Utilizing Doulas to Improve Birth Outcomes for Underserved Women in Oregon

Developed By
Oregon Health Authority
House Bill 3311 Implementation Committee

Report Prepared By
Tricia Tillman, OHA, Office of Equity and Inclusion
Rachel Gilmer, OHA, Office of Equity and Inclusion
Alaiyo Foster, Committee Member

Table of Contents

I. Executive Summary……...……1
II. Overview…….....……...…3
III. Process……..3
IV. Analysis of Women who Face Disparate Birth Outcomes in Oregon……4
V. Promising Models for Providing or Utilizing Doulas.....…...……...….....8
a. Doula Definition…...……..……...……....8
b. Doula Research Meta Analysis……...……8
c. Evidenced Based Doula Models…..…….....9
VI. Approaches to Integrating Doula Models into State Medical Assistance……..……...……..16
a. Payment Methods……16
b. Certification and Supervision Recommendations……18
c. Financial Justification for Doulas…….....20
VII. Conclusion……...22
VIII. End Notes……...23
IX. Appendices
APPENDIX A: House Bill 3311 Enrolled……...……..25
APPENDIX B: House Bill 3311 Implementation Committee Membership……...26
APPENDIX C: House Bill 3311 Data Analysis……27
APPENDIX D: Cochrane Review Summary…….....41
APPENDIX E: Promising Models for Utilizing Doulas…….....44
APPENDIX F: Partial List of Insurance Companies that Reimburse Doulas……....53
APPENDIX G: Cost Benefit Analysis……..54

Executive Summary

In 2011, the Oregon legislature passed House Bill 3311. This directed the Oregon Health Authority to explore options for providing or utilizing doulas in the state medical assistance program to improve birth outcomes for women who face a disproportionately greater risk of poor birth outcomes.

Based on the data analyzed by the Committee, the unequivocal recommendation of the Cochrane Review, the existence of both local and national professional certification models, and the outcome data from local and national doula models, the Committee recommends doulas as a strategy to decrease health inequities in Oregon's birth outcomes. Additionally, the Committee recommends doulas as an overall strategy to improve birth outcomes funded by both Medicaid and private insurance.

Oregon Health Authority data clearly demonstrate a consistent pattern of disparities in birth outcomes between women of color and the Non-Latino white population regardless of geography or payer. As Oregon's population grows and diversifies[i], it is essential that these disparities be addressed.

The Cochrane Review, considered by many to be the gold standard for analysis of human health care and health policy research, reviewed research on the doula model in 2003 and again in 2011 and concluded that:

> Continuous support during labor should be the norm, rather than the exception. All women should be allowed and encouraged to have support people with them continuously during labor. In general, continuous support from a caregiver during labor appears to confer the greatest benefits when the provider is not an employee of the institution, when epidural analgesia is not routinely used, and when support begins in early labor.

Evidence also demonstrates that providing a doula for women during pregnancy, childbirth and postpartum reduces poor birth outcomes among women of color and Non-Latino white women.

Definition

A 'doula' is a certified professional who provides personal, non-medical support to women and families throughout a woman's pregnancy, childbirth and postpartum experience.

The doula's role is to help women have a safe, memorable and empowering birthing experience. Because doulas traditionally come from the communities they serve and have an intimate knowledge of the culture, they are uniquely positioned among the health care workforce to improve birth outcomes. It is an appropriate expectation that doula models supported by the state medical assistance program contribute to the elimination of health disparities related to maternal and infant health.

Scope of Practice

The following activities fall within the scope of practice for doulas:

- Provide prenatal education and assist the woman in preparing for and carrying out her plans for birth.
- Provide information on general health practices pertaining to pregnancy, childbirth, postpartum, newborn health, and family dynamics.
- Increase understanding of complications that can arise during labor, delivery and the postpartum period.
- Provide emotional support, physical comfort measures, and help the woman get the information she needs to make informed decision pertaining to childbirth and postpartum.
- Provide support for the whole birth team including woman's partner and family members.
- Provide evidence-based information on infant feeding.
- Provide general breastfeeding guidance and resources.
- Provide infant soothing and coping skills for new parents.
- Provide postpartum support that honors cultural and family traditions.
- Facilitate and assure access to resources that can improve birth-related outcomes (including transportation, housing, ATOD cessation, WIC, SNAP, intimate partner violence resources).

A number of models using doulas to address inequitable birth outcomes exist across the country and are highlighted in summary in the report and in more detail in Appendix E.

Certification

The House Bill 3311 Implementation Committee recommends that Oregon's process for certification align with nationally recognized doula certification programs. The Committee recommends that all training and certification programs, both national and local, meet the competency standards set by recognized national bodies in order to be recognized in Oregon.

The Committee identified cultural competence as an additional core competency currently not addressed by national certifying bodies. Therefore, the Committee recommends that certification bodies approved in Oregon align with both the national standards and cultural competence training expectations.

Supervision

Medicaid reimbursable activities of doulas should be overseen by a qualified health professional, within the state defined scope of practice for the specific type of worker, and documented in the patient's medical record.

Based on national evidence, the House Bill 3311 Implementations Committee strongly believes that doulas should be integrated in Oregon's health systems transformation process. Doing so will not only ensure healthier births for women and their children, but will also mitigate costs associated with poor birth outcomes.

Recommended Approach to Integrating Doula Models into State Medical Assistance
The House Bill 3311 Implementation Committee believes that pursuing federal flexibility from CMS to reimburse for doula services is the most viable option for incorporating doulas into Oregon's medical assistance program to improve birth outcomes for the state's most vulnerable women.

Overview

In 2011, the Oregon legislature passed House Bill 3311, which required the Oregon Health Authority to explore options for providing or utilizing doulas in the state medical assistance program to improve birth outcomes for women who face a disproportionately greater risk of poor birth outcomes. The legislation is available in Appendix A.

As such, the Office of Equity and Inclusion (formerly the Office of Multicultural Health and Services) and the Office of Family Health established and convened the House Bill 3311 Implementation Committee, a culturally and professionally diverse group that includes community based organization leaders, health care providers, health systems administrators and doulas. The group, which convened in September 2011, was tasked with delivering a report to the Legislature describing:

- Women who face a disproportionately greater risk of poor birth outcomes
- Promising models for providing or utilizing doulas
- Approaches to integrate doula models into the state medical assistance program

This report provides an overview of the Committee's work, including a review of the data identifying women who face higher risk of poor birth outcomes, the definition and scope of practice for doulas, evidence of the effectiveness of the doula model, including cost savings, a description of proposed certification models in Oregon, and options for integrating doulas in the state medical assistance program.

Process

The House Bill 3311 Implementation Committee has been guided by House Bill 3311 and the Oregon Health Policy Board's 2010 report *Oregon's Action Plan for Health*, which identified peer-supported services as a critical method for eliminating health disparities and by the Oregon Health Authority's Triple Aim:

- Improving the lifelong health of all Oregonians;
- Improving the quality, availability and reliability of care for all Oregonians, and;
- Lowering or containing the cost of health care so that it is affordable for everyone.

Committee members were appointed to represent a broad spectrum of stakeholder organizations, including: health systems, insurers, educational institutions, behavioral health and addictions recovery programs, community clinics, social service, community based organizations, health

researchers, health care providers and practicing doulas from the field. A list of the Committee members is provided in Appendix B.

The Committee convened in September 2011 and met monthly over a four-month period to develop their recommendations. The process included reviewing state birth outcomes data and conducting a scan of state and national research on existing legislation, published research, and programs currently utilizing doulas. The Committee also disseminated a survey to practicing doulas in Oregon to assist the committee in identifying and establishing a scope of practice and the core competencies necessary to effectively fulfill that scope. From there, education and training requirement recommendations were developed to align with the competencies.

Analysis of Women who Face Disparate Birth Outcomes in Oregon

The House Bill 3311 Implementation Committee reviewed Oregon data to determine which populations face a disproportionately greater risk of poor birth outcomes. The data in this report were gathered from Oregon Vital Records 2008-2010 and the Oregon Pregnancy Risk Assessment Monitoring System (PRAMS; 2009-2010 Births). The data analysis is available in full in Appendix C.

The comparison chart outlines how the following racial and ethnic populations compare to non-Latino whites:

- Hispanic/Latino;
- Non-Latino Black or African American;
- Non-Latino American Indian or Alaska Native;
- Non-Latino Asian;
- Non-Latino Pacific Islander;
- Non-Latino Multiple Race

The chart also disaggregates the above-mentioned racial and ethnic populations by those with Medicaid paid birth and those with births not paid by Medicaid, as well as those who live in urban areas and rural areas. In each of the categories, racial/ethnic populations are compared to their white counterparts in the same category.

The following indicators were used to determine birth outcomes:

- Premature birth
- Low birth weight
- Cesarean delivery
- Apgar Score
- Medicaid OHP Births as the principal payment source
- Infant Mortality
- Breastfeeding Initiated
- Postpartum Depression

Results

Overall

As shown in Table 1, Non-Latino African Americans faced the most disparate birth outcomes, using the above-mentioned indicators, followed by Non-Latino American Indians and Non-Latino Multiple Race individuals. Hispanic/Latinos, Non-Latino Asians and Non-Latino Pacific Islanders also faced disparate outcomes in comparison to the Non-Latino white population.

Table 1: Disparities in Birth Outcomes

Based on statistical significance compared to Non-Latino White.

Based on statistical significance compared to Non-Latino White						
Indicator	Hispanic/ Latino	Non-Latino African American	Non-Latino American Indian	Non-Latino Asian	Non-Latino Pacific Islander	Non-Latino Multiple Race
Premature Birth	○	▲	▲	○	▲	▲
Low Birthweight	○	▲	▲	▲	▲	▲
Cesarean Delivery	○	▲	○	▲	▲	▲
Apgar Score	○	▲	○	○	○	○
Medicaid/OHP Births *(principal payment source)*	▲	▲	▲	○	○	▲
Infant Mortality	▲	▲	▲	○	○	○
Breastfeeding Initiated	○	○	○	○	○	○
Postpartum Depression Symptoms	○	○	○	○	○	○

Referent group is Non-Latino White
Underlying numbers are in Appendix I
Oregon Vital Records 2008-2010: Premature Births, Low Birthweight, Cesarean Delivery, Apgar Score and Medicaid Paid Births
PRAMS 2009-2010 Births: Breastfeeding Initiated, Postpartum Depression Symptoms
See Appendix III for explanationation of multiple race variable

Symbols	
No disparity/ Doing better	○
Disparity	▲
NP: Not provided due to small numbers	

Medicaid and Non-Medicaid

As shown in Table 2, Non-Latino African Americans, and Non-Latino Pacific Islanders with Medicaid paid births and those without Medicaid paid births faced the same disproportionally worse birth outcomes than their white counterparts in both categories. Hispanic Latinos and Non-Latino Asians with births not paid by Medicaid faced disparate birth outcomes. Non-Latino Multiple Race individuals with Medicaid faced disparities in prematurity and cesarean rates, while non-Medicaid mothers faced disparities in low-birth weight and prematurity.

Table 2: Disparities in Birth Outcomes

Among those with Medicaid paid births and those with births not paid by Medicaid

Based on statistical significance compared to Non-Latino White												
Indicator	Hispanic/ Latino		Non-Latino African American		Non-Latino American Indian		Non-Latino Asian		Non-Latino Pacific Islander		Non-Latino Multiple Race	
	Medicaid	Non-Medicaid	Medicaid	Non-Medicaid	Medicaid	Non-Medicaid	Medicaid	Non-Medicaid	Medicaid	Non-Medicaid	Medicaid	Non-Medicaid
Premature Birth	○	▲	▲	▲	○	○	○	○	○	○	▲	▲
Low Birthweight	○	▲	▲	▲	○	○	○	▲	○	○	○	▲
Cesarean Delivery	○	○	▲	▲	○	○	▲	▲	▲	▲	▲	○
Apgar Score	○	○	○	○	○	○	○	○	○	○	○	○
Infant Mortality	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Breastfeeding Initiated	○	○	○	○	○	○	○	○	○	○	○	○
Postpartum Depression Symptoms	○	○	○	○	○	○	○	○	○	○	○	○

Referent group is Non-Latino White
Oregon Vital Records 2008-2010: Premature Births, Low Birthweight, Cesarean Delivery, Apgar Score and Medicaid Paid Births
PRAMS 2009-2010 Births: Breastfeeding Initiated, Postpartum Depression Symptoms
See Appendix III for explanationation of multiple race variable

Symbols	
No disparity/ Doing better	○
Disparity	▲
NP: Not provided due to small numbers	

Urban and Rural

As demonstrated in Table 3, Non-Latino African Americans, Non-Latino Asians, Non Latino Pacific Islanders and Non-Latino Multiple Race individuals living in urban settings faced more disparities than their Non-Latino white counterparts in urban areas. Non-Latino American Indians faced greater disparities in rural areas. Hispanics/Latinos living in urban settings experienced disparities in low birth weight, while those living in rural settings experienced disparities in cesarean rates.

Table 3: Disparities in Birth Outcomes

Among those who live in urban areas and those who live in rural areas

Based on statistical significance compared to Non-Latino White												
Indicator	Hispanic/ Latino		Non-Latino African American		Non-Latino American Indian		Non-Latino Asian		Non-Latino Pacific Islander		Non-Latino Multiple Race	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Premature Birth	○	○	▲	○	○	▲	○	○	▲	○	▲	○
Low Birthweight	▲	○	▲	○	▲	○	▲	○	▲	○	▲	○
Cesarean Delivery	○	▲	▲	○	○	▲	▲	▲	▲	○	▲	○
Apgar Score	○	○	▲	○	○	○	○	○	○	○	○	○
Medicaid/OHP Births *(principal payment source)*	▲	▲	▲	▲	▲	▲	○	○	▲	○	▲	▲
Infant Mortality	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Breastfeeding Initiated	○	○	○	○	○	○	○	○	○	○	○	○
Postpartum depression/ symptoms	○	○	○	○	○	○	○	○	○	○	○	○

Referent group is Non-Latino White
Oregon Vital Records 2008-2010: Premature Births, Low Birthweight, Cesarean Delivery, Apgar Score and Medicaid Paid Births
PRAMS 2009-2010 Births: Breastfeeding Initiated, Postpartum Depression Symptoms
See Appendix III for explanation of multiple race variable

Symbols	
No disparity/ Doing better	○
Disparity	▲
NP: Not provided due to small numbers	

Conclusions:
The data outlines a consistent pattern of disparities in birth outcomes between women of color and the Non-Latino white population regardless of geography or payer.

Promising Models for Providing or Utilizing Doula

Doula Definition

In order to research promising doula models, the Committee first decided on an appropriate definition of "doula."

House Bill 3311 defines doulas as the following:
"Doula" means a birth companion who provides personal, nonmedical support to women and families throughout a woman's pregnancy, childbirth and post-partum experience.

The Committee proposes the following revised definition:
A "doula" is a *certified professional* who provides personal, nonmedical support to women and families throughout a woman's pregnancy, childbirth and post-partum experience.

Doula Research Meta-Analysis

Cochrane Reviews are systematic reviews of primary research in human health care and health policy, and are internationally recognized as the highest standard in evidence-based health care. They investigate the effects of interventions for prevention, treatment and rehabilitation. They also assess the accuracy of a diagnostic test for a given condition in a specific patient group and setting. The Reviews are published online in the Cochrane Library.

A Cochrane Review of research conducted in 2011 on doula support concluded that:

> Continuous support during labor has clinically meaningful benefits for women and infants and no known harm. All women should have support throughout labor and birth…Continuous support during labor should be the norm, rather than the exception. All women should be allowed and encouraged to have support people with them continuously during labor. In general, continuous support from a caregiver during labor appears to confer the greatest benefits when the provider is not an employee of the institution[ii]

The review identifies 30 outcomes of interest for the main comparison, including:

- Labor events: e.g., artificial oxytocin, epidural analgesia
- Birth events: e.g., cesarean birth, episiotomy
- Newborn events: e.g., low 5-minute Apgar score, admission to special care nursery
- Immediate maternal psychological outcomes: e.g., anxiety during labor, negative
- Rating of experience
- Longer-term maternal outcomes: e.g., postpartum depression, difficulty mothering

Women who received continuous support were less likely to:

- Have regional analgesia
- Have any analgesia/anesthesia
- Give birth with vacuum extraction or forceps
- Give birth by cesarean
- Report dissatisfaction or a negative rating of their experience

An article summarizing the Cochrane Review on doulas can be found in Appendix D.

Evidence Based Doula Models

Numerous doula models have been developed to work with women to resolve persistent health inequities in birth outcomes through community-based, culturally-specific approaches. These models address the needs and perspectives of families, empowering families to take ownership of their prenatal experience. These doula models provide non-medical support to women and families throughout a woman's pregnancy, childbirth and postpartum experience, engage in outreach and health information provision, coordinate care, assist with system navigation and provide coaching from prenatal through postpartum phases of childbirth, thus supporting healthy birth outcomes.

A significant evidence base shows that doulas contribute to improved patient health outcomes, increased patient satisfaction, and overall health system savings. Research demonstrates that doulas contribute to Oregon's goal of eliminating health inequities.

The following are summaries of numerous culturally competent doula models. Appendix E provides a comparative matrix of these promising doula models:

Connect One Project

From August 1996 to July 2000, Chicago Health Connection, a health education and advocacy organization, developed and implemented a four-year pilot project that used doulas to help low-income single teen mothers in high-risk Chicago neighborhoods. Pregnant teens were paired with doulas who were recruited from the Chicago community and trained by Connect One Project staff. These doulas, having an intimate knowledge of the culture of the community, experienced increased trustworthiness with the teenager mothers.

The Connect One Project is unique in its focus on pregnant teens. The Connect One Project intervention targeted outreach to teens during their 7th month of pregnancy and specifically worked with them through a post-partum period of approximately 6-weeks. Additional family transitional planning is provided by a referral to other home visiting programs and continues for an additional three years.

Key Findings

Outcome data for the 259 women served by the Connect One Project's three (3) pilot sites in Chicago revealed the doula presence from latter pregnancy through early post-partum was impactful:[iii]

- Only 8.1 percent of the mothers with a doula present at birth had a cesarean section compared to 12.9 percent for Chicago teen mothers as a whole.
- Compared to national data, fewer mothers used epidural anesthesia.
- Compared to national data, more initiated breastfeeding.
    - 80 percent of doula participants initiated breastfeeding at birth
    - 22 percent of program participants were still breastfeeding at six months after birth.

Farmworker Doula Program

The Farmworker Doula Program and the *Amor de Madre* Program trains experienced *promotores(as)* (community health workers) as doulas. Farmworker and immigrant women and other medically-underserved women are often unfamiliar with the domestic health care system and hospital procedures. Prenatal and postpartum care is often sporadic, with many missed appointments due to concerns including transportation, language barriers/misunderstandings and a lack of appropriate social support. These doulas assist with translation at medical visits and explain cultural differences to health care providers. In the *Amor de Madre* Program, *promotoras*/doulas are able to provide follow-up services to new mothers throughout the first year postpartum. Migrant Health Promotion has implemented Doula programs in both migrant communities in Michigan and in border communities in the lower Rio Grande Valley in Texas.

The Farmworker Doula program is unique in its focus on immigrant and farm-working pregnant women and their families. A story from the program is compelling in its impact on outcome:

> One woman's greatest fear was that her baby would be taken from her and put up for adoption because she could not read or speak English. She had heard stories of how people like her were tricked into giving their babies away. Her fear kept her from seeking prenatal care until her Doula intervened. Through the trust established with her Doula, the woman overcame her fear and never missed another appointment. She gave birth to a healthy baby at the hospital and was tearfully grateful for the support her doula provided.

Key Findings

During the summer of 2005, 40 *promotores(as)* led individual and group education, provided referrals and hosted special events to improve the health of the women and children in their camps based in six Migrant and Community Health Centers in Michigan.[iv]

These *promotores(as)* ensured that:

a. 100 percent of pregnant farmworker women received prenatal care. In comparison, only 66.8 percent of Michigan Hispanic women received adequate care in 2007.
b. 95 percent of newborns were breastfed. Nationally, 80 percent of Hispanic women in all occupations breastfed and only 65 percent of Michigan women in all racial groups breastfed their babies.
c. 93 percent of farmworker children five years of age and under were up to date on their immunizations. The immunization rate for Hispanic children ages 19-35 months in the United States was78 percent for the year 2007.

In 2007-2008, three doulas provided prenatal education classes to 483 people and actual doula services to another 163 women in the lower Rio Grande Valley, Texas.

- Their work contributed to a dramatic decrease in Caesarean section rates among first-time mothers – less than 8 percent of first-time mothers assisted by doulas gave birth by Caesarean section, compared to 44.5 percent of Hispanic women in Cameron County overall (2002-2004).

In 2009, the doulas' work resulted in the following:

- 100 percent of the children in the program obtained a medical home.
- 100 percent of mothers in the program have an ongoing source of primary and preventative care.
- 0 percent low or very low birth weight babies were born to program participants
- Over 90 percent of program participants breastfed their babies.

The Haven's Doula Program

The Haven's Doula Program, the first of its kind, is recognized nationally as an official doula replication site of the Chicago Health Connection (CHC). The doula begins regular contact with the pregnant woman; accompanying her to prenatal care visits and helping her develop a birth plan. Doulas also provide a series of sessions focused on education about labor and delivery.

The Haven's Doula Program is unique in that it is embedded within a much more comprehensive programmatic structure. The Haven is one of four major clinical programs that form the core of the Addiction Research and Treatment Services (ARTS) program, a non-university funded component of the Department of Psychiatry, Division of Substance Dependence, at the University of Colorado Denver, CO. Haven programs are approved Access to Recovery (ATR) providers.

The Haven Mother's House mission is to provide a safe and empowering Therapeutic Community for pregnant women and their infant children where women can recover from addictions and co-occurring illnesses; deliver healthy, drug-free infants; and become self-sufficient, confident, and productive members of the community. The program offers a holistic, culturally sensitive, and integrated approach to substance abuse treatment including therapy, medical services, infant services, vocational and educational rehabilitation, and other miscellaneous services including but not limited to financial assistance for medications, financial counseling and transition to outpatient Therapeutic Community and supportive apartment living. The Doula Program pairs pregnant women from The Haven Mother's House with successful Haven graduates who have given birth and are in recovery. Doulas undergo training in the Chicago Health Connection Community Doula Model and the Harris Doula Child Development Curriculum (ages 0-3). A doula's relationship with the mother begins as soon as the trained doula is matched with the mother and continues until the child is 18 months of age.

Key Findings

Extensive research projects are underway regarding the success of the doula program and outcomes for the infant, the mother, and the doula are being collected.[v]

International Center for Traditional Childbearing (ICTC)

In Portland, Oregon, doulas are being trained and utilized to improve the birth outcomes of low-income women and women of color. The International Center for Traditional Childbearing (ICTC) Full Circle Doula® Program integrates a Midwifery model of care, cultural inclusion, public health, infant mortality prevention, breastfeeding promotion and community capacity building.

According to the Midwifery Task Force, Inc. (1996), the Midwives Model of Care is based on the fact that pregnancy and birth are normal life processes and includes:

- Monitoring the physical, psychological, and social well-being of the mother throughout the childbearing cycle
- Providing the mother with individualized education, counseling, and prenatal care, continuous assistance during labor and delivery, and postpartum support
- Minimizing technological interventions
- Identifying and referring women who require obstetrical attention

The application of a woman-centered model of care has proven to reduce the incidence of birth injury, trauma, and cesarean section. The Full Circle Doulas® learn the history of midwifery as a model of care, infant mortality prevention, medical terminology, anatomy and physiology of pregnancy and labor, nutrition and herbs, labor comfort measures, breastfeeding techniques, and more. Many graduates continue to serve their international communities as doulas, midwives, nurses, and public health advocates. ICTC services begin in the first trimester and continue through three months postpartum.

The International Center for Traditional Childbearing Full Circle Doula program is community based and provides culturally sensitive and specific certification for doulas as private entrepreneurs.

Key Findings[vi]

- 60 percent of clients experienced birth satisfaction with an ICTC doula.
- 40 percent attend childbirth preparation classes.
- 50 percent participated in creating a birth plan.
- 70 percent learned the social determinants for infant mortality.
- 90 percent learned about lead poisoning prevention.

The Maternal Infant Health Outreach Worker (MIHOW) Program

The Maternal Infant Health Outreach Worker (MIHOW) Program has a powerful yet practical mission: to stimulate the birth and growth of low-cost, parent-to-parent interventions that improve health and child development for low-income families. Using local women as its primary staff, MIHOW is a partnership between the Vanderbilt University Center for Health Services (CHS) and community-based organizations in five states: Kentucky, Louisiana, Mississippi, Tennessee, and West Virginia. These local women — mothers who are trusted locally for their energy, integrity, compassion, and commitment to their community — are trained as doulas and visit pregnant women and families with young children up to three years of age in-home to promote healthy living and self-sufficiency. Leading by example, they listen to parents' concerns, educate about nutrition, health and child development, model positive parenting practices, and provide links to medical and

social services. Because these workers share similar backgrounds with the families served, they are role models throughout their communities for families held back by poverty, low self-esteem, and isolation.

Program components include:

- Home Visitation
- Case-management and advocacy
- Parent education
- Role modeling for positive parent-child interaction(s)
- Health and developmental screening
- Information and referral
- Peer support groups

Key Findings[vii]

In 2004, doulas' work resulted in the following outcomes for program participants:

- 90 percent began prenatal care in the first trimester, compared to 75 percent of pregnant women in Mississippi.
- 81 percent received adequate prenatal care, compared to 69 percent of statewide Mississippi women.
- 7.7 percent gave birth to a low birth weight infant, compared to 14.3 percent statewide.
- 95.3 percent of participants eligible for WIC enrolled, compared to 75 percent statewide.
- Almost 90 percent of MIHOW infants were on schedule with recommended well-child visits at six and nine months.

New Beginning Doula Program/ UPMC for You

In a collaborative program University of Pittsburgh Medical Center (UPMC) for You partnered with providers and the community to develop an integrated case management model and a clinical team approach coordinated by leaders at UPMC For You, UPMC Braddock Medical Center, and UPMC Magee and East Liberty Family Health Care Centers.

The program incorporated the following components:

- Early identification of pregnant women
- A maternity program that:
    - Enrolls pregnant women identified as high-need/risk or as smokers;
    - Develops specific interventions for identified needs/risks;
    - Coordinates care with providers; and
    - Makes referrals to behavioral health, smoking cessation programs, and/or a high-risk prenatal clinic, and agencies within the Braddock community, when needed
- Timely prenatal care
- Identification of psychosocial and environmental risk factors
- Stratification of members, outreach, education, and coordination of care to help members obtain care. This included training community residents to be "ambassadors" who could take on the role of community resource and link members to needed services, including maternity care.

- Mobile outreach representation or ambassadors to help locate members who cannot be reached by phone
- Integrating assessment, plan of care, and ongoing notes directly into the health plan's care management tracking system for early identification and direct enrollment in the maternity program.
- Coordinating services with providers, behavioral health organizations, doulas, and plan maternity and outreach staff
- Offering car seat incentives for pregnant members who receive first-trimester care, keep all prenatal appointments, and have routine lab tests
- Hiring, training, and assigning doulas to provide physical, social, and emotional support during the pregnancy and throughout the labor and postpartum period

The UPMC Health Plan paid Doula Agency a modified fee-for-service inclusive of a flat sum to try to engage pregnant woman, and another flat amount if women enrolled in doula program. Agency was also paid for meeting benchmarks (i.e., HEDIS measures).

The innovative development and implementation of non-traditional mechanisms (UPMC For You is the first health plan to provide coverage for doula services) to deliver education and support to vulnerable populations can be used to improve health care and outcomes of members with other conditions, such as asthma and diabetes. Partnerships among community, providers and health plans can address disparities in any community.

Key Findings
UPMC For You obtained the following results:[viii] [ix] [x] [xi]

May 2004 – December 2004:

- First-trimester enrollment more than doubled, from 15.2 percent to 42.2 percent. Within the African American population specifically, enrollment more than doubled, from 13.8 percent to 39 percent.
- In the Braddock area, the rate of low-birth-weight babies decreased from 11.2 percent in 2005 to 8.2 percent in 2006. During this same period, the rate African Americans decreased from 7.8 percent to 5.3 percent.
- Since the implementation of doulas, none of the 28 women who delivered experienced a preterm delivery.

October 1, 2008 – May 31, 2010 (Doula program in the Braddock African American Community):

- 1171 women referred to a doula
    - 490 (41.8%) accepted enrollment
- 996 babies were born to women referred to the doula program
    - 439 babies born to women in program
- Rate of postpartum visits
    - 43.36% for women enrolled in program
    - 35.77% for women who declined enrollment

Turtle Women Project/Community Doula Program

Minnesota's Turtle Women Project, a culturally-specific doula project, was created in 1999 to improve healthy birth outcomes and reduce infant mortality disparities among American Indian women residing in Ramsey County who demonstrated certain risk factors. From 2002-2010 this culturally-based doula project expanded to serve additional women of color (i.e. Latina, African American, African immigrant and Asian), as well as Caucasian, and became known as the Community Doula Program.

With funding from United Way, Minnesota Department of Health's Eliminating Racial and Ethnic Health Disparities Initiative, and a third party billable contract with UCare Minnesota (Minnesota's fourth largest health plan), the American Indian Family Center operated this multicultural program focused on achieving the following outcomes for women and their families: healthy birth outcomes; healthy prenatal care; increased awareness of parenting role and health education; and improved service integration for the women and their families.[xii] [xiii] [xiv]

Within a six-year period, over 150 women of color and American Indian women were trained to be doulas. The Community Doula Program was the 2005 recipient of the Annie Kennedy Award from DONA International.

Program Components

- Training of women to become doulas
  - Culturally and linguistically appropriate training
  - DONA certification not required, but encouraged (if completed, doula receives slightly higher pay rate
  - Complete at least 3 births (required to become a paid contractor with health plan)
- Community outreach to identify pregnant women and their families for service
- Doula visiting
  - One-on-one prenatal education
  - Advocacy, support, culturally responsive resources, and referral information
  - Link postpartum women and child with appropriate services for continued support
  - Build/develop/encourage network of providers to provide culturally-responsive services beyond birth
- Childbirth education
  - Series of prenatal/childbirth education classes (2-8 weeks)
  - Transportation and child/sibling care as needed

Key Findings

On average, the program served 120-140 women per year with over 92% of babies born at or above birth weight (5.8 lbs), a breastfeeding rate of ~85%, a vaginal delivery rate of ~70%, and no drug intervention for ~ 60% of women.[xv]

Approaches to Integrating Doula Models into State Medical Assistance

Payment Methods

The House Bill 3311 Implementation Committee explored several options for payment methods for doulas. The Committee ultimately decided the most viable option would be to seek approval for federal flexibility from CMS.

The following is an explanation of the various proposed options.

1. **Hospital Contracts**
   The OHA could work with hospital-based labor and delivery providers to fund doulas as part of their bundled Medicaid payment. This is currently done with lactation consultants. Although there are no direct barriers to this option, it could be slightly more difficult to reach Medicaid recipients as it would be on a case-by-case basis with each hospital-based provider. Additionally, a hospital-based doula program does not address the prenatal or post-partum needs of vulnerable populations.

2. **Direct Reimbursement**
   Effective October 1, 2009, the National Uniform Claim Committee approved a new taxonomy code for doulas in the United States. The NUCC taxonomy code is 374J00000X and is called "doula" under the heading of "Nursing Service Related Providers Type." The description includes the services of antepartum, labor doulas, and postpartum doulas.[xvi]

   Applying for a National Provider Identification (NPI) code is a first step to enable certified birth and certified postpartum doulas to submit reimbursement claims to Medicaid and third-party provider insurance companies, and requires the NUCC taxonomy code. Although it is listed under the "Nursing" heading, it is not required to be an RN or LPN to obtain an NPI number. Only certified doulas will be able to use this code to apply for an NPI number or for reimbursement. Group practices are also able to apply for a NPI number.

   The Committee did not see this as a viable option as it is more difficult to enroll individual providers in Oregon's MMIS system. Having an NPI and using the NUCC taxonomy code also does not currently assure Medicaid reimbursement. Finally, the billing code that exists (CPT code 99499, Evaluation and Management Services - Labor Support) is not universally approved for doulas. The committee chose not to pursue this individual provider approach, as it could create barriers for the people who are most qualified to be doulas and work in the communities they serve.

   Based upon the available data, several insurance companies have chosen to reimburse doula care. A partial list of these insurance companies is available under APPENDIX H. However, the covered benefit varies greatly on a case-by-case basis. Women cannot consistently rely on this to cover their doula care. With additional research, the Committee could determine if any of these insurers provide coverage to Medicaid clients, and which, if any, cover doula services for women residing in Oregon.

3. **Subcontract with a Provider Currently Reimbursed through Medicaid**
   Doulas could subcontract with providers of Maternity Case Management services, or labor and delivery providers currently reimbursed through Medicaid. However, this process requires a license and a taxonomy code. The committee chose not to pursue licensure for doulas as it could create barriers for those most qualified to be doulas for Oregon's most vulnerable mothers.

4. **Federal Flexibility**
   OHA could submit a request for federal flexibility, which would allow doulas to be incorporated directly into Oregon's Health Systems Transformation process and work with the populations who face the most disparate birth outcomes.

   This would not be Oregon's first effort to expand access to the services of non-traditional health workers under Medicaid. Currently, Oregon offers peer-delivered services a component of a comprehensive mental health and substance use service delivery system though several mechanisms: a) Mental Health Organizations (MHOs) may provide reimbursement for clinical interventions or services provided by peers who are employed by an OHA-certified agency; b) peer-run organizations that meet OHA certification and credentialing requirements may, with the approval of the community mental health authority, provide the full range of adult outpatient behavioral health services; c) Medicaid-eligible individuals who need assistance with an activity of daily living may employ a peer as a personal care assistant; and d) MHOs can support peer services such as parent/family education and life skills development through their Prevention, Education, and Outreach activities.

   In order to pursue federal flexibility, there must be:
   a. A clear definition for doulas
   b. An identified scope of practice
   c. A process for certification
   d. Supervision requirements
   e. Financial justification for incorporating doulas into the health care workforce

   As mentioned above, the Committee felt this would be the most viable option and provided the information that would be required for federal flexibility:

a. **Doula Definition**
   A ***doula*** is a certified professional who provides personal, non-medical support to women and families throughout a woman's pregnancy, childbirth and postpartum experience. A doula's scope of practice includes these roles:

b. **Scope of Practice**
   The Committee identified the following activities that fall within the scope of practice for doulas:
   - Provide prenatal education and assist the woman in preparing for and carrying out her plans for birth.

- Provide information on general health practices pertaining to pregnancy, childbirth, postpartum, newborn health, and family dynamics.
- Increase understanding of complications that can arise during labor, delivery and the postpartum period.
- Provide emotional support, physical comfort measures, and help the woman get the information she needs to make informed decision pertaining to childbirth and postpartum.
- Provide support for the whole birth team including woman's partner and family members.
- Provide evidence-based information on infant feeding.
- Provide general breastfeeding guidance and resources.
- Provide infant soothing and coping skills for new parents.
- Provide postpartum support that honors cultural and family traditions.
- Facilitate and assure access to resources that can improve birth-related outcomes (including transportation, housing, ATOD cessation, WIC, SNAP, intimate partner violence resources).

c. **Certification Recommendations**

Standardizing expectations for non-traditional health workers (NTHWs), including doulas, in Oregon via a certification process will promote recognition of their capacity and value, facilitate their employment by health care entities including Coordinated Care Organizations, and illuminate health career paths and options for job mobility. However, certification can have unintended consequences including excluding currently practicing NTHWs from their own field, creating barriers for new NTHWs to enter the field, or discouraging the use of holistic and culturally based approaches to health. The Committee's recommendations for certification attempt to minimize these consequences.

The Committee recommends that Oregon certify competency-based doula training programs (although the specific body to do this work was not determined), rather than directly certifying individuals through a licensing board or similar body. Individuals that have completed a certified training program would be eligible to sub-contract with Medicaid providers. This approach emphasizes workforce development while ensuring quality and is similar to the method by which the Oregon Health Authority's Addictions and Mental Division currently handles oversight for peer-delivered services. Specifically, the Committee recommends:

- Certifying training programs that address the required core competencies and provide the core curriculum (Proposed contact hours outlined below).
- Providing individuals completing the approved training program with a certificate of completion. The certification is required to sub-contract with a Medicaid provider.
- Limit the cost of enrolling in training programs for doulas.
- Review and renew doula certificate programs every three years to assure quality, relevance and compliance in meeting curriculum requirements, educational standards, and performance outcomes.
- "Grandparent" doulas who also participate in an incumbent worker training. Specific "grand parenting" provisions for number of practice years in the field are to be

determined, with the acknowledgment that there may need to be differences by worker type due to length of time that the job category has been in existence. Recommendations for incumbent worker training are to be determined but would ensure that practicing doulas have a clear understanding of new roles and can demonstrate the competencies identified by the Subcommittee.

- A registry of certified doulas would need to be established and maintained by an entity yet to be determined, or a system would have to be set up to align with what has been established by entities who hire similar workers in behavioral health fields, where peer services are delivered, but no state-wide registry exists. This registry would not be necessary if the supervising provider assumed responsibility for verifying the doula's certification at one of the four certifying associations at present. Those supervising providers would get an enhanced payment for supervising these doulas services and to pay the doula for services rendered.
- Certified doulas eligible for reimbursement in Oregon would have a minimum of the following contact training hours:
    - 16 hours labor training
    - 15 hours postpartum training
    - 4 hour breastfeeding
    - 12 hours childbirth education series
    - CPR- certified
    - Read 5 books from approved reading list
    - Essay on value of labor support
    - Creating a resource list
    - Evaluations from work with 3 families
    - Attend 3 births and 3 post-partum home visits
    - Continuing education for recertification
    - Food handlers permit
    - 6 hours Oregon cultural competency training
- Certifying body must also include the following:
    - Certified trainers
    - Evaluation component
    - Grievance process

Currently, doulas providing care to private pay clients are certified through several national and international certification bodies, including Doulas of North America (DONA) and the Association of Labor Assistants and Childbirth Educators (ALACE). An organization headquartered in Oregon, the International Center for Traditional Childbearing (ICTC) provides culturally specific doula training nationally and internationally as a strategy for decreasing infant mortality among African American infants. Current certification standards are also closely aligned with the proposed recommendations for NTHWs, and provide additional training specific to pregnancy, child birth, and the post partum period.

Cultural competence was identified by the Committee as an additional core competency currently unaddressed by national certifying bodies; therefore, the Committee recommends that doulas who receive certification from national entities be required to participate in cultural competence training as part of their Oregon-specific certification until the certifying

bodies can demonstrate the integration of this core competency in their training. Forty-seven training hours are currently required for certification as a doula; Oregon's HB 3311 Implementation Committee recommends an additional 6 contact hours for cultural competency.

To support this program certification structure, the Committee further recommends:

- Ensuring statewide oversight of training programs via a central entity to be determined. This entity would review and approve training programs and educational methodologies, maintain a registry doula certification records and educate health care providers and systems on the effective utilization of doula
- The entity should convene an advisory panel to help provide technical assistance and feedback to training programs with the goal of ensuring continuous improvement and comparability of training in support of worker mobility.
- Developing strategies for all training partners to assess the needs of doulas for continuing education, to design and develop programs to meet those needs, and to implement and evaluate programs on an ongoing basis.
- Providing incentives for Coordinated Care Organizations to develop internal agency plans for the supervision and support of doulas, including developing strategies within the global budget to support training, development, career pathways, and retention of doulas on health care teams.

d. <u>Supervision Recommendations</u>

Medicaid reimbursable activities of these workers will be overseen by a qualified health professional, will be within the state defined scope of practice for the specific type of worker, and documented in the patient's medical record. The Committee found that qualified health care professionals who could provide adequate supervision include licensed or certified physical and behavioral health professionals, Bachelors-level public health workers, Bachelors-level maternal and child health specialists and doulas who have been practicing for at least 5 years. All individuals who would like to provide supervision should have successfully completed approved supervision training. When a supervising licensed practitioner bills for perinatal care, they would append the U9 modifier to one of the appropriate codes in order to be paid an enhanced payment both for supervising doulas and to offset paying doulas for services rendered.

e. <u>Financial Justification for Doulas</u>

Per 47,000 live births, (the number of births annually in Oregon), providing doula care could reduce Neonatal ICU admissions by 51, cesarean deliveries by 940, and obstetrical vaginal deliveries by 470, and increase spontaneous vaginal deliveries by 1,140.

Compelling data exits regarding the financial costs and risk of maternal morbidity and mortality of repeat cesarean sections. Women whose past pregnancies culminated in a cesarean delivery are at very high risk of experiencing a repeat cesarean delivery with subsequent pregnancies. The risks of this surgery become exponentially higher based on the number of prior cesareans a woman has experienced. Preventing cesarean deliveries saves both money and lives.

In 2006, the total number of national cesarean deliveries was 1,296,000, resulting in 600 maternal deaths. Solheim et al predict cesarean deliveries will increase to an annual amount of 1,868,800, with 676 maternal deaths, by 2020 if the rate of increase remains steady.[xvii] Although, the specific cost that the State of Oregon would incur due to these cesarean deliveries is difficult to determine, it is clear the State would acquire a portion of this national expense. In addition, the State would experience costs related to placenta previas, placenta accretas, hysterectomies, and blood transfusions. The risks and financial burden of these complications rise significantly with each repeat cesarean surgery a woman undergoes.

The second and thoroughly established benefit that doulas offer relates to breastfeeding outcomes. Multiple studies have proven that women receiving doula care have higher rates of initiating and extending breastfeeding. National data reveals the expense and mortality associated with insufficient breastfeeding. The United States incurs $13 billion in excess costs annually and suffers 911 preventable deaths per year due to breastfeeding rates falling far below medical recommendations.[xviii] Although, it is difficult to both quantify the exact burden the State of Oregon shoulders due to inadequate breastfeeding, as well as the exact dollar amount saved through doula intervention, evidence suggests that doulas positively contribute to successful breastfeeding, leading to improved outcomes for Oregon's mothers and children and reducing medical costs for the State.

Lastly, a study conducted by Olds et al, evaluating the outcomes of an intensive 2.5 year, family-centered partnership during pregnancy and early parenting, demonstrated a reduction in premature births.[xix] Similar to the Olds model, doulas partner with families during pregnancy and after delivery. It is reasonable to suggest that doula care creates the kind of support and education that leads to improved pregnancy and neonatal outcomes.

A cost benefit analytic model, using limited variables, was designed by Oregon Health and Science University to compare costs and neonatal outcomes for women receiving doula support during active labor and delivery to women undergoing routine obstetrical care. The probability and cost of uncomplicated vaginal delivery with and without analgesia, operative vaginal delivery, cesarean delivery, and Neonatal Intensive Care Unit (NICU) admissions based upon APGAR scores were incorporated into the model as well as outcomes related to mode of delivery and neonatal morbidity. Based on this model, publicly funded doula care could result in a modest cost savings to the payer.

However, benefits to mothers and infants, including maternal preferences, breastfeeding initiation/continuation rates and repeat c-section morbidity and mortality (discussed in more detail above) were not incorporated into the model. These factors contribute to patient satisfaction, infant health, life-long health, and quality of care, and the State of Oregon should consider the above-mentioned factors when reviewing the financial justification for utilizing doulas. These evidence-based studies demonstrate that the low-cost, effective, and preventative care of doulas has great potential to improve the health of Oregon families and reduce state healthcare expenditures.

The complete Cost-Benefit Analysis is available in Appendix G.

Conclusion

Based on the data analyzed by the Committee, the unequivocal recommendation of the Cochrane Review, the existence of both local and national professional certification models, and the promising outcome data from local and national doula models focused on addressing health inequities, the Committee recommends doulas as a strategy to improve health equity in Oregon's birth outcomes. Additionally, the Committee recommends doulas as an overall strategy for all pregnant women in order to improve birth outcomes whether care is funded by Medicaid or private insurance.

Endnotes

[i] U.S. Census Bureau, Statistical Abstract of the United States: 2012 (131st Edition) Washington, DC, 2011; <http://www.census.gov/compendia/statab/>

[ii] "Continuous support for women during childbirth | Cochrane Summaries", n.d., http://summaries.cochrane.org/CD003766/continuous-support-for-women-during-childbirth.

[iii] Altfeld S. *The Chicago Doula Project Evaluation Final Report.* Chicago: Ounce of Prevention Fund, 2003. Retrieved from http://www.rwjf.org/reports/grr/029806.htm#int_biblio

[iv] Migrant Health Promotion website: Improving Health Outcomes http://www.migranthealth.org/index.php?option=com_content&view=article&id=52&Itemid=50

[v] The Haven website: Haven Doula Program. http://www.havenfriends.org/about/program---overview/doula/

[vi] The International Center for Traditional Childbearing Website: http://www.ictcmidwives.org/

[vii] Vanderbilt University Medical Center: Maternal Infant Health Outreach Worker program. http://www.mihow.org/overview.html

[viii] Sims, M., T.L. Sims, M.A. Bruce. Urban poverty and infant mortality rate disparities. J Natl Med Assoc. 2007 Apr;99(4):349-56.

[ix] National Vital Statistics Report, Vol. 50, No. 15, September 16, 2002.

[x] National Healthcare Disparities Report 2006: http://ahrq.gov/qual/nhdr06/nhdr06report.pdf

[xi] Innovative Practices in Multicultural Health 2007 http://www.ncqa.org/Portals/0/HEDISQM/CLAS/CLAS_InnovativePrac07.pdf

[xii] Minnesotabirth.com.*Minnesota's Doula History*, 2008. Accessed January 23, 2012.

[xiii] Elizabeth O'Sullivan. "Pregnancy & Birth." *The Turtle Women,* Issue 127, Nov/Dec. 2004. Web. 23 Jan 2012.

[xiv] "Eliminating Health Disparities Legislative Reports: 2003, 2005, 2007, 2009." Minnesota Department of Health Office of Minority and Multicultural Health Publications, n.d. Web. 27 Jan. 2012. http://www.health.state.mn.us/ommh/publications/index.html

[xv] LaFloe, Janice. American Indian Family Center. E-mail interview. 24-26 Jan. 2012

[xvi] National Uniform Claim Committee, 2009

[xvii] Solheim K, Little S, Esakoff T, Cheng Y, Sparks T, Caughey AB. The effect of cesarean delivery rates on the future incidence of placenta previa, placenta accrete, and maternal mortality. Journal of Maternal-Fetal and Neonatal Medicine 2011; 11: 1341

[xviii] Bartick M, Reinhold A, The burden of suboptimal breastfeeding in the United States: a pediatric cost analysis. Pediatrics 4/2010; published online www.pediatrics.org, DOI: 10,1542

[xix] Olds D, Henderson C, Kitzman H et al. Prenatal and infancy home visitation by nurses: recent findings. 'The Future of Children' 1999, volume 9.

APPENDIX A: House Bill 3311 Enrolled

76th OREGON LEGISLATIVE ASSEMBLY--2011 Regular Session

Enrolled

House Bill 3311

Sponsored by Representatives KOTEK, FREDERICK, Senator SHIELDS; Representatives CANNON, DOHERTY, HOYLE, NATHANSON, TOMEI, Senator MONNES ANDERSON

CHAPTER .....

AN ACT

Relating to birth outcomes; and declaring an emergency.

Be It Enacted by the People of the State of Oregon:

SECTION 1. (1) As used in this section, "doula" means a birth companion who provides personal, nonmedical support to women and families throughout a woman's pregnancy, childbirth and post-partum experience.

(2) The Oregon Health Authority, including the Office of Multicultural Health and Services, shall explore options for providing or utilizing doulas in the state medical assistance program to improve birth outcomes for women who face a disproportionately greater risk of poor birth outcomes.

(3) The authority shall report to the House committee on health care and any other appropriate legislative committee in February 2012:

(a) Its findings under subsection (2) of this section; and

(b) All of the options for providing or utilizing services in the medical assistance program that improve birth outcomes for women who face a disproportionately greater risk of poor birth outcomes.

SECTION 2. This 2011 Act being necessary for the immediate preservation of the public peace, health and safety, an emergency is declared to exist, and this 2011 Act takes effect on its passage.

APPENDIX B: House Bill 3311 Implementation Committee Membership

Committee Co-Chairs:
Shafia Monroe, International Center for Traditional Childbearing
Amelia Psmythe, Breast Feeding Coalition of Oregon

Committee Members:
Rita Aparicio, Doula Caribe
Lani Doser, FNP-C, RN, PDX Doulas
Sadie Eck, Birthingway Midwifery College
LM Alaiyo Foster, Cascade Aids Project
Maryanne Harmer, Regence Blue Cross
Denise Johnson, Care Oregon
Jennie Leslie, Assistant Professor of Ob/Gyn at Oregon Health & Science University
Erica Matteson, Renaissance Doulas
Charlene McGee, Legacy Health Systems
Ellen Tilden, CNM, Oregon Health & Science University

Committee Staff:
Committee Lead: Tricia Tillman, Office of Equity and Inclusion, OHA
Committee Assistant: Rachel Gilmer, Office of Equity and Inclusion, OHA

Isabel Bickle, Division of Medical Assistance Programs, OHA
Trevor Douglass, Division of Medical Assistance Programs, OHA

Katherine Bradley, Office of Family Health, OHA
Cate Wilcox, Office of Family Health, OHA

Office of Family Health

HB 3311 Data Request

Prepared by Maternal and Child Health
Assessment, Evaluation and Informatics Unit

Analysis of Data from:

- Oregon Vital Records 2008-2010
- Oregon Pregnancy Risk Assessment Monitoring System (PRAMS; 2009-2010 Births)

January 2012

Table of Contents:

Disparities in Birth Outcomes
Table 1: Overall..... 2
Table 2: Among those with Medicaid paid births and those with births not paid by Medicaid.. 3
Table 3: Among those who live in urban areas and those who live in rural areas..... 4

Disparities in Birth Outcomes
Figure 1: Premature Birth..... 5
Figure 2: Low Birthweight..... 5
Figure 3: Cesarean Delivery..... 6
Figure 4: Apgar Score <8..... 6
Figure 5: Medicaid Births..... 6
Figure 6: Infant Mortality Rates..... 7
Figure 7: Breastfeeding Initiation..... 7
Figure 8: Postpartum Depression Symptoms..... 7

Appendix I: Data for Birth Outcomes..... 8
Appendix II: Data for Birth Outcomes Among Those with **Medicaid Paid Births** and Those with Births **not Paid for by Medicaid**..... 10
Appendix III: Data for Birth Outcomes Among Those who Live in **Urban Areas** and Those who Live in **Rural Areas**..... 12
Appendix VI: Understanding the Multiple Race Variable..... 14

Table 1: Disparities in Birth Outcomes

Based on statistical significance compared to Non-Latino White.

Based on statistical significance compared to Non-Latino White						
Indicator	**Hispanic/ Latino**	**Non-Latino African American**	**Non-Latino American Indian**	**Non-Latino Asian**	**Non-Latino Pacific Islander**	**Non-Latino Multiple Race**
Premature Birth	○	▲	▲	○	▲	▲
Low Birthweight	○	▲	▲	▲	▲	▲
Cesarean Delivery	○	▲	○	▲	▲	▲
Apgar Score	○	▲	○	○	○	○
Medicaid/OHP Births *(principal payment source)*	▲	▲	▲	○	○	▲
Infant Mortality	▲	▲	▲	○	○	○
Breastfeeding Initiated	○	○	○	○	○	○
Postpartum Depression Symptoms	○	○	○	○	○	○

Referent group is Non-Latino White
Underlying numbers are in Appendix I
Oregon Vital Records 2008-2010: Premature Births, Low Birthweight, Cesarean Delivery, Apgar Score and Medicaid Paid Births
PRAMS 2009-2010 Births: Breastfeeding Initiated, Postpartum Depression Symptoms
See Appendix III for explanationation of multiple race variable

Symbols	
No disparity/ Doing better	○
Disparity	▲
NP: Not provided due to small numbers	

Table 2: Disparities in Birth Outcomes

Among those with Medicaid paid births and those with births not paid by Medicaid

Based on statistical significance compared to Non-Latino White												
Indicator	**Hispanic/ Latino**		**Non-Latino African American**		**Non-Latino American Indian**		**Non-Latino Asian**		**Non-Latino Pacific Islander**		**Non-Latino Multiple Race**	
	Medicaid	Non-Medicaid	Medicaid	Non-Medicaid	Medicaid	Non-Medicaid	Medicaid	Non-Medicaid	Medicaid	Non-Medicaid	Medicaid	Non-Medicaid
Premature Birth	○	▲	▲	▲	○	○	○	○	○	○	▲	▲
Low Birthweight	○	▲	▲	▲	○	○	○	▲	○	○	○	▲
Cesarean Delivery	○	○	▲	▲	○	○	▲	▲	▲	▲	▲	○
Apgar Score	○	○	○	○	○	○	○	○	○	○	○	○
Infant Mortality	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Breastfeeding Initiated	○	○	○	○	○	○	○	○	○	○	○	○
Postpartum Depression Symptoms	○	○	○	○	○	○	○	○	○	○	○	○

Referent group is Non-Latino White
Oregon Vital Records 2008-2010: Premature Births, Low Birthweight, Cesarean Delivery, Apgar Score and Medicaid Paid Births
PRAMS 2009-2010 Births: Breastfeeding Initiated, Postpartum Depression Symptoms
See Appendix III for explanationation of multiple race variable

Symbols	
No disparity/ Doing better	○
Disparity	▲
NP: Not provided due to small numbers	

Table 3: Disparities in Birth Outcomes

Among those who live in urban areas and those who live in rural areas

Indicator	Hispanic/ Latino		Non-Latino African American		Non-Latino American Indian		Non-Latino Asian		Non-Latino Pacific Islander		Non-Latino Multiple Race	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Premature Birth	○	○	▲	○	○	▲	○	○	▲	○	▲	○
Low Birthweight	▲	○	▲	○	▲	○	▲	○	▲	○	▲	○
Cesarean Delivery	○	▲	▲	○	○	▲	▲	▲	▲	○	▲	○
Apgar Score	○	○	▲	○	○	○	○	○	○	○	○	○
Medicaid/OHP Births *(principal payment source)*	▲	▲	▲	▲	▲	▲	○	○	▲	○	▲	▲
Infant Mortality	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Breastfeeding Initiated	○	○	○	○	○	○	○	○	○	○	○	○
Postpartum depression/ symptoms	○	○	○	○	○	○	○	○	○	○	○	○

Based on statistical significance compared to Non-Latino White

Referent group is Non-Latino White
Oregon Vital Records 2008-2010: Premature Births, Low Birthweight, Cesarean Delivery, Apgar Score and Medicaid Paid Births
PRAMS 2009-2010 Births: Breastfeeding Initiated, Postpartum Depression Symptoms
See Appendix III for explanationation of multiple race variable

Symbols	
No disparity/ Doing better	○
Disparity	▲
NP: Not provided due to small numbers	

Figures 1-8: Disparities in Birth Outcomes

Reference for Table 1 (page 2)
Based on statistical significance compared to Non-Latino White.
See Appendix III for explanationation of multiple race variable.

Figure 1. Premature Births: Estimated gestational age <37 weeks.

African Americans are at the greatest risk for premature birth. American Indian/Alaska Natives, multiple race mothers, and Hawaiian/Pacific Islanders are also at significantly higher risk than non-Latino Whites.

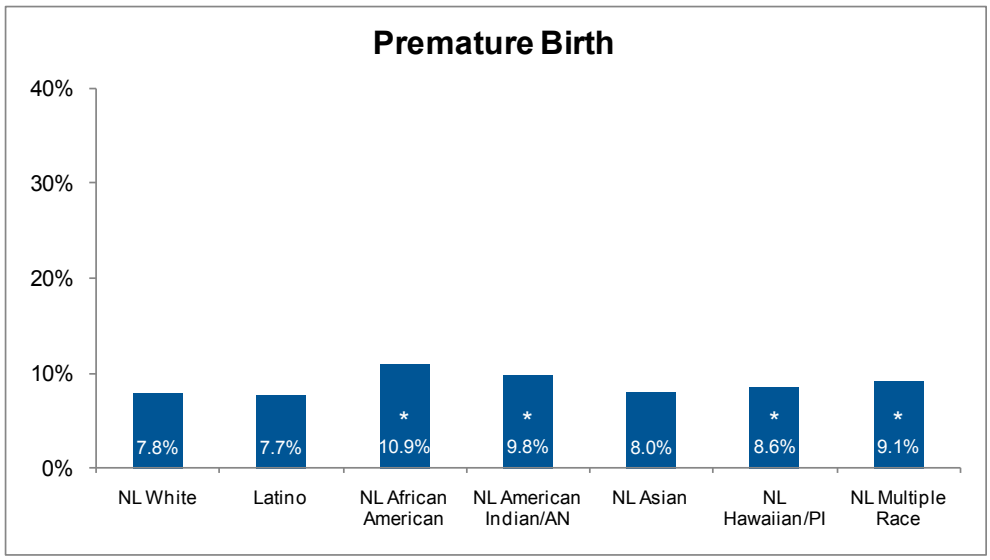
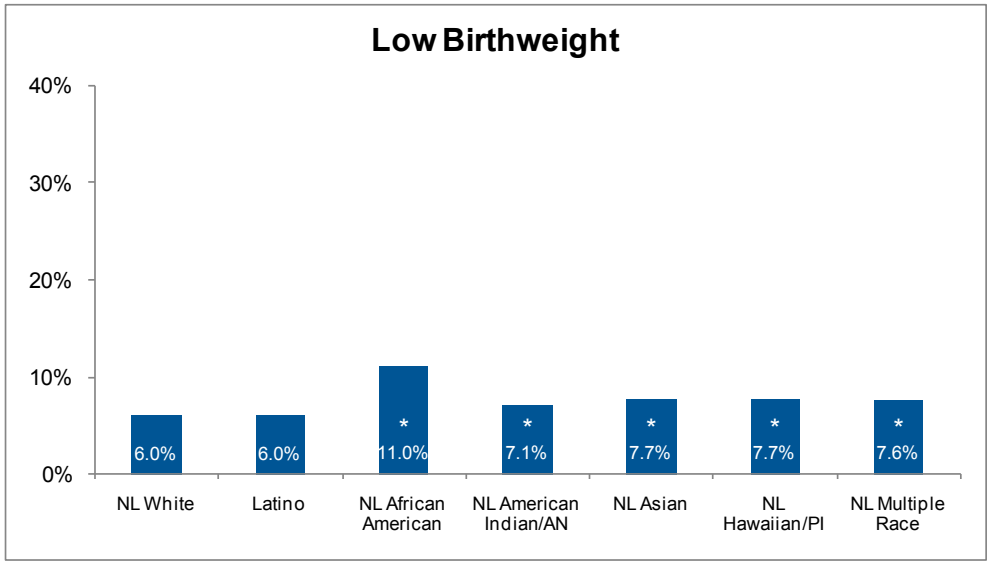


Figure 2. Low Birthweight:
Birthweight is <2500 grams.

African Americans are at the greatest risk for delivering babies with low birth weight. Asian, Hawaiian/Pacific Islanders, multiple race mothers and American Indian/Alaska Natives are also at significantly higher risk than non-Latino Whites.



** Indicates statistically significant outcomes that are worse than the reference group (Non-Latino Whites)*
+ Indicates statistically significant outcomes that are better than the reference group (Non-Latino Whites)
Source: Oregon Vital Records 2008-2010; PRAMS 2009-2010 Births

Figure 3. Cesarean Delivery:
Method of delivery: Cesarean delivery.

All population groups, with the exception of American Indian/Alaska Native and Latinas, are significantly more likely to have a Cesarean birth than non-Latino whites. Latina mothers have significantly less Cesarean births than non-Latino White mothers.

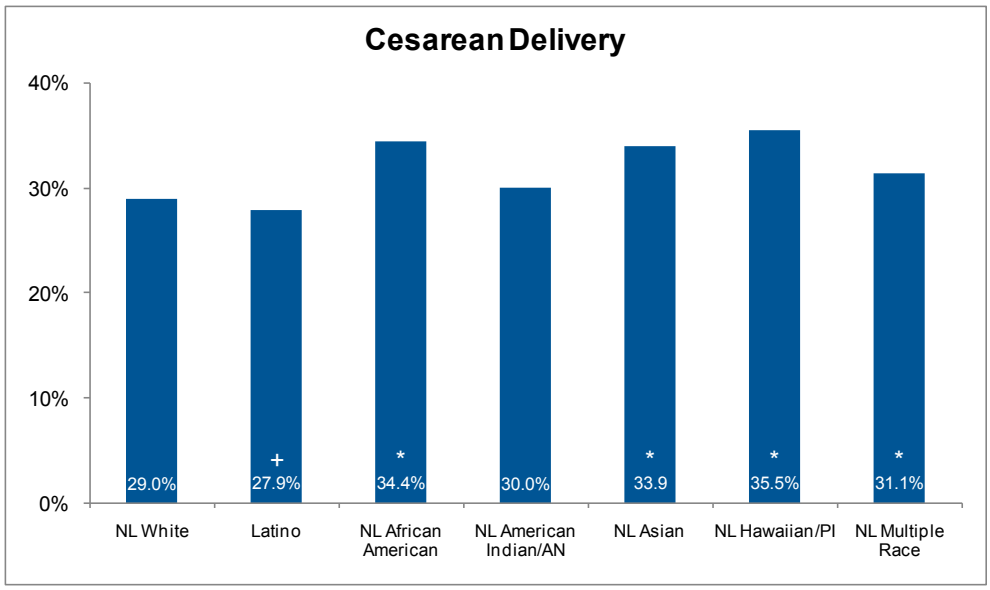


Figure 4. Apgar Score:
Apgar Score is <8.
The Apgar score is determined by evaluating the newborn baby on five criteria (appearance, pulse, grimace, activity, and respiration) on a scale from zero to two, then summing up the five values thus obtained. The score ranges from 0-10.

African American babies are at greater risk for having a low Apgar score. Latino, Asian and Hawaiian/Pacific Islander babies are significantly less likely than non-Latino Whites to have Apgar scores less than 8.

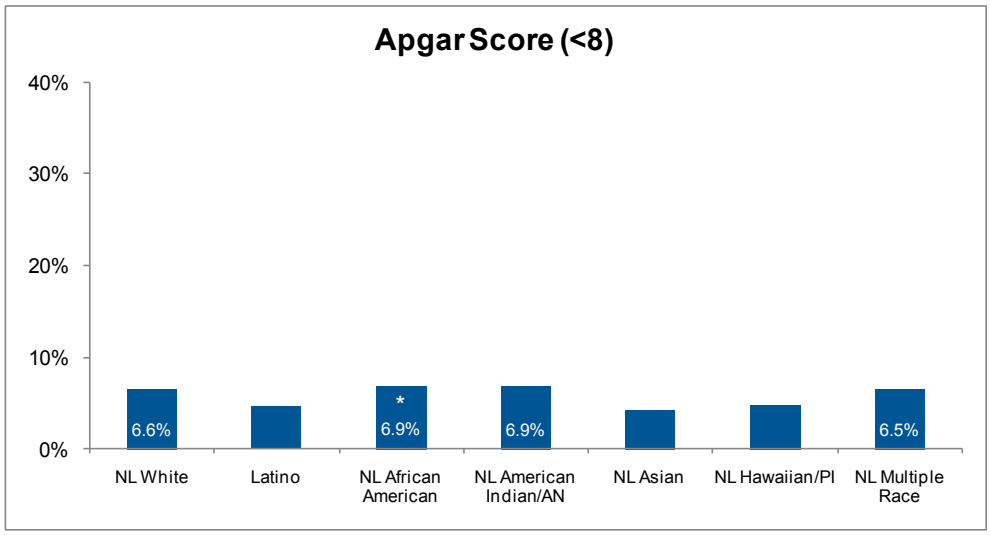
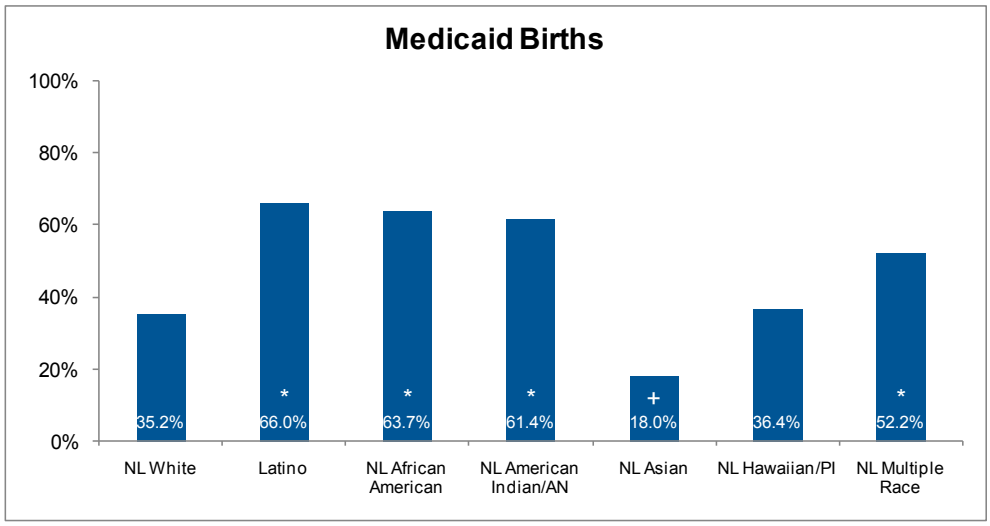


Figure 5. Medicaid Births:
Principal source of payment for the birth is Medicaid/Oregon Health Plan.

Latina, African American, American Indian/AN, and multiple race mothers have significantly more births paid by Medicaid than non-Latino Whites. Asians have significantly fewer Medicaid births than non-Latino Whites.



** Indicates statistically significant outcomes that are worse than the reference group (Non-Latino Whites)*
+ Indicates statistically significant outcomes that are better than the reference group (Non-Latino Whites)
Source: Oregon Vital Records 2008-2010; PRAMS 2009-2010 Births

Figure 6. Infant Mortality Rates:
Based on deaths that occurred in 2008-2009.

African Americans, American Indian/ Alaska Natives, and Latinos have a significantly higher rate of infant mortality compared with non-Latino Whites.

For NL Asians, NL Hawaiian/Pacific Islanders, and those with multiple races, the absolute numbers of deaths in 2008-2009 were less than 12. Numbers less than 12 may be statistically unreliable, so they should be interpreted with caution.

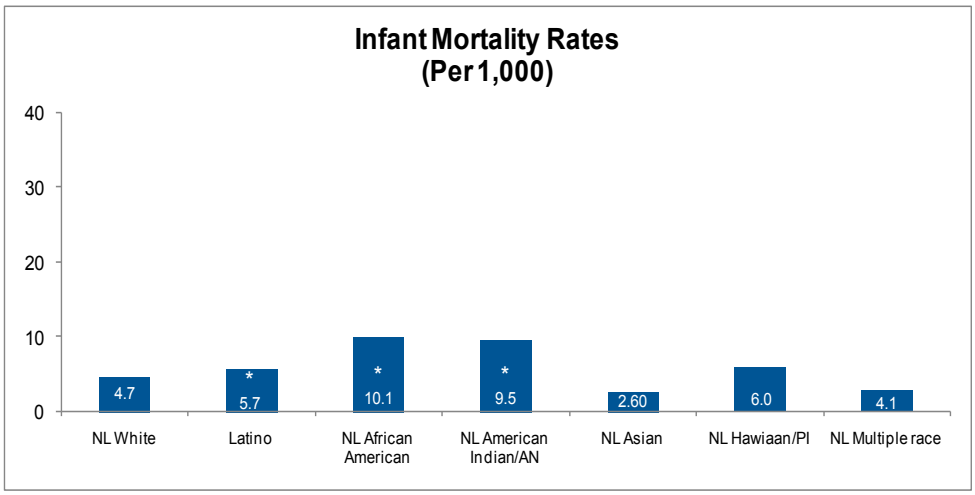


Figure 7. Breastfeeding Initiation:
Breastfeeding initiation after delivery (PRAMS 2009-2010 births). Question: Did you ever breastfeed or pump breast milk to feed your new baby after delivery, even for a short period of time?

There is no significant difference in breastfeeding initiation among population groups in comparison to non-Latino whites.

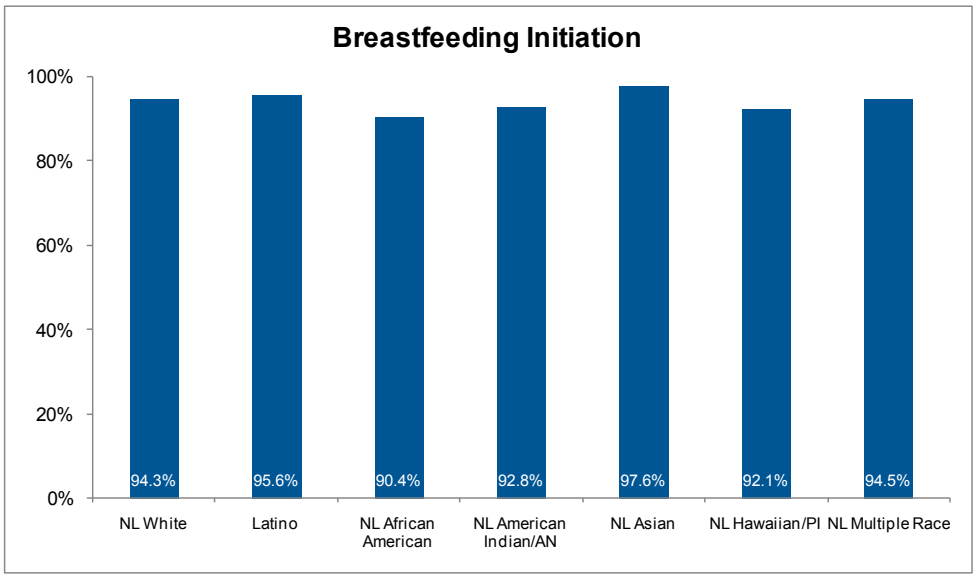
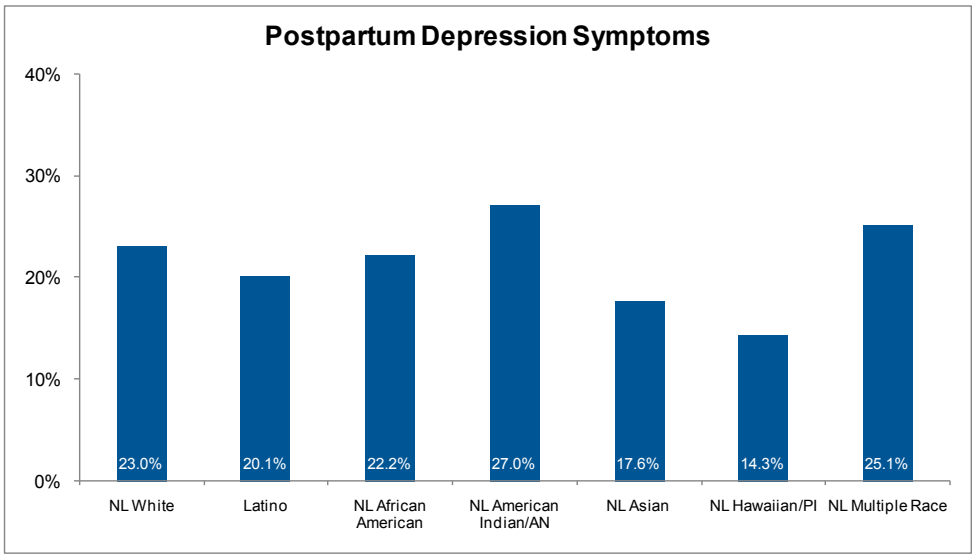


Figure 8. Postpartum Depression Symptoms:
Checked "Always" or "Often" in any of the three postpartum depression questions (PRAMS 2009-2010 births). Question: Since your new baby was born, how often have you felt or experienced the following (Never, Rarely, Sometimes, Often, or Always)
1. I felt down, depressed, or sad
2. I felt hopeless
3. I felt slowed down

There is no significant difference among population groups of postpartum depression than that of non-Latino Whites.



** Indicates statistically significant outcomes that are worse than the reference group (Non-Latino Whites)*
+ Indicates statistically significant outcomes that are better than the reference group (Non-Latino Whites)
Source: Oregon Vital Records 2008-2010; PRAMS 2009-2010 Births

APPENDIX I: *Data for Table 1 (page 2): Disparities in Birth Outcomes*

Confidence Interval (CI): If the survey were repeated 100 times, the percentage who answered "YES" would be expected to fall within the confidence interval range in 95 of the 100 surveys.

Premature Birth	N: # of Births	Percent of Births	CI: Lower Bounds	CI: Upper Bounds	Significance: 95% Confidence Level
Non-Latino (NL) White	96,162	7.8%	7.8%	7.9%	
Latino/Hispanic	28,500	7.7%	7.6%	7.8%	
NL African American	2,920	10.9%	10.5%	11.3%	*
NL American Indian/Alaska Native	1,801	9.8%	9.4%	10.3%	*
NL Asian	5,162	8.0%	7.8%	8.2%	
NL Hawaiian/Pacific Islander	2,026	8.6%	8.2%	9.0%	*
NL Multiple Race	3,778	9.1%	8.8%	9.4%	*

Low Birthweight	N: # of Births	Percent of Births	CI: Lower Bounds	CI: Upper Bounds	Significance: 95% Confidence Level
Non-Latino (NL) White	96,224	6.0%	6.0%	6.0%	
Latino/Hispanic	28,519	6.0%	5.9%	6.1%	
NL African American	2,920	11.0%	10.6%	11.4%	*
NL American Indian/Alaska Native	1,801	7.1%	6.8%	7.4%	*
NL Asian	5,165	7.7%	7.5%	7.9%	*
NL Hawaiian/Pacific Islander	2,026	7.7%	7.4%	8.0%	*
NL Multiple Race	3,782	7.6%	7.4%	7.8%	*

Cesarean Delivery	N: # of Births	Percent of Births	CI: Lower Bounds	CI: Upper Bounds	Significance: 95% Confidence Level
Non-Latino (NL) White	96,218	29.0%	28.8%	29.2%	
Latino/Hispanic	28,519	27.9%	27.6%	28.2%	+
NL African American	2,920	34.4%	33.1%	35.7%	*
NL American Indian/Alaska Native	1,802	30.0%	28.6%	31.4%	
NL Asian	5,165	33.9%	33.0%	34.8%	*
NL Hawaiian/Pacific Islander	2,026	35.5%	34.0%	37.1%	*
NL Multiple Race	3,782	31.1%	30.1%	32.1%	*

Apgar Score < 8	N: # of Births	Percent of Births	CI: Lower Bounds	CI: Upper Bounds	Significance: 95% Confidence Level
Non-Latino (NL) White	95,961	6.6%	6.6%	6.6%	
Latino/Hispanic	28,466	4.6%	4.6%	4.7%	+
NL African American	2,915	6.9%	6.7%	7.2%	*
NL American Indian/Alaska Native	1,791	6.9%	6.6%	7.2%	
NL Asian	5,153	4.2%	4.1%	4.3%	+
NL Hawaiian/Pacific Islander	2,025	4.8%	4.6%	5.0%	+
NL Multiple Race	3,760	6.5%	6.3%	6.7%	

** Indicates statistically significant outcomes that are worse than the reference group (Non-Latino Whites)*
+ Indicates statistically significant outcomes that are better than the reference group (Non-Latino Whites)
Source: Oregon Vital Records 2008-2010; PRAMS 2009-2010 Births

APPENDIX I (continued): *Data for Table 1 (page 2): Disparities in Birth Outcomes*

Medicaid Paid Births	N: # of Births	Percent of Births	CI: Lower Bounds	CI: Upper Bounds	Significance: 95% Confidence Level
Non-Latino (NL) White	95,786	35.2%	35.0%	35.4%	
Latino/Hispanic	28,364	66.0%	65.2%	66.8%	*
NL African American	2,906	63.7%	61.4%	66.0%	*
NL American Indian/Alaska Native	1,794	61.4%	58.6%	64.2%	*
NL Asian	5,142	18.0%	17.5%	18.5%	+
NL Hawaiian/Pacific Islander	2,012	36.4%	34.8%	38.0%	
NL Multiple Race	3,766	52.2%	50.5%	53.9%	*
Infant Mortality (2008-2009)	**N: # of Births**	**Rate per 1,000**	**CI: Lower Bounds**	**CI: Upper Bounds**	**Significance: 95% Confidence Level**
Non-Latino (NL) White	65,345	309	4.7%	4.8%	
Latino/Hispanic	19,441	109	5.5%	5.7%	*
NL African American	1,978	20	6.2%	15.6%	*
NL American Indian/Alaska Native	1,259	12	4.9%	16.6%	*
NL Asian	3,473	9	1.2%	4.9%	
NL Hawaiian/Pacific Islander	1,341	8	2.6%	11.8%	
NL Multiple Race	2,440	10	2.0%	7.5%	
Breastfeeding Initiation	**(Unweighted) N**	**(Weighted) Percent "Yes"**	**CI: Lower Bounds**	**CI: Upper Bounds**	**Significance: 95% Confidence Level**
Non-Latino (NL) White	785	94.3%	92.3%	95.8%	
Latino/Hispanic	878	95.6%	94.0%	96.8%	
NL African American	338	90.4%	86.6%	93.3%	
NL American Indian/Alaska Native	275	92.8%	88.9%	95.3%	
NL Asian	381	97.6%	94.9%	98.8%	
NL Hawaiian/Pacific Islander	145	92.1%	85.4%	95.8%	
NL Multiple Race	482	94.5%	91.8%	96.3%	
Postpartum Depression Symptoms	**(Unweighted) N**	**(Weighted) Percent "Yes"**	**CI: Lower Bounds**	**CI: Upper Bounds**	**Significance: 95% Confidence Level**
Non-Latino (NL) White	801	23.0%	20.2%	26.1%	
Latino/Hispanic	871	20.1%	17.5%	23.0%	
NL African American	335	22.2%	17.9%	27.1%	
NL American Indian/Alaska Native	280	27.0%	22.1%	32.6%	
NL Asian	380	17.6%	14.1%	21.9%	
NL Hawaiian/Pacific Islander	146	14.3%	9.3%	21.3%	
NL Multiple Race	494	25.1%	21.3%	29.3%	

The data listed for Breastfeeding Initiation and Postpartum Depression Symptoms is from the Pregnancy Risk Assessment Monitoring Survey (PRAMS). PRAMS is a surveillance project of the Centers for Disease Control and Prevention (CDC) and state health departments. PRAMS collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy.

When reporting PRAMS data, weighted percentages of responses are used, rather than rates. The "N's" listed above are the actual numbers of survey responses, not weighted.

** Indicates statistically significant outcomes that are worse than the reference group (Non-Latino Whites)*

+ Indicates statistically significant outcomes that are better than the reference group (Non-Latino Whites)

Source: Oregon Vital Records 2008-2010; PRAMS 2009-2010 Births

APPENDIX II: *Data for Table 2 (page 3): Disparities in Birth Outcomes*
Among those with Medicaid paid births and those with births not paid by Medicaid

Confidence Interval (CI): If the survey were repeated 100 times, the percentage who answered "YES" would be expected to fall within the confidence interval range in 95 of the 100 surveys.

Mcd=Medicaid Birth; NM=Non-Medicaid Birth

Premature Birth	N: # of Births		Percent of Births		CI: Lower Bounds		CI: Upper Bounds		Significance: 95% Confidence Level	
	Mcd	NM	Mcd	NM	Mcd	NM	Mcd	NM	Mcd	NM
Non-Latino (NL) White	22,370	42,632	8.1%	7.6%	8.0%	7.5%	8.2%	7.7%		
Latino/Hispanic	12,844	6,694	7.0%	8.7%	6.9%	8.5%	7.1%	8.9%	+	*
NL African American	1,242	723	11.6%	10.2%	11.0%	8.0%	12.3%	12.8%	*	*
NL American Indian/Alaska Native	742	509	9.6%	10.2%	7.5%	7.6%	12.1%	13.4%		
NL Asian	590	2,867	8.8%	7.2%	6.6%	6.9%	11.5%	7.5%		
NL Hawaiian/Pacific Islander	462	870	8.9%	7.9%	6.4%	6.2%	12.0%	10.0%		
NL Multiple Race	1,099	1,094	10.0%	8.6%	9.4%	8.1%	10.6%	9.1%	*	*

Low Birthweight	N: # of Births		Percent of Births		CI: Lower Bounds		CI: Upper Bounds		Significance: 95% Confidence Level	
	Mcd	NM	Mcd	NM	Mcd	NM	Mcd	NM	Mcd	NM
Non-Latino (NL) White	22,381	42,667	6.5%	5.7%	6.4%	5.7%	6.6%	5.8%		
Latino/Hispanic	12,850	6,703	5.6%	6.4%	5.5%	6.3%	5.7%	6.6%	+	*
NL African American	1,242	722	12.0%	9.7%	11.3%	7.6%	12.7%	12.3%	*	*
NL American Indian/Alaska Native	743	508	6.7%	7.7%	5.0%	5.5%	8.8%	10.5%		
NL Asian	590	2,870	8.1%	7.3%	6.0%	7.0%	10.7%	7.6%		*
NL Hawaiian/Pacific Islander	462	870	6.7%	7.4%	4.6%	5.7%	9.5%	9.5%		
NL Multiple Race	1,100	1,095	7.9%	7.7%	6.4%	6.1%	9.7%	9.5%		*

Cesarean Delivery	N: # of Births		Percent of Births		CI: Lower Bounds		CI: Upper Bounds		Significance: 95% Confidence Level	
	Mcd	NM	Mcd	NM	Mcd	NM	Mcd	NM	Mcd	NM
Non-Latino (NL) White	22,382	42,663	27.3%	29.8%	27.0%	29.5%	27.7%	30.1%		
Latino/Hispanic	12,849	6,702	26.7%	30.0%	26.2%	29.3%	27.2%	30.7%		
NL African American	1,242	723	35.7%	35.1%	33.7%	32.5%	37.7%	37.7%	*	*
NL American Indian/Alaska Native	743	509	27.7%	32.0%	25.7%	29.2%	29.7%	34.8%		
NL Asian	590	2,870	30.3%	34.1%	27.9%	32.9%	32.7%	35.4%	*	*
NL Hawaiian/Pacific Islander	462	870	36.1%	33.8%	32.8%	31.6%	39.4%	36.1%	*	*
NL Multiple Race	1,100	1,095	30.2%	30.0%	28.4%	28.2%	32.0%	31.8%	*	

** Indicates statistically significant outcomes that are worse than the reference group (Non-Latino Whites)*
+ Indicates statistically significant outcomes that are better than the reference group (Non-Latino Whites)
Source: Oregon Vital Records 2008-2009; PRAMS 2009-2010 Births

APPENDIX II (continued): *Data for Table 2 (page 3): Disparities in Birth Outcomes Among those with Medicaid paid births and those with births not paid by Medicaid*

Confidence Interval (CI): If the survey were repeated 100 times, the percentage who answered "YES" would be expected to fall within the confidence interval range in 95 of the 100 surveys.

MCD=Medicaid Birth; NM-Non-Medicaid Birth

Apgar Score < 8	N: # of Births		Percent of Births		CI: Lower Bounds		CI: Upper Bounds		Significance: 95% Confidence Level	
	Mcd	NM	Mcd	NM	Mcd	NM	Mcd	NM	Mcd	NM
Non-Latino (NL) White	22,372	42,513	7.9%	6.4%	7.8%	6.3%	8.0%	6.5%		
Latino/Hispanic	12,842	6,354	4.8%	4.8%	4.7%	4.7%	4.9%	4.9%	+	+
NL African American	1,242	721	6.3%	7.9%	5.0%	6.0%	7.9%	10.2%		
NL American Indian/Alaska Native	742	505	6.7%	7.3%	5.0%	5.1%	8.8%	10.1%		
NL Asian	590	2,861	4.4%	4.1%	2.9%	4.0%	6.5%	4.3%	+	+
NL Hawaiian/Pacific Islander	462	869	5.0%	4.4%	3.2%	3.1%	7.5%	6.0%	+	+
NL Multiple Race	1098	1,082	7.5%	6.3%	6.0%	4.9%	9.3%	8.0%		

Breastfeeding Initiation	(Unweighted) N		(Weighted) Percent "Yes"		CI: Lower Bounds		CI: Upper Bounds		Significance: 95% Confidence Level	
	Mcd	NM	Mcd	NM	Mcd	NM	Mcd	NM	Mcd	NM
Non-Latino (NL) White	277	504	90.0%	96.7%	85.7%	94.6%	93.1%	98.0%		
Latino/Hispanic	562	308	95.0%	96.5%	92.7%	93.7%	96.6%	98.1%		
NL African American	209	129	88.2%	94.4%	83.0%	88.1%	92.0%	97.5%		
NL American Indian/Alaska Native	174	101	92.2%	93.8%	87.0%	87.5%	95.5%	97.0%		
NL Asian	77	303	96.5%	97.8%	87.1%	94.8	99.1%	99.1%		
NL Hawaiian/Pacific Islander	55	90	91.5%	92.4%	79.2%	83.1	96.8%	96.8%		
NL Multiple Race	248	232	91.4%	98.3%	86.7%	96.1	94.6%	99.2%		

Postpartum Depression Symptoms	(Unweighted) N		(Weighted) Percent "Yes"		CI: Lower Bounds		CI: Upper Bounds		Significance: 95% Confidence Level	
	Mcd	NM	Mcd	NM	Mcd	NM	Mcd	NM	Mcd	NM
Non-Latino (NL) White	282	515	21.4%	23.9%	16.9%	20.3%	26.7%	27.8%		
Latino/Hispanic	563	301	20.1%	20.4%	16.9%	16.1%	23.7%	25.6%		
NL African American	204	131	23.3%	20.2%	17.9%	14.0%	29.7%	28.4%		
NL American Indian/Alaska Native	178	102	27.5%	26.0%	21.4%	18.4%	34.7%	35.4%		
NL Asian	77	302	14.6%	18.5%	8.3%	14.5%	24.6%	23.4%		
NL Hawaiian/Pacific Islander	56	90	13.1%	15.1%	6.2%	8.9%	25.4%	24.4%		
NL Multiple Race	256	235	27.9%	22.4%	22.6%	17.1%	33.9%	28.7%		

The data listed for Breastfeeding Initiation and Postpartum Depression Symptoms is from the Pregnancy Risk Assessment Monitoring Survey (PRAMS). PRAMS is a surveillance project of the Centers for Disease Control and Prevention (CDC) and state health departments. PRAMS collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy.

When reporting PRAMS data, weighted percentages of responses are used, rather than rates. The "N's" listed above are the actual numbers of survey responses, not weighted.

** Indicates statistically significant outcomes that are worse than the reference group (Non-Latino Whites)*
+ Indicates statistically significant outcomes that are better than the reference group (Non-Latino Whites)
Source: Oregon Vital Records 2008-2009; PRAMS 2009-2010 Births

APPENDIX III: *Data for Table 3 (page 4): Disparities in Birth Outcomes*
*Among those who live in **urban** areas and those who live in **rural** areas*

Confidence Interval (CI): If the survey were repeated 100 times, the percentage who answered "YES" would be expected to fall within the confidence interval range in 95 of the 100 surveys.

Premature Birth	N: # of Births		Percent of Births		CI: Lower Bounds		CI: Upper Bounds		Significance: 95% Confidence Level	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Non-Latino (NL) White	69,889	26,272	7.6%	8.1%	7.5%	8.0%	7.7%	8.2%		
Latino/Hispanic	22,891	5,970	7.6%	7.9%	7.5%	7.7%	7.7%	8.1%		
NL African American	2,832	88	10.9%	9.1%	10.5%	3.9%	11.3%	17.9%	*	
NL American Indian/Alaska Native	899	902	9.1%	10.4%	7.2%	8.4%	11.3%	12.7%		*
NL Asian	4,856	306	7.8%	10.8%	7.6%	7.4%	8.0%	15.2%		
NL Hawaiian/Pacific Islander	1,891	135	8.7%	6.7%	8.3%	3.1%	9.1%	12.7%	*	
NL Multiple Race	2,613	886	8.7%	9.6%	8.4%	7.6%	9.0%	12.0%	*	

Low Birthweight	N: # of Births		Percent of Births		CI: Lower Bounds		CI: Upper Bounds		Significance: 95% Confidence Level	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Non-Latino (NL) White	69,938	26,285	5.8%	6.4%	5.8%	6.3%	5.8%	6.5%		
Latino/Hispanic	22,907	5,974	6.1%	5.8%	6.0%	5.7%	6.2%	5.9%	*	+
NL African American	2,832	88	11.1%	9.1%	10.7%	3.9%	11.5%	17.9%	*	
NL American Indian/Alaska Native	899	902	7.6%	6.7%	5.9%	5.1%	9.6%	8.6%	*	
NL Asian	4,859	306	7.7%	8.2%	7.5%	5.3%	7.9%	12.1%	*	
NL Hawaiian/Pacific Islander	1,891	135	7.8%	7.4%	7.4%	3.5%	8.2%	13.6%	*	
NL Multiple Race	2,615	805	7.4%	7.7%	7.1%	5.9%	7.7%	9.9%	*	

Cesarean Delivery	N: # of Births		Percent of Births		CI: Lower Bounds		CI: Upper Bounds		Significance: 95% Confidence Level	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Non-Latino (NL) White	69,937	26,280	29.5%	27.5%	29.3%	27.2%	29.7%	27.8%		
Latino/Hispanic	22,907	5,974	27.4%	29.7%	27.0%	28.9%	27.8%	30.5%	+	*
NL African American	2,832	88	34.3%	37.5%	33.0%	25.8%	35.6%	52.7%	*	
NL American Indian/Alaska Native	899	903	29.0%	30.9%	27.1%	28.9%	31.0%	32.9%		*
NL Asian	4,859	306	33.8%	34.3%	32.8%	30.5%	34.8%	38.1%	*	*
NL Hawaiian/Pacific Islander	1,891	135	36.3%	25.2%	34.7%	17.5%	37.9%	35.2%	*	
NL Multiple Race	2,615	805	32.5%	27.8%	31.2%	25.9%	33.7%	29.7%	*	

Apgar Score < 8	N: # of Births		Percent of Births		CI: Lower Bounds		CI: Upper Bounds		Significance: 95% Confidence Level	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Non-Latino (NL) White	69,842	26,118	6.2%	7.9%	6.2%	7.8%	6.2%	8.0%		
Latino/Hispanic	22,884	5,942	4.3%	5.6%	4.2%	5.5%	4.4%	5.7%	+	+
NL African American	2,827	88	6.8%	9.1%	6.5%	3.9%	7.1%	17.9%	*	
NL American Indian/Alaska Native	899	892	6.3%	7.5%	4.8%	5.8%	8.2%	9.5%		
NL Asian	4,853	300	3.9%	10.3%	3.8%	7.0%	4.0%	14.6%	+	
NL Hawaiian/Pacific Islander	1,890	135	4.7%	5.9%	3.8%	2.5%	5.8%	11.6%	+	
NL Multiple Race	2,610	790	6.1%	7.7%	5.9%	5.9%	6.3%	9.9%		

APPENDIX III (continued): *Data for Table 3 (page 4): Disparities in Birth Outcomes Among those who live in **urban** areas and those who live in **rural** areas*

Confidence Interval (CI): If the survey were repeated 100 times, the percentage who answered "YES" would be expected to fall within the confidence interval range in 95 of the 100 surveys.

Medicaid Paid Births	N: # of Births		Percent of Births		CI: Lower Bounds		CI: Upper Bounds		Significance: 95% Confidence Level	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Non-Latino (NL) White	69,619	26,166	31.4%	45.4%	31.2%	44.8%	31.6%	46.0%		
Latino/Hispanic	22,782	5,943	66.8%	63.0%	65.9%	61.4%	67.7%	64.6%	*	*
NL African American	2,819	87	63.6%	65.5%	61.3%	49.6%	65.9%	84.9%	*	*
NL American Indian/Alaska Native	893	901	57.3%	65.4%	53.5%	61.1%	61.1%	69.7%	*	*
NL Asian	4,836	306	17.7%	23.5%	17.2%	20.9%	18.2%	26.1%	+	+
NL Hawaiian/Pacific Islander	1,877	135	35.6%	47.4%	34.0%	37.0%	37.2%	59.8%	*	
NL Multiple Race	2,602	803	48.9%	57.0%	47.0%	53.0%	50.8%	60.8%	*	*

Breastfeeding Initiation	N		Percent "Yes"		CI: Lower Bounds		CI: Upper Bounds		Significance: 95% Confidence Level	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Non-Latino (NL) White	581	204	94.6%	93.6%	92.3%	88.9%	96.2%	96.3%		
Latino/Hispanic	688	190	96.2%	93.4%	94.4%	88.5%	97.4%	96.3%		
NL African American	327	NP	90.4%	NP	86.5%	NP	93.3%	NP		
NL American Indian/Alaska Native	139	136	93.2%	92.3%	87.3%	86.5%	96.5%	95.8%		
NL Asian	358	23	97.8%	93.6%	95.2%	66.1%	99.0%	99.1%		
NL Hawaiian/Pacific Islander	137	NP	92.6%	NP	85.9%	NP	96.3%	NP		
NL Multiple Race	364	118	95.2%	92.1%	92.1%	85.4%	97.1%	95.9%		

Postpartum Depression Symptoms	N		Percent "Yes"		CI: Lower Bounds		CI: Upper Bounds		Significance: 95% Confidence Level	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Non-Latino (NL) White	592	209	23.0%	23.0%	19.7%	17.8%	26.7%	29.2%		
Latino/Hispanic	680	191	20.0%	20.9%	17.0%	15.4%	23.2%	27.5%		
NL African American	324	NP	22.3%	NP	18.0%	NP	27.4%	NP		
NL American Indian/Alaska Native	141	139	29.6%	24.5%	22.5%	18.0%	37.9%	32.4%		
NL Asian	357	23	17.3%	23.5%	13.6%	10.1%	21.6%	45.7%		
NL Hawaiian/Pacific Islander	139	NP	15.0%	NP	9.8%	NP	22.3%	NP		
NL Multiple Race	371	123	25.4%	24.1%	21.0%	17.0%	30.3%	33.1%		

NP= Not provided due to small numbers

The data listed for Breastfeeding Initiation and Postpartum Depression Symptoms is from the Pregnancy Risk Assessment Monitoring Survey (PRAMS). PRAMS is a surveillance project of the Centers for Disease Control and Prevention (CDC) and state health departments. PRAMS collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy.

When reporting PRAMS data, weighted percentages of responses are used, rather than rates. The "N's" listed above are the actual numbers of survey responses, not weighted.

** Indicates statistically significant outcomes that are worse than the reference group (Non-Latino Whites)*
+ Indicates statistically significant outcomes that are better than the reference group (Non-Latino Whites)
Source: Oregon Vital Records 2008-2010; PRAMS 2009-2010 Births
Definition: Rural is less than 60 persons per square mile according to 1990 census, according to mother's place of residence at time of birth.

APPENDIX IV:
Understanding the Multiple Race Variable

A mother is counted as Latina if she...

1. Checked at least one of the Latino/Hispanic checkboxes when asked about ethnicity.

A mother is counted as "multiple race" if she...

1. Checked 2 or more races (other than the combination of one race and "other" race) AND is not Latina/Hispanic

If the mother checked only one race, or one race and "other" race (and is not Latina/Hispanic), she is counted under the one specific race that she checked off.

Non-Latino (NL): This term is used throughout the charts and graphs in this publication to describe ethnic/racial groups who have been separated from the Latino population based on the criteria above.

Reference for Multiple Race Information

Ethnicity/Race Categories for Birth Certificate File:

Hispanic or Latino if at least one of these is checked off (check all that apply):

- ☐ Hispanic Mexican
- ☐ Hispanic Puerto Rican
- ☐ Hispanic Cuban
- ☐ Hispanic Other

Race: (check all that apply)

- ☐ White
- ☐ Black
- ☐ American Indian/Alaskan Native
- ☐ Asian:
  - ☐ Asian Indian
  - ☐ Chinese
  - ☐ Filipino
  - ☐ Japanese
  - ☐ Korean
  - ☐ Vietnamese
  - ☐ Other Asian
- ☐ Hawaiian/Pacific Islander:
  - ☐ Hawaiian
  - ☐ Guamanian or Chamorro
  - ☐ Samoan
  - ☐ Other Pacific islander
- ☐ Other:
  - ☐ (fill-in)

In Asian or Pacific Islander, checking 2 or more does not make the mother 'multiple race'.

Examples: Chinese and Filipino = Asian
Filipino and Samoan = multiple race
White and Samoan = Multiple race
Chinese and Filipino and Korean = Asian
White and Other = White

For more information, please contact:

Kathryn Broderick
Manager, Assessment, Evaluation and Informatics
Office of Family Health, Maternal and Child Health
1.971.673.0228
kathryn.broderick@state.or.us

Continuous support for women during childbirth (Review)

Hodnett ED, Gates S, Hofmeyr GJ, Sakala C, Weston J

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2011, Issue 2

http://www.thecochranelibrary.com

Continuous support for women during childbirth (Review)
Copyright © 2011 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

[Intervention Review]

Continuous support for women during childbirth

Ellen D Hodnett[1], Simon Gates[2], G Justus Hofmeyr[3], Carol Sakala[4], Julie Weston[1]

[1]Lawrence S. Bloomberg Faculty of Nursing, University of Toronto, Toronto, Canada. [2]Warwick Clinical Trials Unit, Warwick Medical School, University of Warwick, Coventry, UK. [3]Department of Obstetrics and Gynaecology, East London Hospital Complex, University of the Witwatersrand, University of Fort Hare, Eastern Cape Department of Health, East London, South Africa. [4]Childbirth Connection, New York, USA

Contact address: Ellen D Hodnett, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto, 155 College Street, Suite 130, Toronto, Ontario, M5T 1P8, Canada. ellen.hodnett@utoronto.ca.

Editorial group: Cochrane Pregnancy and Childbirth Group.
Publication status and date: New search for studies and content updated (no change to conclusions), published in Issue 2, 2011.
Review content assessed as up-to-date: 9 January 2011.

Citation: Hodnett ED, Gates S, Hofmeyr GJ, Sakala C, Weston J. Continuous support for women during childbirth. *Cochrane Database of Systematic Reviews* 2011, Issue 2. Art. No.: CD003766. DOI: 10.1002/14651858.CD003766.pub3.

Copyright © 2011 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

ABSTRACT

Background

Historically, women have been attended and supported by other women during labour. However in hospitals worldwide, continuous support during labour has become the exception rather than the routine.

Objectives

Primary: to assess the effects of continuous, one-to-one intrapartum support compared with usual care. Secondary: to determine whether the effects of continuous support are influenced by: (1) routine practices and policies; (2) the provider's relationship to the hospital and to the woman; and (3) timing of onset.

Search strategy

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (31 December 2010).

Selection criteria

All published and unpublished randomized controlled trials comparing continuous support during labour with usual care.

Data collection and analysis

We used standard methods of the Cochrane Collaboration Pregnancy and Childbirth Group. Two authors independently evaluated methodological quality and extracted the data. We sought additional information from the trial authors. We used random-effects analyses for comparisons in which high heterogeneity was present, and we reported results using the risk ratio for categorical data and mean difference for continuous data.

Main results

Twenty-one trials involving 15061 women met inclusion criteria and provided usable outcome data. Results are of random-effects analyses, unless otherwise noted. Women allocated to continuous support were more likely to have a spontaneous vaginal birth (RR 1.08, 95% CI 1.04 to 1.12) and less likely to have intrapartum analgesia (RR 0.90, 95% CI 0.84 to 0.97) or to report dissatisfaction (RR 0.69, 95% CI 0.59 to 0.79). In addition their labours were shorter (mean difference -0.58 hours, 95% CI -0.86 to -0.30), they were less likely to have a caesarean (RR 0.79, 95% CI 0.67 to 0.92) or instrumental vaginal birth (fixed-effect, RR 0.90, 95% CI

Copyright © 2011 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

0.84 to 0.96), regional analgesia (RR 0.93, 95% CI 0.88 to 0.99), or a baby with a low 5-minute Apgar score (fixed-effect, RR 0.70, 95% CI 0.50 to 0.96). There was no apparent impact on other intrapartum interventions, maternal or neonatal complications, or on breastfeeding. Subgroup analyses suggested that continuous support was most effective when provided by a woman who was neither part of the hospital staff nor the woman's social network, and in settings in which epidural analgesia was not routinely available. No conclusions could be drawn about the timing of onset of continuous support.

Authors' conclusions

Continuous support during labour has clinically meaningful benefits for women and infants and no known harm. All women should have support throughout labour and birth.

PLAIN LANGUAGE SUMMARY

Continuous support for women during childbirth

Continuous support in labour increased the chance of a spontaneous vaginal birth, had no harm, and women were more satisfied.

Historically women have been attended and supported by other women during labour and birth. However in many countries, as more women are giving birth in hospital rather than at home, continuous support during labour has become the exception rather than the norm. This may contribute to the dehumanization of women's childbirth experiences. Modern obstetric care frequently subjects women to institutional routines, which may have adverse effects on the progress of labour. Supportive care during labour may involve emotional support, comfort measures, information and advocacy. These may enhance physiologic labour processes as well as women's feelings of control and competence, and thus reduce the need for obstetric intervention. The review of studies included 21 trials, from 15 countries, involving more than 15,000 women in a wide range of settings and circumstances. The continuous support was provided either by hospital staff (such as nurses or midwives), women who were not hospital employees and had no personal relationship to the labouring woman (such as doulas or women who were provided with a modest amount of guidance), or by companions of the woman's choice from her social network (such as her husband, partner, mother, or friend). Women who received continuous labour support were more likely to give birth 'spontaneously', i.e. give birth with neither caesarean nor vacuum nor forceps. In addition, women were less likely to use pain medications, were more likely to be satisfied, and had slightly shorter labours. Their babies were less likely to have low 5-minute Apgar Scores. No adverse effects were identified. We conclude that all women should have continuous support during labour. Continuous support from a person who is present solely to provide support, is not a member of the woman's social network, is experienced in providing labour support, and has at least a modest amount of training, appears to be most beneficial. Support from a chosen family member or friend appears to increase women's satisfaction with their childbearing experience.

BACKGROUND

The first version of this Cochrane Review was published in 1995 (Hodnett 2003) when the first systematic reviews in the Cochrane Collaboration Pregnancy and Childbirth Group Module were converted to the Cochrane Review format. Thus a formal Cochrane Protocol was not initially published. Subsequently the Review author, Ellen Hodnett, completed a trial of labour support (Hodnett 2002) with a sample size larger than the entire sample in the prior version of the original Review. As a protection against bias, she sought co-authors who were blind to the results of the new trial and who had special expertise that would enhance the quality of the Review. Discussions among the authors led to decisions to modify the background and methods. The authors decided that the best approach would be to write a new Protocol for the Review. The new Protocol was submitted through the peer review process of the Cochrane Pregnancy and Childbirth Group and has subsequently evolved into a Review that has been updated.

Historically and cross-culturally, women have been attended and supported by other women during labour and birth. However, since the middle of the 20th century, in many countries as the majority of women gave birth in hospital rather than at home, continuous support during labour has become the exception rather than the routine. Concerns about dehumanization of women's birth experiences (in high-, middle-, and low income countries) have led to calls for a return to continuous, one-to-one support by women

Copyright © 2011 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

APPENDIX E: Promising Models for Utilizing Doulas

Name of Program	Location	Source of Funding /Cost of Program	Program Components	Type of Certification	Community Served	Outcomes Research/Success Metrics
Chicago Connect One Doula Project	Chicago, Ill	Mix of private and public funding (Ill Dept of Human Services; Ill Board of Edu; Chicago Public Schools; US Dept of HHS; Harris Family Foundation and Oprah Winfrey Foundation	Doula program embedded in early childhood home visiting programs (Parents Too Soon, Healthy Families, and Early Head Start) Outreach begins during 7th month of pregnancy; continues through prenatal period, labor, and delivery and through approximately six weeks postpartum. Family makes a transcending other home visiting programs which continue for three more years.	Doula is an employee of a community-based program Receives training as a home visitor Four month training process with includes a three-day DONA Doula Training component rigorous program includes mentored births and 80 hours of direct contact; ongoing bi-monthly training during first year of service; three times per year	Pregnant teens. Intervention begins during 7th month of pregnancy	N=295 • 80% of Doula participants initiated breastfeeding at birth • 22% of program participants were still breastfeeding at six months after birth • Only 8.1% of the project participants had Cesarean section deliveries
ICTC Doula: Full Circle Doula ® Program Source: www.ictcmidwives.org	National training & certifying organization. Headquartered in Oregon.	Mix of private grants, public donations, and fee for service. W.K Kellogg Foundation Susan G. Komen Foundation Women's Health Region IV City of Portland Water Bureau Transforming Birth Groundswell Foundation	ICTC doula integrates: Midwifery model of care, cultural inclusion, public health, infant mortality prevention, breastfeeding promotion, and capacity building. ICTC services begin 1st trimester and extend to three months postpartum. ICTC Doula program is community based. ▪ Contact made in the 1st trimester. Minimum of 17 contacts per pregnancy. ▪ Provide childbirth education,	ICTC Doula- private entrepreneur. ▪ 27.5 hours of intensive training in: labor and postpartum doulas services, newborn care, doing blood pressures, infant mortality prevention , breastfeeding support,	Pregnant women, teens, and partners, all trimesters, improving birth outcomes. Specializes in training and serving ethnically diverse populations.	60% of clients experienced birth satisfaction with an ICTC doula. 40% attend childbirth preparation classes. 50% participated in creating a birth plan. 70% learned the social determinants for infant mortality. 90% Learned about lead poisoning prevention.

		McKenzie River Gathering Foundation Black United Fund of Oregon RAMP	▪ Empowerment, self-esteem, and parenting ▪ Special efforts to include the father/partner and extended family. ▪ Accompany to prenatal appointment, home visits, ▪ Advocacy, referral ,and resources ▪ Support during labor and birth. ▪ Postpartum care in hospital/home/birth ctr. ▪ Postpartum support: meals, cleaning, newborn care, breastfeeding support, mother care, transportation. ▪ Connect mother to community resources. ▪ Plan Blessing Ways and Naming Ceremonies with parent/s.	entrepreneur skills. B.24-months to certification after the training. Certification: 5 births, 5 postpartum visits, 2-hour breastfeeding class, 4-hour childbirth preparation, CPR card, food handlers card and three book reports from the ICTC reading list. Recertification every three-years with of 24 CEU's and attend one ICTC conference. Training accomplishments: 2005-2010 trained 400 doulas national wide; 85% being women of color.		
The Haven's Doula Program Source: http://www.havenfriends.org/about/program---overview/doula/	Colorado	The Haven receives funding for some of the women's treatment through Community Corrections, Social Services, TANF, Signal, and though Medicaid for the mother's treatment, but there is no funding source dedicated to care for	The Doula Program pairs pregnant women from The Haven Mother's House with successful Haven graduates who have given birth and are in recovery. The Haven is a substance abuse treatment service for women, mothers and their infants. • Doula service begin at matching and continue until child is 18 months old • Accompany participant to prenatal visits	Train in the Chicago Health Connection Community Doula Model; The Harris Doula Child Development Curriculum (Ages 0-3).	Women recovering from substance abuse.	Extensive research projects are underway regarding the success of the doula program and outcomes for the infant, the mother, and the doula are being collected.

		the needs of infants.	• Assist in developing a birth plan • Provide supports through labor, delivery and initial postpartum hours at hospital • Ongoing support and advocacy assistance during hospital stay • Provide support and ideas for appropriate developmental play • Assist with transportation to medical appointment • Links participant to outside resources • Provides recovery support			
Farmworker Doula Program (Migrant Health Promotion, Weslaco, TX) Source: http://www.migranthealth.org/index.php?option=com_content&view=article&id=49&Itemid=48	Weslaco, TX.	Numerous funding sources listed for Migrant Health Promotion Program. See link	Experienced Promotoras are trained as Doulas. • Assist with prenatal and postpartum care • Assist with translation at medical visits and explain cultural difference to health care providers.	Health Connect One Community-based Doula Model	Migrant workers	In 2007-2008, three Doulas provided prenatal education classes to 483 people and actual doula services to 163 women in the lower Rio Grande Valley, Texas. • Their work contributed to a dramatic decrease in Caesarean section rates among first-time mothers – less than 8% of first-time mothers assisted by Doulas gave birth by Caesarean section, compared to 44.5% of Hispanic women in Cameron County overall (2002-2004; http://soupfin.tdh.state.tx.us/birth.htm In 2009, the Doulas' work resulted in the following:

						• 100% of the children in the program obtained a medical home • 100% of mothers in the program have an ongoing source of primary and preventative care • 0% low or very low birth weight babies were born to program participants and • Over 90% of program participants breastfed their babies.
Maternal Infant Health Outreach Worker Program Source: http://www.mihow.org/overview.html	Kentucky, Louisiana, Mississippi, Tennessee, and West Virginia.	**INSTITUTIONAL FUNDERS:** Association for Community Based Education Annie E. Casey Foundation Corporation for National and Community Service Ford Foundation The Gerber Foundation Charles and Mary Grant Foundation Hasbro Children's Foundation William Randolph Hearst Foundation Heron Foundation Robert Wood Johnson	Partnership between Community-base organizations in five states and Vanderbilt University Center for Health Services Program components: • Home Visits • Case management and advocacy • Parent education • Role modeling for positive parent-child interaction • Health and developmental screening • Information and referral • Peer support groups	Health Connect One Community-based Doula Model	Families in rural and inner city areas throughout the mid-South, including Appalachia and the deep South.	In 2004, we compared MIHOW Mississippi mothers to similar mothers and found that (N=?): • 90% began prenatal care in the first trimester, compared to 75% of pregnant women in Mississippi • 81% received adequate prenatal care, compared to 69% of Mississippi women • 7.7% gave birth to a low birth weight infant, compared to 14.3% statewide • 95.3% of participants eligible for WIC enrolled, compared to 75% statewide • Almost 90% of MIHOW infants were on schedule with recommended well-child visits

		Foundation W.K. Kellogg Foundation David and Lucile Packard Foundation Phoenix Health Care, Inc. Pritzker Early Childhood Foundation Shulman Foundation Bernard van Leer Foundation Vanderbilt University Whitley County, Kentucky Department of Health				at six and nine months • 98.5% secured some form of health insurance, compared to the national rate of 81.6% MIHOW mothers scored significantly higher on nationally recognized scales for mother-infant interaction, affection, and stimulation than comparison mothers, leading to . . . • greater sense of purpose • greater sense of hope • greater sense of control over their lives • deeper connection with their child MIHOW promotes sound health practices and preventive care during pregnancy, resulting in . . . • earlier prenatal care • more prenatal care visits • more needed vitamin and iron supplements • less smoking and caffeine consumption • better preparation for labor and delivery

						Children of MIHOW participants show developmental advantages in . . . • language usage • social skills MIHOW mothers are more likely to breastfeed, which can have far-reaching health benefits by . . . • promoting resistance to the most common diseases in infants • preventing lymphomas and diabetes in children • decreasing mothers' risk for breast and ovarian cancer Contact with outreach workers during the first three years of parenting leads to . . . • non-violent positive discipline • more timely immunizations for their children MIHOW mothers had fewer children than other mothers with similar backgrounds (controls). Case

						management and mentoring by peers helps to . . . • prevent teen pregnancies • delay second pregnancies • MIHOW participants are more likely to get help for themselves, increasing access to health and social services in isolated communities. Such preventive measures save money by . . . • spotting potential problems early • facilitating early intervention • preventing more expensive, acute problems

New Beginning Doula Program
 	
(Collaboration program involving University of Pittsburgh Medical Center Health Plan and community-based organization, The Birth Circle Doula Agency).
	Pittsburgh, PA	Health Plan paid Doula Agency a modified FFS; flat sum to try to engage pregnant woman; paid another flat amount if women enrolled in Doula program. Agency was also paid for meeting benchmarks (i.e., HEDIS measures).	The UPMC Health Plan Doula Program is embedded in their maternal case management program in 2006.
			
			Not able to find a detailed description of Doula services. Program "provides support to women before, during and after childbirth."
				Unknown	High risk women residing in a designated area of Pittsburgh. Initial program targeted women in the Braddock area. Program expanded to include Allegheny County.	Evaluation period:
						Oct 1, 2008 to May 31, 2010[1 2]
						• 1171 women referred to a Doula
						  ○ 490 (41.8%) accepted enrollment
						• 996 babies were born to women referred to the Doula program
						  ○ 439 babies born to women in program
						• Rate of postpartum visits
						  ○ 43.36% for women

		UPMC listed service as an administrative expense, not a medical payment during pilot.				enrolled in program ○ 35.77% for women who declined enrollment
Turtle Women Project/ Community Doula Program	American Indian Family Center serving American Indian and women of color in Ramsey County, MN	United Way; Minnesota Department of Health's Eliminating Racial and Ethnic Health Disparities Initiative; Third party billable contract with Ucare Minnesota (local health plan)--$350/birth involving 6 prenatal and 1 post partum visit by doula	• Culturally and linguistically appropriate training of women to be doulas • Community outreach to identify pregnant women and their families for services • Childbirth education • Doula visiting involving: ○ One-on-one prenatal education ○ Providing advocacy, support, culturally-responsive resources & referral information ○ Linking postpartum women and child with appropriate services for continued support ○ Building/developing/encouraging network or providers to provide culturally-responsive services beyond birth	Once trained, doulas complete at least 3 volunteer births before joining as a contractor to be paid; Doulas encouraged to pursue certification with DONA, but not required. DONA certified doulas received slightly higher rate for contracting with health plan. (AIFC helped initiate Spanish version of DONA certification process).	Ramsey County women of color and American Indian women	On average, the program served 120-140 women per year with over 92% of babies born at or above birth weight (5.8 lbs), a breastfeeding rate of ~85%, a vaginal delivery rate of ~70%, and no drug intervention for ~ 60% of women. Within a 6 year period, over 150 women of color and American Indian women were trained to be doulas. The Community Doula Program was the 2005 recipient of the Annie Kennedy Award from DONA International.

[1] UPMC New Beginning Doula Program Birth Weight Data. Summary of UPMC for a New Beginning Doula Program March 2, 2011.

Doula **Enrolled** Group	Low birth weight (<2,500 grams)	Premature birth (< 35 weeks gestation)	NICU admission
Caucasian	1.3% (13/996)	1.0% (10/996)	2.5% (25/996)
African American	3.7% (37/996)	1.5% (15/996)	3.7% (37/996)

Doula **Declined** Enrollment Group	Low birth weight (<2,500 grams)	Premature birth (< 35 weeks gestation)	NICU admission
Caucasian	1.6% (16/996)	0.5%(5/996)	3.5% (35/996)
African American	3.3% (33/996)	1.9% (19/996)	4.0% (40/996)

[2] UPMC for a New Beginning Doula Program Analysis January 7, 2011(Phase I and Phase II) is attached to this table

APPENDIX F: Partial List of Insurance Companies that Reimburse Doulas

Aetna Healthcare
AltPro
Baylor Health Care System/WEB TPA
Blue Cross/Blue Shield
Blue Cross/ Blue Shield PPO
Cigna
Degussa, a German Chemical Company
Elmcare, LLC, C/O North American Medical Management
Foundation for Medical Care
Fortis Insurance
Glencare Managed Health Inc.
Great-West Life & Annuity Ins. Co.
HNTB (Peoria, IL)
Houston New England Financial, Employee Benefits (Fort Scott, KS)
Humana Employers Health
Lutheran General Physician's Organization
Maritime Life
Medical Mutual
Oschner HMO, Louisiana
Professional Benefits Administrators
Prudential Healthcare
Qualchoice
Summit Management Services, Inc
Travelers
United HealthCare of Georgia (San Antonio, TX)
United Health POS
Wausau Benefits, Inc

COST BENEFIT ANALYSIS:

A cost benefit analytic model was designed comparing costs and neonatal outcomes for women receiving doula support during active labor and delivery to women undergoing routine obstetrical care. The probability and cost of uncomplicated vaginal delivery with and without analgesia, operative vaginal delivery, cesarean delivery, and Neonatal Intensive Care Unit (NICU) admissions based upon APGAR scores were incorporated into the model as well as outcomes related to mode of delivery and neonatal morbidity. Publicly funded doula care resulted in cost savings to the payer when doula costs were below $159.73 per delivery. Above this amount a cost benefit is not realized, however, per 47,000 live births, (the number of births annually in Oregon), providing doula care reduces NICU admissions by 51, cesarean deliveries by 940, and obstetrical vaginal deliveries by 470, and increases spontaneous vaginal deliveries by 1,140. There are multiple other benefits to this program that were unable to be incorporated into this model at this time such as maternal preference, breastfeeding initiation/continuation rates and repeat c-section morbidity and mortality. These should be considered in state decision making as well.

Pilliod R, Tilden E, Leslie J, Caughey A. Oregon Health and Science University, Dept. of ObGyn and School of Midwifery. 2012 for committee.

Figure 1.

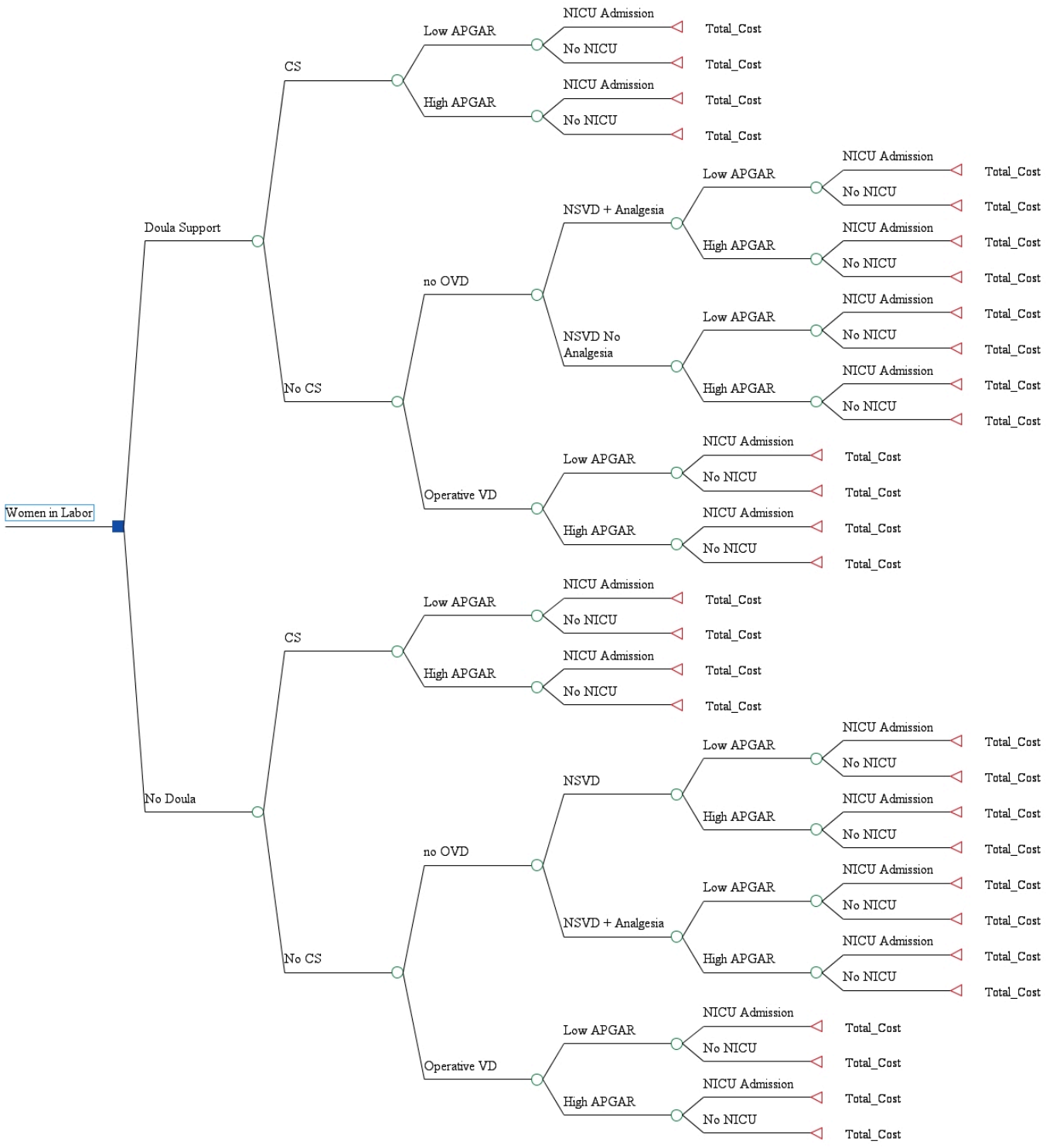

Women in Labor
Doula Support
No Doula
CS
No CS
Low APGAR
High APGAR
no OVD
Operative VD
NSVD + Analgesia
NSVD No Analgesia
NSVD
NICU Admission
No NICU
Total_Cost

Table 1.

Model Inputs		
Probabilities		**Source**
Spontaneous Vaginal Delivery		Hodnett, 2011
• With Doula Support • Without Doula Support	0.708608321 0.677043355	
Cesarean Delivery		Hodnett, 2011
• With Doula Support • Without Doula Support	0.133715925 0.153539949	
Operative Vaginal Delivery		Hodnett, 2011
• With Doula Support • Without Doula Support	0.181922525 0.200312767	
Any Intrapartum Analgesia		Hodnett, 2011
• With Doula Support • Without Doula Support	0.277152318 0.761135585	
Low APGAR (<7)		Hodnett, 2011
• With Doula Support • Without Doula Support	0.009165461 0.014073115	
NICU Admission (APGAR <7)	0.2564	National Center for Health Statistics, 2008
NICU Admission (APGAR >7)	0.0287	National Center for Health Statistics, 2008
Costs (adjusted to 2011 dollars)		
Spontaneous Vaginal Delivery	$4822	DMAP
Cesarean Delivery	$7680	DMAP
Operative Vaginal Delivery	$5708.88	DMAP, OHSU Data
Intrapartum Analgesia	216.04	Tan, 2010
NICU cost/day	$3518.60	Adams, 2011
NICU average length of stay	6	Ross, 1999

Figure 2.

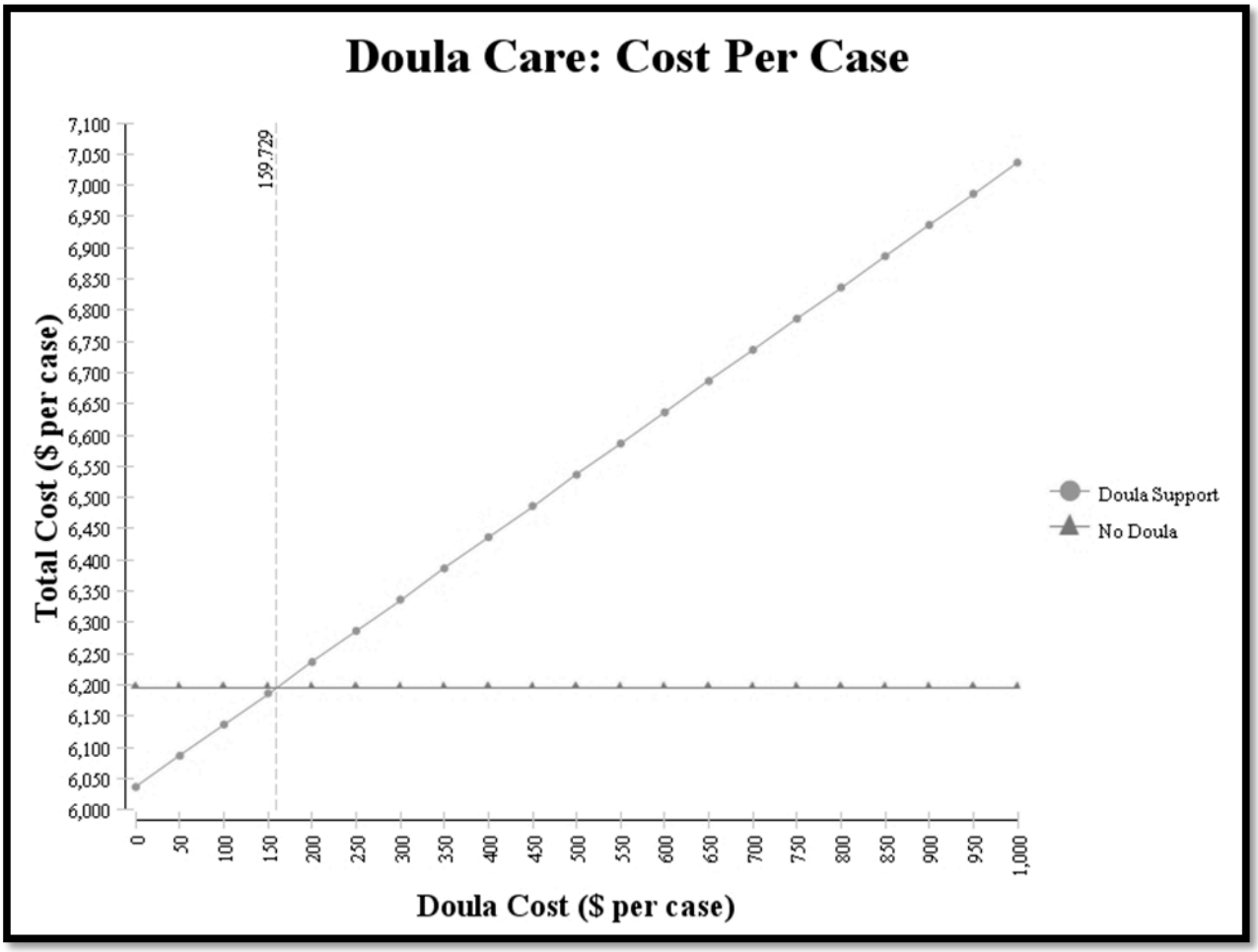


Table 2.

Obstetrical and Neonatal Outcomes (per 47,000 live births)			
	Doula	Routine Care	Difference
Spontaneous Vaginal Deliveries	33,370	31,960	1,410
Cesarean Deliveries	6,110	7,050	-940
Operative Vaginal Deliveries	7520	7990	-470
NICU Admissions	1410	1410	-51

References:

1. Adams EK, et al. Infant Delivery Costs Related to Maternal Smoking: An Update. *Nicotine & Tobacco Research*, Volume 13, Number 8 (August 2011) 627-637.
2. Hodnett ED, et al. Continuous Support for Women During Childbirth: A Review. The *Cochrane Library*. 2011
3. National Center for Health Statistics, Birth Certificate Data from 2008, accessed Jan. 2012.
4. Ross MG, et al. *Am J Obstet Gynecol* 1999;181:835-42.
5. Tan et al. BMC *Pregnancy and Childbirth* 2010, 10:3.