Evidence-Informed Decision Making and Person-Centered Care: Holistic Risk Assessment for Community Midwives

Melissa Cheyney PHD, CPM, LDM
Associate Professor
Oregon State University

1

Disclosures

- I have no economic or financial conflicts of interest.
- I am the PI on the MANA Statistics Project.
- This is a volunteer position, though some of my travel expenses are reimbursed when I speak at the annual MANA conference.
- I attend births at home and in a freestanding birth center.

2

Co-authors

- Marit Bovbjerg PhD, MS
- Melissa Cheyney, PhD, CPM, LDM
- Jennifer Brown, CPM
- Kim Cox, PhD, CNM
- Larry Leeman MD, MPH

3

Background

- The Community Birth Statistics Wars
- Is community birth safe?
- *"[T]he best evidence in answer to the wrong question is useless."* Menticoglou & Hall 2002

4


BJOG DEBATE

Home birth is unsafe

FOR: *The safety of planned homebirths: a clinical fiction*

AGAINST: *Safe for whom?*

5

- Homebirth clearly can be as safe (and for some outcomes, safer) than hospital birth for low risk clients (Dutch, UK and Canadian studies).
- It appears to be safer in settings where homebirth midwives are well integrated into the overall healthcare system.
- The questions we should be asking instead are: "Safe for whom?" and "Under which circumstances?" and "Using whose definition of 'safe'?"

6

- What the balance of evidence suggests is that homebirth safety may be contingent upon getting certain things right: 1) the patient population, 2) the collaborative relationships between midwives and physicians, and 3) the transfer criteria.
- *Focus for today: Client/patient population

7

Background

Study & Design	# of OOH Participants	Country & OOH Type	Antepartum Death per 1000*		Perinatal Death per 1000*		Neonatal Death per 1000	
			O-O-H	Hospital	O-O-H	Hospital	O-O-H	Hospital
Snowden	3203	USA home & FSB	2.4 fetal	1.2 fetal	3.9	1.8	1.6	0.6
Stapleton	15,574	USA FSB	0.4 fetal		0.9		0.4	
Cheyney	16,924	USA home	1.3 intrapartum		2.1		0.7	
Hutton	11,492	Canada home	0.3 intrapartum	0.1	0.8	0.8	0.7	0.8

OOH = out-of-hospital; FSB = freestanding birth center; Perinatal death = antepartum + neonatal death; Neonatal death = death occurring by 28 days

*Fetal death includes antepartum as well as intrapartum deaths. This means antepartum death rates and perinatal death rates aren't comparable between studies using different measurements.

8

Why is IP mortality in the US higher than anticipated for community births?

- Planned Location?
- Practitioner type?
- Route to Certification?
- Degree of Systems Integration?
- Risk Level of the Mother?

9

Study Purpose

- to explore the relative and absolute risks associated with a variety of maternal/fetal characteristics that may render a pregnancy at increased risk for adverse perinatal outcomes within the context of planned, physiologic birth in the community setting.

10

Maternal Autonomy

- "While women must receive accurate and complete information regarding their choices and the risks, benefits, and consequences of their choices, maternal autonomy must never be overridden even when there is a clear fetal harm incurred by the mother's choice."

  - Jankowski and Burcher 2015

11

Definitions

- Absolute Risk – an individual's risk of a particular outcome
- Relative Risk - is used to compare risk between two different groups
- Adjusted Odds Ratios - is a measure of association between an exposure and an outcome. The OR represents the odds that an outcome will occur given a particular exposure, compared to the odds of the outcome occurring in the absence of that exposure.
- Confidence Intervals -The 95% confidence interval (CI) is used to estimate the precision of the OR. A large CI indicates a low level of precision of the OR, whereas a small CI indicates a higher precision of the OR.

12

Methods

- Data for the analyses reported here come from the MANA Stats 2.0 (birth years 2004-2009) and 4.0 (data collection ongoing; this analysis includes 2012-2014) version data sets .
- These tools were developed by the MANA Division of Research for midwives practicing primarily in community settings.
- Midwives enter data over the course of care from the initial visit through the 6-week postpartum visit.
- The data collection includes preregistration, or prospective logging, of all clients at the start of care, before outcomes are known.

13

Methods cont.

- Participation is voluntary, with an estimated 20–30 percent of active certified professional midwives (CPMs) and a substantially smaller proportion of certified nurse midwives (CNMs) contributing data.
- For this analysis, we limited the sample to women who, at the onset of labor, planned home or birth center births.
- Women who who planned a hospital birth, were excluded.
- The final sample size after applying these criteria was N=47,394 pregnancies.

14

Exposures

- Characteristics include: primiparity, history of prior cesarean (with or without concurrent history of vaginal birth), multiple pregnancy, breech presentation, gestational diabetes, preeclampsia, post-term pregnancy, advanced maternal age, and elevated body mass index

15

Outcomes

- Transfer (IP, NEO, PP)
- C/S
- any genital tract trauma
- any postpartum hospitalization for a maternal indication in the first 6 weeks
- low 5-minute Apgar score (<7)
- very low 5-minute Apgar (<4)
- any neonatal hospitalization in the first 6 weeks
- Any NICU admission in the first 6 weeks
- Combined fetal/neonatal death

16

Data analysis

- We used unconditional logistic regression modeling for all analyses.
- All eight exposure variables were included in the models (thus, for instance, all births, including twins, controlled for fetal presentation).
- Models were adjusted additionally for Medicaid status, maternal education, and maternal race/ethnicity, as well the dataset from which the record originated (2.0 vs. 4.0).

17

Sample Demographics

- Women in this sample are representative of the childbearing population in the US who chose home and birth center birth during the research years—i.e., the majority are white, well-educated, and middle-to-upper class—though they are not representative of the US childbearing population as a whole.

MacDorman MF, Declercq E. Trends and Characteristics of United States Out-of-Hospital Births 2004-2014: New Information on Risk Status and Access to Care. *Birth Berkeley Calif*. 2016;43(2):116-124. doi:10.1111/birt.12228.

18

Results: Breech

- Breech presentation was associated with increased risk of all outcomes except postpartum maternal transfer.
- The adjusted odds of cesarean were higher in the breech group than in any other (AOR, 21.4; 95% CI, 17.2 – 26.6), as was the absolute risk of fetal/neonatal death (16.8/1000).
- The relative risk of fetal/neonatal death was also substantially elevated in the breech group (AOR, 8.2; 95% CI, 3.7 – 18.4)

19

Results: Twins

- Twin pregnancies were independently associated with modestly-elevated increases in risks of intrapartum transfer, maternal hospitalization in the first 6 weeks, and neonatal hospitalization in the first 6 weeks (AORs 1.9 – 2.4)
- More strongly elevated risk of postpartum transfer, cesarean, low 5-minute Apgar, and NICU admission (AORs 2.8 – 4.1)
- *And a substantially-elevated risk of very low 5-minute Apgar (AOR, 11.5; 95% CI, 5.0 – 26.6).
- *Twin pregnancy was not independently associated in these data with neonatal transfer, perineal trauma, or fetal/neonatal death.

20

Results: Older than average clients

- The independent contribution of AMA to maternal and neonatal risks is quite modest, with the highest adjusted odds ratios found for intrapartum transfer (AOR, 1.5; 95% CI, 1.4 – 1.7) and cesarean (AOR, 1.7; 95% CI, 1.5 – 1.9).
- There was no evidence of increased adjusted risk of fetal/neonatal death (AOR, 0.95; 95% CI, 0.52 – 1.7) in this sample.

21

Results: Women of Size

- Pre-gravid obesity, when examined independently, is associated with modest increases in risk across nearly all outcomes, with the exceptions of postpartum transfer (no association), fetal/neonatal death (no association), and genital tract trauma, for which obese women have lower risk in these data: AOR, 0.89; 95% CI, 0.83 – 0.96.

22

Results: GDM

- GDM in this sample is independently associated only with genital tract trauma (AOR 1.5; 95% CI, 1.2 – 1.9)
- For neonatal transfer and cesarean the point estimates and 95% confidence intervals suggest a potentially harmful effect that might become apparent given a larger sample size in the GDM group.

23

Results: Preeclampsia

- Preeclampsia in this sample was associated with increased risks of intrapartum transfer (AOR, 3.4; 95% CI, 1.8 – 6.5), cesarean (AOR, 5.1; 95% CI, 2.4 – 10.5), very low 5-minute Apgar (AOR, 12.4; 95% CI 3.6 – 42.4), and fetal/neonatal death (AOR, 10.7; 95% CI, 1.4 – 81.5).

24

Results: Postdates

- Post-term pregnancy confers a 1 in 5 chance of intrapartum transfer and a 1 in 10 chance of cesarean, but once the other risk factors and covariables are controlled for, contributes only modestly to adjusted risks for most other outcomes.
- The most notable exceptions are cesarean (AOR 2.5; 95% CI, 2.2 – 2.9) and risk of fetal/neonatal death: AOR 2.8 (95% CI, 1.5 – 5.3).

25

Results: Primips

- Primiparity was independently associated with increased adjusted odds across all outcomes. The bulk of the AORs indicated a relative increase in risk of between two- and four-fold, with substantially higher estimates for intrapartum transfer (AOR, 6.6; 95% CI, 6.1 – 7.2) and cesarean (AOR, 7.0; 95% CI, 6.2 – 7.9).
- Notably, primiparas had higher absolute and adjusted relative risks than women in the LAC/vag group across all outcomes.

26

Results: LAC/vag

- Women with a history of both cesarean and vaginal birth (LAC/vag), when compared to multiparas with no history of cesarean, experienced slightly-increased risks of all outcomes except neonatal transfer, very low 5-minute Apgar, and fetal/neonatal death.
- The greatest relative adjusted odds were observed in this group for the outcome of cesarean, AOR, 3.5; 95% CI, 2.7 – 4.6), though the absolute risk of cesarean was quite low (7.2%).
- 92.8% of women in this group completed a vaginal birth after cesarean (VBAC).

27

Results: LAC/no vag

- *Clients in the LAC/no vag group had increased risks across all outcomes, with AOR point estimates further from 1.0 than those observed in primiparas.
- Women in the LAC/no vag group had the highest (compared to all other risk factor groups) relative and absolute risk of perineal trauma, and the highest adjusted relative risk of neonatal transfer, postpartum transfer, and maternal hospitalization in the first 6 weeks.

28

Results: LAC/no vag cont.

- This group also had one of the highest relative risks of fetal/neonatal death, along with pre-eclampsia: AOR, 10.4; 95% CI, 4.8 – 22.6.
- The AOR for cesarean in this group, though not as high as for a breech fetus, was nonetheless consistent with substantially increased risk of surgical birth: AOR, 16.2 (95% CI, 13.1 – 19.9).
- However, the absolute risk of cesarean in this group was only 22.1%, meaning that 77.9% of these women had a VBAC despite being highly contested candidates for community birth.

29

LAC patterning by region

- Higher proportions of LAC in regions where hospital LAC is limited
- High rates of clients with previous vaginal births and previous VBACs: High success rates and low morbidity and mortality
- Low rates of clients with previously c/s, no vaginal birth AND compounding risk factors: Lower success rates and higher mortality and morbidity rates
- The latter also more likely to occur in regions where hospital LAC not available

30

Total n=47,394 pregnancies	Adjusted Models, OR (95% CI) IP or NEO death
AMA 19 (2.16/1000)	0.91 (0.48 - 1.7)
Pre-gravid obesity 15 (3.34/1000)	1.5 (0.76 - 3.0)
Multipara with hx of c/s and hx vag 2 (1.27/1000)	1.6 (0.38 - 6.8)
Postdates 15 (4.74/1000)	2.3 (0.56 – 9.7)
GDM 2 (3.88/1000)	2.4 (0.57 - 9.9)
Twins 2 (14.5/1000)	3.1 (0.40 - 23.5)
Primipara 50 (3.43/100o)	3.3 (2.0 - 5.6)
Breech 9 (3.88/1000)	7.4 (3.3 – 16.5)
Preeclampsia 1 (16.1/1000)	9.0 (1.2 - 68.6)
Mulripara,hx c/s only 11 (10.2/1000)	10.7 (4.9 - 23.4)

31

Summary of findings

- Some risk factors associated with higher relative risk than expected (LAC/no vag, Postdates)
- Some lower (Twins, LAC/vag, BMI >30, AMA)
- Some as expected (PE, GDM, Breech)
- Variability within categories is critical
  - Breech
  - LAC
- Systems not integrated, but intertwined nonetheless (LAC example)

32

Questions?

33

Acknowledgements

Support provided by:

- The Midwives Alliance
- FAM
- The DOR's coordinating council
- MANA Stats contributors
- US DHHS HRSA
- The Transforming Birth Fund

34

Break

35

Clinical Implications and Tools for Holistic Risk Assessment

36

What have we learned from research using MANA Stats?

- Closer monitoring
- Lower threshold for transfer
- Ongoing risk assessment and the "multiple pink flags" scenario
- LAC: Beware of plateaus
- Likelihood of transfer – need for systems integration
- **Place of birth is not a one time decision**

37

Medically Complicated Birth in the Community Setting: Understanding Place of Birth Decision Making (n=16)

- We need to better understand why clients with higher risk exposures still choose community birth.
  - Lack of in-hospital options
  - Obstetric and structural violence (Obstetric racism)
  - Past Trauma, need for control
  - Holistic Constructions of Risk - cultural, emotional, psychological, spiritual, economic, long term/future safety **and not just** clinical safety
  - "Needing a chance"

38

Let's think specifically about California…..

39

	Oregon	Washington	California	US Sample
Total # planned community births	total 6240 home 3905 bc 2356	total 10479 home 4872 bc 5621	total 8092 home 6556 bc 1549	64488 home 45607 bc 19039
IP transfer	857/6261 13.7%	1578/10489 15%	1209/8103 14.9%	8002/64630 12.4%
PP transfer	164/5387 3.0%	233/8899 2.6%	219/6886 3.2%	1528/56517 2.7%
Cesarean section	374/6237 6.0%	593/10449 5.7%	465/8090 5.7%	3228/64417 5.0%
NEO transfer	88/5401 1.6%	156/8907 1.8%	149/6893 2.2%	1012/56601 1.8%
NICU—any	165/6219 2.7%	220/10323 2.1%	309/8052 3.8%	1748/63962 2.7%
IP mortality overall	7/6245 1.12/1000	7/10451 0.67/1000	5/8097 0.62/1000	60/64477 0.93/1000
IP mortality low risk multips	2/3077 0.65/1000	0	0	14/35721 0.39/1000
IP mortality low risk primips	3/2055 1.46/1000	4/3232 1.24/1000	2/3032 0.66/1000	19/18619 1.02/1000
NEO mortality overall	10/6238 1.60/1000	6/10444 0.57/1000	2/8088 0.25/1000	45/64399 0.70/1000
NEO mortality low risk multips	1/3075 0.33/1000	2/5677 0.35/1000	0	7/35696 0.20/1000
NEO mortality low risk primips	6/2052 2.92/1000	1/3228 0.31/1000	1/3029 0.33/1000	22/18594 1.18/1000

40

Oregon and Washington: Sociopolitical and Ethnographic Contexts

- Oregon
  - Broad scope of practice including some forms of breech, twins and VBAC
  - Extremely restrictive Medicaid reimbursement
  - Varied educational pathways
  - Voluntary licensure until 2015
  - No state-wide transfer programs, highly variable by region
  - Mandatory data entry for QA/QI (MANA Stats)
- Washington
  - Narrower scope of practice
  - Medicaid Reimbursement
  - University-based training program for CPMs/ LMs
  - Mandatory licensure
  - Smooth Transitions Program
  - Mandatory data entry for QA/QI (MANA Stats and OB COAP)

41

How does it feel to work here?

What factors shape your practice?

42

43

What is shared decision making?

- Shared decision making is a key component of patient- centered health care. It is a process in which clinicians and patients work together to make decisions and select tests, treatments and care plans based on clinical evidence that balances risks and expected outcomes with patient preferences and values.

"Nothing about me without me."

- Valerie Billingham, *Through the Patient's Eyes,* Salzburg Seminar Session 356, 1998

National Learning Consortium 2013

43

Shared decision making around place of birth

Agency for Healthcare Research and Quality. Share Approach. Curriculum Tools See: https://www.ahrq.gov/professionals/education/curriculum-tools/shareddecisionmaking/tools/index.html

44

The LEARN Model

Listen with empathy and understanding to the client's perceptions of the problem, needs, desires.

Explain your perspective.

Acknowledge and discuss the difference and similarities.

Recommend treatment/care plan.

Negotiate agreement/compromise.

45

Four Boxes of Clinical Ethics

Medical Indications: Consider each medical condition and its proposed treatment. Ask the following questions: • Does it fulfill any of the goals of medicine? • With what likelihood? • If not, is the proposed treatment futile?	**Patient Preferences:** Address the following: • What does the patient want? • Does the patient have the capacity to decide? If not, who will decide for the patient? • Do the patient's wishes reflect a process that is informed? Understood? Voluntary?
Quality of Life: Patient's quality of life in the patient's terms. • What is the patient's subjective acceptance of likely quality of life? • What are the views of the care providers about the quality of life? • Is quality of life "less than minimal"?	**Contextual Features:** Social, legal, economic, and institutional circumstances in the case that can • influence the decision, • be influenced by the decision; e.g., inability to pay for treatment, inadequate social support.

46

Clinical Ethics

- Think better/worse, not good/bad
- May help define professional obligations
- Intent is not to judge patient choices, but rather our response to them
- Ethics grounded in medical circumstances
  - Jonsen, Siegler, Winslade. *Clinical Ethics*, 1998.

47

Four Ethical Principles

- **Autonomy**: Requires that the patient have autonomy of thought, intention, and action when making decisions regarding health care procedures. Therefore, the decision-making process must be free of coercion or coaxing. In order for a patient to make a fully informed decision, she/he must understand all risks and benefits of the procedure and the likelihood of success.
- **Justice:** The idea that the burdens and benefits of new or experimental treatments must be distributed equally among all groups in society. Requires that procedures uphold the spirit of existing laws and are fair to all players involved. The health care provider must consider four main areas when evaluating justice: fair distribution of scarce resources, competing needs, rights and obligations, and potential conflicts with established legislation.

48

Four Ethical Principles cont.

- **Beneficence**: Requires that the procedure be provided with the intent of doing good for the patient involved. Demands that health care providers develop and maintain skills and knowledge, continually update training, consider individual circumstances of all patients, and strive for net benefit.
- **Non-maleficence:** Requires that a procedure does not harm the patient involved or others in society.

49

Let's also think about….

- Professional responsibility
- The obstetric imaginary and the political-economy of hope
- Complex care planning

50

Small group work: Case review

51

Case #1

- 27 year-old G2P1 woman, otherwise healthy, had a C/S 3 years ago at your local hospital with first pregnancy following a "failed induction" at 41+3—stuck at 3 cm for 7 hours on Pitocin. Local hospital does not offer VBAC, and she feels like she was treated like she was "Invisible" during last birth. The nearest hospital doing VBAC 1.5 hours away—large academic center. The client reaches out to your practice and requests a home birth.

52

Case #2

- 37 year-old G2P1 had C/S with first pregnancy, oral-med controlled GDM with both pregnancies, pre-pregnancy BMI of 36. Had arrest of descent in first labor after spontaneous onset. Baby was 4900 gms, and she pushed for 4.5 hours. Wants LAC. Local hospital offers LAC and obstetrician offers to help seek tighter glycemic control to reduce macrosomia with this birth. Friends suggest she seek out midwifery care at home to improve her chances of successful VBAC die to fat stigma in the medical establishment.

53

Case #3

- 30 year old G3P2, two previous hospital births, both induced at 41 weeks, long hard labors, both vaginal births after short pushing phases (under 20 minutes), after 2nd baby, tested positive for marijuana (not legal in her state yet but legislation pending) so the hospital took the baby to the nursery and gave baby formula and donor milk, client told she could not nurse because of the drug screen. Now she is pregnant with twins and wants a home birth. Client feels she was treated poorly because of her race/ethnicity and does not want to go back to a "racist hospital".

54

Case #4

- 33 year old G2P1, first baby born by cesarean after a failed induction for presumed LGA at 39 weeks (baby was 8lbs 2 oz). Dx with PTSD and anxiety following the birth because she could not lay down to go to sleep without reliving her c/s. C/s "experienced as torture". Client became a doula as part of her journey to healing and is now very active in a local birth justice movement. She is pregnant with her 2nd baby and planning a home LAC. Otherwise healthy, but persistent frank breech at term despite 2 attempts at versions, one with epidural. Placenta is not implanted near or over scar. Local hospital does not "allow" VBAC or vaginal breech. Hospital two hours away has a breech trial underway.

55

Case #5

- 38 year old G8P7, first 6 born vaginally in hospital, history of large babies, baby 6, 10lbs 3 oz, had a 2 minute shoulder dystocia and a broken humerus, no sequelae, baby 7 born at home, 12lbs 3 oz (declined GTT but monitored blood sugars as per diet controlled GDM), 9 minute SD, full resus, baby shocked with adult electrodes by EMS, survives and appears neurotypical at 3years old, began care at local hospital with 8th pg but is being told a c/s is her only option, contacts you requesting a home or BC birth

56

Share reflections with the group

57

The Four Boxes Approach Case #_

- Clinical—
- Patient Preference—
- Quality of life considerations—
- Contextual features—

58

Stakeholder responses Case #_

- Client—
- Midwife—
- Obstetrician—
- Hospital—
- Complex care planning?
- Hard questions—

59

Reflections LAC

- Client preference must be balanced with clinical facts and contextual features to determine professional obligations
- Professional obligations may be larger than individual client—physicians and hospitals have a duty to patient safety that must include reducing need for LAC by reducing primary cesareans, and providing safe, humane environments for LAC in hospitals
- Home LAC may be ethical choice for provider depending on clinical and larger social factors (i.e. contextual features)
- Hospitals/Physicians have a duty to reduce cesareans and increase access to LAC
- If a hospital is capable of providing safe obstetric care, it is capable of providing LAC

60

Reflections cont.

61

Hard Questions

- How much risk does it take to overrule client choice? Everyone draws a line somewhere…
- What about large, impersonal academic centers that offer high rates of successful VBAC in less hospitable environments? Vaginal breech trials in the OR?
- Whose responsibility is it to provide accurate information to clients about local physicians/hospitals/midwives to aid them in informed choice and shared decision making?
- Is there an "acceptable" mortality rate? If so, what is it?
- How do we manage the delicate balance of maternal and fetal/neonatal harms and benefits?

62

Top Ten Take Home Messages?

63

Thanks you!
Questions?

64