

Midwifery Data Collection: Options and Opportunities

Deborah S. Walker, CNM, DNSc, WHNP-BC, FNP-BC, Joan M. Visger, CNM, MSN, and Amy Levi, CNM, PhD

Most midwives are aware of the need to collect clinical practice data and of its usefulness in supporting the care they provide, which contributes to healthy outcomes for mothers and babies. For the individual midwife, there is more than one easily accessible, standardized data collection instrument from which to choose. However, despite these choices, in an American College of Nurse-Midwives (ACNM) Division of Research (DOR) survey on midwifery clinical data collection (N = 263), the majority of member respondents (n = 135; 51%) reported using a self-designed data collection tool, and more than one-third did not know of the ACNM Nurse-Midwifery Clinical Data Sets (NMCDS). On a larger scale, the midwifery profession is also in need of an organized and consistent approach to data collection for the purpose of capturing midwifery practice and outcomes in order to provide data to support legislation, practice, and policy changes. However, the profession currently lacks a single common midwifery practice database. In order to facilitate data aggregation that captures a larger view of midwifery practice at the local, regional, and national levels, it is imperative that all midwives collect relevant data that are uniform and standardized, and that the midwifery professional organizations move forward with the development of a common electronic database. This article describes currently available data collection tools as well as their best uses, applications to practice, and future directions. *J Midwifery Womens Health* 2008;53:421–429 © 2008 by the American College of Nurse-Midwives.

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INTRODUCTION

Collecting clinical data is necessary for the survival of midwifery practice. Without data documenting care practices and outcomes, the effects of midwifery care are almost invisible. Invisibility leads to individual practices being increasingly vulnerable to practice closures, decreased access for women seeking care, and, on a larger scale, a limited ability of midwives to have a voice in health care policy and legislative activities. The collection and evaluation of clinical practice data can also assist with the identification of patient care errors and quality management. The Institute of Medicine (IOM) report on nursing and patient safety¹ reinforces the importance of quality management and monitoring through clinical practice data collection for health care institutions and providers to reduce errors in patient care.

Many midwives do document clinical practice data in one form or another. While this may be supportive of individual practices, the variety of data collection tools used and the lack of common electronic databases make it extremely difficult to combine these data to demonstrate local, regional, or national midwifery care and outcomes. There is an urgent need for more midwives to use uniform, standardized tools. The good news is that there are standardized data collection tools available, and midwives do not need to start from scratch. In fact, it is preferable that midwives not use self-designed tools

because there are serious limitations inherent in this approach. These limitations include non-comparability of data and the inability to use data collected for professional initiatives, such as the American College of Nurse-Midwives (ACNM) Benchmarking Project, which requires specific data elements. Data collected using standardized tools would allow for aggregation and analyses to support midwifery care. The purpose of this article is to describe available data collection tools, their best uses, applications to practice, and future directions for midwifery data collection.

STRUCTURE, PROCESS, AND OUTCOMES OF MIDWIFERY CARE

Although the measurement of midwifery patient outcomes is usually relegated to the traditional foci of obstetrical care outcomes—complications, morbidity, and mortality—there are unrealized opportunities for improving care and patient safety through the documentation of the structure and process of care.² The structure and process of midwifery care are important to document in order to illuminate the unique features of midwifery care that contribute to healthy outcomes for women and babies. Greener³ adapted Donabedian's⁴ quality health care assessment framework to describe the structure, process, and outcomes of midwifery care in the development of the ACNM Intrapartum Minimum Data Set.

According to Greener,³ the structure of midwifery care refers to the characteristics of the providers of care, their work requirements and resources, and the physical and organizational practice settings. The structure of care is often determined by the professional and institutional

Address correspondence to Deborah S. Walker, CNM, DNSc, WHNP-BC, FNP-BC, FACNM, Wayne State University, College of Nursing and School of Medicine, OB/GYN, 5557 Cass Ave., Rm. 248, Detroit, MI 48202. E-mail: dswalker@wayne.edu

standards that provide the basis for how care is delivered, and the parameters for acceptable and unacceptable practices. For example, monitoring fetal well-being during labor by auscultation of the fetal heart rate is standard in most settings and an example of the structure of care. Because they are concrete and recognizable, the identification and assessment of the structures of care are part of a clearly delineated process.

Greener³ describes the process of midwifery care as the activities that go on within and between midwives and clients. These processes are influenced by the way the philosophy or perspective of the caregiver influences the care provided.³ The processes of care are more elusive and idiosyncratic. For example, whether an electronic fetal monitor, handheld Doppler device, or fetoscope is used can be influenced by the provider's philosophy or perspective. In order to assess the impact of the monitoring modality on newborn outcome, a tool is needed that identifies this specific structure of care. Similarly, we need to be able to identify other processes that vary among providers so that we capture elements that can affect outcomes but that would not otherwise be measured.

The ACNM Division of Research (DOR) has continued to build upon the work of Greener and has developed 3 minimum data sets—one each for antepartum, intrapartum, and women's health care—that document the structure, process, and outcomes of midwifery care. Surprisingly, many clinically active midwives are not aware of these or other data collection tools available for their use. While an increasing number of choices for clinical practice data collection currently exist, deciding among them can be time consuming and confusing. For example, some of the midwifery data collection tools are more appropriate for research use, while others are more clinically focused.

MIDWIFERY CLINICAL PRACTICE DATA SURVEY

Developing a systematic approach to midwifery data collection for the ACNM membership is a priority of the ACNM DOR. Toward that goal, the DOR conducted a survey that assessed ACNM members' midwifery clinical data collection methods. Members were invited to

Deborah S. Walker, CNM, DNSc, WHNP-BC, FNP-BC, FACNM, is an associate professor at Wayne State University College of Nursing and School of Medicine, OB/GYN, Detroit, MI and the graduate program director for the Nurse-Midwife and Women's Health Nurse Practitioner Specialties. She is a member of the ACNM Division of Research (DOR), past chair of the ACNM DOR Data and Information Management Section and chair of the Directors of Midwifery Education (DOME).

Joan M. Visger, CNM, MSN, is a doctoral student at Wayne State University College of Nursing in Detroit, MI.

Amy Levi, CNM, PhD, FACNM, is an associate clinical professor at the University of California, San Francisco and Interim Director, Nurse-Midwifery Education Program. Dr. Levi is the current Chair of the ACNM Division of Research.

participate through an announcement published in the ACNM national newsletter "Quickening" and in an e-mail sent to members of the Service Directors Network (now Midwifery Business Network) and Directors of Midwifery Education (DOME). Included with the invitation were instructions on taking the survey and the survey's Web address.

A total of 263 members completed the Web-based survey, and their responses are shown in Table 1. Members reported using a wide variety of data collection systems, with the majority reporting that they used a self-designed paper log or computerized system (n = 135; 51%), followed by those reporting use of the ACNM Birth Log (n = 97; 37%). Unfortunately, 36.5% (n = 96) of respondents did not know about the ACNM Minimum Data Sets, and only 19.1% (n = 50) of those responding reported participating in the ACNM Benchmarking program.

Members' responses to the question, "What would be the most helpful to you in collecting midwifery clinical data?" were grouped into common categories and are found in Table 2. Many respondents reported that a system that works on a personal digital assistant (PDA) would be helpful. However, when specifically asked about PDA use for clinical practice data collection, most respondents (n = 223; 85%) did not use one. PDA users reported that the operating system used most often was the Palm (n = 61; 23%; Palm, Inc., Sunnyvale, CA). Not surprisingly, the biggest barrier reported by participants in collecting midwifery clinical data was time.

In the ACNM DOR survey sample, most midwives collected clinical practice data in some form, including self-designed systems, ACNM paper-based Birth Logs, more sophisticated software programs, or Web-based forms. Paper-based logs, including the ACNM Mid-

Table 1. Midwifery Clinical Data Collection Survey: Selected Responses (N = 263)

Variable	N (%)*
Type of data collection software or program used:	
ACNM Birth Log	97 (36.8)
BirthWrite	18 (6.8)
Gravidata	14 (5.3)
Self-designed birth log	74 (28.1)
Self-designed computer data collection system	61 (23.2)
Other	35 (13.3)
No data are collected	17 (6.5)
Institutional data collection system	33 (12.5)
Which of the ACNM Minimum Data Sets do you use?	
Antepartum	72 (27.4)
Intrapartum	116 (44.1)
None	47 (17.9)
I don't know what these are	96 (36.5)

ACNM = American College of Nurse-Midwives.

*Percentages total greater than 100 because respondents could choose multiple answers.

Table 2. ACNM Members' Responses to "What Would Be the Most Helpful to You in Collecting Midwifery Clinical Data?" (N = 263)

- Standardized format, computerized, and portable
- Personal digital assistant, linked to the internet
- Ability to compare with other practices' data
- Web-based tool
- Easy to use (input data and generate reports), implement, and store data
- Ability to produce meaningful reports
- Designated data entry person
- Access to the system from labor and delivery departments
- Linked to definitions of the data elements
- Orderly and concise
- Allows for some customization for situations/conditions which may not fit preset criteria
- Able to be completed quickly

ACNM = American College of Nurse-Midwives.

wife's Birth Log, were the primary source of data collection for many years and continue to be used by many midwives in practice today. However, this method does not afford the practice or the individual midwife the opportunity to capture the structure and processes of importance to midwifery care or to easily generate statistical reports. In order for the data to be analyzed, they must first be entered into a software program. Data entry, especially when the Birth Logs contain multiple years worth of data, can be extremely time-consuming and subject to error.

An additional data source is the hospital or institutional birth log. The institutional birth log is usually in paper form and contains demographic and outcome data pertaining to each birth for both mother and newborn. It is an important source of data for research and quality improvement studies. Many facilities are adapting their birth log to a computerized format to facilitate data analysis and outcomes reporting.

In the next sections, midwifery data collection tools and sources are described. Although one single tool cannot meet every need, midwives are encouraged to evaluate and choose a standardized instrument and are discouraged from using self-designed tools. In either case, it is extremely important to use data elements that are standardized. A summary of the instruments discussed in this paper can be found in [Table 3](#).

DATA COLLECTION INSTRUMENTS AND METHODS

ACNM Nurse-Midwifery Clinical Data Sets

Early efforts to systematically evaluate the health care delivery of certified nurse-midwives (CNMs) began with the comparison of statistical summaries of maternal and newborn care processes and outcomes.^{5,6} With the formation of the ACNM DOR in 1988 and 1989, the Clinical Research Committee proposed as its first priority

a standardized, uniform method of collecting prospective data that described and assessed the quality of nurse-midwifery practice.⁶ The goal of this forward-thinking group was to facilitate uniform midwifery practice data collection that could be used to describe, compare, and assess the quality of midwifery care.³ The Intrapartum Nurse-Midwifery Minimum Data Set was completed in late 1989³ and became available to practitioners in 1990.

The ACNM DOR currently offers two 1-page data collection tools, which are available on the ACNM Web site. The ACNM Data Sets assess the structure, process, and outcome of antepartum care and intrapartum care (including postpartum and newborn care). While not available on the Web site yet, Farley et al.⁷ recently pilot tested and validated the Women's Health Care Minimum Data Set.

The Nurse-Midwifery Clinical Data Sets (NMCDS) have been shown to be valid for the purpose of quality assessment data analysis through the use of specific instrument development and field-testing procedures.³ During the 16 years since their development, these data sets have been used by midwifery researchers in several major studies.⁸⁻¹¹ In addition, they continue to be used by some midwifery practices to collect their clinical care practice statistics. Researchers and clinical practitioners have adapted the data collection tools to meet their needs. Practicing midwives and researchers have voiced concerns about the length and repetition of the NMCDS, the overlap with other data collection tools, and the lack of uniformity and standardization when the data set is adapted by many users.

Gravidata

Although no longer supported or available for purchase, the ACNM software package for midwifery clinical data collection, Gravidata, was still used by some participants in the DOR survey (n=14; 5.3%). This software package was a DOS-based data collection tool that was specifically designed to record a variety of data elements pertinent to midwifery practice based on the NMCDS. In order to analyze the data that were collected, users had to convert the information into a statistical analysis package. EpiInfo, freeware developed by the Centers for Disease Control and Prevention (CDC), was the suggested statistics package.¹²

Continued maintenance of the Gravidata program software, including updates and user support, eventually exceeded the resources available for the project. ACNM's discontinuation of support for Gravidata in 1995¹³ coincided with the increase in user-friendly data management software packages such as Excel and Access (Microsoft, Redmond, WA) that are easily modified to allow both data collection and statistical manipulation of clinical information. The use of these systems can result in self-designed data collection tools and provide the op-

Table 3. Midwifery Data Collection Instruments

Instrument	Source	Topic(s)/Data Elements	No. of Items	Inter-Rater Reliability
Antepartum Care Minimum Data Set	www.acnm.org/siteFiles/publications/dataset-ante-partum.pdf	Demographic and personal information, history/risk factors, gestation at entry, no. of visits, missed appointments, weight gain, screening procedures, pregnancy complications, departure from practice, and educational topics	23	N/A
Intrapartum Care Minimum Data Set	www.acnm.org/siteFiles/publications/dataset-intra-partum.pdf	Demographic and personal information, history, antepartum risk factors, labor and delivery data, immediate postdelivery data (first 24 hours), including newborn data	40	N/A
Well-Woman Care Minimum Data Set	Farley CL, et al. Women's Health Care Minimum Data Set: Pilot test and validation for use in clinical practice. <i>J Midwifery Womens Health</i> 2006;51:493–501.	Demographic and personal information, provider type, history, PE, laboratory data, assessment, management, therapeutics, and education	23	N/A
Optimality Index–US	Murphy PA, Fullerton JT. Measuring outcomes of midwifery care: Development of an instrument to assess optimality. <i>J Midwifery Womens Health</i> 2001;46:274–84, or www.acnm.org/about.cfm?id=255	Perinatal Background Index (PBI) and Optimality Index (OI)	54	Inter-rater reliability = .80–.90; intra-rater reliability = 92.7% mean percent agreement (89.1–97.8%)
American College of Nurse-Midwives (ACNM) Benchmarking Project	www.midwife.org/benchmarking.cfm	Includes birth outcomes, perineal outcomes, infant information, breastfeeding and postpartum care, maternal age, cost measures, birth site, resource utilization, length of stay, practice measures, GYN/primary care, quality management and practice ID data	60	N/A
Midwives Alliance of North America (MANA) Statistics Project Data Collection Form 2.0	www.manastats.org/mana.cgi?p=docs	History and personal information, current pregnancy, birth data, labor, complications, third stage, newborn, and postpartum (6 weeks)	150	N/A
American Association of Birth Centers (AABC) Uniform Data Set 3.5*	www.birthcenters.org/data-collection/features.php	Initial OB Visit, AP course, IP course, postpartum follow-up, VBAC, and practice administrative data	99	N/A

AP = antepartum; GYN = gynecology; ID = identification; IP = intrapartum; N/A = not available; PE = physical exam; VBAC = vaginal birth after cesarean.

*Survey has 111 items for women attempting a VBAC.

portunity for midwives to customize data elements and report writing to suit their specific needs, but they limit the aggregation of midwifery-specific data sets across practices.¹⁴

Optimality Index–US

The Optimality Index–US (OI-US) is a 54-item instrument that assesses perinatal processes and outcomes.

According to Kennedy,¹⁵ optimality is “the maximal perinatal outcome with minimal intervention placed against the dynamic context of the woman’s social, medical, and obstetric history.” Murphy and Fullerton¹⁶ developed the OI-US based on an instrument developed by Prechtl¹⁷ and adapted by Weigers et al.¹⁸

The OI-US consists of two parts: the Optimality Index (OI) and the Perinatal Background Index (PBI). The OI

consists of 40 items in four domains: pregnancy, parturition, neonatal condition, and maternal postpartum condition.¹⁹ The PBI consists of 14 items that focus on sociodemographic data.¹⁹ The OI-US is neither a risk assessment nor a benchmarking tool, but it can be used in peer review and quality assurance programs. Researchers can use the OI-US to explore the relationships between care practices and outcomes as well as practices unique to midwifery. Guidelines for OI-US coding and instructions are available on the Web site noted in [Table 3](#).

The American College of Nurse-Midwives Benchmarking Project

Benchmarking is a performance measurement and improvement process. It is not a research activity, but like some research methods, it relies on midwives collecting practice data using a collection tool. The focus of benchmarking is the identification of the operational and clinical practices that lead to the best outcomes, including increased customer satisfaction, increased effectiveness, and increased efficiency.²³ Tillet and Summers²⁴ define benchmarking as the “process of comparing one’s practice to others in the field to identify the clinical and operational practices that lead to the best outcomes.”

Benchmarking can be accomplished with profiles, scorecards, and report cards,²⁵ and allows for comparisons of key quality characteristics. There are four types of measures frequently used in benchmarking: clinical, functional, cost, and satisfaction measures. Some advantages of participating in benchmarking projects are: 1) the avoidance of reinventing what already exists in another practice; 2) ongoing measurement and analysis of quality; 3) building awareness of current capability versus best-known capability; 4) encouragement of people to move from position of inertia to action; and 5) creation of tension for change.²⁶

The ACNM Benchmarking Project’s purpose is to improve and maintain the quality of midwifery care provided to women and children by promoting member awareness of best practices. An important feature of this project is that midwives are compared with other midwives instead of with other types of health care providers in order to more accurately assess quality within midwifery practice. The creation of a midwifery-focused benchmarking tool by the ACNM Division of Standards and Practices (DOSP) was motivated by the fact that the productivity standards put forth by administrators did not take into account the midwifery scope of practice.²³ Midwives can contact the staff in the ACNM Department of Professional Services who will direct them to the “best practice” for the area needing improvement, thereby facilitating the adoption of that “best practice” into their midwifery care.

In 2005, the ACNM Benchmarking Project transitioned from a volunteer-run program to one administered

by staff in the ACNM national office with support from the DOSP Quality Management Section.²⁴ Only midwifery practices that are providing full-scope intrapartum and antepartum midwifery care are eligible to participate. Practices do not need to collect their data electronically to participate and do not collect data on every indicator to participate. Standardized definitions are included in the project information packet. Aggregate practice data for the previous 1-year time period are entered using an ACNM online survey during several weeks early in the next year, usually February to the end of March. The practice data are kept confidential, and data on individual practices’ statistics are known only to the project director.²⁴ The annual summaries provided to participating practices, usually by the end of May, include a report on each quality indicator’s range as well as 25th and 90th percentiles.²³ At this time, there is no charge for participating in the ACNM Benchmarking Project. Additional information on the ACNM Benchmarking Project can be found in [Table 3](#).

Midwives Alliance of North America Statistics Project

The Midwives Alliance of North America (MANA) Statistics Project,²¹ developed by the MANA Division of Research, contains 150 items designed to collect data on all birth sites, with special attention to the unique characteristics of out-of-hospital births and associated perinatal care and outcomes, such as data about transports. The MANA data set focuses on births attended by midwives and is intended to support research on midwifery practice and normal birth, with the goal of improving the care of women and babies and increasing the choices available to child-bearing families.

MANA midwives have been collecting their statistics for research purposes for many years, first in paper form and now with the additional option of the Web-based format. In fact, data from a previous version of this tool were used in a recently published study of planned homebirths.²¹ The Statistics Project Web site, created by Harris-Braun Enterprises and Bruce Ackerman, launched in November 2004.²² With the introduction of the Web-based system, MANA began using an ongoing prospective collection model for all contributors and introduced several innovative measures to ensure completeness of data entry.

The MANA Division of Research recently finished a multiyear evaluation and major revision of the current tool and expects to launch the revised tool (version 3.0) by the end of 2008. The goals of this revision include comparability with other data sets, increased sophistication of error checking and form branching, and usability by all types of midwifery practice. In addition, items from the OI-US are being incorporated. There is no cost to participate. The MANA statistics collection Web page address and other information can be found in [Table 3](#).

American Association of Birth Centers Uniform Data Set

Developed by birth center professionals, the American Association of Birth Centers (AABC) Uniform Data Set (UDS)²⁰ is a paper and Web-based database program that provides an administrative tool for uniform data collection of outcome and utilization data. It contains 99 items (111 items if vaginal birth after cesarean section [VBAC] data are collected). The UDS focuses on data collection about normal birth, on all types of birth sites (birth center, home, and hospital), and with all providers. The AABC's UDS was first designed more than 10 years ago by AABC members, led by Debra Jackson of the San Diego Birth Center Study. The original UDS was based on the CDC's EpiInfo data system. In 2004, a total overhaul of the UDS was begun to convert it to an online data registry, make it more user-friendly, and improve the reporting features of the program. In the summer of 2006, beta-testing of the UDS was conducted with a go-live date of January 2007. The latest version (version 3.5) includes additional data fields and reports, as well as an embedded data dictionary. Custom fields and custom reports functions were also added. The custom fields allow each user to collect practice-specific data that are not included in the overall data set. The custom reports function allows users to query their own data to answer specific questions. Items from the OI-US are being incorporated into the AABC UDS. The AABC UDS is priced on an annual subscription basis (regular price, \$299; AABC member price, \$199; AABC birth center and institutional members, free). See Table 3 for more information on the AABC UDS.

OTHER SOURCES OF MIDWIFERY DATA

Midwifery care and outcomes are recorded in at least two other standardized institutional data collection systems: hospital administrative data systems and birth registration. Data collection in an institutional setting often is initiated with the registration process. Demographic data, method of payment, and provider information are obtained at this time. The Uniform Hospital Discharge Summary (UHDDS) contains the universal data elements for demographics and practitioner identity prescribed by Medicare.²⁷ No data field is provided for birth attendant, only "attending physician" and "principal surgeon,"²⁷ and local legal interpretation determines who qualifies as an "attending physician."

Although the most common form of quality assessment used in health care research is the retrospective review of the medical record, several limitations inherent in this process should be noted.⁶ The medical record often lacks detail regarding the important elements of health care; terms often have multiple, varied definitions; and recording practices may vary between settings and institutions.⁶ Unfortunately, many clinical practices important to midwives and demonstrating the unique as-

pects of midwifery care are not documented in the institutional medical record.

Once a patient has been discharged, members of the medical record department convert the record into a computer-readable form, merging it with billing information using standardized codes. The International Classification of Diseases (ICD) consists of 28,000 conditions and 7500 procedures, each with their own code. Midwifery practice is not a good fit with the ICD coding system because many outcomes of encounters with midwives cannot be classified by disease states. Rules for what data can be coded are set by the American Hospital Association.²⁷ The professional organization of the medical record coders is the American Health Information Management Association, which mandates that only physician-supplied documentation can be used for coding.²⁸ Clinician identification determines reimbursement and who gets credit for the work. Hospital billing data is based on coded diagnoses and procedures obtained from the ICD and charges. Charges (each with their own code) can be used as surrogate for clinical data because they can be tracked to patient, services, and "attending" physician.²⁷ Hospital record information and standardized coding schemes do not reflect all aspects of midwifery care, because they are based on the medical model of diagnosis and treatment of disease. Therefore, data are not readily available to practices and administrators that accurately portray midwifery practice processes and outcomes. Midwives need to document all aspects of the care they provide. Documentation tools and/or billing codes that reflect the care that midwives provide are critical in assisting with more complete data collection.

Birth Certificate Data

Birth certificate data are foundations of population-based planning and are used to implement and evaluate health programs at the national, state, and local levels. With the 1989 revision of the birth certificate reporting form, it became easier to distinguish CNMs from other birth providers by the addition of a specific check box for CNM birth attendants. This addition, while a step in the right direction, did not overcome all of the difficulties in correctly identifying the birth attendant. According to the CDC's National Vital Statistics Report,²⁹ birth certificate data should be considered lower estimates than the actual number of midwife-attended births because of under-reporting of midwife-attended births. In addition, birth certificate data often do not accurately capture the planned place of birth. While the US Standard Certificate of Live Birth appropriately allows for planning status, many states have not adopted this standard. Therefore, the actual number of planned, attended homebirths is not accurately portrayed in birth certificate data.

It is imperative that all midwives take responsibility for the accurate reporting and quality of information on

birth certificates. Eight recommendations described by Walker, Schmunk, and Summers³⁰ assist in ensuring that midwife-attended births are represented as accurately as possible in important vital statistic data. Further research is needed to more broadly explore the accuracy of midwife-attended births in birth certificate data.

Pregnancy Risk Assessment Monitoring Systems

The Pregnancy Risk Assessment Monitoring System (PRAMS) is a population-based surveillance project of the CDC and state health departments. PRAMS collects data on maternal attitudes and experiences before, during, and shortly after pregnancy.³¹ It was first initiated in 1987 to explore maternal behaviors that may contribute to adverse infant outcomes, such as low birth weight, infant mortality and morbidity, and maternal morbidity.³¹

The PRAMS sample of women comes from recent birth data obtained from the participating state's birth certificates. Because of this link to birth certificate data, PRAMS data can be used by midwives to obtain information on midwife clients. The link between PRAMS and the birth certificate underscores the importance for accurate reporting of all midwife-attended births.

FUTURE DIRECTIONS

There are a number of options for the collection of midwifery practice data. In the absence of a universal electronic data collection system, it is essential that when collecting their clinical data, midwives include data elements with documented definitions, such as those in the ACNM NMCDS, AABC UDS, or MANA Statistics Project. Midwifery practices must also be mindful of Health Insurance Portability and Accountability Act rules and the need for permission to be received from human subjects.

While midwifery practice directors acknowledge the importance of data collection, there are few published reports of how data assist in practice management and longevity. However, anecdotal reports that confirm the need for midwifery practice directors to have access to clinical data on costs as well as outcomes are plentiful. The publication of practice data is important, and developing a venue for this to occur is an important professional priority. By sharing practice data and analyses, we would be able to move the profession forward by identifying and then emulating best practices, learning from the challenges identified by others along the way. It is critically important that more midwives and practices participate in the ACNM Benchmarking Project.

As a profession, there is an urgent need to raise midwifery practice data collection and analyses to the next level by developing an electronic, uniform, stan-

dardized database. In the ACNM DOR survey, more than one-third of respondents reported using a paper-based birth log. While the intent is good, data collected using paper-based forms makes statistical analysis difficult and time-consuming. Many midwives are diligent and devoted data collectors but become overwhelmed with the thought of analyses. In fact, there are anecdotal reports of midwives with piles of paper-based logs in dusty garages and damp basements. Using computer-based electronic systems would simplify analyses, facilitate partnerships between practicing midwives and students (such as those pursuing the clinical doctorate and in need of data for scholarly projects), and provide support to the profession by having easily accessible data available for legislative and policy initiatives.

Along with the midwifery data collection options presented here, commercial vendors, such as Medatrax (Four-D Software, Elkton, TN), are beginning to develop clinical data collection software for practicing midwives (along with student software). Using commercially available data management software, such as Excel (Microsoft) is a viable option, especially if the NMCDS is used as a basis for the data elements. Excel files can also be easily exported to statistical packages for data analysis. One computer-savvy CNM has also developed a software version of the benchmarking tool that is available online.³² As stated earlier, administrative data systems have their own inherent problems, and although they may be used by midwives for some data and outcomes, they do not contain variables that highlight the unique qualities of midwifery practice.

As midwives examine their data collection options, it is crucial that we move forward with an organized approach to data collection. Standardized data collection and data definitions are essential for the profession of midwifery and for the families midwives serve, in order to have a variety of data that are inter-related. Many students in midwifery education programs are entering their clinical data electronically³³ using Web-based systems and/or PDAs. This new generation of midwives will have the experience and knowledge to efficiently collect clinical practice data. They can make important contributions to established midwifery practices by assisting them in improving their data collection. The time has arrived for midwifery organizations to join together in developing a national midwifery database with a Web-based data collection interface that could be aggregated to capture a national snapshot of midwifery practice for policy makers as well as available to each practice for their own statistics.

Without documentation of the important work that midwives do and without data representing care practices and outcomes, midwives will not be able to realize their full potential for assisting women and families. Midwives will continue to be under-represented in health care policies and at key policy meetings. The lack of

clinical data can make midwifery practices vulnerable, at risk of closure, and subject to political decisions and whims. When midwifery practices close, women and families, especially those from vulnerable groups, have fewer care choices and less access to care. But when midwives join together, we all win.

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