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Policy Matters

State Scope of Practice Laws, Nurse-Midwifery Workforce, and Childbirth Procedures and Outcomes

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A B S T R A C T

Background: Despite research indicating that health, cost, and quality of care outcomes in midwife-led maternity care are comparable with and in some case preferable to those for patients with physician-led care, midwifery plays a more important role in some U.S. states than in others. However, this variability is not well-understood.
Objectives: This study estimates the association between state scope of practice laws related to the autonomy of midwifery practice with the certified nurse-midwifery (CNM) workforce, access to midwife-attended births, and childbirth-related procedures and outcomes.
Methods: Using multivariate regression models, we analyzed Natality Detail File data from births occurring from 2009 to 2011. Each state was classified regarding autonomous midwifery practice (not requiring supervision or contractual agreements) based on Lexis legal search.
Results: States with autonomous practice laws had an average of 4.85 CNMs per 1,000 births, compared with 2.17 in states where CNM practice is subject to collaborative agreement. In states with autonomous CNM practice, women had higher odds of having a CNM-attended birth (adjusted odds ratio [AOR], 1.59; $p = .004$), compared with women in states where midwifery is subject to collaborative agreement. In addition, women in states with autonomous practice had lower odds of cesarean delivery (AOR, 0.87; $p = .016$), preterm birth (AOR, 0.87; $p < .001$), and low birth weight (AOR, 0.89; $p = .001$), compared with women in states without such practice.
Conclusions: States with regulations that support autonomous midwifery practice have a larger nurse-midwifery workforce, and a greater proportion of CNM-attended births. Correlations between autonomous practice laws and better birth outcomes suggest future policy efforts to enhance access to midwifery services may be beneficial to pregnancy outcomes and infant health.

In 2014, certified nurse-midwives (CNMs) and direct-entry midwives attended about 9% of births (CDC, 2015a); in the beginning of the 20th century, midwives attended nearly one-half of all births in the country (Davis-Floyd, 2006; Declercq, 1992). Academic analyses attribute the decline of midwifery practice in the United States to the perceived threat to physicians of economic competition from midwives at a time when physicians were consolidating professional power, increased technological intervention during childbirth, the emergence of the private medical practices, and increased use of pain medication (Renfrew et al., 2014). The move to obstetrician-led care in the vast majority births has coincided with improvements in infant survival, but it has not been entirely positive—detractors cite increases in the rate of cesarean births, as well as overuse of procedures that are not evidence based (Renfrew et al., 2014).

The U.S. paradigm of physician-led childbirth has persisted despite research indicating that health, cost, and quality of care outcomes in midwife-led maternity care are comparable with and in some case preferable to those for patients with physician-led care (Sandall, Soltani, Gates, Shennan, & Devane, 2013). Recent studies indicate that midwife-led models of care produce,

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for example, fewer instances of antenatal hospitalization, perinatal death, instrumental birth, and cesarean delivery (Sandall et al., 2013). Additionally, births with midwife-led care result in shorter hospital stays, higher patient satisfaction, and significantly lower costs of care (Sandall et al., 2013). The *Lancet* devoted a special issue to the topic of midwifery in June 2014 (Lancet, 2014), and in December 2014, Britain's National Institute for Health and Care Excellence (NICE) recommended that healthy women with uncomplicated pregnancies give birth under the supervision of midwives rather than physicians (NICE, 2014). Their reasoning was based on research showing that obstetricians are much more likely than midwives to use interventions like labor induction, epidural pain management, and cesarean deliveries—procedures that may carry additional maternal and neonatal risks when performed without definitive medical need. In the wake of the NICE recommendation, a *New York Times* Editorial called for greater use of midwifery care in the United States, specifically lending support to federal legislation to recognize Maternity Care Shortage Areas (New York Times, 2014).

Trained and licensed in both nursing and midwifery, CNMs possess at least a bachelor's degree from an accredited institution of higher education and are certified by the American College of Nurse Midwives. Direct-entry midwives are trained in midwifery through a variety of sources that can include self-study, apprenticeship, a midwifery school, or a college/university program. Midwifery plays a more prominent role in some U.S. states than in others: the percentage of total births attended by midwives varies substantially from state to state (from 0.8% in Arkansas to 23.9% in New Mexico in 2009; Declercq, 2012). However, this variability is poorly understood. Patient characteristics and clinical complexity as well as differences in racial, ethnic, geographic, and political landscapes across states likely impact the practice of midwifery as well as women's access to midwifery care.

It seems likely that jurisdictions that restrict the practice of midwifery will experience fewer midwife-led deliveries. Variability in regulations could result in differences in access to midwifery care, and to the potential health, cost, and quality-of-care benefits attributable to midwifery. Surprisingly limited empirical evidence, however, documents such a relationship. In a notable exception, Declercq, Paine, Simmes, & DeJoseph (1998) used surveys conducted in 1991 and 1995 and found that the degree to which state policies facilitated or restricted CNM practice predicted the distribution and practice activities of CNMs. This study extends Declercq study by using recent vital statistics birth data. We hypothesize that states with autonomous midwifery practice laws have larger midwifery workforce, more midwife-attended births, and better birth outcomes. We focus on laws relevant to CNMs rather than direct-entry midwives because CNMs represent the majority of U.S. midwives and attended more than 92% of midwife-attended births (American College of Nurse-Midwives, 2013).

Materials and Methods

Data

The main source of data for this analysis was the 2009 through 2011 Natality Detail File (NDF; National Center for Health Statistics, 2009–2011). The NDF is based on the information reported on birth certificates filed for all babies born in the United States. The information is transmitted by all states in the United States to the Centers for Disease Control and Prevention, National Center for Health Statistics through the Vital Statistics Cooperative Program. An estimated 99% of all births occurring in the United States are registered, and most items on birth certificates are completed. The demographic and medical and health items collected are consistently shown with a high degree of completeness and accuracy (Martin et al., 2013). Because geographic information is not available in the public use file, we obtained restricted files with state identifiers. The study population consists of 12,106,161 births across all state jurisdictions during the time period examined. The American Midwifery Certification Board supplied us with workforce data from 2013. The dataset included both CNMs and Certified Midwives (CMs), and it was not possible to separate the two for analysis. As of May 2015, there were 11,194 CNMs and 97 CMs nationally (American College of Nurse-Midwives, 2016). Statements about the CNM workforce in this paper refer to both CNMs and CMs. We used information on the number of births per state in 2013 from the published National Vital Statistics Report (CDC, 2015b).

Measures

Independent variable

Our independent variable was based on state laws related to scope of practice for CNMs. In the birth data files, we used the state where the birth occurred to classify exposure to state policy. As shown in Table 1, each state and the District of Columbia was classified as having autonomous practice for CNMs or not based on Lexis legal search (available: www.lexis.com). The classification was reviewed and verified by the American College of Nurse-midwives Government Affairs staff. None of the states changed their midwifery scope of practice laws during the study period.

Table 1
Certified Nurse-Midwives (CNMs) Scope of Practice Policy Type and States

Policy Type	Autonomous Midwifery Practice	Subject to Supervision or Collaborative Agreement			
Meaning and subtype	States not requiring CNMs to have physician supervision or contractual practice agreements for overall practice	States requiring physician supervision or contractual practice agreements for CNMs only for exercise of prescriptive authority	States requiring CNMs to have contractual practice agreements with physicians for some practice	States requiring CNMs to have signed contractual practice agreements with physicians for overall practice	States requiring physician supervision of overall practice of CNMs
States	AK, AZ, CO, CT, DC, HI, IA, ID, MD, ME, MN, MT, NH, NJ, NM, NY, ND, OR, RI, UT, VT, WA, WY	KY, MI, OK, TN, TX, WV	AR, DE, GA, IL, IN, MO, SD	AL, KS, LA, MS, OH, PA, WI	CA, FL, MA, NC, NE, NV, SC, VA