

Do State Midwifery Laws Matter?

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Summary

Using the CDC Wonder website, U.S. neonatal mortality rates (NNM) are examined for term, singleton births attended by non-nurse midwives in out-of-hospital settings. States are grouped by regulatory status, and NNM of those groups are compared to assess whether state midwifery laws have an impact on out-of-hospital birth mortality. The requirement that non-nurse midwives be licensed reduces NNM by 30%, and the requirement to carry malpractice insurance reduces NNM by 50%. There is insufficient data to assess the impact of a collaboration agreement and a low-risk scope of practice on NNM. Thus, mandatory malpractice insurance is the most important driver of safer out-of-hospital birth outcomes. The requirements of insurance and collaboration do not appear to restrict access to out-of-hospital birth attendants. However, even with these requirements, the risk of birth outside a hospital with a non-nurse midwife is still nearly double that of midwife-attended hospital birth.

Introduction

In a 2014 study, using the CDC linked birth/infant death records, Amos Grunebaum, et al, found that births attended by midwives at home in the U.S. have about a 4-fold greater neonatal mortality rate (NNM) than those attended by midwives in hospitals [1].

In the study that follows, the CDC linked birth/infant death records are used to examine sub-national NNM rates for out-of-hospital births to non-nurse midwives [2]. States are grouped by regulatory status, and NNM of those groups are compared to assess the impact of state midwifery laws on out-of-hospital birth outcomes.

State Midwifery Laws

Midwifery laws vary a great deal by state. They have been cataloged at the Safer Midwifery Michigan blog [3]. The regulations of general interest are listed below, though this analysis is limited to the study of licensing, malpractice insurance, collaboration, and a low-risk scope.

- Licensing – Some states license non-nurse midwives, some states explicitly outlaw them, and in others their practice is alegal. In states that license midwives, a license is not always required to practice, and sometimes there are prohibitive barriers to obtaining a license [4].
- Education – Requirements associated with different types of U.S. midwives [5]:
 - Certified Professional Midwife (CPM) - Minimum formal education established by NARM is a high school diploma in the PEP certification path.

- Certified Midwife (CM) - Requires a Bachelor's degree plus a graduate degree in midwifery without the requirement to be a nurse, AMCB certified.
- Certified Nurse Midwife (CNM) - A Registered Nurse who has obtained a graduate degree in midwifery, AMCB certified.
- Malpractice insurance – Only Florida (since 1997) and Indiana (since 2014) require midwives to carry medical malpractice insurance [6-7].
- Collaboration – A few states require midwives to have a written collaboration agreement with a hospital-based CNM or physician: DE (2001), FL (1992), IN (2014), LA (1985), NJ (2002), NY (1992), TN (2000), and CA (1995-2014) [3, 6-8].
- Scope of practice – A low-risk scope of practice prohibits non-nurse midwives from attending breech births, vaginal birth after cesarean (VBAC), and multiple fetus births in out-of-hospital settings. Some states allow non-nurse midwives to attend high-risk births in out-of-hospital settings [9].
- Reporting outcomes – Some states require midwives to report patient outcomes such as deaths, transfers, complications, etc. to the state regulating body.
- Criminal or civil penalties – Some states impose criminal or civil penalties for violation of midwifery laws. For instance, Delaware imposed criminal penalties in 2013 because midwives were found to be violating state laws [10].

Wonder Website Selection Criteria

The following selection criteria are used to find out-of-hospital mortality rates from the CDC Wonder website linked birth/infant death records [2]. Data sets for 1999-2002, 2003-2006, and 2007-2011 are queried separately, and results are combined by summing the birth and death counts.

Maternal characteristics	All
Birthplace	Not in Hospital
Birth Weight	≥ 2500 grams
Age of Infant at Death	Under 1 hour, 1 - 23 hours, 1 - 6 days, 7 - 27 days
Plurality or Multiple Birth	Single
Gestational Age	≥ 37 weeks
Medical Attendant	Other Midwife
Cause of infant death	All
All other criteria	All

The control group is midwife attended births (CNM and other midwives) in the hospital with

otherwise identical selection criteria.

The selection used by Grunebaum, et al, differs by the following criteria:

- Congenital anomalies are excluded
- CNMs and other midwives are included
- Birth center and home births only, with separate mortality rates for each

In this study, congenital anomalies are included because it is unlikely they will be diagnosed in advance of a planned out-of-hospital birth. Thus, the risk includes losing a baby to potentially treatable birth defects. This analysis does not include CNMs, since they are governed by different state laws. This analysis combines birth center and home births, called out-of-hospital births, because they cannot be separated in the Wonder selection for births “Not in hospital”. See the appendix for more information.

Results

During the study period 1999-2011, hospital midwives attended 3,436,240 births which meet study criteria for the control group. National rates of out-of-hospital NNM are shown in the table below for nurse midwives and non-nurse (other) midwives.

Provider	Births	NNM / 1000	RR	95% CI
Nurse Midwives	133,317	0.77	1.87	1.53-2.29
Other Midwives	183,799	1.40	3.40	2.98-3.88
Hospital Midwives	3,436,240	0.41	1.00	

For the out-of-hospital births to non-nurse midwives, states are grouped by regulatory status in four areas: legal status, malpractice insurance, collaboration, and a low-risk scope of practice. For the “required” category in each of these areas, states are only included during the time when those laws were in effect for non-nurse midwives. The rates of NNM and risk ratios (RR) for these groups are shown in the table that follows.

States which require midwives to be licensed have a 30% reduction in NNM below the national average. States which also require malpractice insurance (only Florida during the study period) have a 50% reduction in NNM, though this result does not quite reach statistical significance at the 5% level.

The impact of requiring collaboration or a low-risk scope is unclear due to small sample size. The RR for scope has a large confidence interval, and the collaboration study is highly correlated with the malpractice insurance study; Florida births comprise over half the collaboration study group. Thus, there is insufficient data to conclude whether collaboration and low-risk scope have an impact on NNM.

However, it is clear that mandatory malpractice insurance is the most important driver of safer

outcomes at out-of-hospital births, for it cuts neonatal mortality in half. Requiring malpractice insurance and collaboration did not appear to restrict access to out-of-hospital births, since nearly 10% of out-of-hospital births under study were in Florida. However, even with these regulations, the mortality rate in Florida (RR: 1.83) is almost double that of births to hospital midwives.

Regulation	Status	States	Births	NNM / 1000	RR	95% CI
Legal Status	License Required	AK, AR, AZ, CA, CO, DE, FL, ID, LA, MN, MT, NH, NJ, NM, NY, SC, TN, TX, VA, VT, WA, WI, WY	104,013	1.03	2.49	2.05-3.03
	Illegal	AL, DC, GA, HI, IA, IL, IN, KY, MD, NC, SD, PA	23,225	2.50	6.05	4.66-7.87
	Other	All others	56,561	1.66	4.03	3.27-4.96
Malpractice Insurance	Required	FL	17,203	0.76	1.83	1.06-3.16
	Not Required	All others + DC	166,596	1.47	3.56	3.11-4.08
Collaboration	Required	CA, DE, FL, LA, NJ, NY, TN	30,687	0.95	2.29	1.59-3.31
	Not Required	All others + DC	153,112	1.50	3.62	3.15-4.17
Low-risk Scope	Required	AK, AZ, CA, LA, NJ, NY, SC	22,788	1.23	2.98	2.05-4.33
	Not Required	All others + DC	161,011	1.43	3.46	3.01-3.98
Hospital Midwives			3,436,240	0.41	1.00	

References

- [1] : Amos Grunebaum, et al. "[Term neonatal deaths resulting from home births: an increasing trend](#)," AJOG, January 2014.
- [2] : CDC WONDER On-line Database. [Linked Birth / Infant Death Records](#).
- [3] : Safer Midwifery Michigan, "[Midwifery Laws State-by-state](#)," August 2014.
- [4] : NARM, [Direct-Entry Midwifery State-by-state Legal Status](#), August 2014.
- [5] : AMCB, [Why AMCB Certification](#).
- [6] : Florida Friends of Midwives, [Midwives in Florida: A Brief Overview](#).
- [7] : Ellie Price, "[New law allows non-nurse midwives to practice in Indiana](#)," TheStatehouseFile.com, June 2013.
- [8] : California Association of Midwives, "[Amended Licensed Midwifery Practice Act](#)," February 2014.
- [9] : Arizona Department of Health Services, "[Midwifery Scope of Practice by State: VBAC, Multiple Births, Breech Births in Non-Hospital Settings](#)," 2011.
- [10] : Ashton Brown, Jen Rini, "[Law hinders Del. non-nurse midwives](#)," Delaware.NewsZap.com, November 2013.

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Appendix

The Wonder selections are coarser than those used by Grunebaum, et al, directly from vital statistics. Those selections are in red, this analysis is blue, and their overlap is purple. The control region is the same. Note that regions which are strictly blue comprise only 2% of the sample used in this study.

Wonder Selectors		Hospital	Not in Hospital	Not in Hospital	Not in Hospital	Not in Hospital	Not Stated
	Vital Stats Selectors	Hospital	Birth Center	Doctor's Office	Residence	Other	Not Stated
MD	MD						
DO	DO						
CNM	CNM	GC	GT3		GT2		
Other Midwife	Other midwife	GC	GT3, MT	MT	GT2, MT	MT	
Other	Other				GT1		
Unknown or Not Stated	Not Reported						
Unknown or Not Stated	Not Stated						

GC – Grunebaum Control group, “hospital midwives”

NNM = 0.31 / 1,000

GT1 – Grunebaum Test group 1, “home others”

NNM = 1.82 / 1,000

GT2 – Grunebaum Test group 2, “home midwives”

NNM = 1.32 / 1,000

GT3 – Grunebaum Test group 3, “freestanding birth center”

NNM = 0.63 / 1,000

MT – Muniz Test group, Other Midwives, Not in Hospital

NNM = 1.40 / 1,000