

Annotated Bibliography for Home Birth Citations

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High Quality Controlled Trials, Systematic Reviews, Meta-Analysis, and Observational Studies

(1) North-American studies

Hutton, E., Reitsma, A. & Kaufman, K. SOGC Annual Conference 2008. *Hutton et al. used the Ontario Ministry of Health Midwifery Program (OMP) database to compare outcomes of all women planning homebirths between 2003-2006 (N=6692) with a matched sample of women planning a hospital birth (N=6692) (women with contraindications for homebirth were excluded). The home birth group had lower rates of CS (RR 0.64), maternal morbidity/mortality (PP 0.77) and neonatal morbidity/mortality (RR 0.80). Results suggest that Ontario midwives provide adequate screening and safe care for women planning a home birth and had lower CS rates compared to hospital births among low risk women.*

Janssen PA. Outcomes of five years of planned home birth attended by regulated midwives versus planned hospital birth in British Columbia. Canadian Association of Midwives 7th Annual General Meeting proceedings, Vancouver: Canada; 2007. *Janssen recently presented results from their prospective five-year long cohort study comparing outcomes among women in the midwife-attended planned home birth group (N=2802) to women in the physician attended hospital birth group (N=5985) and midwife attended hospital birth group (N=5984). Women in the home birth group who needed intrapartum transfer to the hospital were retained in their original cohort. Findings indicate that women who planned a home birth had significantly fewer intrapartum interventions, including narcotic or epidural analgesia, augmentation or induction of labour, and assisted vaginal births or cesarean section. In addition, women in the home birth group were less likely to suffer from postpartum hemorrhage, pyrexia, and 3rd or 4th degree tears. Babies of women planning a home birth were less likely to have Apgar scores of < 5 at one minute and the babies were less likely to need drugs for resuscitation. These differences were associated with planned place of birth and persisted regardless of actual place of birth. Women in all three groups of the study met eligibility criteria for home birth, and thus had comparable maternal and fetal risk profiles.*

Leslie, M.S.; Romano, A. Appendix: Birth Can Safely Take Place at Home and in Birthing Centers. *Journal of Perinatal Education*. 2007. 16(1-Supplement), 81S-88S. (Systematic Review). *This article is a systematic review of homebirth and birth center safety studies. Drawing on data from numerous well-known studies, the authors compare incidence of interventions and perinatal outcomes between hospital births and homebirths and hospital births and birth center births. The evidence for each claim is graded for quality, quantity and consistency. This review reported that out-of-hospital births had similar perinatal outcomes to hospital births and fewer interventions.*

Johnson K, Daviss BA. Outcomes of planned home birth with certified professional midwives: large prospective study in North America. *BMJ* 2005;330;1416. *A prospective cohort study of 5418 delivered by certified professional midwives in 2000. Describes a 12% transfer rate 3.7 c-section rate, 1.7/1000 neonatal mortality rate, and lower intervention rates for planned home births.*

Janssen PA, Lee SK, Ryan EM, et al. Outcomes of planned home births versus planned hospital births after regulation of midwifery in British Columbia. *CMAJ Canadian Medical Association Journal*. 2002;166(3):315-323. *Outcomes of 862 planned home births attended by licensed midwives with hospital births attended by either midwives (571) or physicians (743).²² Researchers matched women in the home birth group to women in the physician hospital group who met the eligibility criteria set for home birth subjects. Women were matched according to age, partner status, parity, and hospital where study subject's midwife had privileges. Transfers from home to hospital were tracked, and subjects were retained in their original study groups for analysis. The study reports reasons for transfer, methods of transfer, and time spent in transfer. To assess*

similarity of groups, investigators also collected data on the process of midwifery care, on prenatal and obstetric history, and rates and indications for consultation or referral.

Schlenzka PF. *Safety of alternative approaches to childbirth* [Unpublished Dissertation]. Palo Alto, CA: Department of Sociology, Stanford University; 1999. *Using merged birth certificate and hospital discharge data for California for 1989 and 1990, Schlenzka identifies a comprehensive risk profile for a cohort of nearly 816,000 low risk births. Birth setting was tracked intrapartum transfers to the hospital were allocated to the originating birth setting. Perinatal mortality was compared with two statistical approaches: indirect standardization using only birth weight, sex, race, age, education, and insurance as risk adjusters, and logistic regression controlling for all risk factors available in the database. Abstract and table of contents provided.*

Murphy PA, Fullerton J. Outcomes of intended home births in nurse-midwifery practice: a prospective descriptive study. *Obstetrics & Gynecology*. 1998;92(3):461-470. *Prospective study describing various outcomes of home births attended by CNMs during 1994-1995 (N1404). Of those beginning labor at home, 102 (8.3%) were transferred to the hospital in labor, 10 (0.8%) were postpartum transfers and 14 (1.1%) infants were transferred. For the whole sample of women beginning labor at home, fetal and neonatal mortality was 2.5/1000. For those actually birthing at home this mortality was 1.8/1000. Intrapartum problems were positively associated with transfer to hospital-based care, and overall outcomes were consistent with expected outcomes for low-risk birth.*

Cawthon L. *Planned home births: outcomes among Medicaid women in Washington State*. Olympia, WA: Washington Department of Social and Health Services; 1996. *This study described perinatal data for 2,054 Medicaid women who were cared for by licensed midwives between 1989-1994. Births were then categorized by birth place type; and maternal characteristics, prenatal care, and birth outcomes were compared between planned home births and births in birth centers or in hospitals. Researchers compared all women receiving some care from licensed midwives, women receiving care from certified nurse-midwives, and all other Medicaid women and found no statistically significant differences in mortality rates. Congenital anomalies and SIDS caused the majority of deaths. The number of stillbirths or neonatal deaths among women who delivered at home was zero (0), and the rate of transfer to hospital delivery for the women who experienced fetal or neonatal death was 100% suggesting appropriate screening and site selection by licensed midwives.*

Anderson RE, Murphy PA. Outcomes of 11,788 planned home births attended by certified nurse-midwives. A retrospective descriptive study. *Journal of Nurse-Midwifery*. 1995;40(6):483. *Similar findings as more recent prospective study by Murphy and Fullerton.*

(2) International studies

de Jonge A, van der Goes B, Ravelli A, Amelink-Verburg M, Mol B, Nijhuis J, et al. Perinatal mortality and morbidity in a nationwide cohort of 529,688 low-risk planned home and hospital births. *BJOG* 2009; DOI: 10.1111/j.1471-0528.2009.02175.x. *Retrospective cohort study with 529,688 low-risk women in the Netherlands who were in primary midwife-led care at labour onset. This study is the largest study on the safety of home birth to date. Study compared perinatal mortality and morbidity between planned home births (321,301; 60.7%), planned hospital births (163,261; 30.8%), and unknown place of birth (45,120; 8.5%), using the national perinatal and neonatal registration data from 2000-2006. Groups were matched using logistic regression analysis according to parity, gestational age, maternal age, ethnic background, and socio-economic status. Inclusion criteria ensured the subjects were strictly low-risk. The main outcomes were intrapartum death, intrapartum and neonatal death within 24 hours and 7 days after birth, and neonatal admission to a NICU. No significant differences were found between planned home and planned hospital births for any of the main outcomes. The authors concluded that planned home birth in a low-risk population is not associated with higher perinatal mortality rates or an increased risk of admission to a NICU compared to planned hospital birth.*

Amelink-Verburg, M.P.; Verloove-Vanhorick, S.P.; Hakkenberg, R.M.A.; Veldhuijzen, I.M.E.; Bennebroek Gravenhorst, J.; Buitendijk, S.E. Evaluation of 280 000 cases in Dutch midwifery practices: a

descriptive study. *BJOG: An International Journal of Obstetrics and Gynecology*. 2007. 115: 570-278. *This study discusses the importance of effective home birth risk selection in the Dutch obstetric system. The authors found that the current selection process results in a small number of urgent referrals and favourable perinatal outcomes for home births.*

Olsen O, Jewell MD. Home versus hospital births. *Cochrane Database of Systematic Review*. 4, 2005. *Only RCT comparing home birth to hospital birth. While the results were consistent with controlled observational studies, the study sample was 11, too small to draw any conclusions about home birth. Commonly, women have strong opinions about their planned birth place and will not agree to a randomized study by place of birth.*

Chamberlain G, Wraight A, Crowley P. *Home births: Report of the 1994 confidential enquiry of the National Birthday Trust Fund*. Cranforth, UK: Parthenon; 1997. *Comprehensive investigation of the characteristics and outcomes across United Kingdom, endorsed by the Royal Colleges of Obstetricians, Midwives, and General Practitioners. A prospective trial of 6044 planned home births in Great Britain, compared mortality and perinatal outcomes with a low risk hospital group and found no significant differences in mortality.¹³ The home birth group experienced significantly less medical interventions and perinatal complications. Full study report published as book.*

Olsen O. Meta-analysis of the safety of home birth. *Birth*. 1997;24(1):4-13; discussion 14-16. *Meta-analysis of the most methodologically sound, observational, comparative, original studies that investigated differences in perinatal mortality and morbidity between planned home births and planned hospital births. Multivariate statistical analysis controlled for obstetrical background, perinatal factors, comparable populations, inclusion criteria, transfer criteria, and outcome measures. Analysis revealed no statistical difference in mortality between planned home and planned hospital birth and the confidence interval did not allow for extreme excess risks in any of the groups (OR=0.87, 95% CI=0.54-1.41). Moreover there were significantly fewer medical interventions, fewer severe lacerations, fewer operative births, and fewer low Apgar scores in the home birth groups.*

Ackermann-Liebrich U, Voegeli T, Gunter-Witt K, et al. Home versus hospital deliveries: follow up study of matched pairs for procedures and outcome. Zurich Study Team. *BMJ*. 1996;313(7068):1313-1318. *Prospective matched cohort study of 489 planned home and 385 planned hospital births.²³ The study design carefully attended to issues of planning status, transfer criteria, and actual place of delivery. The groups were matched according to age, parity, gynecologic and obstetric history, medical history, partner situation, social class, and nationality. The main outcome measures were need for medication and/or intrapartum intervention, duration of labor, severity of lacerations, hemorrhage, neonatal condition and perinatal mortality. They found a lower incidence of interventions, medications, lacerations and higher Apgar scores in the home birth group and no differences in birth weight, clinical condition, or gestational age between groups. There were no differences in mortality between groups.*

Davies J, Hey E, Reid W, Young G. Prospective regional study of planned home births. Home Birth Study Steering Group. *BMJ*. 1996;313(7068):1302-1306. *Examines experience and outcome of pregnancy, indications for hospital transfer, and attitudes of mothers and providers in the Northern Region Perinatal Mortality study.*

Northern Region Perinatal Mortality Survey Coordinating Group. Collaborative survey of perinatal loss in planned and unplanned home births. *British Medical Journal*. 1996;313(7068):1306-1309. *The Coordinating Group collected and analyzed data for 558,691 births over the first 14 years (1981-1994), with 2888 booked for home delivery at term. They found perinatal mortality in the planned home birth group was less than half the average for all births even when the cases referred to hospital were included. Mortality for unplanned home births was four times as high as for all registered births. Perinatal mortality for women booked for home delivery was judged mostly unavoidable and not associated with place. Home birth critics often misquote this study as 134 losses in 3466 births, but 97% of those losses occurred in unplanned home births. The remaining losses were due to causes unaffected by birth site. Further analysis, comparing data from the planned home birth group to low risk term hospital births concluded that there were no significant differences in rates of perinatal mortality.*

Wieggers TA, Keirse MJ, van der Zee J, Berghs GA. Outcome of planned home and planned hospital births in low risk pregnancies: prospective study in midwifery practices in The Netherlands. *BMJ*. 1996;313(7068):1309-1313. *Prospective cohort trial that studied 1836 women with low risk pregnancies, 1140 home and 696 hospital. The design controlled for provider type, parity, social, medical and obstetric background. Researchers developed a tool that assigns an overall perinatal outcome index score based on "maximal result with minimal intervention". This tool integrates data from 22 items on intrapartum course, nine items on the condition of the newborn, and five items from the postpartal period. It allows researchers to evaluate factors that detract from optimal perinatal health as well as their clinical significance. This study found no relation between planned place of birth and perinatal outcome in primiparas ($t=1.99$, $p<.05$) when controlled for favorable or less favorable background, and significantly better perinatal outcomes in multiparous women ($t=5.56$, $P<0.001$) with or without controls.*

Studies often cited when questioning safety of home birth.

Vedam, S. Home versus hospital birth: questioning the quality of the evidence on safety. *Birth* 2003, 30(1), 57-63. *Detailed review of Pang study. Proposed framework for evaluating quality of trials on home birth safety.*

Pang J, Heffelfinger J, Huang G, Benedetti T, Weiss N. Outcomes of planned home births in Washington state: 1989-1996. *Obstetrics & Gynecology*. 2002;100(2):253-259 *Method of selection did not distinguish between the planned home births, out-of-hospital births that had no attendant, or births with unknown or unnamed attendants. Premature births occurring between 34 and 37 weeks were incorrectly included in the initial analysis. A higher incidence of congenital heart disease in the home birth population could partially explain the higher neonatal mortality and would reflect a difference in populations.*

Bastian H, Keirse MJ, Lancaster PAL. Perinatal death associated with planned home birth in Australia: Population based study. *BMJ*. 1998;317(7155):384-388. *Reported outcomes of births attended by unregistered midwives, many of whom had limited training, experience, and no access to resuscitation equipment. Births occurring without qualified attendants are not consistent with definitions of planned home birth in most countries.*

Schramm WF, Barnes DE, Bakewell JM. Neonatal mortality in Missouri home births, 1978-84. *American Journal of Public Health*. 1987;77(8):930-935. *Compared planned home and planned hospital births in Missouri. Within the group of the planned home births attended by physicians, certified nurse-midwives, and licensed midwives, the differences in neonatal mortality when compared with physician-attended hospital births were not significant. Any increased relative risk shown was attributable to unskilled providers.*

Burnett CA, 3rd, Jones JA, Rooks J, Chen CH, Tyler CW, Jr., Miller CA. Home delivery and neonatal mortality in North Carolina. *Jama*. 1980;244(24):2741-2745. *Examined planned and unplanned home births in North Carolina in a demographically high-risk group of women. When unplanned home births and high-risk births were excluded, there were no significant differences in neonatal mortality between planned home and planned hospital births.*

Legal, Policy and Ethics

American College of Nurse Midwives Clinical B. (2006). Position Statement: Home Birth.

American College of Nurse Midwives . Clinical Bulletin No. 7: Criteria for provision of home birth services. Journal of Midwifery & Women's Health, 2003, 48(4): 299-301.

Campbell R, MacFarlane A. Where to be born? The debate and the evidence. 2nd ed. Oxford: National Perinatal Epidemiology Unit, 1994. (*not included*)

Dimond B. Is there a legal right to a home confinement? *Brit J of Midwifery* 2000, 8(5):316-9.(*not included*)

Governing Council of the American Public Health Association (2001). Policy statement no. 2001-3: Increasing access to out-of-hospital maternity care services through state-regulated and nationally-certified direct-entry midwives. Washington, APHA

Walker J. Quality of midwifery care given throughout the world report of the Fourth International Homebirth Conference March 16, 17, 18 Amsterdam, The Netherlands. *Midwifery*. 2000;16(2):161-164.

World Health Organization. *Care in Normal Birth: A Practical Guide*. Geneva: WHO Safe Motherhood Technical Working Group; 1996

Hafner-Eaton C, Pearce LK. Birth choices, the law, and medicine: balancing individual freedoms and protection of the public's health. *J Health Polit Policy Law* 1994;19:813-35.

Studies of Patient Demand and Satisfaction, Women's Perception and Choice

Janssen P, Henderson A, Vedam S. The experience of planned home birth: Stories of six hundred. *Birth*. 2009. In press.

Lindgren, H.E.; Radestad, I.J.; Christensson, K.; Wally-Bystrom, K.; Hildingsson, I.M. Perceptions of risk and risk management among 735 women who opted for a home birth. *Midwifery*. 2008. In press. *Using data from a national survey of all women who birthed at home in Sweden between 1992 and 2005, this study aims to describe women's perceptions of risk and risk management related to childbirth. Categories of perceived risk related to hospital and home births emerged. Perceived risks of hospital births included loss of autonomy, impersonal care, and subjection to interventions; perceived risks of home birth included centered around difficulty accessing emergency care in a worst-case scenario. The study found that women avoided discussing risks with care providers (other than their homebirth midwife) as a strategy to manage perceived risks.*

DeClerq ER, Paine L, WinterM. Home birth in the United States, 1989-1992: a longitudinal descriptive report of national birth certificate data. *J Nurs Midwifery* 1995;40:474-82.

Jannssen P, Carty E., Reime . Satisfaction with planned place of birth among midwifery clients in British Columbia. *J Midwifery Women's Health* 2006, 51(2), 91-97.

Hildingsson I, Waldenstrom U, Radestad I. Swedish women's interest in home birth and in-hospital birth center care. *Birth* 2003, 30(1), 11-22. 17

Cunningham JD. Experiences of Australian mothers who gave birth either at home, at a birth centre, or in hospital labour wards. *Social Science & Medicine*. 1993;36(4):475-483.

Soderstrom B, Stewart PJ, Kaitell C, Chamberlain M. Interest in alternative birthplaces among women in Ottawa-Carleton. *CMAJ Canadian Medical Association Journal*. 1990;142(9):963-969.

Harris G. Homebirth and independent midwifery. *J Aust Coll Midwives* 2000,13(2):10-6