The MANA Stats Fetal, Neonatal Mortality Review (FNMR) Project: Preliminary Findings and Implications for Practice
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This work is unpublished. Please do not share.
Purpose

- The purpose of this project was to use a mixed methods approach to identify and describe factors that contribute to preventable fetal and neonatal mortality among planned, midwife-attended births in the community setting in the United States.

- Goal: Identify potentially ameliorable factors that contribute to perinatal mortality
  - Highlight systems-level factors
  - Identify places where practices may need to be modified
  - Reduce maternal and neonatal suffering
A word on language......
What is essential?

- Nothing is more insulting than the assumption that community midwives do not care about healthy babies and safe birth
- That we privilege the maternal experience over the well being of the baby
- In fact, an inseparable unit
- We want to see happy, healthy, empowered parents and we know this is deeply connected to the baby’s wellbeing – **honor this dyad (triad +)**
- **Value our stories and learn from each other**
Background: Why study FNM?

Homebirth is unsafe

FOR: The safety of planned homebirth: a clinical fiction

AMOS GRUNDFELD, DOCTOR, USA, LAWRENCE & MICHELDODG, DOCTOR, USA, BURGIT ABRAM, DOCTOR, GERMANY, ROBERT L. BRENT, ASSOCIATE PROFESSOR OF OBSTETRICS AND GYNECOLOGY, USA, MACGOLD, LEVEN, DOCTOR, USA, FRANK A. CHROYNEN, DOCTOR, USA

Home birth two studies consistently associated with
higher maternal mortality rates and the risk of maternal
death. In these studies, mortality rates of
home births are significantly higher than those of hospital births.

CONCLUSION: First, we question the underlying premise of
these studies. It is not clear that home births are a
common occurrence in the USA. Many of these studies are
conducted in a single state or region. The data presented may
not be representative of the USA as a whole. Second, the
studies themselves are flawed. They rely on case reports and
retrospective studies, which are prone to bias and selection
bias. It is not clear that these studies provide a
comprehensive view of the risks and benefits of homebirth.

AGAINST: Safe for whom?

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comprehensive view of the risks and benefits of homebirth.
Home birth is unsafe (BJOG 2015):

FOR: The safety of planned homebirths: a clinical fiction (Grünebaum, McCullough, Arabin, Brent, Leveen and Chervenak)

AGAINST: Safe for whom? (Cheyney, Bovbjerg and Burcher)

* “[T]he best evidence in answer to the wrong question is useless.” (Menticoglug & Hall 2002)
FOR

- Clinical Village (teamwork, emergency drills, safety checklists, outside review of performance, specialized care)

- “Striking array” of clinical conditions that cannot be addressed at home (cord prolapse, cord compression, abrupted placenta, ruptured uterus, fetal distress)

- Access to high-tech equipment and medications (EFM)

- Home birth safe only in no-risk pregnancies = clinical fiction
AGAINST

- Conversation dominated by risks to the fetus, much less about demonstrated benefits - BF, reduced maternal morbidity, maternal satisfaction, cost savings, safety in future pregnancies

- Community birth safety contingent upon getting certain things right: 1) the patient population, 2) the collaborative relationships between midwives and physicians, 3) adequate training in the management of first-line complications; and 4) transfer criteria and access.

- Where not as safe as possible -> critical reform, not retreat from home/community birth as an option
<table>
<thead>
<tr>
<th>Study &amp; Design</th>
<th># of OOH Participants</th>
<th>Country &amp; OOH Type</th>
<th>Antepartum Death per 1000*</th>
<th>Perinatal Death per 1000*</th>
<th>Neonatal Death per 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>O-O-H</td>
<td>Hospital</td>
<td>O-O-H</td>
</tr>
<tr>
<td>Snowden</td>
<td>3203</td>
<td>USA home &amp; FSB</td>
<td>2.4 fetal</td>
<td>1.2 fetal</td>
<td>3.9</td>
</tr>
<tr>
<td>Stapleton</td>
<td>15,574</td>
<td>USA FSB</td>
<td>0.4 fetal</td>
<td></td>
<td>0.9</td>
</tr>
<tr>
<td>Cheyney</td>
<td>16,924</td>
<td>USA home</td>
<td>1.3 intrapartum</td>
<td></td>
<td>2.1</td>
</tr>
<tr>
<td>Hutton</td>
<td>11,492</td>
<td>Canada home</td>
<td>0.3 intrapartum</td>
<td>0.1</td>
<td>0.8</td>
</tr>
</tbody>
</table>

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.
What should the benchmark be?

- Inconsistencies in reporting and definitions, ex. Perinatal mortality
- Prolonging life, ex. Rise in mortality post-neonatal period
- Incomplete data, ex. Hard to link birth and death certificates, low quality data
- Fetal-centrism, maternal morbidity and short-term thinking
**Figure II**

Proportion of births attended by a skilled health worker and the burden of maternal, foetal and newborn deaths in 58 selected countries.

- **58 countries contribute to 91%** global burden of maternal mortality.
- **80%** global burden of stillbirths.
- **82%** global burden of neonatal mortality.

\[ \begin{align*}
\text{% births attended by trained attendant} & \\
<20\% & \\
20\% - 49\% & \\
50\% - 74\% & \\
75\% - 94\% & \\
95\% or over & \\
\end{align*} \]

**But only 58%** of the world’s total births per year with less than **17%** of the world’s midwives, nurses and physicians.

Source: Adapted from WHO and The Lancet’s Stillbirths Series.
Why is IP mortality in the US higher than anticipated for community births?

- Planned Location?
- Practitioner type?
- Route to Certification?
- Level of Systems Integration?
- Risk Level of the Mother?
Methods: Inclusion Criteria

- The MANA Stats 4.0 dataset [2012-2016] contains \( N = 67,388 \) records from all clients receiving at least some prenatal care from contributor midwives.

- Excluded:
  - Clients who transferred care to another provider prior to the onset of labor
  - Clients who at the onset of labor had a planned birth location other than home or birth center
  - Clients who did not live in the United States

- Final sample = all planned, US community births between 2012 and 2016 \( (n = 55,202) \)
Midwife-researchers conducted detailed interviews with midwives for all non-miscarriage fetal and neonatal deaths.

Voluntary process

The objective was to clarify the gestational age at which the death occurred and to properly classify late miscarriages.

The reviewers also collected as much qualitative data as possible on when, how, and why the death occurred, as well as data on whether an autopsy was conducted, and the official cause of death assigned via medical examiner or coroner’s report.

- 93% participation rate (1/4 could not be reached, 1/4 never responded, 1/2 explicitly declined)
Results: Fetal and Neonatal Mortality

- Excluding lethal congenital anomalies:
  - Intrapartum death (IP) =
  - Neonatal death (NEO) =

- Excluding higher-risk conditions (twins, breech, LAC/no VAG, GDM, PE and PD):
  - IP =
  - NEO =
Results: Fetal and Neonatal Mortality

- Nullips excluding higher-risk conditions (twins, breech, LAC/VAG, GDM, PE and PD):
  - IP = 14/15628 = 0.90/1000
  - NEO = 21/15582 = 1.35/1000

- Multips excluding higher-risk conditions (twins, breech, LAC/VAG, GDM, PE and PD):
  - IP = 16/31366 = 0.51/1000
  - NEO = 8/31319 = 0.26/1000
The following report is an analysis of The JJ Way® program outcomes for participants enrolled between February 2016 and February 2017. This project was funded by the West Orange Healthcare District.

The JJ WAY®: Community-based Maternity Center
Final Evaluation Report
Research Questions

• Do women who receive maternity care The JJ Way® have better outcomes than women in Orange county and the state of Florida?

• Are disparities in outcomes eliminated or reduced in the women who receive services The JJ Way®?

• Between February 2016 and February 2017, a total of 256 women received services and were enrolled in the evaluation. Written consent was obtained from each to participate.
Figure 10: Percentage of Preterm Births by Race
Figure 12: Percentages of Low Birth Weight Babies by Race
Conclusion

This evaluation of The JJ Way® model of prenatal care showed **elimination** of health disparities in preterm birth outcomes and reductions in low birth weight babies in at-risk populations.
What if we examine the effects of midwifery care on clients of color in MANA Stats? n=7531
# Intrapartum Mortality

<table>
<thead>
<tr>
<th></th>
<th>White Clients</th>
<th>Clients of Color</th>
<th>fisher's exact test p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall IP Death Rate</strong></td>
<td>$\frac{47}{47539} = 0.99/1000$</td>
<td>$\frac{9}{7531} = 1.20/1000$</td>
<td>0.56</td>
</tr>
<tr>
<td><strong>Minus anomalies</strong></td>
<td>$\frac{46}{47538} = 0.98/1000$</td>
<td>$\frac{9}{7531} = 1.20/1000$</td>
<td>0.56</td>
</tr>
<tr>
<td><strong>“Low Risk”</strong></td>
<td>$\frac{24}{40551} = 0.59/1000$</td>
<td>$\frac{6}{6355} = 0.94/1000$</td>
<td>0.29</td>
</tr>
</tbody>
</table>
# Neonatal Mortality

<table>
<thead>
<tr>
<th></th>
<th>White clients</th>
<th>Clients of Color</th>
<th>fisher’s exact test p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall neonatal/infant death rate</td>
<td>66/47426 = 1.39/1000</td>
<td>8/7501 = 1.07/1000</td>
<td>0.61</td>
</tr>
<tr>
<td>Minus anomalies</td>
<td>40/47400 = 0.84/1000</td>
<td>6/7499 = 0.80/1000</td>
<td>1.0</td>
</tr>
<tr>
<td>“Low risk”</td>
<td>23/40478 = 0.57/1000</td>
<td>6/6335 = 0.95/1000</td>
<td>0.27</td>
</tr>
</tbody>
</table>
### Results: Causes of Mortality

<table>
<thead>
<tr>
<th>Intrapartum demises</th>
<th>Neonatal demises</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 fetuses affected by maternal complications of pregnancy</td>
<td>2 Disorders relating to short gestation or LBW</td>
</tr>
<tr>
<td>21 fetuses affected by complications of membranes, cord, or placenta</td>
<td>5 SIDS (days 38, 87, 91, 175, 180)</td>
</tr>
<tr>
<td>6 intrauterine hypoxia/asphyxia</td>
<td>1 Newborn affected by maternal complications of pregnancy</td>
</tr>
<tr>
<td>3 other</td>
<td>5 Newborn affected by complications of cord, membranes, or placenta</td>
</tr>
<tr>
<td>24 midwife does not know</td>
<td>4 RDS</td>
</tr>
<tr>
<td></td>
<td>6 Sepsis</td>
</tr>
<tr>
<td></td>
<td>12 Intrauterine hypoxia/asphyxia</td>
</tr>
<tr>
<td></td>
<td>6 Other</td>
</tr>
<tr>
<td></td>
<td>4 Unknown per ME</td>
</tr>
<tr>
<td></td>
<td>4 Midwife does not know</td>
</tr>
</tbody>
</table>
The three delays model (Thaddeus and Maine 1994):

- 1) Delay in decision to seek care - decision making power, barriers to transfer, fear of abuse/disrespect
- 2) Delay in reaching care – distance, impassable roads, lack of reliable transportation
- 3) Delay in receiving care – overburdened facilities, and lack of supplies, personnel
The three delays model— a different face in US transfers:

1) Delay in decision to seek care (decision making power, barriers to transfer, fear of abuse/disrespect):
   - Delayed identification of a complication
   - Cumulative risk
   - Previous poor experience with specific provider
   - Fear of reprisal, especially “punitive c/s”, disrespect, abuse, loss of autonomy
   - Financial concerns
2) Delay in reaching care (distance, impassable roads, lack of reliable transportation):
- generally not a problem, a few exceptions
- problems with EMS

3) Delay in receiving care after transfer (overburdened facilities, and lack of supplies, personnel):
- hostile communication, lack of trust
- difficulty sharing records
- blaming, shaming and humiliation
Summary of findings

- Overall, rates of mortality are low, especially for clients without specific risk factors;
- Three delays in transfer contribute to preventable mortality – some overlaps, key differences between low- and high-resource contexts;
- State-level differences – Likely tied to degrees of integration, collaboration and state-level policies.
- Multi-factorial causation
Conclusion

- Training on delay reduction
  - First delay – identification of complications, TLTL, up-skilling
  - Second delay – Connecting with EMS
  - Third delay – Making the best practices for transfer guidelines standard of care in all hospitals
- Urgent need to speak and collaborate across the community birth-hospital birth divide
- Scale-up midwifery care for all
Acknowledgements

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

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