



MIDWIFERY WORKFORCE DATA DICTIONARY

Technical documentation to accompany
the Midwifery Workforce Chartbook

AMERICAN COLLEGE
of NURSE-MIDWIVES

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Introduction

This manual includes a summary of the data sources and definitions used in the American College of Nurse-Midwives Midwifery Workforce Study. This information complements the Midwifery Workforce Chartbooks and Fliers by explaining the data, and data limitations. Midwives can use the information in this data dictionary to identify additional data that may be useful for midwifery advocacy.

Data Sources

US Birth Certificates

This project used two systems for accessing deidentified birth certificate data from the National Center for Vital Statistics. The first was the National Center for Vital Statistics Downloadable Data Files. These files provide researchers with all birth data for a single year but files for the years 2003 to the present do not include geographic information including the state of maternal residence. The second system was the public online access to aggregate birth certificate data through CDC Wonder. The CDC Wonder system allows researchers to access state summary counts of live births based on characteristics included on the birth certificate. Data from this system was used to access 2022 data, and births by state for years 2023 to the present.

US Birth Certificate data was selected for this project because it provides the most complete source of information about midwifery-attended births in the United States. One limitation of using these data to measure the use of midwifery services is that birth certificates prior to 1986 only listed whether the birth attendant was a physician or midwife when the birth occurred outside of the hospital. A second limitation is that birth certificates undercount the number of midwife-attended births.

Midwives can use birth certificate data to compare access to midwife-attended births within their state by using the CDC Wonder system. CDC Wonder allows public access to aggregate birth data by county for counties with a population of 100,000 or more.

American Midwifery Certification Board Midwife Certification Records

The American Midwifery Certification Board (AMCB) is the accredited certifying body for certified midwives and certified nurse-midwives. Certification through AMCB occurs prior to licensing and midwives recertify every five years. AMCB collects basic demographic and education data on all midwives at certification and at each recertification cycle. AMCB publishes the number of board-certified midwives in each state and territory three times annually. AMCB publishes the number of newly certified and re-certified midwives annually.

In addition to the published data, this study included analysis of de-identified data for initial certifications and recertifications occurring during the years 2016- 2020. Initial certification data included midwife age, race and ethnicity, state of practice, type of midwife educational program, all educational degrees earned, and the number of years of practice as a nurse prior to starting the midwife education. Recertification data included midwife age, race and ethnicity, state of practice, all educational degrees, and information about midwife clinical practice at time of certification. Certification data files are not available for public use.

National Plan and Provider Enumeration System (NPPES)

The Centers for Medicare and Medicaid Services began using National Provider Identifier (NPI) as the healthcare provider identifier in 2006. The NPI is a unique number that remains with the provider regardless of location or job changes. Providers obtain and maintain their NPI number through the National Plan and Provider Enumeration System. Updated files of all providers with NPI numbers are published monthly and contain the provider category (using a standardized taxonomy system) and the location of practice. Data used for this study is from the January 2023 updated file.

There are currently three taxonomy codes for midwives. Board-certified midwives use the taxonomy code for Advanced Practice Midwife (367A00000X). Researchers can identify board-certified midwives by presence of this taxonomy code in any of the 15 taxonomy category

variables. Mis-categorized midwives can be identified by searching the credential field.

AREA HEALTH RESOURCE FILE

The Area Health Resources File is a publicly available data file prepared by the United States Health Resources and Services Administration. The File provides county-level aggregates of data from multiple data sources including the United States Census Bureau, the American Hospital Association, and the Center for Medicare and Medicaid Services. This study used the Area Health Resource File to identify counties with a maternity hospital and county rurality based on the nine category Rural Urban Continuum Code.

American College of Nurse-Midwives COVID-19 Survey, 2020

The American College of Nurse-Midwives conducted a national survey in 2020 to assess the extent of change within midwifery practices due to the COVID-19 pandemic. The survey was distributed to midwifery practice administrators and included questions about the practice pre-pandemic (February 2020) and during the pandemic (August 2020). The scope of the survey included basic practice information such as ownership state of practice, as well questions to assess change including the, number of midwives employed, the types of visits provided, other perinatal services offered, and the state where the practice is located.

The final sample included 727 completed surveys that reported on the practices of 3301 midwives, the majority of whom were employed full time (n=2496, 75.6%). The AMCB reported 12,805 certificants in 2020, of whom 78.6% work as midwives. Knowing this, the response rate is estimated to be 32.8% of midwives. One limitation of these data is that 65.9% of the midwives in the sample were practicing in states with independent midwifery. This is higher than the proportion of midwives in clinical practice in independent licensing states in the AMCB certification data (51.1%).

For this report, we used the state of practice location, practice ownership, and pre-pandemic survey responses for number of midwives, types of visits provided, monthly births, and other perinatal services provided.

Definitions & Measures

This section provides definitions that were used during this project and, when applicable, the calculation.

MIDWIFE

This study was limited to midwives certified with the American Midwifery Certification Board which includes certified midwives and certified nurse-midwives. Board-certified midwives are identified on the birth certificate in the Medical Attendant field as Certified Nurse Midwife (CNM/CM). Board-certified midwives are identified in National Provider Identifier Data using the taxonomy code for Advanced Practice Midwives.

MIDWIFE-ATTENDED BIRTHS

Midwife-attended births are births where a board-certified midwife is the attendant of record on the birth certificate. Midwife-attended births are calculated per year as the percentage of births with a board-certified midwife as the attendant.

DATA SOURCE

CDC Wonder count of births in each state for 2022.

CALCULATION

Numerator: Number of births in the jurisdiction with a board-certified midwife as attendant

Denominator: All births in the jurisdiction

MIDWIFE DENSITY / PROVIDER DENSITY

Midwife density allows comparison between jurisdictions with different population sizes and different fertility rates. Midwife density is the number of midwives per 1,000 births. Density for other providers (obstetricians, maternal fetal medicine specialists, other types of midwives) were

completed using a similar calculation and based on the total number of providers with that taxonomy category in the NPES data dissemination file.

DATA SOURCE FOR MIDWIVES

National Plan and Provider Enumeration System (NPES) Data January 2023 file. Count of midwives in state is the number of providers who 1) included the taxonomy code for advanced practice midwife in any taxonomy category or 2) used a taxonomy code for another type of midwife but also included information in the credential field that indicated they were a certified nurse-midwife.

DATA SOURCE FOR BIRTHS

CDC Wonder count of all births in each state for 2022.

CALCULATION

Midwife Density = (Births / Midwives) x 1,000

MIDWIFE SHORTAGE

The midwife shortage is calculated as the number of midwives needed in a state to achieve the World Health Organization estimation for the minimum midwifery workforce size of 6 midwives per 1,000 births. This estimate can be found in the State of the World's Midwifery 2011 (See page 17). States with a midwifery workforce density that exceeded the 6 midwives per 1,000 births recommendation were coded as needing 0 midwives.

DATA SOURCE FOR MIDWIVES

National Plan and Provider Enumeration System (NPES) Data January 2023 file. Count of midwives in state is the number of providers who 1) included the taxonomy code for advanced practice midwife in any taxonomy category or 2) used a taxonomy code for another type of midwife but also included information in the credential field that indicated they were a certified nurse-midwife.

DATA SOURCE FOR BIRTHS

CDC Wonder count of all births in each state for 2022.

CALCULATION

Midwife Shortage = Midwives Needed – Current Midwives

Midwives Needed = (Births /6 Midwives) x 1000

MIDWIFERY EDUCATION PROGRAMS

The number of midwifery education programs is limited to programs accredited or pre-accredited by the Accreditation Commission for Midwifery Education (ACME) in 2023. This limitation was appropriate for an assessment of education programs for certified midwives and certified nurse-midwives. Programs were counted for this study if they were included in the list of accredited/preaccredited programs on the ACME website before January 10, 2024.

Programs were included in the count of programs for the state where the program was located. It was outside the scope of this project to assess the reach of online programs as this depends on institution-specific factors including approval of the state board of nursing and state-specific midwifery licenses of faculty members. Therefore, the number of midwifery programs located in the state cannot account for all the education programs that may be available to prospective students.

BIRTHS BY PAYER SOURCE

Births by payer source were calculated using 2022 birth certificate data accessed through the CDC Wonder platform. Payment sources were grouped into four categories to allow comparison across states: Private Insurance, Medicaid Insurance, Self-Pay, and Other. The category other includes a variety of government funded payment sources including CHAMPUS/Tricare and Indian Health Service. This strategy of grouping prevented suppression of data for less common federal and state payment sources and retained the ability to compare the overall access to midwifery services for individuals using these programs.

The Source of Payment for Birth graph allows comparison of the distribution of payers between 1) all births in the United States in 2022, 2) all births in the state in 2022, and 3) all midwife births in the state in 2022. Differences in payment source between the state and the United States indicate population differences such as proportion of residents who live on a low

income. Differences in payment sources between the state and midwives in the state can be used to identify policy problems related to insurance reimbursement for midwifery services. The Percentage of Midwife-attended Births by Payer allows comparison of access to midwifery services for individuals using different payment sources.

CALCULATION

Percentage of Midwife-attended Births by Payer = (Midwife births with payer / All births with payer) * 100

BIRTHS BY RACE OR ETHNIC CATEGORY

Births by race or ethnic category are presented as a measure of inequitable access to midwives. Data for the figures were calculated using 2022 birth certificate data accessed through the CDC Wonder platform. Six categories were created based on the variable Mother’s Single Race 6 and Mother’s Hispanic Origin. Limiting the data to six categories allowed the project to meet its objective of comparing state midwifery regulation by providing consistent categories across states to identify inequities. The table below provides the strategy used to group births according to race and ethnic category. However, this method of categorization may not be the best for all state midwifery advocacy due to the limitations of using broad categories.

Category	Mother’s Single Race 6	Mother’s Hispanic Origin
Hispanic or Latino	All Races	Hispanic or Latino
American Indian or Alaska Native	American Indian or Alaska Native	Not Hispanic or Latino
Asian or Pacific Islander	Asian, or Native Hawaiian or Other Pacific Islander	Not Hispanic or Latino
Black or African American	Black or African American	Not Hispanic or Latino
White	White	Not Hispanic or Latino
More than One Race	More than One Race	Not Hispanic or Latino

More detailed race and ethnicity category data is available through CDC Wonder, though this study faced two challenges with using these data. The first challenge was the inconsistent availability of the data by state. The National Center for Vital Statistics data documentation for CDC Wonder

reports that starting with 2016, all states follow the 1997 Office of Management and Budget standards for single race. This standard sets a minimum of five categories for race and the option to indicate Hispanic or Latino regardless of race. By using these categories, we were able to ensure consistent reporting of race and ethnicity categories to assess equity or inequity in access to midwife-attended birth across states.

The second challenge was the sparse data available for some populations in some states when annual data is used. People categorized as American Indian or Alaska Native had suppressed data for midwife-attended birth in seven states. Because all states had data for the number of births for this population, presenting the visualization with zero midwife-attended births was consistent with the data that access to midwives was a problem. We found that people categorized as Native Hawaiian or other Pacific Islander had suppressed birth data in eight states, fewer than 50 births in thirteen additional states, and suppressed data for midwife-attended birth in 25 states. Based on this finding, we determined that inclusion of these births as a distinct category in the figures might result in confusion of small population with lack of access to midwives. To ensure this population was included and prevent misinterpretation of the data, we used an old version of the standard categorization that grouped the categories of Asian with Native Hawaiian or Other Pacific Islander.

ADDRESSING THE DATA CHALLENGES IN INDIVIDUAL STATES

Midwives working on policy within a single state should review the detailed race and ethnicity category data to first identify the categories reported within the state. If the state has population groups with few births per year, one strategy to ensure enough data is available to make conclusions is to use three or five years of data. When this isn't feasible to meet the objective, consider the categories that are reported for the state and determine the best strategy for describing inequities in access to midwives within the state.

BIRTHS BY MATERNAL RESIDENCE

Births by maternal residence provides an assessment of equitable access to midwifery services for people living in metro and rural (non-Metro) areas. Data for the figures were calculated using 2022 birth certificate data

accessed through the CDC Wonder platform using the 2013 Metro/Nonmetro categorization. The 2013 NCHS Urban-Rural Scheme for Counties assigns a designation for the entire county based on metropolitan and micropolitan statistical areas. Using the Metro/non-Metro categorization, metro counties are counties within a metropolitan statistical area. Metropolitan statistical areas have a densely populated core in one or more counties and neighboring counties with close economic ties. In contrast, non-Metro counties may be micropolitan statistical areas or non-core. Micropolitan statistical areas have an urban core with a population between 10,000 and 50,000 and include neighboring counties with close economic ties. Non-core counties have no urban core with a population of 10,000 or more.

UNMET NEED FOR CONTRACEPTION

Data for unmet need for contraception was abstracted from:

Zapata LB, Pazol K, Curtis KM, et al. Need for Contraceptive Services Among Women of Reproductive Age — 45 Jurisdictions, United States, 2017–2019. *MMWR Morb Mortal Wkly Rep* 2021;70:910–915. DOI: <http://dx.doi.org/10.15585/mmwr.mm7025a2external> icon.

EARLY PRENATAL CARE

Data for early prenatal care was calculated using birth certificate data from the CDC Wonder platform, 2022. Receipt of early prenatal care was measured using the variable Trimester Prenatal Care Began. Birth certificates with prenatal care beginning in the 1st to 3rd month (1st trimester) were measured as early prenatal care.

CALCULATION

Early Prenatal Care Rate = (Early Prenatal Care / All births) x 100

PRETERM BIRTH

Data for preterm birth was calculated using birth certificate data from the CDC Wonder platform, 2022. Preterm birth was measured as yes/no using the variable OE Gestational Age Recode 10. Birth certificates with births occurring at 36 weeks or earlier were measured as preterm.

CALCULATION

Preterm Birth Rate = (Preterm Birth / All births) x 100

NTSV CESAREAN

NTSV Cesarean is a standardized measure of low-risk cesarean. Data for NTSV Cesarean rate was calculated using birth certificate data from the CDC Wonder platform, 2022. Calculation of this variable is limited to birth certificates that meet criteria for NTSV, which is nulliparous, term, singleton, vertex. Using a birth certificate, the sample is created by limited the data with the following variables: Total birth order = 1; Gestational Age = 37-39, 40, 41, or 42 weeks or more; Plurality = single; Fetal Presentation = Cephalic. Cesarean birth was identified by the variable Delivery Method when delivery method = cesarean.

CALCULATION

NTSV Cesarean Rate = (Cesarean Births among NTSV Population / Births among NTSV Population) x 100

BREASTFEEDING INITIATION

Data for breastfeeding initiation was calculated using birth certificate data from the CDC Wonder platform, 2022. Breastfeeding was measured using the variable Infant Breastfed at Discharge, with “yes” indicating breastfeeding initiation.

CALCULATION

Breastfeeding Initiation Rate = (Breastfeeding Initiation / All births) x 100

BREAST CANCER SCREENING

Data for breast cancer screening was abstracted from the Screening and Risk Factors Table in the National Institute of Health National Cancer Institute State Cancer Profiles. These rates were calculated based on having a mammogram in the Past 2 Years for ages 50-74 from the 2020 Behavioral Risk Factor Surveillance System (FRFSS).

Midwives can access interactive tables and maps for screening and risk factors for cancer at <https://statecancerprofiles.cancer.gov/data-topics/screening-risk-factors.html>.

INDEPENDENT MIDWIFERY LICENSURE

States have independent midwifery licensure when midwives are licensed based solely on their education and certification. This meets the LACE (Licensure, accreditation, certification, education) standards defined by the APRN Consensus Model.

Independent Midwifery Licensure was coded as a Yes/No variable based on the statutes and regulations in place in December 2023. States were coded as “no” when they required a midwife to obtain a written practice agreement as part of the licensing package or to perform the basic assessment and diagnosis services of a midwife.

INDEPENDENT MIDWIFERY PRESCRIPTIVE AUTHORITY

States have independent midwifery prescriptive authority when midwives receive prescriptive authority for all essential reproductive and sexual health medications based solely on their education and certification. Prescribing is a necessary function of midwifery management. Midwives should not face restrictions or requirements on prescribing beyond the demonstration of competence required of other health care providers.

Independent midwifery prescriptive authority was coded as a Yes/No variable based on the statutes and regulations in place in December 2023. States were coded as “no” when they required a midwife to obtain a written practice agreement to prescribe essential sexual and reproductive health medications. States whose restriction was limited to narcotics were coded as no because narcotics are essential pain medications in labor and birth.

INDEPENDENT MEDICAID REIMBURSEMENT

In some states, the Medicaid reimbursement for care provided is adjusted when the care is provided by non-physician providers including midwives. This adjustment was first introduced when the Centers for Medicare and Medicaid Services determined that nurse-midwives and other advanced practice nurses could receive direct reimbursement for their services. Prior to this decision, the services of advanced practice nurses were billed under the name of a physician. The decision to directly reimburse nurse-midwives and other advanced practice nurses was made to ensure access to the services of nurse-led clinics, such as rural health clinics, in areas without

physicians. Some states adopted direct reimbursement to advanced practice nurses, including nurse-midwives, for their Medicaid programs. Other states adopted adjustment when services were directly reimbursed with midwives receiving 75% to 97% of the fee a physician would receive for the same service.

Midwifery Independent Medicaid Reimbursement (Medicaid Parity) was measured as yes/no on reimbursement in 2023. States were identified as having Independent Medicaid Reimbursement (independent full reimbursement) when midwives received the same fee as physicians. Determinations were made by reviewing state statutes and regulations. When no policy standard could be identified, we reviewed the Medicaid fee schedule to determine if midwives who billed directly received the same reimbursement as a physician.

INDEPENDENT HOSPITAL ADMITTING

Over 90% of the births attended by board-certified midwives occur in hospitals. This makes access to independent hospital admitting privileges necessary for independent midwifery practice. In some states, statutes or regulations restrict hospital use of board-certified midwives by requiring a physician to conduct the admission and discharge or to oversee the care of patients. These restrictions create a system where midwives, who may otherwise be able to practice independently, must contract with a physician to ensure clients have access to hospital birth services.

Independent hospital admitting was measured as Yes/No for a state based on statutes and regulations in place in December 2023. States were identified as having independent hospital admitting if there was no evidence of a state requirement that hospitals require midwifery patient charts to be co-signed by a physician. Examples of state requirements for physician co-signature include requirements that admission be performed by a physician member of medical staff and requirements that all patients be under the care of a physician member of medical staff.