Improving Midwifery Practice: The American College of Nurse-Midwives' Benchmarking Project

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Quality management in clinical practice involves the use of numerous techniques that monitor the quality of care clinicians provide. Quality improvement is an approach to quality management that emphasizes system and processes, rather than a focus on individual performance. Quality improvement examines objective data to improve these processes, even when high standards of performance appear to have been met. Benchmarking measures one's processes and outcomes against "best in class" and is a part of a quality improvement program. By using benchmarking to provide goals for realistic process improvement and identification of the most efficient and effective methods of meeting all of their customer's needs, health care providers can document their effectiveness in terms of cost, quality, and satisfaction. This article details the American College of Nurse-Midwives' benchmarking project and presents benchmarks for obstetric practice from the year 2004. J Midwifery Womens Health 2005;50:461–471 © 2005 by the American College of Nurse-Midwives.

Keywords: benchmarking, quality, quality improvement, midwifery

INTRODUCTION

Quality management has always been an important aspect of risk management in health care. Recent concerns related to the quality of health care in the United States include patient safety, error reduction, risk management, and the measurement of quality.[1–6] According to the author of a recent review of safety promotion and error reduction in perinatal care, "Prevalent cultures of blame and fear relative to error are counterproductive, and professional cultures that focus on best practices and patient safety must be developed."[1] Many recent studies have highlighted the fact that adverse incidents can be reduced by implementing a quality improvement program that includes benchmarking as a methodology for identification of best practices.[2–6] This article reviews quality management, quality improvement, and benchmarking and discusses how these techniques have been applied in the American College of Nurse-Midwives (ACNM) Benchmarking project.

BACKGROUND

The National Roundtable on Health Care Quality, which was convened by the Institute of Medicine in 1996, stated the need to "Identify issues related to the quality of health care in the United States, including its measurement, assessment, and improvement, requiring action by health care professionals. . . ."[2] However, major improvements in health care have been difficult to obtain because of an inability to develop satisfactory measurements of processes and/or outcomes and the intrinsic difficulties associated with producing change.[7] Process measurements track the ways in which care is provided. Outcome measurements directly examine the results of care. The 2001 Institute of Medicine report "Crossing the Quality Chasm: A New Health System for the 21st Century" stated that organizations can improve performance by incorporating outcome measures into daily work.[5] This would then make it possible to compare performance with best practices and to measure improvements in the care provided.

HISTORY OF QUALITY IMPROVEMENT

The monitoring of quality in health care is not new. It dates back to the Hippocratic Oath, which mandates that physicians "do no harm." Florence Nightingale (1820–1910), a pioneer of the nursing profession, was one of the first practitioners to document that quality management and improvement measures actually improved the health of those being cared for.[8] In medicine, Ernest Codman (1869–1940), a surgeon at Massachusetts General Hospital in Boston, Massachusetts, was a controversial figure because he suggested that hospitals, as well as individual practitioners, should measure and report the results of their work. Furthermore, he suggested keeping records so that comparisons could be made of the "end results."[9]

The science of defining and evaluating quality is more recent. In 1966, Avedis Donabedian (1920–2000) published the seminal article "Evaluating the Quality of Medical Care," which set out the now standard typology of 1) structure, 2) process, and 3) outcome of care as the three main objectives of quality assessment.[10] The modern quality improvement movement looks to the theories and approaches of Walter Shewhart, W. Edwards Deming, and Joseph Juran, who applied quality improvement methods to the world of manufacturing. Deming's work found wide acceptance in Japan in the1950s.[11] In the late 1970s and early 1980s, quality improvement became a corporate strategy in the United States for enhancing product or service quality, lowering costs, enhancing customer satisfaction, and improving profitability.

Midwives have always realized the importance of mon-

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itoring performance and being involved in quality management initiatives. Meticulous records were kept by the midwives of the Frontier Nursing Service (FNS), the first midwifery service established in the United States. Mary Breckinridge, the founder of FNS, thought the care provided by nurse-midwives would improve the outcome of a pregnancy, and she developed a strong thread of ongoing statistical accrual, which demonstrated the excellent outcomes of the care provided by the FNS midwives.[12] An analysis of the first 30 years of FNS (1925–1954) by the Metropolitan Life Insurance Company estimated that national adoption of the processes used at FNS would prevent about 60,000 perinatal deaths every year.[12]

WHAT IS QUALITY MANAGEMENT?

Quality management in midwifery practice encompasses all the established techniques that monitor and identify ways to improve the quality of the care midwives provide. The goal is to identify areas where practice varies from the established standard. Peer review, quality assurance, and quality improvement are all mechanisms for promoting and demonstrating the quality of health care provided to patients.

Peer Review and Quality Assurance

For the purposes of this article, peer review is the retrospective review by one type of professional, of the care provided by a like professional. Judgments can be made about the process of care as well as outcomes. Midwifery peer review follows the tradition of prospective, educational peer review in the absence of a suspected deficit in care. Quality assurance refers to the system of monitoring activities that evaluate care by identifying specific structural, process, and outcome indicators and measuring how performance relative to these indicators adhere(s) to a predetermined standard. This model focuses primarily on untoward events and problem practitioners rather than process and system failures.

Quality Improvement

Quality improvement is an approach to quality management that emphasizes system and processes indicators, rather than individuals, and examines objective data to improve these processes, even when high standards of performance appear to have been met. Benchmarking is a part of the quality improvement process.[7,13]

A key point in quality improvement is the systematic analysis of performance based on the balance that exists between quality, cost, and client satisfaction. This data analysis is used to identify trends and problem areas that exist, with the overall goal of looking for opportunities to improve the process, not to penalize a person. This takes quality beyond just problem solving to one of process improvement. Unlike quality assurance, which examines outcomes after the fact with an emphasis on the individuals providing the care, quality improvement places the emphasis on analysis of the process and how the process leads to the results. Improvements are made by streamlining processes, eliminating waste, using appropriate resources, and reducing errors in the process.

Health care started shifting the focus from quality assurance to quality improvement in the mid-1980s, with the National Demonstration Project on Quality Improvement in Health Care, led by Donald Berwick, MD, and Blanton Godfrey. This project partnered 20 experts from industrial quality improvement with 21 health care institutions for an 8-month project to translate industrial methods of quality improvement into health care.[14] Regulators supported this move from quality assurance to quality improvement, as is evident in a statement from the Joint Commission for Accreditation of Hospitals in 1992 that quality can be measured and therefore improved, even if it could not always be ensured.[15–17]

BENCHMARKING

Benchmarking is the process of comparing one's practice to the best in the field to identify the operational and clinical practices that lead to the best outcomes, including increased customer satisfaction, increased effectiveness, and increased efficiency.[18] The processes used by the "best practice" to obtain the superior outcomes can then be adapted to improve one's own processes and outcomes. Midwives can stimulate interest in making changes that previously were thought unnecessary or unachievable by learning a better way of doing something. In this way, benchmarking becomes a positive and proactive goal-setting process used to change operations. In addition, by using benchmarking to identify the most efficient and effective methods of meeting all of their customer's needs, midwives can document their effectiveness in terms of cost, quality, and satisfaction.[19]

The objectives of benchmarking are 1) to provide goals for continual and realistic process improvement based on demonstrated levels of performance; 2) to provide an understanding of the changes necessary to facilitate process improvement; 3) to enhance midwifery practice outcome

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Table 1. What is Benchmarking?

Benchmarking Is	Benchmarking Is Not
• an ongoing measurement and analysis process • an externally driven improvement process • a process of identifying best practice(s) • a goal-setting process • a mechanism for strategic planning • a tool for change	• a one-time event • merely the comparison of statistics among similar organizations • quality assurance • peer review

performance, including effectiveness, cost, and satisfaction; and 4) to implement best or better practices (Table 1).

It is important to benchmark midwifery practice with both the health care field and other industries, such as manufacturing, hotels, banks, and utilities. By looking at similar processes outside the box of health care, midwives can obtain breakthrough ideas. For example, after reviewing the hotel industry, many hospitals adopted the ideas of valet parking, concierge desks, and espresso carts in their lounges to improve customer satisfaction.

Traditionally, midwifery outcomes have been compared with traditional obstetric outcomes with favorable results for midwifery. However, this type of comparison does not assist midwives in improving practice because midwifery outcomes on standard measures, such as successful vaginal birth after cesarean (VBAC) rates, cesarean birth rates, or breastfeeding rates, are usually excellent compared with traditional obstetric care. On the other hand, the most relevant potential benchmarking partners, other midwifery practices, may feel uneasy sharing data regarding functions that may provide others a competitive edge. Benchmarking against practices in distant markets may be the most feasible option.

Advantages of Benchmarking

The advantages of benchmarking are numerous: 1) it avoids reinventing what already exists, 2) it is an ongoing measurement and analysis of quality, 3) it builds awareness of current capability versus best known capability, 4) it encourages people to move from a position of inertia to action, and 5) it creates tension for change.

Challenges of Benchmarking

The potential challenges of benchmarking include the following: 1) a forced change is not as effective as voluntary change, 2) performance goals can be set too high too fast and result in discouragement and frustration when the goal is not met, 3) not considering the characteristics of the different practices involved to take into account the philosophical or population differences, and 4) using "benchmarks" rather than "benchmarking," which does not provide insight into the process that achieved the "best" result.

THE AMERICAN COLLEGE OF NURSE-MIDWIVES BENCHMARKING PROJECT

The ACNM benchmarking project grew out of a need identified by the leaders of midwifery practices around the country. In the 1990s, American health care reimbursement changed from fee for service to fixed rates negotiated by contracting with insurers. Midwives were forced to examine and justify the cost of practice and to generate sufficient revenue to cover overhead. Many practices were held to productivity standards that were developed outside the profession. Midwifery leaders thought that there were flaws in the way these productivity standards were developed because the standards did not recognize that midwives practice in different settings and with different scopes of practice, which inherently produce different results. For example, an independent midwife who attends homebirths as well as births in hospitals and has an active office practice cannot conduct as many outpatient visits or conduct as many deliveries as a large group practice that staffs a midwife in the hospital 24 hours a day. It was uncertain if the productivity standards put forward by administrators were for midwives in full-scope practice or only those in outpatient practices. It became imperative that the midwifery profession develop its own productivity standards or benchmarks. At the same time, there was the opportunity to identify improvements in areas where midwifery has traditionally excelled.

In 1997, a team composed of six midwives who represented practices in hospitals, birth centers, and homebirth practices; researchers; educators; and clinicians was organized to develop a benchmarking program specific to midwifery. Seed money was provided by the Service Directors Network. One of the authors (JM) worked with the team using The Clinical Improvement Model[20] to move through the process.

Using the Clinical Improvement Model

The Clinical Improvement Model is a method of moving through process improvement. The model is based on setting a clear aim, identifying the process of care, and then generating change concepts and subsequent tests of change using the Plan-Do-Study-Act (PDSA) cycle. The PDSA or Shewhart Cycle follows the scientific process of identifying a problem, collecting data related to the issue, analyzing the data to determine the real causes of the problem, designing changes, testing the changes, and implementing the solution on a broad scale.[21] The ACNM Benchmarking Team used the first two steps of the Clinical Improvement Model to develop a benchmarking tool that individual practices could use.

Setting the Aim

The aim was to identify the outcomes that are important for nurse-midwifery care. To do this, a definition of quality

midwifery care needed to be developed. The team defined quality midwifery care as follows:

> *"Quality care advocates for, and provides easy access to, appropriate, satisfying, and cost-effective midwifery care, which empowers women to make positive life choices. Care is accessible when women are able to obtain care where and when they need it. Appropriate care is the right care, delivered at the right time, in the right amount, and is culturally-specific. Care is satisfying when the results of the care and the way in which it was delivered meet or exceed the woman's expectations. Cost-effective care is the most effective use of resources needed to achieve the desired outcomes."*[22]

Next, the team decided on the key quality characteristics for the process, which are indicators of quality that are most important to the customer for the process being studied. The customer(s) is defined as the patient, the organization that employs the midwife (if applicable), and the insurance companies that reimburse for the care provided by midwives.

The Value Compass, as described by Nelson et al.,[20] was used to help the team reach consensus on a limited number of key characteristics in each domain. The Clinical Value Compass describes the processes and outcomes of care in four domains or cardinal points displayed similarly to a directional compass:

1. Functional status includes physical function, mental health, role function, and other measures of health status indicators, such as perineal comfort, Apgar score, emotional well-being, success at breastfeeding, and patient age.
2. Costs include direct and indirect medical cost indicators, such as number of prenatal visits, length of stay, use of resources, and productivity indicators.
3. Satisfaction includes indicators of the patient satisfaction with the health care delivery process.
4. Clinical outcomes include mortality and morbidity indicators, such as VBAC success rates, cesarean birth rates, perineal integrity, prematurity, and low birth weight.

The team began by using brainstorming (nominal group technique) to generate a long list of possible measures in each of the value compass domains. Early in the process, approximately 75 measures were identified. These were reduced later by using a series of established ground rules and multivote, focusing on a few key measures that are of strategic importance to midwifery practice, such as high-risk, high-volume areas, and areas known to be significant and of the greatest interest to the customer. The ground rules were 1) the data collection tool could not be longer than one page and should be user-friendly; 2) data needed to be easy to collect; 3) data should be valid, reliable, and useful for improvement; 4) measures needed to be operationally defined; and 5) data should be consistent with other data already collected.

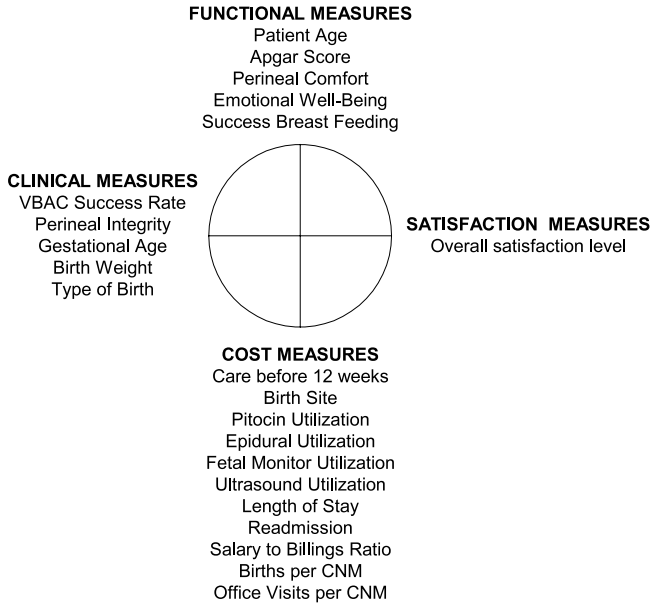

Figure 1. The value compass for nurse-midwifery care.

Other issues influencing the decision about key quality characteristics inclusion were the indicators of importance to other organizations, such as March of Dimes, National Committee for Quality Assurance (NCQA), The Health Plan Employer Data and Information Set (HEDIS), Joint Committee for Accreditation of Healthcare Organizations (JCAHO), Healthy People 2010, and American College of Obstetrician Gynecologists (ACOG).[16,17,23–25] The process resulted in 23 key quality characteristics listed in Figure 1. Each characteristic was defined to ensure consistency between practices (Appendix A). No satisfaction questionnaire could be found, which would collect the data on satisfaction, emotional status, and perineal pain, so the team developed a questionnaire specific to this project.

Identifying the Process of Care

The process of care provided by midwives needed to be understood because it is a critical success factor in proving productivity. Gynecologic and newborn care was not included in this initial process because the beginning and end points of those care practices were not as easy to define as obstetric care. The beginning of the process was defined as a woman becoming pregnant, and the end was 6 weeks' postpartum. The flowchart of the midwifery obstetric process is found in Figure 2.

After identifying the aim and process, the team developed a data collection tool for individual practices to use. The tool was based on the 23 key quality characteristics identified in the Value Compass. After a number of revisions, the individual data collection tool was changed to a Summary Data Collection Tool (Appendix B) because it

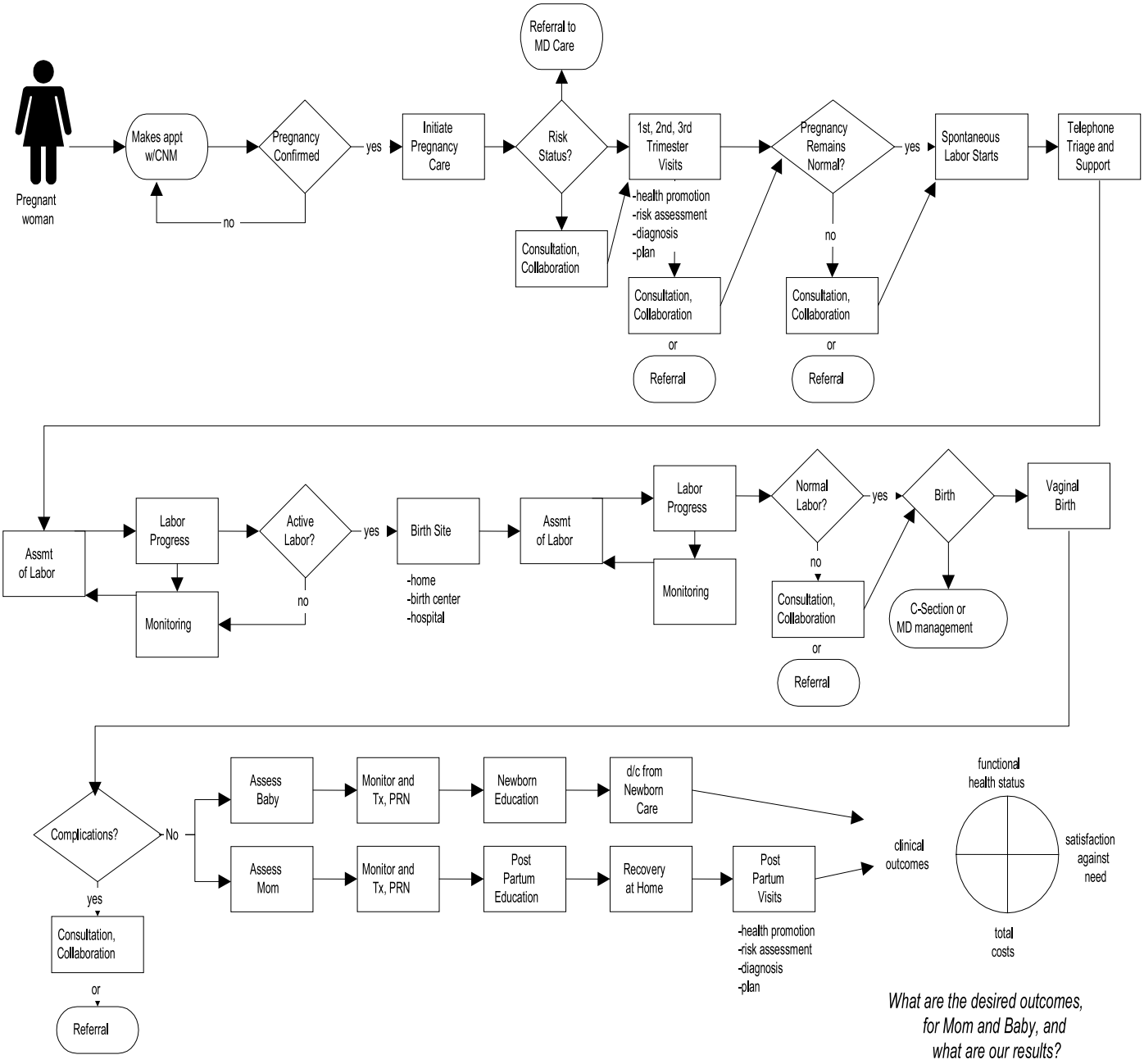

Figure 2. Flowchart of the midwifery obstetric process.

was thought that most practices already had a method of collecting individual data and only needed a tool for reporting the data at the end of the collection period.

Participating practices send in data at the end of each year. Each practice is assigned a code letter to maintain confidentiality. Only the coordinator of the project knows the identity of the practice based on the code letter. Data on each key quality characteristic or indicator are summarized, and ranges and the 25th and 90th percentile for each, are calculated. Judgments are not made on what the "best practice" is for each indicator because there is wide variation in customer expectations across the country. For example, should the "best practice" be the one with the lowest or highest number of prenatal visits per patient? Each participating practice is sent a report reflecting their standing for each year of participation, as well as the range and 25th and 90th percentiles for each indicator. This allows each practice to make an individual decision regarding where "best practice" was for their area and type of practice.

ACNM BENCHMARKING PROJECT SUMMARY FOR 2004

In February 2005, data for the year 2004 was received and summarized. Forty-five practices participated, including 227

certified nurse-midwives (CNMs) who conducted 23,375 deliveries. Twenty practices reported outpatient visits, and 12 practices reported relative value units. This population represented homebirth, hospital birth, birth center, faculty, and private practices. A sample report for the data year 2004 is found in Figure 3.

Once a practice receives its report, the midwives in that practice can identify areas that need improvement based on how the practice compares with the overall benchmarks. By carefully studying the differences between the "best" processes and the individual midwifery group's current process on certain key indicators, the possibility of a new way of providing care can be identified.[26] To do this, there must be a conversation with the "best practice" to gain a thorough understanding of the process used to obtain superior performance. From this understanding, specific strategies for improvement can be identified and then implemented.

ADAPTATION OF "BEST PRACTICES"

Adapting best practices is not to be confused with copying best practices.[27] Each midwifery practice's culture, resources, reimbursement levels, and client expectations will affect how best practices can be most effectively implemented.

Case Example of Benchmarking to Improve Breastfeeding Rates

The following is an example of a practice improvement that was actualized through the benchmarking process. One of the practices that participated in the benchmarking project, practice 2B, identified a low rate of breastfeeding (40%) at 6 weeks' postpartum. Other practices that participated had a range of breastfeeding rates between 18% and 100% (25th percentile = 53%, 50th percentile = 83%, 90th percentile = 94%). Practice 2B was below the 25th percentile compared with the other practices that participated in the benchmarking. With permission, practice 2B contacted the best practice for the breastfeeding indicator, practice 3K. Practice 3K used the following processes to encourage patients to breastfeed: 1) discussed one breastfeeding advantage at every prenatal visit, 2) encouraged every woman to breastfeed within 1 hour of delivery, 3) strong breastfeeding support from postpartum nursing staff, 4) a follow-up phone call within 1 week of delivery, 5) 24-hour availability of support from a lactation consultant, and 6) supportive family members.

Practice 2B then used the Plan-Do-Study-Act cycle to improve their process.

- Plan: Practice 2B planned to implement three of the processes used by practice 3K. The goal was to increase the 6-week postpartum breastfeeding rate by 10% (50th percentile benchmark) within the next 3 months.
- Do: The following interventions were started: 1) discussion of one breastfeeding advantage at every prenatal visit, 2) all women were encouraged to breastfeed within 1 hour of delivery, and 3) a follow-up phone call was made within 2 days of discharge and 1 week later if needed.
- Study: Data were collected 6 months later, revealing that the 6-week postpartum breastfeeding rate had increased to 56%.
- Act: Because there was a positive change, the decision was made to continue the interventions for another 6 months and then reevaluate to determine if there would be more opportunity for improvement.

Case Example of Provider Profiling

Provider profiling is essentially internal benchmarking. Rather than comparing overall practice statistics with other practices, each individual provider is compared within a group. One of the participating practices, practice 3D, identified a high rate of third- and fourth-degree perineal lacerations in their practice. Practice 3D talked with practices 3C and 4B, which had the lowest rate of third- and fourth-degree lacerations but could not identify any specific process that might account for their superior performance, because each midwife seemed to have a different technique for prevention of third- and fourth-degree lacerations. Practice 3D internally benchmarked each midwife in the practice to see if there was any variation (Figure 4). From this finding, CNM 7 was identified as an outlier, and CNM 5 was identified as having the lowest rate of the group, or the "best practice."

- Plan: Practice 3D decided to review the literature related to prevention of third- and fourth-degree perineal lacerations as well as review CNM 7's process for prevention. The literature review and the best practices of midwife 5 were presented at the next midwifery group meeting. The goal was to decrease the overall third- and fourth-degree laceration rate to 3% (50th percentile benchmark) within the next 3 months.
- Act: The information from the literature review was presented, along with the graph of the individual rates for each midwife in practice 3D, and CNM 5 gave a detailed description of her method of delivery and perineal support. Everyone was encouraged to consider the process used by CNM 5.
- Study: Data were collected 3 months later. It showed that the overall group rate had decreased to 2.8%, and the individual rate of CNM 7 significantly decreased to fall within the same range as the other midwives.
- Do: Because there was a positive change, no further action was needed other than periodic monitoring.

Limitations of the ACNM Benchmarking Project

There are two main limitations to the ACNM benchmarking project: 1) the number of practices participating represents approximately 10% of the country and may not be reflective of all practices, and 2) a number of practices reported fewer than

Representative ACNM Benchmarking Report

Clinical Measures

Mom

NSVD (incl VBAC)	**2003 data**	2004 data
Our Practice	85.1%	88.1%
Range	72.9 - 96.8%	67.9-93.3%
25th Percentile	79.6%	78%
90th Percentile	89.7%	89.9%

Successful VBAC	**2003 data**	2004 data
Our Practice	67.9%	70.6%
Range	0.0 - 100%	0-100%
25th Percentile	62.5%	65.2%
90th Percentile	100.0%	100%

Assisted Delivery	**2003 data**	2004 data
Our Practice	0.9%	2.4%
Range	0 - 7.8%	1-12.5%
25th Percentile	0.8%	1.7%
90th Percentile	5.1%	6.8%

Primary C/S	2003 data	2004 data
Our Practice	11.1%	6.8%
Range	0 - 23.7%	1.9-26.3%
25th Percentile	7.0%	7.2%
90th Percentile	12.9%	16.4%

Failed VBAC	2003 data	2004 data
Our Practice	1.2%	1.2%
Range	0.0 - 6.9%	1-5.7%
25th Percentile	0.7%	0.6%
90th Percentile	3.0%	1.7%

Elective Repeat	2003 data	2004 data
Our Practice	1.2%	1.3%
Range	0 - 7.9%	0-14.4%
25th Percentile	0.0%	0%
90th Percentile	6.4%	7.8%

3rd or 4th degree lac	2003 data	2004 data
Our Practice	3.0%	2.3%
Range	0.0 - 15.9%	0-7.4%
25th Percentile	1.1%	1.9%
90th Percentile	6.9%	4.4%

Intact Perineum	2003 data	2004 data
Our Practice	43.6%	45.2%
Range	27.4 - 94%	3-81.3%
25th Percentile	37.0%	41.7%
90th Percentile	64.8%	68.3%

Lac with repair	2003 data	2004 data
Our Practice	40.6%	42.3%
Range	5.8 - 59.9%	16-71.7%
25th Percentile	34.9%	31.6%
90th Percentile	56.3%	55.5%

Episiotomy	2003 data	2004 data
Our Practice	12.9%	10.2%
Range	0.0 - 15.9%	1-18.6%
25th Percentile	3.8%	2.5%
90th Percentile	11.3%	10.1%

Baby

Gestational Age > 37 wks	2003 data	2004 data
Our Practice	91.0%	93%
Range	70.0 - 100%	89.5-100%
25th Percentile	93.4%	93%
90th Percentile	97.7%	98%

Birth Weight > 2500 grams		2004 data
Our Practice	91.0%	90%
Range	91.0 - 100%	86.2-100%
25th Percentile	95.2%	94%
90th Percentile	100.0%	99%

NICU Admissions	2003 data	2004 data
Our Practice	7.0%	8%
Range	0.0 - 7.7%	1-12%
25th Percentile	0.0%	1.8%
90th Percentile	6.7%	9.6%

Functional Measures

Mom

Perineal (score of 3)	**2003 data**	2004 data
Our Practice	92.0%	83%
Range	85.2 - 100.0%	83-100%

Well-Being (score of 3)	**2003 data**	2004 data
Our Practice	44.0%	69%
Range	0.0 - 77.9%	59.3-89%

Breast Feeding at 6 wks	**2003 data**	2004 data
Our Practice	45.0%	53%
Range	18.0 - 100.0%	18-100%
25th Percentile	53.5%	59%
90th Percentile	93.6%	95%

Cost measures

Start Prenatal Care<12wks		2004 data
Our Practice	60.0%	50%
Range	10.0 - 97.0%	38-99%
25th Percentile	55.6%	61.3%
90th Percentile	88.2%	90.3%

Pitocin Induction	**2003 data**	2004 data
Our Practice	12.0%	19%
Range	0.0 - 30.2%	0-43%
25th Percentile	5.0%	8%
90th Percentile	22.9%	22%

Epidural for labor	**2003 data**	2004 data
Our Practice	28.0%	33%
Range	0.0 - 73.8%	0-76.4%
25th Percentile	19.8%	20.9%
90th Percentile	50.1%	54.1%

Continuous EFM	**2003 data**	2004 data
Our Practice	71.0%	75%
Range	1.5 - 100.0%	0-100%
25th Percentile	37.0%	33.9%
90th Percentile	81.0%	92%

LOS	2003 data	2004 data
Our Practice:		
12 - 24 hr	0.0%	n/a
> 36 hr	0.0%	n/a
Range:		
12 - 24 hr	0.0 - 98.0%	0-71.8%
> 36 hr	0.0 - 100.0%	1-100%

Ultrasound	2003 data	2004 data
Our Practice:		
0 scans	0.0%	0.0%
1 scan	0.0%	70%
2 scans	0.0%	25%
> 2 scans	0.0%	5%
Range:	2003 data	2004 data
0 scans	0.0 - 68.0%	0-88%
1 scan	0.0 - 97.0%	7-100%
2 scans	1.0 - 99.0%	0-56%
> 2 scans	0.0 - 44.0%	0-47.9%

Readmission	2003 data	2004 data
Our Practice	0.0%	0.0%
Range	0.0 - 4.0%	1-2.3%

Prenatal Visits (avg #)	**2003 data**	2004 data
Our Practice	0.0	n/a
Range	7 - 13	8-14

Postpartum Visits (avg #)	**2003 data**	2004 data
Our Practice	n/a	n/a
Range	1 - 3	1-4

Baby LOS same Mom	2003 data	2004 data
Our Practice	99.0%	98%
Range	92-100%	87-100%

Readmission	2003 data	2003 data
Our Practice	0.0%	n/a
Range	0.0 - 3.7%	0-8.9%

Practice Measures

Billings/Gross Salary/Yr		2004 data
Our Practice	4.12	4.06
Range	2 - 6	1-9
25th Percentile	2.5	2.8
90th Percentile	5.4	5.0

Births to CNM FTEs	2003 data	2004 data
Our Practice	112.0	100.1
Range	27 - 189	28-203
25th Percentile	58.1	66
90th Percentile	140.7	129.5

Total OP visit/CNM	2003 data	2004 data
Our Practice	1,133.6	1,095
Range	214 - 4,403	342-5,084
25th Percentile	949.7	1,057.8
90th Percentile	2,223.1	2,231.8

Work RVU/CNM	2003 data	2004 data
Our Practice	2,907.25	1,617.28
Range	1,093 - 4,553	946-5,404
25th Percentile	1640.00	1,879.07
90th Percentile	3977.54	3971.72

Figure 3. Representative ACNM Benchmarking Report

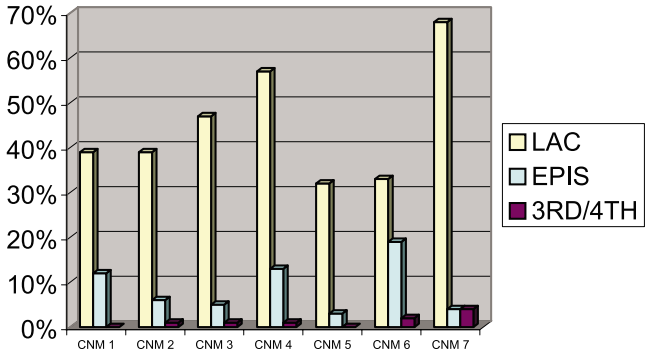

Figure 4. Practice D internal benchmarking of perineal integrity. LAC = perineal lacerations; EPIS = episiotomy; 3rd/4th = third- or fourth-degree lacerations.

100 births per year, which may have distorted the overall benchmark.

RECOMMENDATIONS

National benchmarking of midwifery practice is a useful tool for practice improvement and risk reduction.[28,29] Several changes will improve the process: 1) increasing midwives' awareness of the opportunity to participate in national benchmarking; 2) developing a Web-based reporting mechanism to facilitate data collection and analysis; 3) increasing the number of participating practices to improve the representation for all the variations in practices around the country; 4) benchmarking practices in subgroups that have similar settings, resources, and population demographics; 5) using achievable benchmarks of care as described by Weissman et al. to reduce variance based on practice size.[30] The achievable benchmarks of care represent the average performance for the top 10% of practices and make adjustments to allow inclusion of practices with small numbers of patients without unduly distorting the overall benchmark; 6) evaluating the current benchmarks measured for continued relevancy; 7) surveying participating practices to identify areas where the benchmarking project can improve; and 8) publishing detailed examples of "best practices."

SUMMARY

By learning that a much better way of doing something may be possible, midwives can stimulate interest by making changes that previously were thought unnecessary or unachievable. In this way, benchmarking becomes a positive and proactive goal-setting process used to change practice. In addition, by accepting responsibility for managing care and cost and using benchmarking to identify the most efficient and effective methods for meeting all of their customer's needs, midwives will be able to document their effectiveness in terms of cost, quality, and satisfaction. The resulting improvement in quality of care rendered will reduce medical errors and liability risk. Promotion and evaluation of high quality care are priorities for the midwifery profession. Midwives who value their autonomy must accept the responsibility for maintaining high standards of practice.

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UPDATE: ACNM BENCHMARKING PROGRAM

Beginning in February, 2006, midwifery practices participating in the ACNM Benchmarking Program will be able to submit data to the ACNM national office using an on-line survey system.

The ACNM Benchmarking Program was developed to help practices improve and maintain the quality of midwifery care provided to women and children by promoting member awareness of "best practices" in midwifery care. To facilitate this, members are encouraged to participate in benchmarking their practice against other midwifery practices in the country.

Data is submitted once a year, in February, for the time period January-December of the preceding year. During 2005, management of the Benchmarking Program is transitioning from a volunteer-run program to one administered by staff in the ACNM national office. Look for further information from ACNM on the web site (*www.midwife.org*) and via e-mail to members.

Appendix A. Definition of Terms Used for Data Collection

Clinical measures

NSVD: all normal vaginal births including VBAC's
VBAC: record separately any vaginal birth after a previous cesarean section
Assisted delivery: vacuum extraction or forceps delivery
Primary cesarean Delivery: first cesarean delivery for this patient
Failed VBAC repeat cesarean: a cesarean delivery after a trial of labor after a previous cesarean birth
Elective repeat cesarean: a cesarean delivery after a previous cesarean birth without attempting labor
Birth canal: condition of perineum or vulva after delivery
Intact laceration no repair: intact or small lacerations that do not require repair, no episiotomy
Laceration with repair: first or second degree lacerations that require repair
Third or fourth degree laceration: laceration requiring repair of the capsule, sphincter, or rectal mucosa
Gestational age at birth: age of baby at birth in weeks (<37 weeks is considered preterm)
Birth weight: weight of baby in grams (<2500 g is considered low birth weight)
NICU admission: any admission to a level 2 or level 3 nursery for any length of time

Functional measures

Breastfeeding: any amount of breastfeeding at 6 weeks postpartum
Perineal comfort: Patient's perception of perineal discomfort at 6 weeks postpartum (on a scale of 1–3, 1 = painful, 2 = a little sore, 3 = normal) from postpartum satisfaction questionnaire
Emotional well-being: patient's perception of adjustment to role as mother at 6 weeks postpartum (on a scale of 1–3, 1 = feeling very stressed, 2 = some ups and downs, 3 = great) from PP satisfaction questionnaire
Apgar: baby's apgar score at 5 minutes after birth

Satisfaction measures

Patient: total score of questions 1–7 (highest score = 21) from postpartum satisfaction questionnaire

Cost measures

Started prenatal care: gestational age patient started prenatal care
Prenatal visits: number of office visits this pregnancy conducted by CNM or designee at any site
Homebirth: delivery in patient home
Birth center: delivery in an NACC-accredited birth center
Hospital: any level hospital
Pitocin induction: use of Pitocin for the purpose of initiating labor excluding augmentation of labor
Epidural: use of epidural, including intrathecal for labor pain relief (excluding epidural for cesarean delivery or assisted delivery)
Continuous EFM: any continuous electronic fetal heart rate monitoring through active labor (after initial admission strip) with the intention of leaving the monitor on until delivery
Ultrasound: number of ultrasounds this pregnancy
LOS (maternal): hours from delivery to discharge (homebirths will have hours CNM remains in the home after delivery)
Readmission (maternal): unplanned readmission to hospital within 14 days for any obstetric reason
Postpartum visits: home visits or office visits by a CNM up to 6 weeks postpartum
LOS (infant): hours from delivery to discharge
Readmission (infant): unplanned readmission to hospital within 14 days

Practice measures

CNM full-time equivalents (FTEs) in practice: number of CNM FTEs assigned to practice including the director's clinical and administrative time
Billings: total professional fees billed for the CNMs in the practice for the review period. If you have a contract with a clinic to provide services but you don't bill for those services, then the revenue from that contract would be included in here.
Births: total births attended by the CNMs in the practice for the review period including transfers in labor
Outpatient visits: total obstetric and gynecology outpatient visits conducted by all the CNMs for the review period
Salary: total salaries (excluding benefits) for all the CNMs in the practice for the review period. For example, if the average CNM salary is \$55,000/year, and you have 4.5 FTEs, then the total salary expense would be \$55,000 × 4.5 = \$247,500/year.
Total work RVU: using the Health Funding Authority (HFA) National Physician Fee Schedule values, only total the work RVUs for all the CNMs for all the work.

Clinical Measures					Functional Measures		
Mom			Baby		Mom		
Type of Birth:	(Number)	%	**Gestational Age at Birth:**		**% Breast Feeding**		
% NSVD (including VBAC)			% < 37 wks		**Perineal Comfort:**		
% Successful VBAC			% ≥ 37 wks			% scoring 1	
% Assisted Delivery			**Birth Weight:**			% scoring 2	
Cesarean:			% < 2500 grams			% scoring 3	
% Primary			% ≥ 2500 grams		**Emotional Well-Being:**		
% Failed VBAC Repeat			% NICU admission			% scoring 1	
% Elective Repeat						% scoring 2	
Birth Canal:						% scoring 3	
% Intact					**Patient Age:**		
% Laceration with repair						% ≤ 18	
% Episiotomy						% ≥ 35	
% 3rd or 4th degree laceration					**Baby: Apgar** (at 5 minutes)		
Cost Measures					% scoring 0 - 3		
Mom			Baby		% scoring 4- 6		
% Starting Prenatal Care at			**LOS**		% scoring 7-10		
or before 12 wks			% Same as Mom		**Satisfaction Measures**		
Prenatal Visits (average #)			% Longer than Mom		Patient Satisfaction Score		
Birth Site:			% Readmission		(Avg of questions #1-7)		
% Home							
% Birth Center			**Practice ID Data**				
% Hospital			Facility:				
Resource Utilization:			Contact Person:				
% Pitocin Induction			Mail Address:				
% Epidural for labor							
% Continuous EFM			Email Address:				
Ultrasound:			**Practice Measures**				
% none			Billings/Year				
% one			Births/Year				
% two			CNM FTEs in practice				
% > two			Total Outpatient Visits/year				
LOS:			Gross Salary/year				
% <12 hours			Total Work RVU/year				
% >24, <36 hours			**Comments**				
% >36 hours							
% Readmission							
Postpartum Visits (average #)							