Research Summaries for Normal Birth

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ABSTRACT

In this column, the author summarizes four research studies relevant to normal birth. The topics of the studies include the clinical and behavioral benefits of skin-to-skin contact after birth; the effect of a group model of prenatal care on preterm birth risk and breastfeeding success; the harmful effects of a brief interval of electronic fetal monitoring at hospital admission; and barriers to access to midwifery care.

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UPDATED COCHRANE SYSTEMATIC REVIEW FINDS STRONGER EVIDENCE OF BENEFIT FOR EARLY SKIN-TO-SKIN CONTACT

- Moore, E., Anderson, G., & Bergman, N. (2007). Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database of Systematic Reviews*, (3)3, CD003519.

Summary

In this systematic review, researchers evaluated the effects of early skin-to-skin contact (SSC) between mothers and their healthy newborns on breastfeeding, behavior, and physiologic adaptation. Following the usual methodology of Cochrane systematic reviews, reviewers searched the literature; identified all randomized or quasirandomized, controlled trials that compared SSC with usual hospital care; and applied predetermined criteria to decide which studies to include. The review was restricted to mothers and their healthy, full-term

(>37 weeks) or late-preterm (34–37 weeks) babies, and only trials where SSC commenced within the first 24 hours were included. When possible, researchers used a statistical technique to pool data (meta-analysis) from multiple trials, which increases the power to detect differences between groups. This Cochrane review updates a 2003 review with data from trials published since that time.

Thirty trials involving 1,925 mother-baby pairs were included, about twice as many as were included in the 2003 review. SSC was found to have a statistically significant effect on breastfeeding initiation, duration, and exclusivity. Infants who were held skin-to-skin were more than twice as likely to breastfeed successfully during their first feed, established effective breastfeeding sooner, were more likely to be breastfeeding at 1–4 months of age, and breastfed longer. Babies who underwent SSC were also more likely to maintain temperatures in the neutral thermal range (neither too cold nor too hot) and showed less variability in their temperatures. Infants exposed to SSC had blood glucose

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levels that were higher than those in the control groups by an average of nearly 11 mg/dl, which is highly clinically significant. A large difference, favoring SSC, was also found in infant crying. Late-preterm babies undergoing SSC demonstrated better cardiopulmonary and metabolic stabilization compared with similar babies placed in incubators. No statistically significant differences were found in other outcomes, such as admission to the neonatal intensive care unit or infant weight loss. The review yielded no evidence of any harm from SSC in term or healthy, preterm babies.

Mothers who underwent SSC displayed more affectionate behavior—such as kissing, smiling, and holding—and scored better on measures of maternal attachment in the first few days after birth. Some included studies found statistically significant differences in these behaviors persisting as long as 1 year. The reviewers did not identify any evidence that SSC was harmful to mothers. Studies that measured women’s satisfaction with their care found increased satisfaction with SSC.

Significance for Normal Birth

Separation of mothers from their babies after birth does not occur in any mammals other than humans and has only occurred in humans during the last century. In order for a mammalian species to survive, newborns must learn to nurse, and their mothers must learn to protect and care for them. Researchers have described a “sensitive period” in the first hour after birth, during which hormonal changes and innate behaviors coincide to produce optimal outcomes. They have also identified care practices that disrupt these processes with detrimental effects. Even apparently benign practices such as weighing, bathing, or swaddling babies can disrupt their innate behaviors if they occur in the first 1–2 hours after birth (Jansson, Mustafa, Khan, Lindblad, & Widstrom, 1995; Righard & Alade, 1990).

This review provides incontrovertible evidence that denying skin-to-skin contact between healthy babies and their mothers after birth is harmful. Although the Cochrane systematic review published in 2003 provided strong evidence that SSC is beneficial, in this update researchers reviewed a much larger body of research with findings related to many more clinical and psychosocial outcomes. They also gave special attention to the effects of skin-to-skin contact on babies born between 34 and 36 weeks gestation, a population that unfortunately represents a growing proportion of newborns

and is at increased risk for morbidity and mortality (March of Dimes, 2006). With such compelling evidence, it is unethical to continue to deny healthy babies and their mothers skin-to-skin contact after birth. The principles of beneficence (doing good) and nonmaleficence (avoiding doing harm) demand that uninterrupted time for mothers and babies after birth take priority over labor-ward routines intended for staff convenience and hospital efficiency and that postpartum and newborn interventions be either delayed or, when necessary, carried out with the baby and mother skin-to-skin.

GROUP PRENATAL CARE REDUCES PRETERM BIRTH BY ONE THIRD, IMPROVES BREASTFEEDING SUCCESS

- Ickovics, J. R., Kershaw, T. S., Westdahl, C., Magriples, U., Massey, Z., Reynolds, H., et al. (2007). Group prenatal care and perinatal outcomes: A randomized controlled trial. *Obstetrics and Gynecology*, 110(2), 330–339.

Summary

In this multicenter, randomized, controlled trial, investigators evaluated the effect of the CenteringPregnancy model of group prenatal care on perinatal outcomes, including preterm birth, birth weight, psychosocial outcomes, breastfeeding success, women’s satisfaction, and health-care costs. Women presenting for prenatal care at either of two university-affiliated clinics between 2001 and 2004 were eligible if they were <24 weeks gestation, were 25 years or younger, had no medical problems, and spoke English or Spanish. Eligible women who agreed to participate were randomized to group prenatal care (intervention group, $n = 653$) or traditional care (control group, $n = 394$). All women attended their first prenatal visit in the traditional one-to-one setting. For their subsequent care, women in the intervention group attended 10 prenatal sessions with approximately 7 other pregnant women due in the same month. The facilitating obstetrician or midwife had a brief one-to-one encounter with each pregnant woman in the group space to evaluate fetal and maternal well-being and to address individual concerns. While they waited for their individual assessments, women conducted self-care activities such as weight checks and blood-pressure monitoring and recorded the results in their own charts. The remainder of the 2-hour sessions was dedicated to facilitated group

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discussion and education based on CenteringPregnancy program materials and client self-assessments. When the need arose for one-on-one care (e.g., when a cervical exam was indicated or the woman had a concern she wished to discuss privately), a separate individual visit was scheduled or the woman was seen in a private space after the group session concluded. Women in the control group continued to attend prenatal visits at the clinic, according to the traditional schedule or as otherwise clinically indicated. In the settings where the trial took place, traditional prenatal visits lasted about 10–15 minutes each, for a total of 2 hours of prenatal care over the course of a woman's pregnancy. The group-care model, on the other hand, yielded about 20 hours of prenatal care over the course of the pregnancy.

After controlling for confounding factors, women assigned to group prenatal care were 33% less likely to give birth preterm (10% in the intervention group vs. 14% among controls). When the investigators limited the analysis to African American women, who represented 80% of all participants, the protective effect of the group-care model was even stronger—there was a 10% preterm birth rate in the intervention group compared with 16% of controls, for a 41% reduction in risk. Statistical analysis revealed that the group model was most effective at preventing late-preterm births (35–37 weeks); however, a significant reduction in risk of preterm birth was observed at every week of gestation from 26 weeks forward. Although no significant difference was found in the overall risk of low birth weight (defined as <2,500 g), the researchers demonstrated a statistically significant “dose response” effect, in which increased exposure to the group-care model resulted in both longer gestation and higher birth weight.

Women randomized to the group-care model were also more likely to initiate breastfeeding (67% vs. 55%). They also scored significantly higher on a pregnancy knowledge questionnaire, reported increased readiness for labor and birth, and were more satisfied with their prenatal care. There were no statistically significant differences in other clinical and psychosocial outcomes measured. Costs were similar across both models of prenatal care.

Significance for Normal Birth

The fact that CenteringPregnancy's effect on preterm birth has not been matched by any medical or technological intervention reinforces an important lesson about what is good for mothers and babies. It is not surprising that care that builds

women's confidence, mitigates stress, and teaches wellness and self-care would yield psychosocial benefits. What a medicalized view of pregnancy and birth too often fails to recognize, however, is that these same elements contribute to optimal clinical outcomes as well. In pregnancy, as in birth, an approach that values medical intervention and constant technological surveillance for problems is unlikely to be effective at enhancing an essentially healthy process. In pregnancy, as in birth, building a circle of support for an expectant mother enhances her ability to care for herself and her baby and to cope with unfamiliar but normal emotional and physical changes. Caring for women holistically is not just “nice,” it is good medicine.

Pregnancy is a normal, physiologic state, yet it is vulnerable to disruptions from chronic or acute stress, unhealthy behaviors such as smoking, and harmful conditions such as malnutrition or violence in the home. In the current, prevailing model of prenatal care, visits are brief, and counseling for nutrition, smoking cessation, and domestic-violence concerns is often provided separately, contributing to fragmentation of care and creating unnecessary barriers to access. CenteringPregnancy, like all mother-friendly care, does not demand that the woman accommodate institutional routines and navigate complex systems, but instead arranges care around her needs. This study reveals a forgotten outcome of putting the woman at the center and constructing a supportive environment around her: babies benefit, too.

ADMISSION EFM INCREASES THE CHANCE OF OPERATIVE BIRTH IN LOW-RISK WOMEN, WITH NO EVIDENCE OF MATERNAL OR FETAL BENEFIT

- Gourounti, K., & Sandall, J. (2007). Admission cardiotocography versus intermittent auscultation of fetal heart rate: Effects on neonatal Apgar score, on the rate of caesarean sections and on the rate of instrumental delivery—A systematic review. *International Journal of Nursing Studies*, 44(6), 1029–1035.

Summary

In this minisystematic review, investigators evaluated the body of evidence related to the “admission strip,” a screening test in which women undergo a brief (usually 20-minute) period of continuous electronic fetal monitoring (EFM) upon arrival at the hospital

to ensure that they are eligible for subsequent intermittent auscultation (listening to the fetal heart rate at intervals during labor). Using predetermined eligibility criteria, researchers searched multiple medical-literature databases for relevant published studies. One investigator assessed studies for relevance and eligibility and determined their quality using standard critical-appraisal guidelines. The review was limited to good-quality, randomized controlled trials enrolling women at low obstetrical risk with term pregnancies. The investigators focused their review on the effect of the admission strip on risk of operative birth (cesarean surgery and instrumental vaginal birth) and on 5-minute Apgar scores.

Three trials totaling 11,259 participants met inclusion criteria. Each trial compared admission EFM (followed by intermittent auscultation in women with reassuring fetal heart rate) with no admission EFM (intermittent auscultation beginning immediately upon admission). All of the included trials reported rates of cesarean surgery, instrumental vaginal birth, and 5-minute Apgar score <7. One trial reported a statistically significant increase in the likelihood of instrumental vaginal birth among women who underwent admission EFM. No other outcome achieved statistical significance in any of the three trials; however, when meta-analysis was performed on the pooled data, results showed statistically significant increases both in the likelihood of cesarean surgery and in the likelihood of instrumental vaginal birth. Low-risk women undergoing admission EFM were 10% more likely to have an instrumental vaginal birth, and 20% more likely to have cesarean surgery, than women undergoing intermittent auscultation. No statistically significant difference was found for low 5-minute Apgar scores. However, even with meta-analysis, the study may have been underpowered to detect a true difference in Apgar scores.

Significance for Normal Birth

In hospitals, low-risk women who have intermittent auscultation in labor usually undergo 20 minutes of continuous EFM on hospital admission. This “admission strip” is seen as a no-risk intervention that helps reassure hospital staff (who are often more comfortable with EFM) that the women are indeed at low risk of complications. Like continuous EFM, admission EFM became widespread before any studies showed clinical effectiveness. Also like continuous EFM, admission EFM has turned out not to produce anticipated benefits while increasing harms in the form of increased use of operative birth.

Laboring women are vulnerable to changes in their environment. Labor often slows down when women arrive at the hospital, while they become comfortable with their new surroundings. Their emotional response and, thus, their ability to cope with the demands of labor may also be affected. Unnecessary admission procedures, especially those that restrict movement, can significantly affect how labor unfolds. They can also shift caregiver attention away from the emotional and physical needs of the woman. Admission EFM sets the tone for a high-tech hospital experience and may be the first step on the well documented cascade of interventions.

CASE STUDY REVEALS ECONOMIC AND POLITICAL FORCES THAT HINDER ACCESS TO MIDWIFERY CARE

- Goodman, S. (2007). Piercing the veil: The marginalization of midwives in the United States. *Social Science & Medicine*, 65(3), 610–621.

Summary

This qualitative case-study analysis illuminates the forces behind the underutilization of midwives in the U.S. maternity-care system and the process of their professional marginalization. The researcher identified two prominent midwifery services that had good outcomes and were connected with prestigious and influential institutions. One was a university-affiliated hospital practice that had provided uninterrupted midwifery service to the community for nearly five decades. The other was a birth center in continuous operation for nearly 30 years and hospital-owned for the final 7 years. Both practices were threatened with closure in 2003. In the case of the university-affiliated practice, the midwives ultimately maintained their ability to practice; however, the hospital imposed restricted clinical-practice guidelines, resulting in an 84% decrease in the number of midwife-attended births and a number of midwives leaving the service. The birth-center practice closed abruptly in a decision handed down by the hospital, without the involvement of the center’s board of directors. In order to understand the circumstances behind the closures, the researcher conducted 52 in-depth interviews with midwives, nurses, service administrators, childbirth educators, policymakers, and physicians, and reviewed archival data such as e-mail correspondence, policy statements, and memos.

In both cases, the publicly articulated reason for the attempted or actual closure of the midwifery services appeared to be reasonable. In the university-affiliated practice, the hospital claimed that too many of the women in the neighborhoods served by the hospital were high-risk and, therefore, midwifery care was unsafe. In the case of the birth center, the hospital reported that the decision to close was prompted by a 400% increase in malpractice insurance premiums. In neither case did the hospital provide any documentation or other evidence to support these rationales for closure. Interviews and analysis of archival data revealed that the midwifery services represented competition to the hospital, local physicians, or both. The case of the university-affiliated midwifery practice was particularly overt: The hospital had recently paid a multimillion-dollar fine for double-billing the Medicaid program for births attended by midwives—once for the midwife and again for the consulting physician. When this fraudulent practice was discovered and the hospital was censured, midwives became a source of competition rather than income. In the case of the birth center, a five-fold growth in the number of birth-center births over the time the hospital had ownership may have appeared to be siphoning business away from the hospital's labor and delivery unit. Despite these potentially powerful economic and political motives for closing the midwifery services, the public was led to believe that the decisions were driven by rational concerns about safety and liability. The author concluded, "In the cases studied, institutions successfully altered maternity care and diminished midwifery services without accountability for their actions. In fact, the elimination of midwives seemed to be a rational decision when framed in the context of patient safety and the rising cost of medical malpractice" (p. 9).

The author explored aspects of the U.S. health-care system that facilitate professional marginalization of midwives. The most problematic is the way the U.S. medical-education system is funded. Hospitals essentially get paid twice for care provided by medical residents, because they can bill directly for the care and receive large subsidies from the federal Medicare program in exchange for providing residency opportunities. The more residents a hospital employs, the more federal money they get, so there is a government-imposed disincentive for hospitals to employ midwives. Furthermore, in many states, midwives must have a formal practice agreement with physicians in order to obtain licenses, liability

insurance, reimbursement, or hospital privileges. This requirement makes midwives dependent on their competition to gain access to employment. Finally, midwives' reliance on low-tech care practices results in lower utilization of medical devices and services that may be separately billable.

Significance for Normal Birth

Advocates for improvements in maternity care are often at a loss to explain why childbearing women cannot access care providers who support normal birth. Normal physiologic birth, it would seem, must be less costly than technology-intensive birth. Solving this paradox requires an understanding of the political and economic forces that foster dependency on high-cost obstetrics—to the detriment of women and babies. Although this study is small, and focused on two specific examples of midwifery-service closures, it provides important insight into the systemic forces that hinder women's access to midwifery care despite a large body of evidence demonstrating that, compared to physicians, midwives provide equal or better care, with lower reliance on costly, technical interventions. The study documents how the U.S. market-based health-care system safeguards the interests of the medical profession, which can often be at odds with those of women, babies, and society.

Radical, systemic reforms are needed if the United States hopes to achieve a high-functioning maternity-care system characterized by effective, high-quality care, universal access, and cost containment. Evidence from countries with excellent maternity-care outcomes suggests that eliminating barriers to midwifery care must be a priority. Birth advocates can begin by calling for accountability and transparency from hospitals and maternity-care providers.

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