medicaid expansion and managed care on the utilization of prenatal care.

Prenatal Care and Adverse Pregnancy Outcomes

Early onset of prenatal care is known to be an important factor in the prevention of low birthweight infants and adverse pregnancy outcomes. Prenatal care in Oregon is traditionally measured in one of two ways:

1. 'inadequate prenatal care', defined as pregnant women who did not receive care until the third trimester, had fewer than five prenatal visits or received no care; and
2. 'adequate care', defined as care beginning during the first three months of pregnancy, regardless of the total number of prenatal visits. First trimester care has been adopted as an Oregon Benchmark with a goal for the year 2000 of 100 percent of pregnant women beginning care in the first three months of pregnancy (Oregon State Health Division, 1992).

Birth outcome may be measured by several indicators, but the best predictor of an infant's future health is its birthweight. A low birthweight infant is one who weighs less than 2,500 grams or five and one-half pounds at birth. Women with no prenatal care are

Barriers to Prenatal Care

There are multiple barriers to the receipt of adequate prenatal care. This review will focus on the sociodemographic characteristics and system barriers which are frequently associated with inadequate prenatal care.

Sociodemographic Characteristics

Sociodemographic characteristics are the most frequently noted factors associated with inadequate prenatal care (Curry, 1990; Inglis, 1991; Lia-Hoagberg, et al., 1990; Smith, 1990). Included are income, race/ethnic origin, educational attainment, age, marital status, parity, and geographic location.

The most serious barrier to obtaining adequate health care is financial: poverty and being uninsured. An estimated twenty-six percent of women of reproductive age have no insurance to cover maternity care and two-thirds of these women have no insurance at all (Lia-Hoagberg, et al., 1990). As with other types of health care, maternity, family planning, and child health services are less accessible to the poor. Women below the federal poverty level show higher rates of late or no prenatal care than women with higher incomes. One-third of all births in this country are to women with incomes less than 150 percent of the federal poverty level, and poor children are twice as likely to be born at a low birthweight. The correlation of low income or poverty with inaccessibility to prenatal care and poor pregnancy outcomes has been clear and consistent in the United States (Curry, 1990; Inglis, 1990).

Race also appears to affect the adequacy of prenatal care. Nonwhite women are far less likely than white women to receive adequate prenatal care. Black women are

twice as likely as white women to receive late or no care, and American Indian women are even more likely. Hispanic women are three times as likely as white women to receive late or no prenatal care. The maternal death rate of nonwhite women is four times that of white women in this country (Inglis, 1991; Smith, 1990; Witwer, 1990).

As the educational level of a pregnant women decreases, the probability of obtaining late or no prenatal care increases--that is, women who are less educated have a greater probability of receiving less prenatal care. Inglis states, "Whereas 88 percent of women with some college education seek care in their first trimester, only 58 percent of women with less than a high school education secure early care" (1991, p. 36).

Educational attainment and race are also related as White mothers are more likely to have completed high school than are Black or American Indian mothers (Curry, 1990). In addition to formal education, informal education may result in an increased awareness of the importance of positive reproductive health attitudes and behavior (Kliegman, Rottman & Behrman, 1990).

Young mothers, especially those under age fifteen, and older mothers, age forty or more, are at risk of obtaining late or no prenatal care. The United States teen pregnancy rate is 12.6 percent of all births, twice as high as other industrialized nations (Inglis, 1990). The younger the patient, the less likely she is to get prenatal care, and low birthweight is directly related to the prenatal care received (Curry, 1990; Smith, 1990).

Unmarried women are more than three times as likely to receive late or no prenatal care and thus have poorer pregnancy outcomes than married women. The incidence of childbearing among unmarried women has greatly increased in recent years

in every state. Of the unmarried women giving birth, 33 percent receive inadequate care (Curry, 1990; Inglis, 1991). The more children a woman has, the more likely she is to receive late or no prenatal care regardless of her age or race (Curry, 1990; Inglis, 1991). Inadequate prenatal care is found most frequently in inner city and rural areas. Poverty is the main barrier to care in the inner city; isolation is the main barrier in rural areas (Inglis, 1991).

System Barriers

System barriers include policy and provider barriers that are not within the consumer's control, but can greatly influence their care-seeking behavior. Included are lack of available providers, lack of transportation, and negative institutional practices (Curry, 1990).

Geographically isolated and rural areas are acutely affected by a lack of providers who have been forced to give up delivering babies due to the tremendous cost of liability insurance. Urban areas are also affected but often for different reasons. In many areas, physicians do not accept Medicaid reimbursement or uninsured patients and avoid high-risk women because of their potential malpractice risk (Curry, 1990; Smith, 1990). One study found that fifteen percent of all women experienced difficulties in finding a doctor. Another seventeen percent experienced difficulty in getting appointments because there just aren't enough doctors (Smith, 1990). Transportation is consistently noted as a barrier to prenatal care and in most cases can be directly related to inadequate finances (Curry, 1990; Inglis, 1991; Lia-Hoagberg, et al., 1990).

Lack of coordination of networking services among service agencies and providers results in access problems. Communication is time-consuming and frustrating for both the client and the provider. Frequent changes in services, funding, and rates of eligibility result in confusion. Information about where to go, or even to apply for services is not easily accessible. Discouraging aspects of sites that provide care include service hours that do not accommodate women's work or school schedules, long waits, language and cultural differences between providers and clients, and unpleasant surroundings (Curry, 1990; Inglis, 1991).

Medicaid Eligibility Expansion and Case Management

The major public programs designed to address problems of health care access (Medicare and Medicaid) have been aimed at reducing the financial barriers to utilization. Although health care utilization by the poor has increased significantly since the implementation of the Medicaid program, there is substantial evidence that poor families continue to be underserved and pay a higher proportion of family income for the health care they receive (Coburn & McDonald, 1992).

Medicaid eligibility expansion does not guarantee that providers are available, able and willing to offer the medical and psychosocial services that pregnant women need, in ways that are convenient and acceptable to them (Witwer, 1990). It is intrinsically difficult in any Medicaid system to encourage early prenatal care, since pregnancy must occur and be diagnosed before the process of enrollment can begin (Piper, Ray & Griffin, 1990). While in theory, expansion of maternal Medicaid

enrollment should improve the rates of early prenatal care utilization, there is little research to support the argument that Medicaid coverage alone will have this effect.

Buesher and colleagues evaluated the outcomes of pregnancy among Medicaid eligible women in Guilford, North Carolina. They found that women receiving Medicaid who obtained their prenatal care through private physicians' offices were more than twice as likely to have a low birthweight baby compared with Medicaid eligible women who were enrolled in a public health department prenatal care clinic (Buesher, Smith, Holliday & Levine, 1987).

A 1991 study in Philadelphia evaluated the impact of a mandatory Medicaid case management program on adequacy of prenatal care and birth outcomes among enrollees. No significant differences were detected between the case management and traditional fee for services groups. Both groups experienced low rates of adequate prenatal care and high rates of low birthweight (Goldfarb, et al., 1991).

Conceptual Framework

The central goal of positive birth outcomes can be conceptualized as being determined by a multiplicity of influences. The primary influence on birth outcomes, as suggested by the literature, is the receipt of adequate prenatal care. Prenatal care is in turn influenced by a number of factors described as sociodemographic and system barriers. Because the Oregon Health Plan created a change in the system of providing prenatal care to women on Public Assistance, it is important to evaluate the outcomes of that care.

As described in the literature review, system barriers include policy and provider barriers that are not within the consumer's control. In the case of the Oregon Health Plan, this included a change from a traditional fee for service system to one of managed care, a new system of enrollment, as well as a need for women to choose their plan and provider. The expectation of this study is that a relationship will exist between the changes brought about by the Oregon Health Plan and the outcome variables.

Research Questions

The following research questions were addressed in this study.

1. What is the rate of first trimester care for women covered by the Oregon Health Plan.
2. What is the rate of inadequate prenatal care for women covered by the Oregon Health Plan?
3. What is the low birthweight rate for women covered by the Oregon Health Plan?
4. What are the rates of first trimester, inadequate prenatal care, and low birthweight for women covered by the Oregon Health Plan by the following: mother's age, race and marital status?
5. What is the association between low birthweight and a) first trimester care and b) inadequate prenatal care for women covered by the Oregon Health Plan?
6. How do the rates of first trimester care, inadequate care and low birthweight during the months of November 1994 through February 1995 (post Oregon Health Plan) compare with the rates of first trimester care, inadequate care and low birthweight for 1993 (pre Oregon Health Plan)?

Chapter 3

Research Methods

This project was initiated as a means of evaluating the Oregon Health Plan in terms of the following outcomes: first trimester prenatal care, inadequate prenatal care and birthweights. Because the Oregon Health Plan altered the way in which prenatal care is provided for women on Public Assistance, a study of its effectiveness seemed appropriate.

The research questions were explored by means of a retrospective, descriptive study design using secondary data from the Oregon State Health Division. The dependent variables were the rates of first trimester care, inadequate care and low birthweight infants for women covered by the Oregon Health Plan. First trimester care is defined as care that begins before the fourth month of pregnancy. Inadequate prenatal care is defined as care beginning in the third trimester, fewer than five prenatal visits or no care. These definitions are not mutually exclusive and will therefore not add up to 100 percent for all births. An example would be the woman who begins care in the first trimester but ends up with fewer than five total visits. A low birthweight infant is one who weighs less than 2,500 grams or 5.5 pounds at birth. The independent variable was the Oregon Health Plan operationalized as Public Insurance as the primary financial source for delivery. Demographic data including age, race and marital status were also evaluated.

Sample

Data for this report came from the Oregon State Health Division's Center for Health Statistics in two forms: the 1993 Vital Statistics Annual Report and birth certificate data for the months of November and December 1994, and January and February 1995. The underlying assumption in using data from birth certificates is that it is both complete and accurate. In Oregon, completeness is monitored by the county as well as the Center for Health Statistics. A recent study by the Center for Health Statistics determined that the certificate of live birth did accurately reflect what occurred in greater than 95 percent of cases. Content validity of the birth certificate instrument is supported by the fact that they were devised by health statistics experts to measure those variables of interest related to live births.

Data on 14,759 births were included in the 1993 report. The four sample months of birth certificate data (November and December 1994 and January and February 1995) were chosen as they would reflect those women whose primary source of financial payment for delivery and prenatal care was the Oregon Health Plan. A total of 4863 births were included in these data. After all identifying information was removed, all birth certificates for the four study months were transferred to the Office of Research, Development and Utilization at the Oregon Health Sciences University School of Nursing for statistical analysis. Birth certificates coded with Public Assistance as the primary source of financial coverage were separated from all others for consideration.

For simplicity in describing the two sample groups, women who delivered prior to the implementation of the Oregon Health Plan will be referred to as pre-OHP

(n = 14,759) and those who delivered after it was implemented will be referred to as post-OHP (n = 4,863). It was necessary to evaluate demographic data to determine if the two groups were similar. Based on age and marital status, post-OHP women look very similar to pre-OHP women (see Table 1). Percentages of married and unmarried women were nearly exact for both groups. The two groups also proved to be similar when broken down by age. Data in the 1993 Vital Statistics Annual report were not broken down by race and years of education for women on Public Assistance and was therefore unavailable for comparison to post-OHP women.

Table 1

Births to Women on Public Assistance by Age and Marital Status: January-December, 1993 contrasted with November 1994-February 1995

	Births to Women on Public Assistance			
	Jan 93 - Dec 93		Nov 94 - Feb 95	
	n	%	n	%
Total Births	14,759		4,863	
Married	6,560	(44.4)	2,159	(44.4)
Unmarried	8,199	(55.5)	2,706	(55.6)
Less than 18 years	1,346	(9.1)	447	(9.2)
18-24 years	8,002	(54.2)	2,569	(52.8)
25-34 years	4,624	(31.3)	1,581	(32.5)
35+ years	787	(5.3)	266	(5.5)

For research questions one through four, percentages were determined for the following variables: 1) first trimester care; 2) inadequate care; 3) low birthweight; 4) marital status; 5) age and 6) race. Relationships described within the 1994/1995 cohort in questions three through five, and between the 1994/1995 and 1993 data in question six were subject to a chi square (X^2) statistical test for significance. Chi square tests the likelihood that the difference observed between groups are the result of chance.

Chapter 4

Results

The findings of the research questions will be reported. The first five research questions will be addressed first as they pertain only to the data collected on women who delivered after implementation of the Oregon Health Plan (post-OHP women). Then the final question which compared pre-OHP women and post-OHP will be described.

Research Questions

Research questions pertaining to post-OHP women

The first three questions asked what were the rates of first trimester care, inadequate prenatal care and low birthweight for post-OHP women. The first trimester care rate was 64.7%, the inadequate care rate was 10.9% and the low birthweight rate was 7.6%. The fourth question asked whether first trimester care, inadequate care, and low birthweight were influenced by mother's age, race and marital status. Only differences between Caucasian and African American women were examined.

First trimester care was significantly lower for younger women $X^2(3, N = 4840) = 22.57, p < .000$ and unmarried women $X^2(1, N = 4842) = 23.43, p < .000$. There were no significant differences of first trimester care by race. The inadequate care rate was significantly higher for unmarried women $X^2(1, N = 4826) = 11.23, p < .000$ but not significantly different when analyzed by age or race. There were significantly higher rates of low birthweight for women over the age of 34 $X^2(3, N = 4863) = 12.78, p < .005$ and African American women $X^2(1, N = 4602) = 6.76, p < .009$. Marital status was not significantly related to birthweight.

The fifth research question asked if there was an association between low birthweight and a) first trimester care and b) inadequate care for post-OHP women. A significant association between inadequate care and low birthweight was found $X^2(1, N = 4825) = 27.76, p < .000$. There was no association between first trimester care and birthweight.

Research question comparing pre and post-OHP women.

As seen in Table 2, post-OHP women had significantly lower rates of first trimester care, and higher rates of inadequate care and low birthweight infants.

Table 2

Percentages of First Trimester Care, Inadequate Care and Low Birthweight Infants for Births to Women on Public Assistance: January-December, 1993 contrasted with November 1994-February 1995

	Births to Women on Public Assistance				X ²
	Jan 93 - Dec 93		Nov 94 - Feb 95		
	n	%	n	%	
First trimester care	9,893	(67.0)	3,131	(64.7)	8.97*
Inadequate care	1,202	(8.1)	525	(10.9)	33.65**
Low birthweight	925	(6.3)	372	(7.6)	11.73**

* $p < 0.01$

** $p < 0.001$

Chapter 5

Discussion

Based on the results of this study, the initial impact of the Oregon Health Plan on the receipt of adequate prenatal care and birth outcomes appears to be a negative one. There was a decrease in the rate of women receiving first trimester care, an increase in the inadequate care rate and an increase in the rate of low birthweight infants.

Demographic data showed that the post-OHP study group was indeed similar to those who received care prior to the Oregon Health Plan. Therefore, significant changes in the rates of first trimester care, inadequate care and low birthweight must be attributable to factors other than age and marital status. The option the Oregon Health Plan sought to create by allowing women on Public Assistance to choose their prenatal care provider may have instead created or contributed to an unintended outcome.

The decrease in the first trimester care rate may suggest difficulty with the enrollment process. Confusion over where and how to obtain care may have created delays, in addition to the need for a positive pregnancy test before care can be initiated. Women are no longer able to utilize the Public Health centers as a place to obtain financial assistance as well as care.

The inadequate care rate also appeared to be negatively influenced by the Oregon Health Plan. The increase in the inadequate care rate means there were more women who did not receive care until the third trimester, received fewer than five prenatal visits or received no care. Problems with the enrollment process may again account for this increase, but it may also suggest a larger problem with the way in which care is provided.

Care given by private providers may not be equitable to the care previously provided in Public Health centers. Private providers may not be equipped to meet the complex needs of the Oregon Health Plan client, and the client may not be savvy enough to see that her needs are met by the private provider. The follow-up of missed appointments or other circumstances impeding care may not be occurring the way it was in the Public Health centers.

Therefore, it was not surprising that with a decrease in the rate of first trimester care and an increase in the rate of inadequate care, there was an increase in the number of low birthweight infants born to women post-OHP. As documented in the literature, there was a strong correlation between the inadequate care rate and the low birthweight rate among post-OHP women. As strongly supported by the literature, prenatal care is most effective when it is both early and continuous. These findings raise important questions regarding how the provision of current prenatal services may be having unintended consequences. Prior to the implementation of the Oregon Health Plan, publicly funded women were more likely to receive prenatal care in Public Health centers, where the availability of “wrap-around” services was common. For women at highest risk of poor outcomes, the accessibility of these services may be of critical importance.

As discussed throughout this paper, adequate prenatal care and positive birth outcomes go hand in hand. There are social, political, economic and geographic factors which can act to negatively impact the receipt of adequate prenatal care and ultimately the birth outcome. Although it cannot be concluded that the Oregon Health Plan caused the rates of first trimester care to decrease, the inadequate care rate to increase or the

number of low birthweight infants to increase, a relationship clearly exists. There has been a change in the outcomes of publicly funded pregnant women and further study does seem warranted.

The greatest limitation in this study was the limited data set available from the Oregon State Health Division. The 1993 data available to this researcher was limited to those published in the Annual Report of Vital Statistics. Because raw data were not available, further analyses could not be conducted. A larger sample after the onset of the Oregon Health Plan would also have increased the confidence that could be placed in the results.

Recommendations for further research include continued monitoring of vital statistics to determine if this trend continues. In addition, it would be critically important to understand how prenatal providers in the private sector are responding to the increased number of Oregon Health Plan women in their practices. Finally, a qualitative study of how Oregon Health Plan women perceive their prenatal care experiences is warranted. It is necessary to understand from their perspective what barriers to prenatal care they may be experiencing.

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