



MN Community Measurement Prenatal & Perinatal Care Impact and Recommendation Document June 2010

<p>Degree of Impact</p> <p>Relevance to Consumers, Employers and Payers</p>	<p>Safe and healthy pregnancies and births are a primary goal for society and particularly for expectant mothers and their families, healthcare providers, and payers. While many births are positive experiences with healthy outcomes, childbirth also brings substantial risks for both the mother and the infant.</p> <p>For consumers, Minnesota lacks publicly reported maternity measures to aid and inform decision making. Several other states have public reporting for maternity care measures, most commonly cesarean section (c-section) and vaginal birth after c-section delivery (VBAC) rates due to the high volume, high costs and increased morbidity associated with c-section procedures.</p> <p>Recently, new clinical guidelines offering more direction regarding the care and management of pregnant women and childbirth have been accompanied by increased quality measures that can be used to highlight variation and underscore appropriate maternal care.</p> <p>Prevalence and statistics</p> <ul style="list-style-type: none"> • There were 4.2 million live births in the US in 2006 with 73,500 live births in Minnesota.¹ • Minnesota-specific statistics from the MDH Center for Health Statistics, April 2009:² <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #333; color: white;"> <th>Minnesota Statistics</th> <th>1992</th> <th>1997</th> <th>2002</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Number of births</td> <td>65,591</td> <td>64,491</td> <td>68,037</td> <td>73,675</td> </tr> <tr> <td style="text-align: left;">Birth rate per 1,000 population</td> <td>14.7</td> <td>13.8</td> <td>13.6</td> <td>14.2</td> </tr> <tr> <td style="text-align: left;">Percent who smoked</td> <td>15.2%</td> <td>12.9%</td> <td>10.5%</td> <td>9.8%</td> </tr> <tr> <td style="text-align: left;">Prenatal care in first trimester</td> <td>81.8%</td> <td>84.1%</td> <td>85.5%</td> <td>85.8%</td> </tr> <tr> <td style="text-align: left;">Cesarean rate</td> <td>16.6%</td> <td>17.3%</td> <td>22.4%</td> <td>26.4%</td> </tr> <tr> <td style="text-align: left;">Low birth weight (less than 2,500g)</td> <td>5.2%</td> <td>5.9%</td> <td>6.3%</td> <td>6.8%</td> </tr> <tr> <td style="text-align: left;">Prematurity (less than 37 weeks)</td> <td>8.2%</td> <td>8.9%</td> <td>9.5%</td> <td>10.8%</td> </tr> <tr> <td style="text-align: left;">Neonatal deaths per 1000 births (0-28 days)</td> <td>4.5</td> <td>3.7</td> <td>3.5</td> <td>3.8</td> </tr> </tbody> </table> <p>Other rates and trends</p> <ul style="list-style-type: none"> • Labor induction rates have doubled nationally since 1990 and are 22% nationally • Birth trauma (as defined by AHRQ’s Patient Safety Indicators) occurs in approximately 2.45 out of every 1,000 births • 4 of the top 10 most common procedures performed in hospitals are related to childbirth • Pregnancy/prenatal care is the 4th most common reason for an outpatient visit.³ <p>Costs</p> <ul style="list-style-type: none"> • The cost per delivery varies - approximate costs range from about \$7,000 for an uncomplicated vaginal birth with to \$14,000 for a complex c-section delivery⁴ • Total U.S. health care costs for pregnancy and childbirth totaled over \$34 billion in 2007⁵ • 37% of births in Minnesota are covered by Medicaid⁶ <p>Definitions</p> <ul style="list-style-type: none"> • Perinatal care is care given “around the time of birth” and includes the third trimester (from the 28th week of gestation) to one month after birth • Prenatal care is care given before childbirth includes after the start of pregnancy and before childbirth 	Minnesota Statistics	1992	1997	2002	2007	Number of births	65,591	64,491	68,037	73,675	Birth rate per 1,000 population	14.7	13.8	13.6	14.2	Percent who smoked	15.2%	12.9%	10.5%	9.8%	Prenatal care in first trimester	81.8%	84.1%	85.5%	85.8%	Cesarean rate	16.6%	17.3%	22.4%	26.4%	Low birth weight (less than 2,500g)	5.2%	5.9%	6.3%	6.8%	Prematurity (less than 37 weeks)	8.2%	8.9%	9.5%	10.8%	Neonatal deaths per 1000 births (0-28 days)	4.5	3.7	3.5	3.8
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<p>Degree of Improvability</p>	<p>NQF released a set of voluntary consensus standards in 2008 in which they stated, “Morbidity and mortality associated with pregnancy and childbirth remain substantial and, research suggests, are to</p>																																													

a large extent preventable through adherence to existing evidence-based guidelines.” Many recent research projects have focused on evaluation of guideline care and quality improvement in pregnancy and childbirth:

- Elective delivery prior to 39 weeks is associated with negative birth outcomes.⁷ A recent quality improvement project with over 20 hospitals demonstrated a reduction in elective deliveries in the 36-38 week range from 25% to 5%.⁸
- Preventable birth trauma can be reduced in facilities employing appropriate care standards.⁹ However, many factors impact the likelihood that birth trauma will be sustained – including route of delivery, and fetal distress – and recent studies have highlighted some limitations in its efficacy as a quality indicator.^{10,11}
- Other research projects and quality improvement programs designed to decrease elective inductions, lower adverse events, and improve maternal and new born safety have shown to have positive impacts on perinatal outcomes.^{12,13,14,15}

Degree of Inclusiveness

Childbirth affects all populations of people of childbearing age, but disparities in both the processes and outcomes of care received vary by race:

- In Minnesota, the percentage of women receiving prenatal care in the first trimester varies by race. African American women had a rate of 74.5% and Hispanic women had a rate of 72.1% compared with 90.4% of white women.¹⁶
- Racial disparities for African Americans are of particular note:^{17,18,19}
 - African American (or non-Hispanic Black) women have a 2.2 fold increased risk of stillbirth compared to White women
 - The maternal mortality rate is 3-4 times higher for African American women than Hispanic and White women at 36.1 maternal deaths per 1,000 in 2004
 - The infant mortality rate for African American women in Minnesota was also greater at 8.9 infant deaths per 1,000 births compared to 4.3 infant deaths per 1,000 for White women.
- C-section trends vary by race as well, with African American and Latina women having an increased likelihood of having a cesarean section.²⁰

Fit with National, Regional, and Local Priorities

NATIONAL

- The American College of Obstetricians and Gynecologists (ACOG) have several practice bulletins on many aspects of perinatal care including recommendations on induction of labor, induction of labor after c-section delivery, appropriate use of APGAR scores, guidelines for maternal request for c-section, and many others.
- The Department of Health and Human Service’s Healthy People 2020 has several proposed goals for perinatal care including: Reduce maternal and infant deaths, increase proportion of pregnant receiving early and adequate prenatal care, reduce c-sections for low-risk women, reduce low birth weight and pre-term births, decrease supplemental feeding with formula in the first two days of life, and many others.²¹
- US Preventative Services Task Force makes recommends the following (many recommendations are currently under revision and reconsideration): Counseling to promote breastfeeding (Oct 2008), strongly recommends Rh (D) blood typing and antibody testing for all pregnant women (Feb 2004), and recommends repeated Rh (D) antibody testing for all unsensitized Rh (D)-negative women at 24-28 weeks gestation (Feb 2004).
- The Childbirth Connection released a 2008 report based on research and evidence-based practice review citing several overused interventions (labor induction, epidurals, c-sections, etc.) while also citing underused interventions (midwifery and family physicians, smoking

	<p>cessation interventions, delayed cord clamping, etc.).²²</p> <p>LOCAL</p> <ul style="list-style-type: none"> - ICSI: There are ICSI guidelines available for both routine prenatal care (updated August 2009) and the management of labor (updated May 2009). Both guidelines include recommendations for measures to assess the adherence to the guidelines (listed below). - Baskets of care: The MN Department of Health final rule for the Obstetric Baskets of Care (March 2010) includes the following measures for prenatal care: tobacco use status assessment and referral for counseling, drug and alcohol assessment and referral for counseling, labs completed as appropriate, body mass index assessed and counseling as indicated, and depression assessment and follow-up as indicated.
<p>Performance Variation</p>	<p>FACILITY LEVEL VARIATION</p> <p>Several states report maternity measures by hospital. All demonstrate variation at the facility level. Examples from three reports:^{23,24,25}</p> <ul style="list-style-type: none"> - California: Breastfeeding at discharge rates in 2007 by facility range from 4% to 95% - Florida: Length of stay (risk adjusted for 2008-2009) range of 1.5 days to 2.7 days - Massachusetts: 2008 C-section rates by facility range from 16.2% to 47.4% <p>Nationally, HealthGrades displays a “maternity care” rating by facility that includes volume of vaginal and cesarean section births and incorporates complications, elective c-section complications and newborn mortality rates.</p> <p>PROVIDER LEVEL VARIATION</p> <p>Provider specific traits play a large role in differences in maternity care. Physician practice style and beliefs impact c-section rates, which can vary greatly by provider, region and specialty.^{26,27,28,29} In addition, provider attitudes and beliefs towards episiotomy have also been associated with patient outcomes.³⁰</p> <p>AHRQ’s neonatal birth trauma Patient Safety Indicators were in part chosen because they are considered modifiable from a change in physician practice.³¹</p>
<p>Existing Measures at a National and Local Level</p>	<p>NQF released a set of consensus standards for Perinatal Care in 2008. They include both process and outcome measures:</p> <ul style="list-style-type: none"> o Elective delivery prior to 39 weeks gestation (NQF 469) o Incidence of episiotomy (NQF 470) o Cesarean rate for low-risk first birth women (NQF 471) o Prophylactic antibiotic in c-section (NQF 472) o Appropriate DVT prophylaxis in women undergoing cesarean delivery (NQF 473) o Birth trauma rate measures (harmonized) (NQF 474) o Hepatitis B vaccine administration to all newborns prior to discharge (NQF 475) o Appropriate use of antenatal steroids (NQF 476) o Infants under 1500g delivered at appropriate site (NQF 477) o Nosocomial blood stream infections in neonates (NQF 478) o Birth dose of hepatitis B vaccine and hepatitis immune globulin for newborns of mothers with chronic hepatitis B (NQF 479) o Exclusive breastfeeding at hospital discharge (NQF 480) o Paired measure: First temperature within one hour of admission to NICU (NQF 481) and first NICU temperature <36°C (NQF 482) o Retinopathy of prematurity screening (NQF 483) o Timely surfactant administration to premature neonates (NQF 489) o Neonatal immunization (NQF 145)

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**Existing Measures
at a National and
Local Level**

The National Quality Measures Clearinghouse lists additional prenatal and perinatal measures:

- Frequency of ongoing prenatal care: percentage of Medicaid deliveries between November 6 of the year prior to the measurement year and November 5 of the measurement year that received less than 21%, 21% to 40%, 41% to 60%, 61% to 80%, or greater than or equal to 81% of the expected number of prenatal care visits. NCQA 2008 Jul. [Update Pending]
- HIV: percentage of pregnant women with counseling offered and testing performed during the prenatal period. New York State Department of Health AIDS Institute. 2004 Jun.
- Iatrogenic pneumothorax in non-neonates: rate per 1,000 eligible admissions. AHRQ 2008 Feb. [Update Pending]
- Low birth weight rate (AHRQ – updated Feb 2008)
- Management of labor: percentage of births with amnioinfusion when either of the following is present: thick meconium or repetitive severe variable decelerations or oligohydramnios. ICSI 2009 May.
- Management of labor: percentage of women in the guideline population who have spontaneous rupture of membranes (SROM) or early amniotomy. ICSI 2009 May.
- Management of labor: percentage of women in the guideline population with failure to progress diagnosis who have oxytocin. ICSI 2009 May.
- Management of labor: percentage of women who are assessed for risk status on entry to labor and delivery. ICSI 2009 May.
- Maternity care: vaginal birth after Cesarean (VBAC) rate, all. AHRQ 2008 Feb [Update Pending]
- Maternity care: vaginal birth after Cesarean (VBAC) rate, uncomplicated AHRQ 2008 Feb.
- Neonatal infections: percentage of babies of birth weight less than 1000 grams admitted to the neonatal intensive care unit (NICU) during the time period under study who have a significant blood infection occurring more than 48 hours after birth at any time during their whole admission. Australian Council on Healthcare Standards. 2009 Jan.
- Neonatal infections: percentage of babies of greater than or equal to 1000 grams birth weight, admitted to the neonatal intensive care unit (NICU) during the time period under study who have a significant blood infection occurring more than 48 hours after birth at any time during their whole admission. Australian Council on Healthcare Standards. 2009 Jan.
- Neonatal infections: percentage of live babies born at the reporting hospital who develop blood stream and/or cerebrospinal fluid (CSF) infection within 48 hours of birth and who were born in the 6 month time period. Australian Council on Healthcare Standards. 2009 Jan.
- Neonatal infections: percentage of live babies of greater than or equal to 37 weeks estimated gestational age at birth (GA) born at the reporting hospital who develop a blood and/or cerebrospinal fluid (CSF) infection within 48 hours of birth and who were born in the 6 month time period. Australian Council on Healthcare Standards. 2009 Jan.
- Neonatal infections: percentage of significant blood infections in neonatal intensive care unit (NICU) admitted babies of greater than or equal to 1000 grams birth weight, occurring more than 48 hours of birth, during the 6 month time period. Australian Council on Healthcare Standards. 2009 Jan
- Neonatal infections: percentage of significant blood infections in neonatal intensive care unit (NICU) admitted babies of less than 1000 grams birth weight, occurring more than 48 hours of birth, during the 6 month time period. Australian Council on Healthcare Standards. 2009 Jan.
- Obstetric trauma (3rd or 4th degree lacerations): rate per 1,000 instrument-assisted vaginal deliveries (AHRQ updated Mar 2008) – **THIS MEASURE IS PLANNED FOR REPORTING IN 2011**
- Obstetric trauma (3rd or 4th degree lacerations): rate per 1,000 vaginal deliveries WITHOUT instrument-assistance (AHRQ updated Mar 2008) – **THIS MEASURE IS PLANNED FOR REPORTING IN 2011**
- Obstetrics: percentage of deliveries with birth weight less than 2750g at 40 weeks gestation

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**Existing Measures
at a National and
Local Level**

- or beyond. Australian Council on Healthcare Standards 2009 Jan.
- Obstetrics: percentage of high risk women undergoing caesarean section who receive appropriate pharmacological thromboprophylaxis. Australian Council on Healthcare Standards. 2009 Jan.
- Obstetrics: percentage of inborn term babies transferred/admitted to a neonatal intensive care nursery or special care nursery for reasons other than congenital abnormality. Australian Council on Healthcare Standards. 2009 Jan.
- Obstetrics: percentage of selected primipara who have a spontaneous vaginal birth. Australian Council on Healthcare Standards. 2009 Jan.
- Obstetrics: percentage of selected primipara who undergo an instrumental vaginal birth. Australian Council on Healthcare Standards. 2009 Jan.
- Obstetrics: percentage of selected primipara who undergo induction of labour. Australian Council on Healthcare Standards. 2009 Jan.
- Obstetrics: percentage of selected primipara with an intact perineum. Australian Council on Healthcare Standards 2009 Jan.
- Obstetrics: percentage of serious adverse events that are addressed within a peer review process. Australian Council on Healthcare Standards 2009 Jan.
- Obstetrics: percentage of term babies born with an Apgar score of less than 7 at five minutes post delivery. Australian Council on Healthcare Standards. 2009 Jan.
- Obstetrics: percentage of women having a general anaesthetic for caesarean section. Australian Council on Healthcare Standards. 2009 Jan.
- Obstetrics: percentage of women who give birth vaginally who require a blood transfusion during the same admission. Australian Council on Healthcare Standards 2009 Jan.
- Obstetrics: percentage of women who undergo a caesarean section who require a blood transfusion during the same admission. Australian Council on Healthcare Standards 2009 Jan.
- Perinatal care: percentage of high-risk newborns with staphylococcal and gram negative septicemias or bacteremias. Joint Commission, The. 2010 Jan.
- Pregnancy and related conditions: percent of live-born neonates who expire before the neonate becomes age 28 days. Joint Commission, The. 2008 Oct.
- Pregnancy and related conditions: percent of patients with vaginal birth after cesarean section (VBAC). Joint Commission, The. 2008 Oct.
- Prenatal care: percentage of D (Rh) negative, unsensitized patients, regardless of age, who gave birth during a 12-month period who received anti-D immune globulin at 26-30 weeks gestation. Physician Consortium for Performance Improvement®. 2007 Sep.
- Prenatal care: percentage of patients, regardless of age, who gave birth during a 12-month period who were screened for HIV infection during the first or second prenatal care visit. Physician Consortium for Performance Improvement®. 2007 Sep.
- Routine prenatal care: percentage of all identified preterm birth (PTB) modifiable risk factors assessed that receive an intervention. ICSI 2009 Aug.
- Routine prenatal care: percentage of pregnant women who report to have received counseling and education by the 28th week visit. ICSI 2009 Aug.
- Routine prenatal care: percentage of vaginal birth after cesarean (VBAC)-eligible women who receive general education describing risks and benefits of VBAC (e.g., the American College of Obstetricians and Gynecologists pamphlet on VBAC). ICSI 2009 Aug.
- Timeliness of prenatal care: percentage of deliveries that received a prenatal care visit as a member of the organization in the first trimester or within 42 days of enrollment in the organization. NCQA 2008 Jul. [Update Pending]
- Transfers to a NICU for reasons other than congenital abnormalities. Australian Council on Healthcare Standards Jan 2009.

Other measures:

	<ul style="list-style-type: none"> ○ Prenatal care indices are available for quantifying the amount and types of prenatal care women receive.^{32,33,34} ○ An ideal delivery rate was used to assess the number of births without complications in a California project – researchers found a 78.5% rate (after a review of 380,000 records) with facility level variance from 24% - 92%.³⁵ ○ Adverse outcome indices are also available from a variety of sources that attempt to combine and/or weight scoring of negative birth outcomes in order to provide more specificity to perinatal measurement.
<p>Enhance the patient/ provider relationship</p>	<p>The prenatal care period is an opportunity for patients and providers to experience an enhanced relationship. During this time, several opportunities arise for counseling and education as well as discussions about values, beliefs, fears, and expectations. There are guidelines and measures that support the fostering of education and discussion between providers and their patients. Many of these include a focus on education for smoking cessation, alcohol use, screenings and benefits from screenings, breastfeeding, and others.</p>
<p>Considerations for Recommendation Feasibility (resources, barriers, culture)</p>	<p>Due to the numbers of live births, lack of meaningful Minnesota-specific measures, and the many areas for potential improvement in the adherence to clinical guideline recommendations, the MN Community Measurement recommendation is to form a multi-stakeholder technical advisory group to investigate adoption or creation of a prenatal / perinatal measure or group of measures for development. The workgroup should consider as in scope:</p> <ul style="list-style-type: none"> • Inclusion of both the prenatal and perinatal periods (from the onset of pregnancy through childbirth and up to one month after delivery) • Attribution at the provider and medical group level as well as facility level measures • Data sources from medical claims at health plans, facility clinical data in medical charts or electronic health records, and provider-level data from medical charts or electronic health records <p>While there are many types of measures for potential consideration (e.g. process measures, outcome measures, composite all-or-none measures, and composite weighted measures), the technical advisory group should consider the development of a suite of measures that encompass both processes of care and care outcomes in order to fully capture the care spectrum associated with pregnancy and childbirth.</p> <p>Further recommendations for the workgroup:</p> <ul style="list-style-type: none"> • Consideration of maternity care measures should include common risk adjustment factors that are known to impact birth outcomes. These factors should include: race, number of previous births, age, body mass index, and multiple births. • Consideration should also be given to the many complicating factors that impact perinatal care and outcomes including: BMI, pre-eclampsia, gestational diabetes, twins and multiple births, smoking and alcohol use, and HIV status.

- ¹ Births and Natality webpage from the CDC. Accessed on-line at: <http://www.cdc.gov/nchs/fastats/births.htm>. April 28, 2010.
- ² Statistics from the Minnesota Department of Health Center for Health Statistics. Minnesota Vital Signs: 5(1); April 2009.
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- ⁴ Sakala C, Corry MP. Evidenced-Based Maternity Care: What it is and what it can achieve. Published in 2008 by the Millbank Memorial Fund, New York.
- ⁵ Levit K (Thomson Reuters), Wier L (Thomson Reuters), Stranges E (Thomson Reuters), Ryan K (Thomson Reuters), Elixhauser A (AHRQ). *HCUP Facts and Figures: Statistics on Hospital-based Care in the United States, 2007*. Rockville, MD: Agency for Healthcare Research and Quality, 2009 (<http://www.hcup-us.ahrq.gov/reports.jsp>).
- ⁶ Kaiser Family Foundation Report. State Medicaid Coverage of Perinatal Services: Summary of State Survey Findings, November 2009. Accessed on-line at: www.kff.org May 4, 2010.
- ⁷ Bailit JL, Gregory KD, Reddy UM, et al. Maternal and neonatal outcomes by labor onset type and gestational age. *Am J Obstet Gynecol* 2010;202:245.e1-12.
- ⁸ Ohio Perinatal Quality Collaborative Writing Team. A statewide initiative to reduce inappropriate scheduled births at 360/7–386/7 weeks' gestation. *Am J Obstet Gynecol* 2010;202:243.e1-8.
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- ¹⁶ Kaiser Family Foundation State Health Facts website. Accessed on-line at: <http://www.statehealthfacts.org/profileind.jsp?ind=45&cat=2&rgn=25&cmprgn=1>. April 28, 2010.
- ¹⁷ Healthy People website. Accessed on-line at: www.healthypeople.gov. May 4, 2010.
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