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U OF A LITERATURE REVIEW DISCUSSION



Health and Wellness for all Arizonans

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Outcome of Home vs. Hospital Births by Midwives: A systematic review and Meta- analysis

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Background

Studies conducted in the US and other high income countries show that an increasing number of women elect homebirth

- Reasons:
 - Considered safe by consumers
 - Often involves fewer medical interventions
 - Performed in the comfort of their own homes

Objective: To critically assess and summarize evidence on outcome of home versus hospital births attended by midwives

Methods

- U of A performed a very extensive search of the literature
- 3-4 people searched the following databases (to February, 2013):
 - Medline/PubMed
 - Embase
 - Web of Science
 - EBSCO (PsycINFO and CINAHL)
 - Ovid
 - The Cochrane Fertility Review Group Specialized Register
 - Cochrane Pregnancy and Childbirth Group Specialized Register
 - The Cochrane Central Register of Controlled Trials

Methods (continued)

- Unpublished data from the grey literature through Google and Google Scholar searches
- References in articles were hand searched to find additional resources
- Each identified article was assessed independently by 5 reviewers
- Reviewers came together to decide which articles were relevant
- Analysis done by PhD statistician

Methods (continued)

- Types of studies
 - Case-control studies
 - Randomized controlled studies
 - Cohort studies
 - Time-series studies
- Had to look at outcome of births attended by midwives in hospital/health facilities or in homes

Results: Child Health

- Nine studies were included in the meta-analysis of child health outcome of births attended by midwives in homes or in hospitals
- Analyzed 7 outcomes of child health:
 - Neonatal deaths
 - Prenatal deaths
 - Apgar<7 at 5 min
 - Intrapartum deaths
 - Low birth weight < 2500g
 - Birth seizures
 - Meconium aspiration

Results: Child Health

Factors	No. of studies	No. of participants	Variance between studies		Pooled OR/RR	95% CI	Test for overall effect (p)
			Q(p)	I ² (%)			
Child health							
1. Neonatal death	2	1323536	0.24	28	3.11	(2.49, 3.89)	<0.00001
2. Prenatal death	3	4400	0.04	68	0.70	(0.09, 5.29)	0.73
3. Apgar <7 at 5 min	2	14807	0.27	16	0.86	(0.60, 1.25)	0.44
4. Intrapartum death	2	485709	0.66	0	0.82	(0.60, 1.12)	0.21
5. Low birth weight <2500g	2	14807	0.43	0	0.71	(0.48, 1.05)	0.09
6. Birth seizures	2	1133575	0.36	3	1.49	(0.86, 2.58)	0.15
7. Meconium aspiration	2	1350153	0.77	0	0.90	(0.68, 1.20)	0.49

Results: Maternal Health

- Eight studies qualified for inclusion in the meta-analysis of the impact of setting (home or hospital) of births attended by midwives
- 13 outcomes were analyzed:
 - Spontaneous delivery
 - Vacuum extraction
 - Assistant delivery
 - Caesarean delivery
 - Forceps
 - Episiotomy
 - Lacerations/Perineal tear (3-4 degree)
 - Lacerations/Perineal tear (intact)
 - Cervical tear
 - Postpartum hemorrhage (>500 mls)
 - Retained placenta
 - Blood transfusion
 - Prolapsed cord

Results: Maternal Health

Factors	No. of studies	No. of participants	Variance between studies		Pooled OR/RR	95% CI	Test for overall effect (p)
			Q(p)	I ² (%)			
Maternal health							
1. Spontaneous delivery	3	21488	0.03	71	1.64	(1.35, 2.00)	<0.00001
2. Vacuum extraction	3	29984	<0.00001	92	0.51	(0.21, 1.23)	0.13
3. Assistant delivery	3	22871	0.0003	88	0.58	(0.40, 0.84)	0.004
4. Caesarean	5	39471	<0.00001	88	0.55	(0.49, 0.60)	0.0006
5. Forceps	4	30972	0.06	60	0.54	(0.33, 0.90)	0.02
6. Episiotomy	5	23750	<0.0001	83	0.56	(0.41, 0.77)	0.0003
7. Lacerations/perineal tear (3-4 degree)	4	23609	0.04	63	0.48	(0.32, 0.72)	0.0005
8. Lacerations/perineal tear (intact)	3	10225	0.0001	89	1.94	(1.25, 3.01)	0.003
9. Cervical tear	2	9084	0.54	0	0.84	(0.21, 3.38)	0.80
10. Postpartum hemorrhage >500ml	5	25445	0.002	77	0.60	(0.44, 0.81)	0.0007
11. Retained placenta	2	9084	0.29	9	0.58	(0.40, 0.86)	0.006
12. Blood transfusion	3	10920	0.08	61	0.33	(0.08, 1.37)	0.13
13. Prolapsed cord	2	9084	0.52	0	0.40	(0.11, 1.48)	0.17

Discussion

- Child health:
 - The risk of neonatal death increased among homebirths (OR=3.11, 95% CI: 2.49-3.89)
 - Otherwise, there were no significant differences in infant health outcomes between home and hospital births attended by midwives

Discussion

- Maternal health:
 - Homebirths were more likely to result in a spontaneous birth with an intact perineum
 - There were fewer surgical interventions among women who elected to deliver with a midwife in the home
 - Hospital births by midwives were associated with increased risk of assisted delivery, caesarean sections, forceps, episiotomy, lacerations/perineal tear (3-4 degrees)
 - Decreased risk of postpartum hemorrhage >500mL and having a retained placenta among midwife attended homebirths

Discussion

- The findings of this meta-analysis have implications primarily for women with generally low-risk pregnancies and the midwives who may be their primary perinatal care providers, because low-risk women account for most of the sample analyzed

Discussion

- Findings suggest that homebirths attended by midwives may be equally safe if not safer for women with low-risk pregnancies
- Homebirths should only be recommended to women who are classified as low-risk, as this data demonstrates an increased risk of neonatal mortality among homebirths
 - Access to emergency services, prior consultation, and having a contingency plan with a nearby medical facility with appropriate obstetrical equipment is encouraged, in the case that a medical emergency occurs

Limitations

- Studies reviewed here tended to exclude high-risk pregnancies
 - Tendency for women with high-risk pregnancies to be referred to or to opt for obstetrical care
 - Lack of data and evidence on the safety and efficacy of homebirths for high-risk pregnancies
- Studies were included from several different countries
 - Education and regulation of midwives may differ from that in the United States

Limitations (continued)

- Lack of data on vaginal births after cesarean (VBAC), multiple births, and breech births
 - Not included in the analysis due to the fact that these are high-risk pregnancy conditions and are not typical of women elected for homebirths in attendance by midwives

Limitations

- Exclusion of patients who were transferred from home during labor/delivery
 - May have excluded some of the maternal outcomes

Conclusion

- This review of the literature, as it pertains to births that occur in the home versus a hospital, provides evidence that midwives are effective in assisting with low risk home and hospital deliveries
 - While there appears to be some increased risk for infants among births that occur in the home, there also appears to be fewer surgical interventions among women delivering with a midwife in the home and decreased assisted deliveries, c-sections, use of forceps, episiotomy, lacerations, and perineal tears