Geographic Variations in Maternity Care

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Committee on Geographic Variation
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Thank you for the opportunity to speak to you today.

The American College of Nurse-Midwives is the oldest women's health organization in the United States, with roots dating back to 1929. Our members -- certified nurse-midwives (CNMs) and certified midwives (CMs) -- attended 316,811 births in the US in 2008, 91.7% of which were in hospitals.[1] This represents 8.0% of all births in the US.

In presenting this testimony today, we gratefully acknowledge the work of Childbirth Connection. Their "Transforming Maternity Care" initiative is a seminal and comprehensive compendium on the current state of maternity care in the US and how to fix it, and much of the data provided in this testimony was compiled in that initiative. The project includes the outstanding Milbank Report, "Evidence-Based Maternity Care: What it Is and What it Can Achieve," and "Blueprint for Action: Steps toward a High-Quality, High-Value Maternity Care System."[2,3] Other organizations leading the way include the March of Dimes, Amnesty International, Lamaze International, and the National Quality Forum.

Birth is one of a handful of life events we all have in common. In 2008, there were more than 4.2 million births in the US.[4] Maternity care accounts for nearly one in four hospital discharges and represents the most common and costly hospital condition paid for by either Medicaid or private insurers. So it is surprising how comparatively little attention has been paid to perinatal care as a priority for quality improvement. While most Americans believe that the outcomes of childbirth continue to improve in this country, in the past 20 years, maternal mortality has increased and the nation's preterm birth and low birthweight rates have increased. The use of surgical and medical interventions without indication has increased, and costs have skyrocketed. Nationwide, there are significant variations in clinical practices, cost, and outcomes, with little or no relationship to clinical status.

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[1] Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F, Kirmeyer S, Matthews TJ, Kirmeyer S, Osterman MJK. Births: Final data for 2007. National vital statistics reports; vol 58 no 24. Hyattsville, MD: National Center for Health Statistics. 2010.

[2] Sakala C, Corry MP. Evidence-based maternity care: What it is and what it can achieve. New York: Milbank Memorial Fund; 2008;Available at http://www.milbankmemorialfund.org/reporderframe.html.

[3] Jolivet, R, Sakala C, Corry MP, et.al. Blueprint for Action: Steps Toward a High-Quality, High-Value Maternity Care System. Peter B. Angood, Elizabeth Mitchell Armstrong, Diane Ashton, Helen Burstin, Maureen P. Corry, Suzanne F. Delbanco, Barbara Fildes, Daniel M. Fox, Paul A. Gluck, Sue Leavitt Gullo, Joanne Howes, R. Rima Jolivet, Douglas W. Laube, Donna Lynne, Elliott Main, Anne Rossier Markus, Linda Mayberry, Lynn V. Mitchell, Debra L. Ness, Rachel Nuzum, Jeffrey D. Quinlan, Carol Sakala, Alina Salganicoff. Women's health issues: official publication of the Jacobs Institute of Women's Health 1 January 2010 (volume 20 issue 1 Pages S18-S49.

[4] Hamilton BE, Martin JA, Ventura SJ. Births: Preliminary Data for 2008. *National Vital Statistics Reports* 58(16) Hyattsville, Maryland: National Center for Health Statistics, April 2010.

The Problems

For up-to-date statistics on maternity care in the US, including preterm birth rates, cesarean section rates, maternal mortality, and associated costs, please see the attached fully referenced resources, Childbirth Connection's "United States Maternity Care Facts and Figures, December 2010," and Amnesty International's "Deadly Delivery: The Maternal Health Care Crisis in the USA (Summary)." In particular, we highlight the following:

- The 2009 cesarean rate of 32.9% was the 13th consecutive year of increase and marked an all-time US record high. In 2008 the rate varied across states from 22%-38%. Cesarean section is now the most common operating room procedure in the US. In some hospitals, c-section rates as high as 75% have been reported.
- Preterm births have also been rising in the past 20 years, with 2008 state rates ranging from 9.2%-18.3%. Much of the increase is in the late preterm birth category (34-36 weeks) and has been attributed to elective inductions of labor.
- The rate of low birthweight has also been rising over a quarter century, from 6.7% to 8.2% in 2008. State rates range from 5.7% to 12.3%. Non-Hispanic black infants experience much higher rates of both preterm birth and low birthweight compared to other ethnicities.
- Maternal mortality doubled from 1987 to 2006. Women in the US have a higher risk of dying of pregnancy-related complications than in 40 other countries. Reporting changes account for some of this increase, but does not fully explain these changes.

These trends are alarming. We urgently need greater use of evidence-based protocols and the implementation of standardized data collection and aggregation, and quality measurement in perinatal care—to include maternal outcomes and the long-term effects of maternity care practices on maternal and child health, breastfeeding, mental health, and family function. With diagnosis and outcome culminating in less than nine months, pregnancy and childbirth offer a perfect laboratory for implementing quality improvement interventions and measuring the results. In health systems where national perinatal quality measures are in use, we've seen immediate marked improvement in clinical practice, maternal and newborn outcomes, patient satisfaction, and reduced cost.

The Cost

Maternity care in the US is a costly proposition. However, because Medicare is not the primary payer, maternity care has not been an area of national focus, and national data are difficult to come by. But it can and should be, and the rewards would be great—not only in terms of improved childbirth outcomes but also in dramatic reductions in cost. The following highlighted (also fully referenced on Childbirth Connection's "United States Maternity Care Facts and Figures, December 2010") demonstrate why:

- Medicaid pays for more than 40% of all maternal childbirth-related hospital stays, and these account for the two most common conditions billed to Medicaid in 2007, comprising 53% of Medicaid discharges.
- Private health plans pay for 52% of all maternal childbirth-related hospital stays were billed to private insurers. These charges comprised 35% of discharges billed to private insurance.
- We spend nearly twice as much for both vaginal and cesarean births as the next most expensive country. In 2008, facility charges billed for "mother's pregnancy and delivery" and "newborn infants" far exceeded charges for any other hospital condition.[5]

Significant Geographic, Institutional, and Provider Variation

Non-clinical factors rather than clinical factors appear to be driving the trends noted above and the variations in care and outcomes for women and their newborns. Here are just a few of the variations reported:

- **Induction Rates**. Rates of induction of labor vary significantly with little or no relation to the needs of mothers and newborns. A 16-hospital study of more than 31,000 births found that 21% of births were induced—25% for no apparent reason. Hospital induction rates varied fourfold and provider rates varied sevenfold. The proportion with no apparent medical rationale varied across hospitals (from 12-55%) and across providers in hospitals (3-76%).[6]
- **Cesarean Section**. A study published in 2006 found that risk-adjusted c-section rates in the largest US counties varied more than fourfold; the supply of providers and health systems, malpractice pressures and practice style accounted for most of this variation. [7] A 2004 study of 250,000 births found a 200-300 percent variation in c-section rates and an "almost random pattern of decision making."[8]
- **Elective Deliveries.** Purchasers are waking up to the health risks and costs associated with non-medically indicated labor inductions and cesarean sections. In 2009, the Leapfrog Group, a non-profit organization that compares hospitals on national standards of safety and quality, began to focus on "elective deliveries." Hospitals were asked to voluntarily report their rate of elective deliveries before 39 completed weeks of pregnancy, defined as the percentage of non-medically indicated births between 37 and 39 weeks gestation. Hospitals are then rated against a benchmark rate of 12%. While many hospitals declined to respond, hospitals who have responded are rated as "better than target" or "worse than target" in a public section of Leapfrog Group

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[5] Childbirth Connection. 2010. Average Maternity Services Payments, United States and Other Countries, 2010. Available at http://childbirthconnection.org/article.asp?ck=10647 (accessed January 26, 2011).

[6] Glantz, J.C. 2003. Labor Induction Rate Variation in Upstate New York: What Is the Difference? Birth 30(3): 168-74. doi:10.1046/j.1523-536X.2003-00241.x. Available at http://dx.doi.org/10.1046/j.1523-536X.2003.00241.x (accessed January 16, 2011).

[7] Baicker, K., K.S. Buckles, and A.Chandra. 2006. Geographic Variation in the Appropriate Use of Cesarean Delivery. *Health Affairs* 25(5):w355-w367. doi:10.1377/hlthaff.25.w355. Available at http://dx.doi.org/10.1377/hlthaff.25.w355 (accessed January 16, 2011).

[8] Clark, S.L., M.A. Belfort, G.D.V. Hankins, J.A. Meyers, and F.M. Houser, 2007. Variation in the Rates of Operative Delivery in the United States. *American Journal of Obstetrics and Gynecology* 196(6):526 e1-526.e5. Available at http://journals.elsevierhealth.com/periodicals/ymob/home (accessed January 16, 2011).

website.[9] This type of reporting and transparency—made possible by the National Quality Forum endorsement of standardized national quality measures for perinatal care—will help to significantly expand our understanding of the current state of maternity care in this country; the degree of geographic, institutional, and provider variation; and additional data on how to improve maternity care outcomes.

The January 2011 Leapfrog Group press release announcing release of the survey data is entitled "Newborn Deliveries Are Scheduled Too Early, According to Hospital Watchdog Group," with the subtitle, "Leapfrog Announces Call to Action: Protect Mothers and Babies from Unnecessary Harm." The announcement asserts that "thousands of babies are electively scheduled for delivery too early, resulting in a higher likelihood of death, being admitted to a Neonatal Intensive Care Unit (NICU), and life-long health problems." [10]

The Lamaze International website[11] advises consumers:

"A growing body of research shows that among the most important factors influencing a woman's risk of obstetric interventions, especially cesarean surgery and episiotomy, are where and with whom she gives birth. A recent study of over 41,000 low-risk women having their first babies in 20 California hospitals found cesarean rates for this population ranging from 11% -30%. Statistical analysis revealed that obstetric practices -not clinical or demographic factors -accounted for over half of the variation across hospitals.[12] Two studies conducted in Washington State found that the individual physician was an independent risk factor for cesarean section in both induced and spontaneous labors.[13, 14] Several studies have shown that episiotomy is more common in private obstetric practices versus public or university-affiliated practices.[15,16, 17] Rates varied from

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[9] The Leapfrog Group. 2011. Hospital Rates of Early Scheduled Deliveries. Available at http://www.leapfroggroup.org/tooearlydeliveries (accessed January 26, 2011).
[10] The Leapfrog Group. 2011. Newborn Deliveries Are Scheduled Too Early, According to Hospital Watchdog Group. Available at http://www.leapfroggroup.org/news/leapfrog_news/4788210 (accessed January 26, 2011).
[11] Why Transparency in Maternity Care Matters: A Fact Sheet for Birth Advocates," Available at http://www.lamaze.org/Advocacy/BirthNetworksOrganizingYourCommunity/ToolsTipsandResources/WhyTransparencyMatters/tabid/530/Default.aspx (accessed January 16, 2011).
[12] Main, E. K., Moore, D., Farrell, B., Schimmel, L. D., Altman, R. J., Abrahams, C., et al. (2006). Is there a useful cesarean birth measure? Assessment of the nulliparous term singleton vertex cesarean birth rate as a tool for obstetric quality improvement. *American Journal of Obstetrics and Gynecology, 194*(6), 1644-51.
[13] Luthy, D. A., Malmgren, J. A., & Zingheim, R. W. (2004). Cesarean delivery after elective induction in nulliparous women: The physician effect. *American Journal of Obstetrics and Gynecology, 191*(5), 1511-1515.
[14] Luthy, D. A., Malmgren, J. A., Zingheim, R. W., & Leininger, C. J. (2003). Physician contribution to a cesarean delivery risk model. *American Journal of Obstetrics and Gynecology, 188*(6), 1579-85; discussion 1585-7.
[15] Goode, K. T., Weiss, P. M., Koller, C., Kimmel, S., & Hess, L. W. (2006). Episiotomy rates in private vs. resident service deliveries: A comparison. *The Journal of Reproductive Medicine, 51*(3), 190-192.
[16] Howden, N. L., Weber, A. M., & Meyn, L. A. (2004). Episiotomy use among residents and faculty compared with private practitioners. *Obstetrics and Gynecology, 103*(1), 114-118.
[17] Robinson, J. N., Norwitz, E. R., Cohen, A. P., & Lieberman, E. (2000). Predictors of episiotomy use at first spontaneous vaginal delivery. *Obstetrics and Gynecology, 96*(2), 214-218.

6% to 60%, but at least one university hospital maintains an episiotomy rate of 1%."[18]

"Excess use of obstetric interventions, in turn, increases the likelihood that the woman or her baby will be injured, experience complications such as infection, suffer pain, or have negative birth experiences."[19]

Our High C-Section Rate: Does it Matter?

While a cesarean section clearly can be a lifesaving procedure, cesarean birth poses greater short-term and long-term risk to both the mother and infant and the outcome of future pregnancies compared to vaginal birth. The World Health Organization has recommended an optimal c-section rate of 10-15%.[20] In other words, according to that recommendation, for every woman who receives a necessary cesarean section in the US today, *two to three others receive one unnecessarily*. Intermountain Healthcare, a leading health system with a 21% c-section rate, recently reported that health care costs would be reduced by $3.5 billion annually if the national rate came down to their level. Using data from the AHRQ-HCUP of the U.S. Department of Health and Human Services Intermountain estimates that "every one percent decrease in the nation's C-section rate could save more than $300 million in maternal charges."[21]

Our maternity care system presents a classic profile of expensive and intensive interventions that does not result in better quality, better access to care, or higher rates of patient satisfaction with care. Applying high-risk medical approaches to low-risk populations actually increases the short- and long-term health risks and cost for all.

Reducing Variation and Overuse of Interventions in Maternity Care

The Transforming Maternity Care project's "Blueprint for Action" provides recommendations for improving maternity care in the US.[22] In short, these include:

- A comprehensive set of high-quality nationally endorsed maternity care performance measures
- Restructured payment model that bundles payment for the full episode of maternity care for women and newborns

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[18] Albers, L. L., Sedler, K. D., Bedrick, E. J., Teaf, D., & Peralta, P. (2005). Midwifery care measures in the second stage of labor and reduction of genital tract trauma at birth: A randomized trial. *Journal of Midwifery & Women's Health, 50*(5), 365-372.
Goer, H., Leslie, M. S., & Romano, A. (2007). The evidence basis for the 10 steps of mother-friendly care: Step 6: Does not routinely employ practices, procedures unsupported by the scientific evidence. *The Journal of Perinatal Education, 16*(1 Suppl), 32-64.

[19] Goer, H., Leslie, M. S., & Romano, A. (2007). The evidence basis for the 10 steps of mother-friendly care: Step 6: Does not routinely employ practices, procedures unsupported by the scientific evidence. *The Journal of Perinatal Education, 16*(1 Suppl), 32-64.

[20] World Health Organization. Appropriate technology for birth. *Lancet* 1985; 2: 436-7.

[21] Intermountain Healthcare. 2011. Intermountain shares trends of 300,000 births over 10 years (press release).. Available at http://intermountainhealthcare.org/about/news/Pages/home.aspx?NewsID=641 (accessed January 26, 2011).

[22] Jolivet, R, Sakala C, Corry MP, et.al. Blueprint for Action: Steps Toward a High-Quality, High-Value Maternity Care System. Peter B. Angood, Elizabeth Mitchell Armstrong, Diane Ashton, Helen Burstin, Maureen P. Corry, Suzanne F. Delbanco, Barbara Fildes, Daniel M. Fox, Paul A. Gluck, Sue Leavitt Gullo, Joanne Howes, R. Rima Jolivet, Douglas W. Laube, Donna Lynne, Elliott Main, Anne Rossier Markus, Linda Mayberry, Lynn V. Mitchell, Debra L. Ness, Rachel Nuzum, Jeffrey D. Quinlan, Carol Sakala, Alina Salganicoff. Women's health issues: official publication of the Jacobs Institute of Women's Health 1 January 2010 (volume 20 issue 1 Pages S18-S49.

- Access to services that have been shown to improve the quality and outcomes of maternity care for vulnerable populations
- A national maternity care workforce strategy

For examples of specific hospital practices that have reduced elective inductions, cesarean sections, and preterm birth, we refer you to the recent Leapfrog Group document "Reducing and Preventing Elective Deliveries: Examples from Leapfrog Hospitals and Other Organizations," published in January 2011.[23]

Workforce Implications

Research has clearly demonstrated that labor and birth have significant physiologic components that are beneficial to the mother and baby and that interventions should be avoided unless medically or surgically indicated. Every woman deserves high quality care that supports her physiologic capacity to labor and birth.

"Evidence-Based Maternity Care," cites midwife-led care as one of the top "underutilized strategies" for improving the outcomes of childbirth in the US. Midwives are experts in the support of normal birth and labor, and have amassed a consistent record of birth outcomes as good as or better than their physician counterparts, with lower rates of surgical and medical intervention.[24] However, 2004 National Center for Health Statistics data demonstrates significant state variation in the proportion of births attended by CNMs and CMs in the US, ranging from a high of 35.9% in New Mexico and 24.6% in Vermont to a low of 0.7% in Arkansas. These variations are closely linked to variations in state law and regulation which can either greatly facilitate access to midwifery care or squelch it almost entirely.

In "Access Transformed: Building a Primary Care Workforce Strategy for the 21st Century," the National Association of Community Health Centers highlighted the importance of revisiting these state laws to access to care. While the focus of the report is primary care (which is within the defined scope of practice of CNMs and CMs), the observations hold just as true for maternity care.

> *"State scope of practice standards set the boundaries by which key primary care providers…can deliver care…State policymakers must consider how these standards encourage or discourage primary care professionals to locate in and form teams in underserved areas. Some states…have dealt with primary care shortages in underserved areas by expanding scope of practice for NPs, PAs, CNMs, nurses, and dental hygienists.*[25]

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[23] The Leapfrog Group. 2011. Reducing and Preventing Elective Deliveries: Examples from Leapfrog Hospitals and Other Organizations. (press release) Available at http://www.leapfroggroup.org/media/file/ElectiveDeliveries_ProblemSolversFinal.pdf (accessed January 26, 2011).

[24] American College of Nurse-Midwives. 2008. Nurse-Midwifery in 2008: Evidence-Based Practice. Available at http://www.midwife.org/siteFiles/news/nurse_midwifery_in_2008.pdf (accessed January 26, 2011.

[25] National Association of Community Health Centers. 2009. *Access Transformed: Building a Primary Care Workforce Strategy for the 21st Century*. Available at http://www.nachc.com/research-data.cfm (accessed January 16, 2011).

In light of the urgent and significant issues detailed above, and at a time when our nation faces a shortage of primary care and maternity care professionals, it's time to facilitate the expansion of the midwifery profession in the US and remove the pervasive and pointless barriers to midwifery practice that exist on the state, federal, and health system level.

In closing, ACNM urges the IOM to support an expanded focus on maternal and newborn health as a priority in the analysis of geographic variations in health care. We welcome the opportunity to partner with the Committee on this issue.

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